7-29-2010

City of Pocatello v. Idaho Clerk's Record v. 8 Dckt. 37723

CITY OF POCATELLO

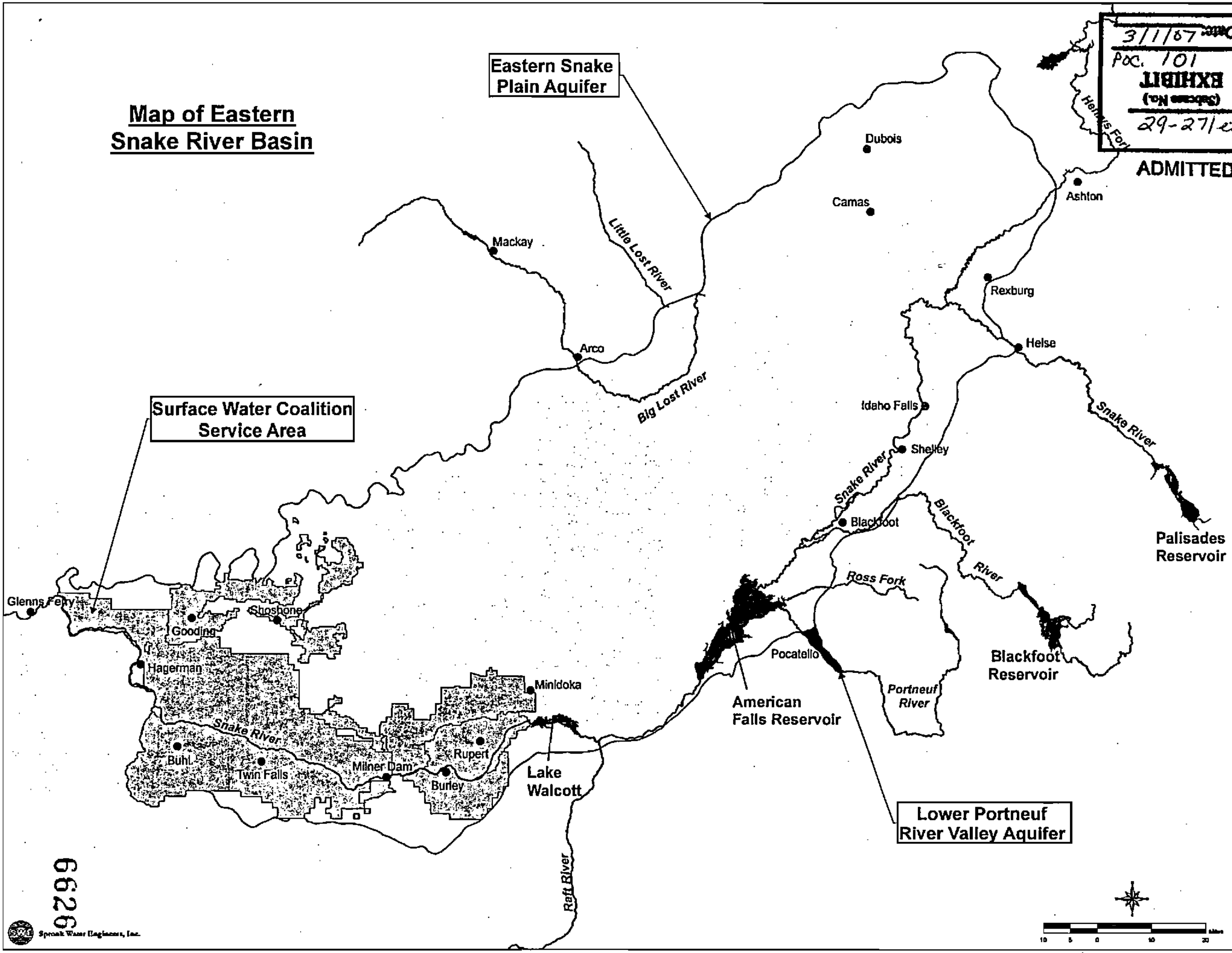
EXHIBIT 101

Map of Eastern Snake River Basin (oversized)

Subcase Nos.

all 38

Map of Eastern Snake River Basin



3/1/07 Date
Doc. 101
EXHIBIT
(Subcase No.)
29-271 et.al
ADMITTED

6626

CITY OF POCATELLO

EXHIBIT 102

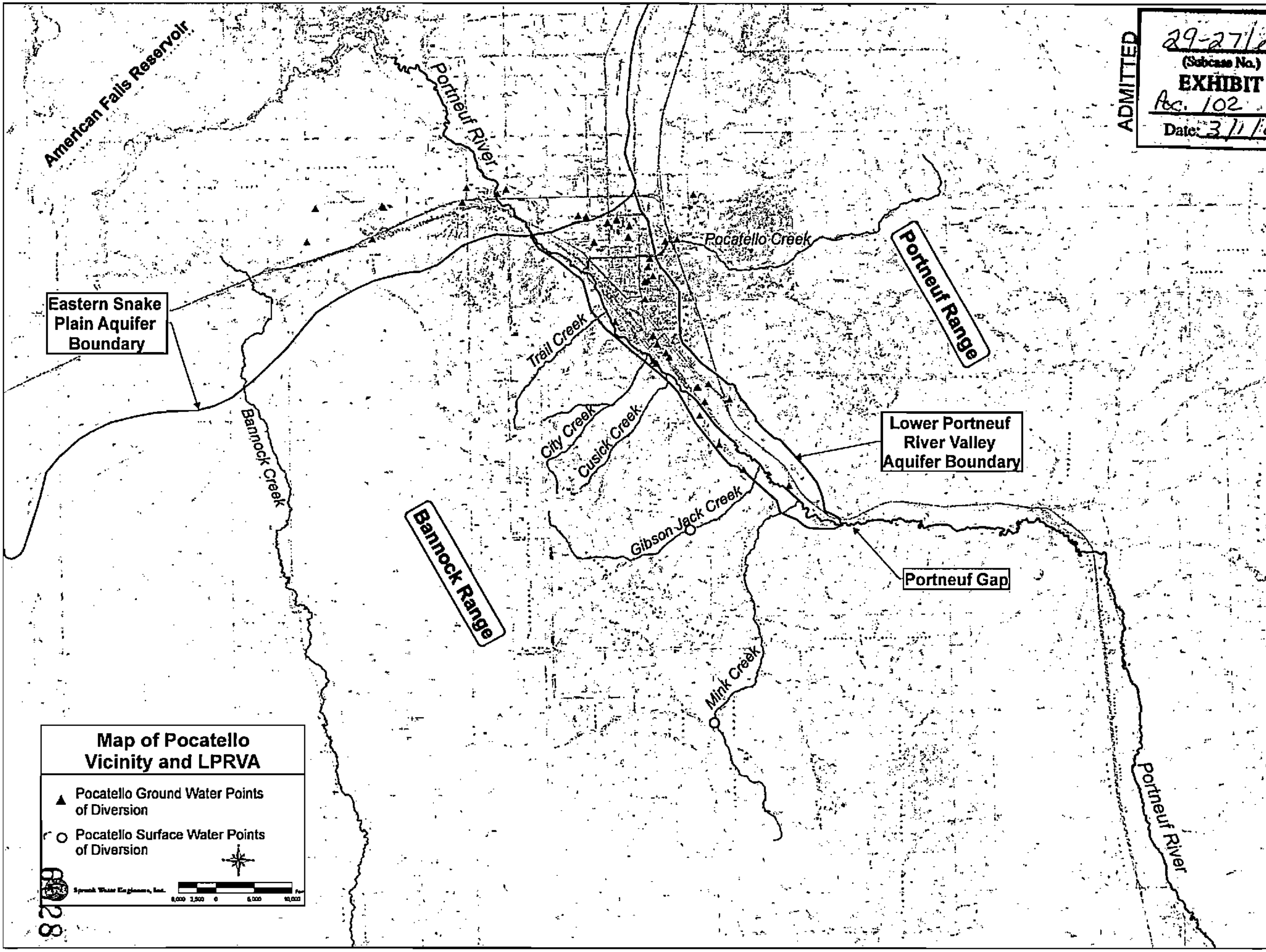
Map of Pocatello Vicinity and LPRVA (oversized)

Subcase Nos.

all 38

ADMITTED

29-27/etal
(Subcase No.)
EXHIBIT
Poc. 102
Date: 3/1/07



CITY OF POCATELLO

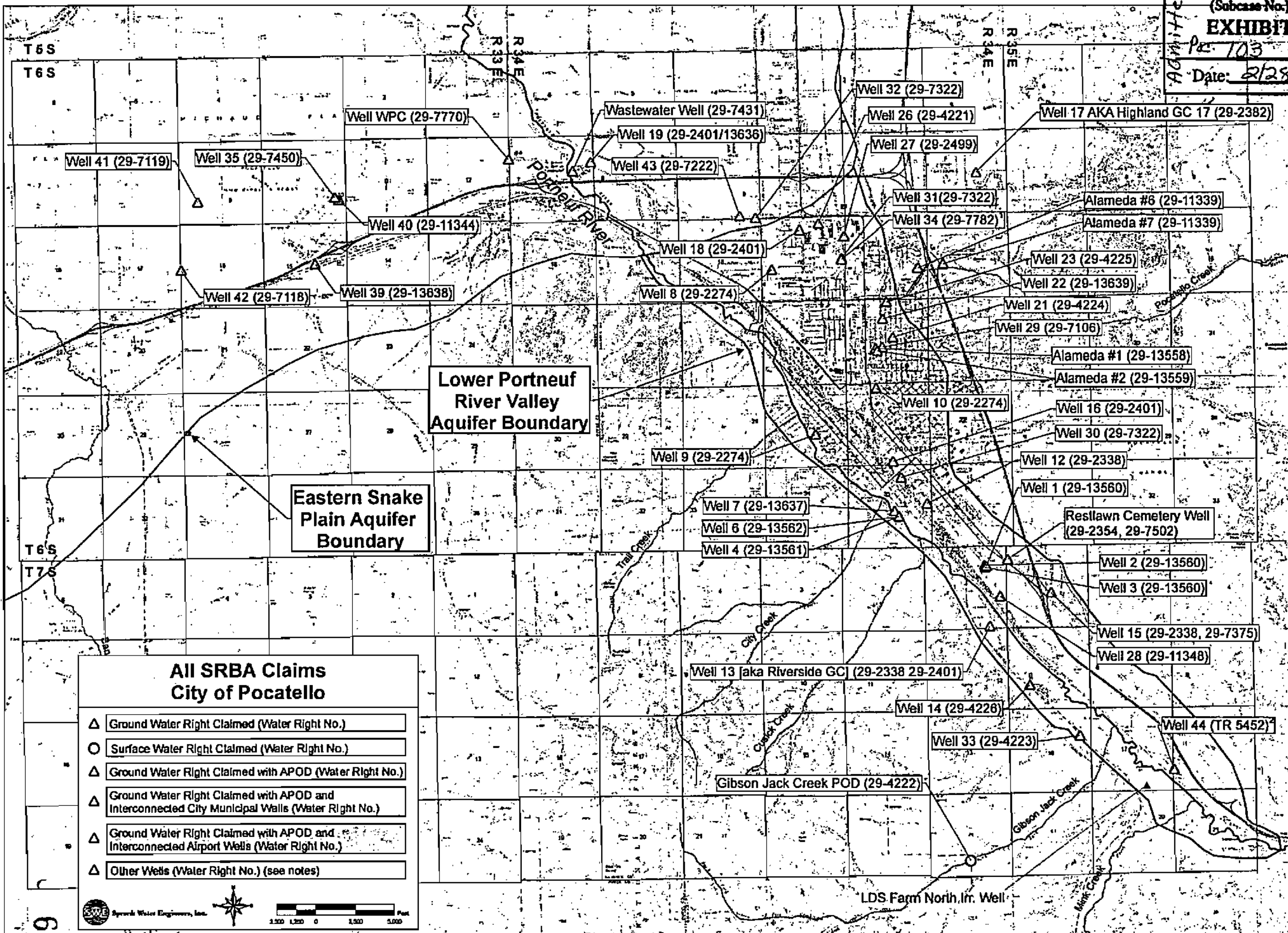
EXHIBIT 103

Map of All SRBA Claims, City of Pocatello (oversized)

Subcase Nos.

all 38

24-271 et al
(Subcase No.)
EXHIBIT
Pe 703
Date: 2/28/07
Admitted



Notes:
(1) Well 34 is a pre-1987 interconnected City well recommended as an alternate point of diversion for 16 water rights. The original water right for Well 34 (29-7782) is recommended with only one point of diversion at Well 34.
(2) Well 44 is a post-1987 interconnected City well; and it is an alternate point of diversion for Transfer 5452.

CITY OF POCATELLO

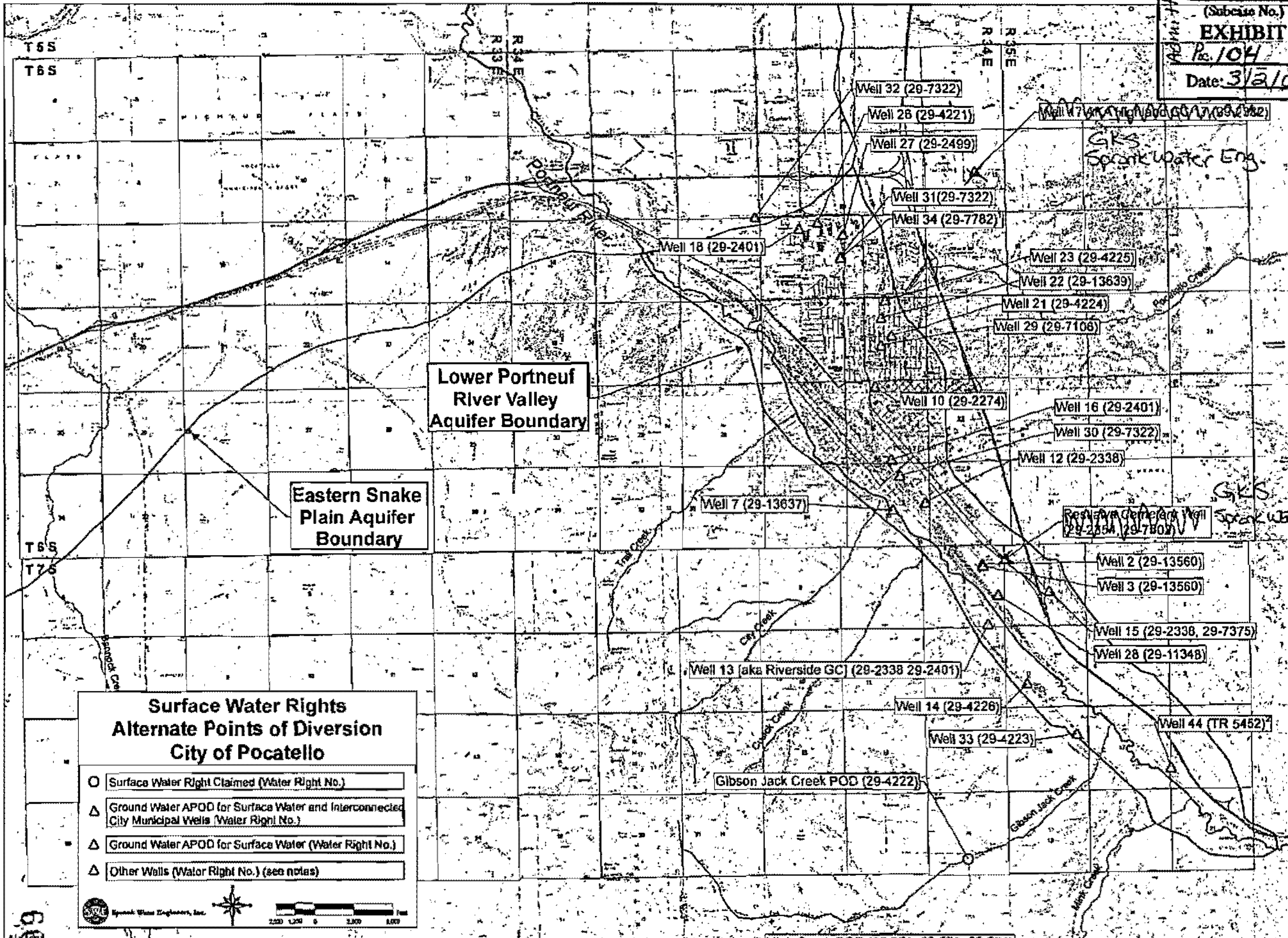
EXHIBIT 104

Map of Surface Water Rights Alternate Points of Diversion, City of Pocatello (oversized)

Subcase Nos.

all 38

29-271 et al.
(Subcase No.)
EXHIBIT
Admitted Pic. 104
Date: 3/2/07



Notes:
(1) Well 34 is a pre-1987 interconnected City well recommended as an alternate point of diversion for 16 water rights. The original water right for Well 34 (29-7782) is recommended with only one point of diversion at Well 34.
(2) Well 44 is a post-1987 interconnected City well; and it is an alternate point of diversion for Transfer 5452.

CITY OF POCATELLO

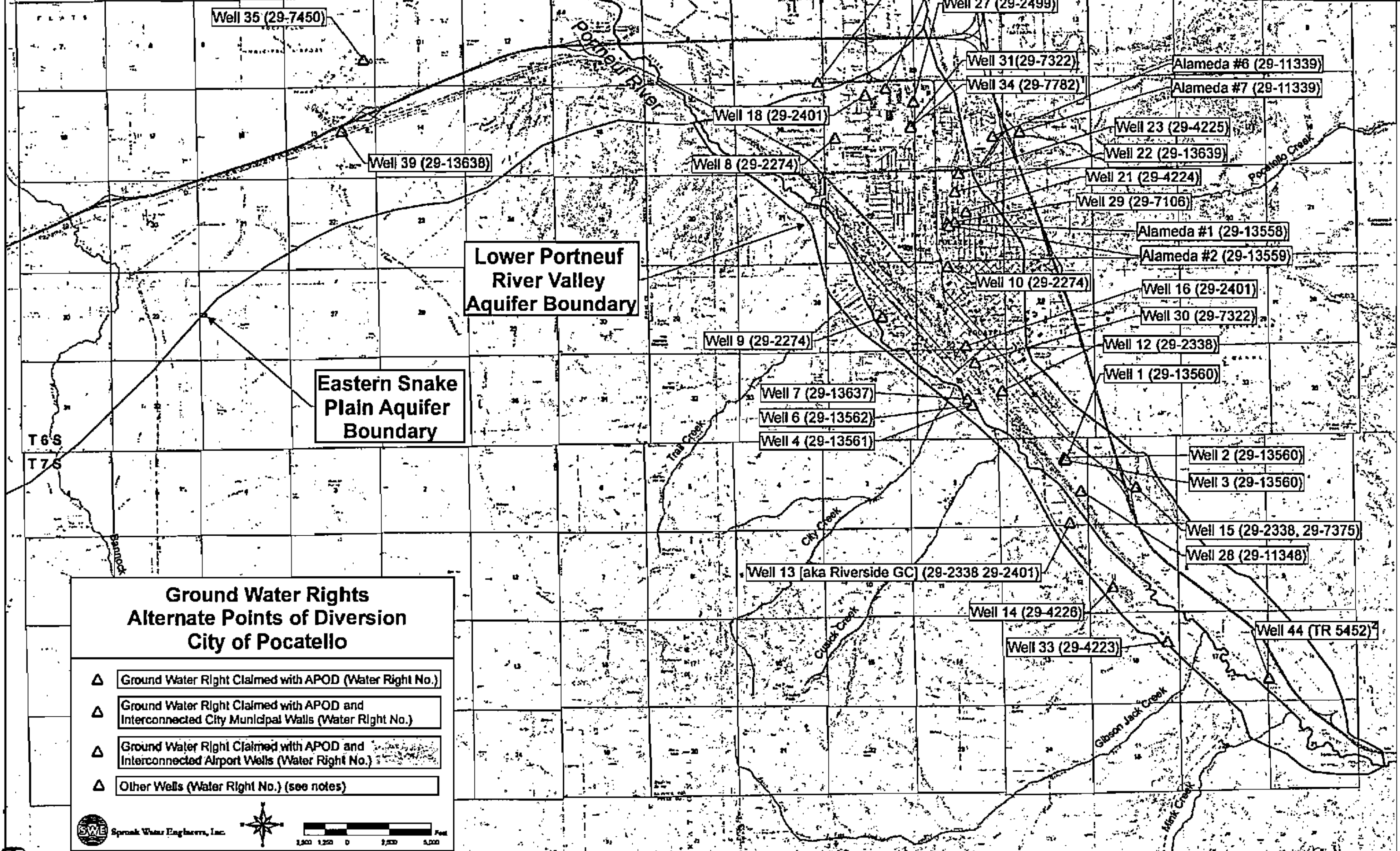
EXHIBIT 105

Map of Ground Water Rights Alternate Points of Diversion, City of Pocatello (oversized)

Subcase Nos.

all 38

29-271 etal
(Subcase No.)
EXHIBIT
POC 105
ADMITTED
Date: 3/2/07



Notes:
(1) Well 34 is a pre-1987 interconnected City well recommended as an alternate point of diversion for 18 water rights. The original water right for Well 34 (29-7782) is recommended with only one point of diversion at Well 34.
(2) Well 44 is a post-1987 interconnected City well, and it is an alternate point of diversion for Transfer 5452.

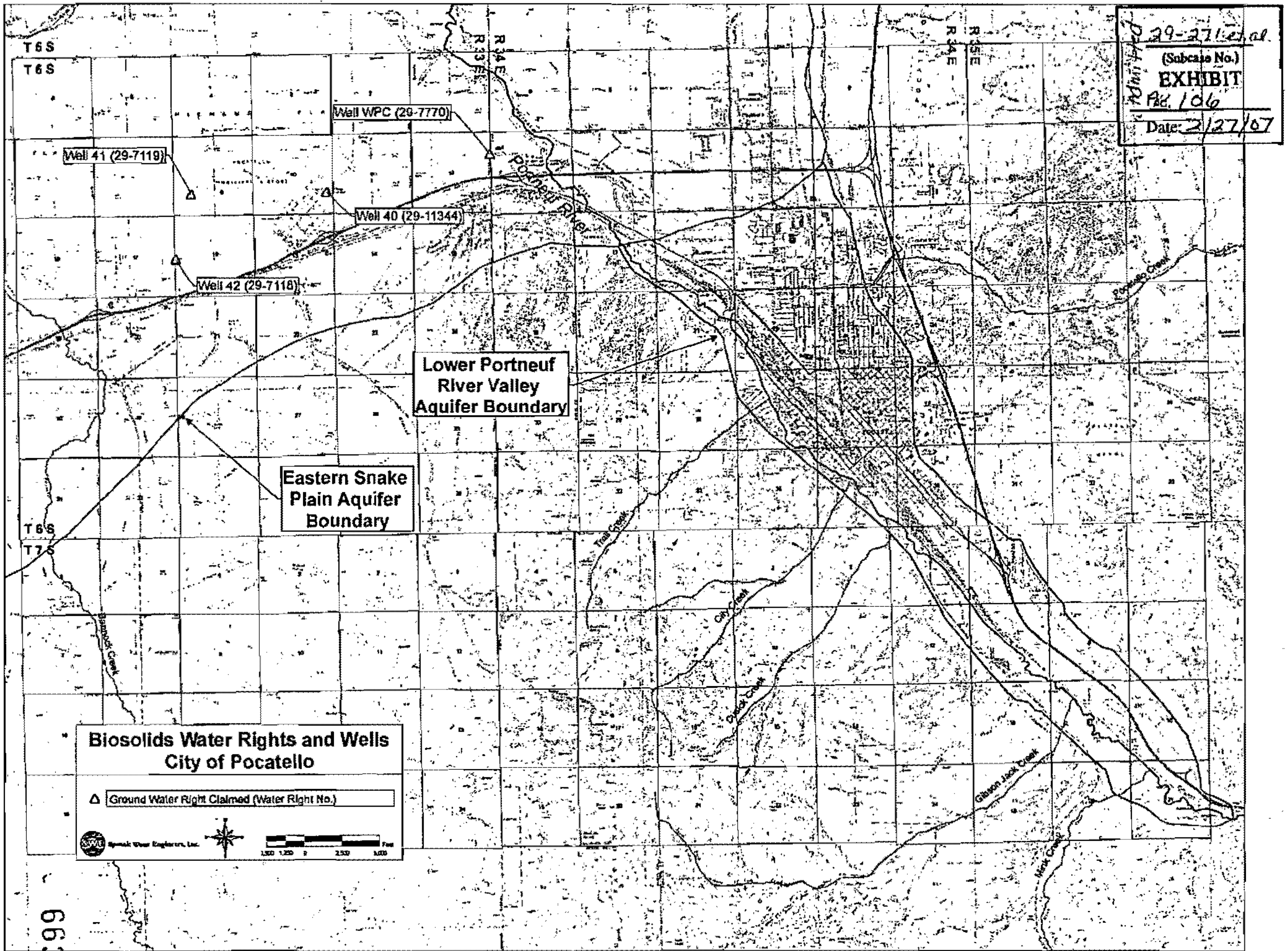
CITY OF POCATELLO

EXHIBIT 106

Map of Biosolids Water Rights and Wells, City of Pocatello (oversized)

Subcase Nos.

29-7118
29-7119
29-7770


29-271 et al
(Subcase No.)
EXHIBIT
Pt. 106
Date: 2/27/07
T 6 S
T 6 S
R 33 E
R 34 E
R 34 E
R 35 E
Well WPC (29-7770)
Well 41 (29-7119)
Well 40 (29-11344)
Well 42 (29-7118)
Portneuf River
Pocatello Creek
Lower Portneuf River Valley Aquifer Boundary
Eastern Snake Plain Aquifer Boundary
T 6 S
T 7 S
Trail Creek
City Creek
Cusick Creek
Bannock Creek
Gibson Jack Creek
Mink Creek
Biosolids Water Rights and Wells
City of Pocatello
Ground Water Right Claimed (Water Right No.)
Spronk Water Engineers, Inc.

CITY OF POCATELLO

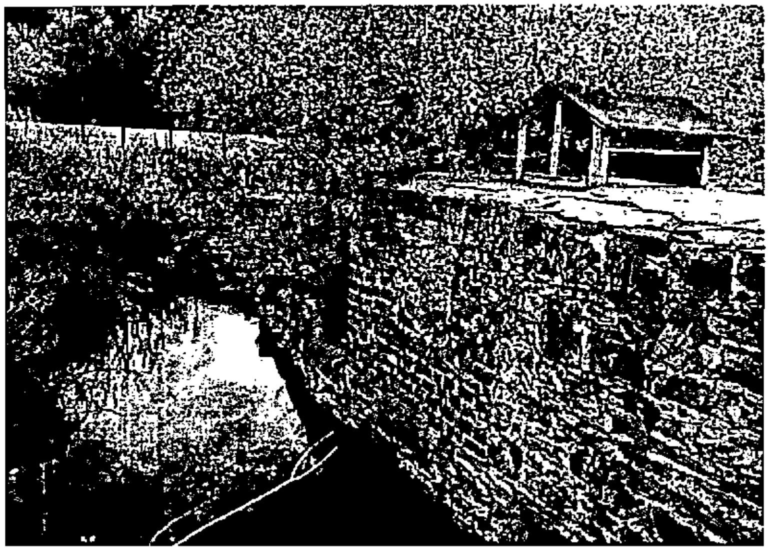
EXHIBIT 107

Photographs of surface water diversions and wells

Subcase Nos.

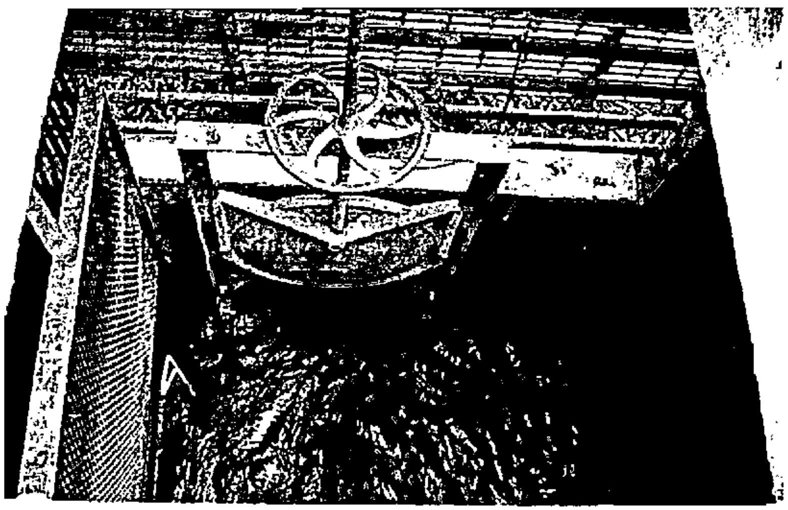
all 38

Photographs of Surface Water Diversions and Wells
City of Pocatello

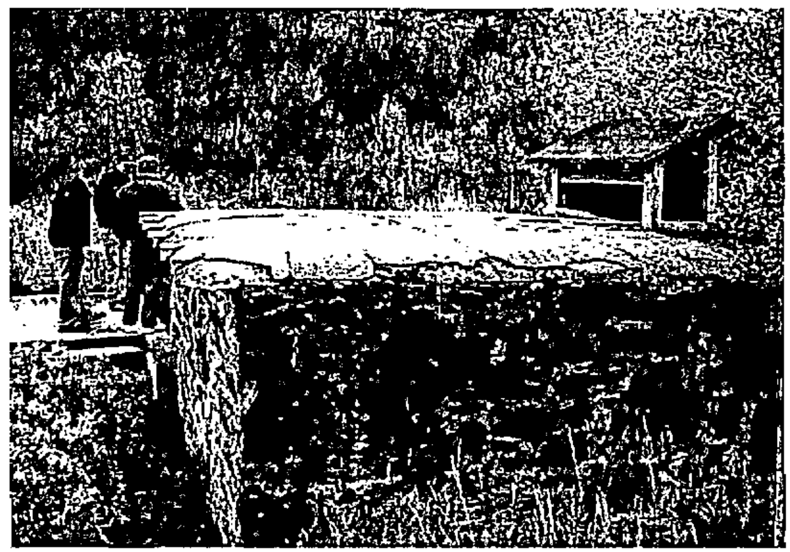


Diversion structure, Mink Creek

Diversion structure, Mink Creek

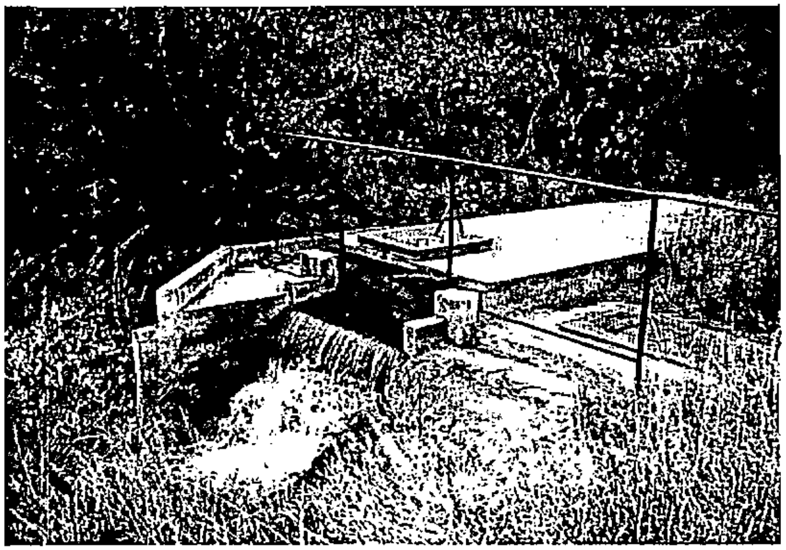


Headgate, Mink Creek

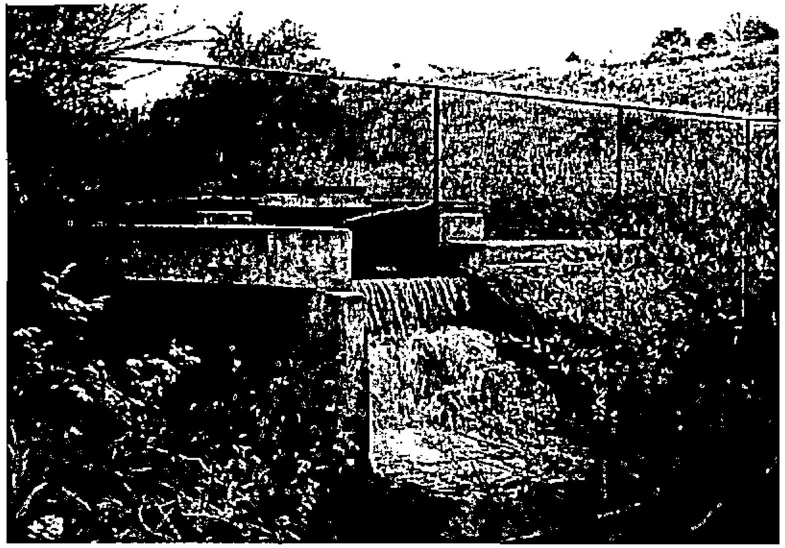


Diversion structure, Mink Creek

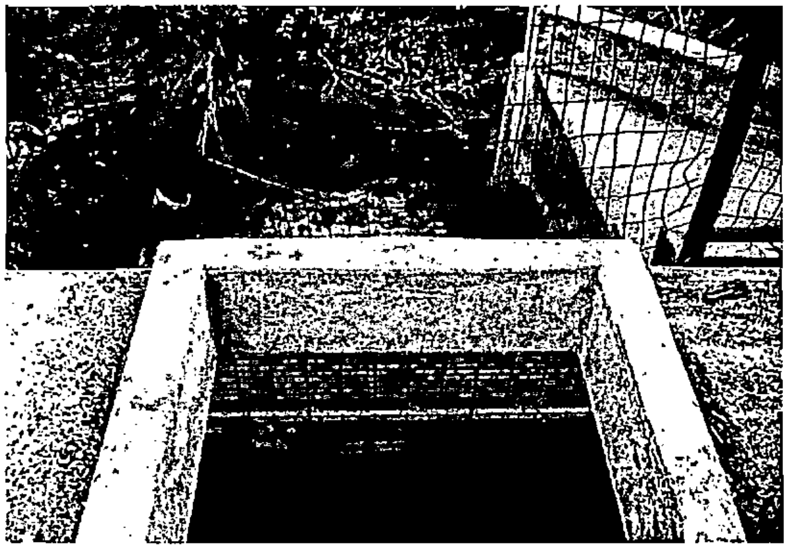
Photographs of Surface Water Diversions and Wells
City of Pocatello



Diversion structure, Gibson Jack Creek

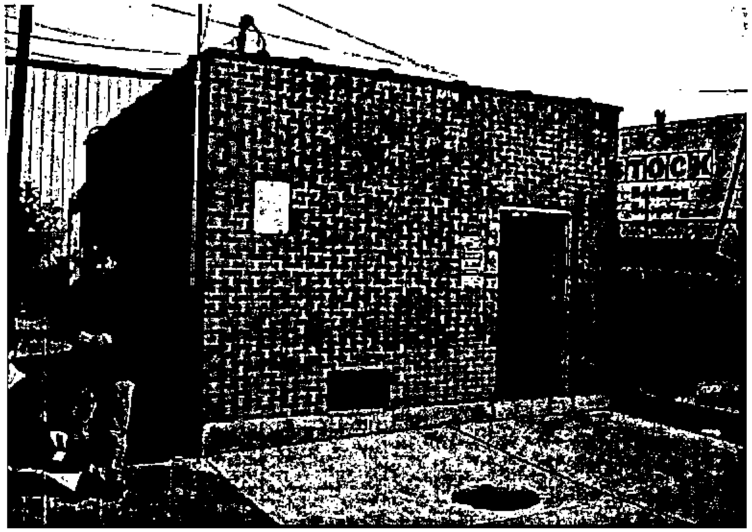


Diversion structure, Gibson Jack Creek

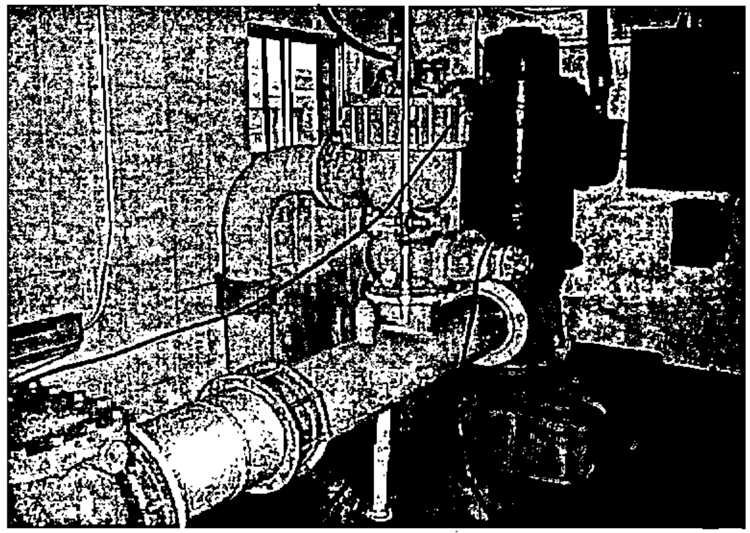


Diversion structure, Gibson Jack Creek, overflow

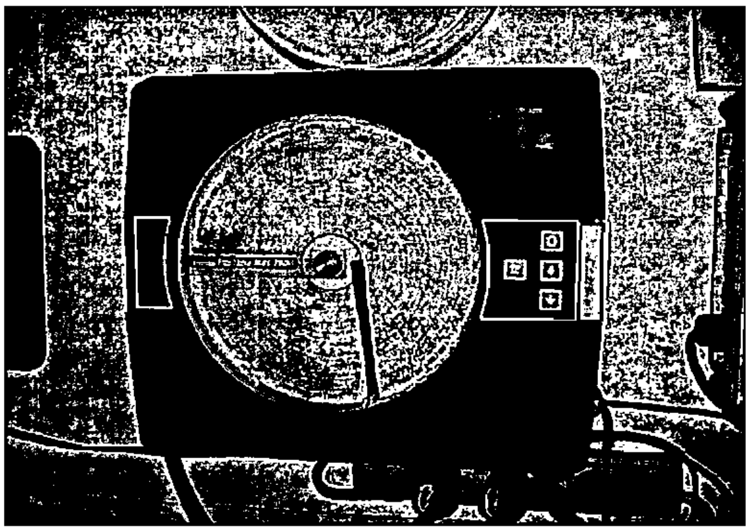
Diversion structure, Gibson Jack Creek, upstream



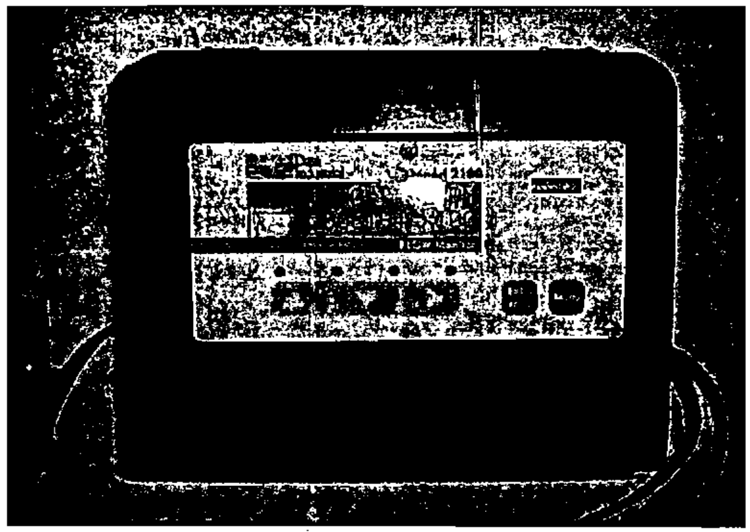
Well 16 Well House



Well 16 Well and Pump

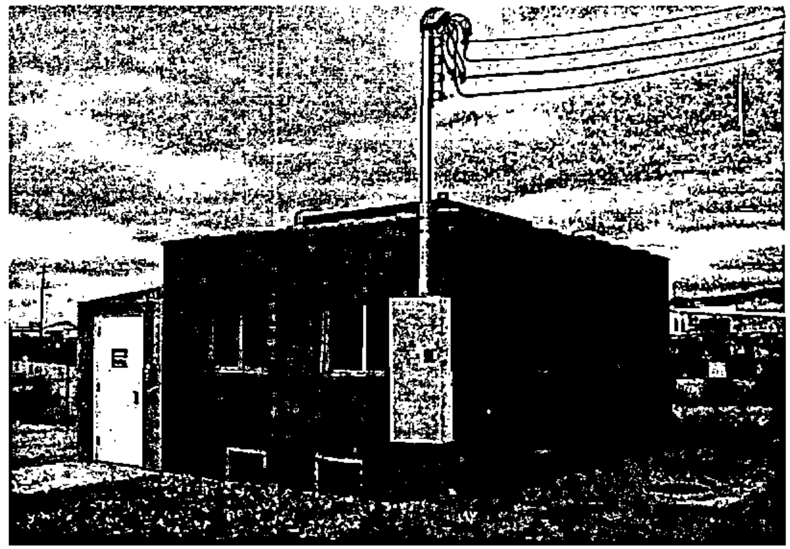


Well 16 Flow Chart

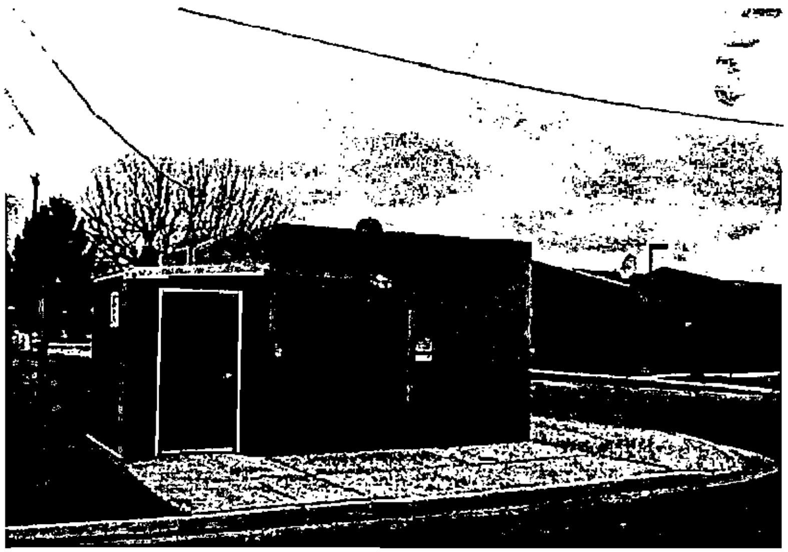


Well 16 Instrument Meter

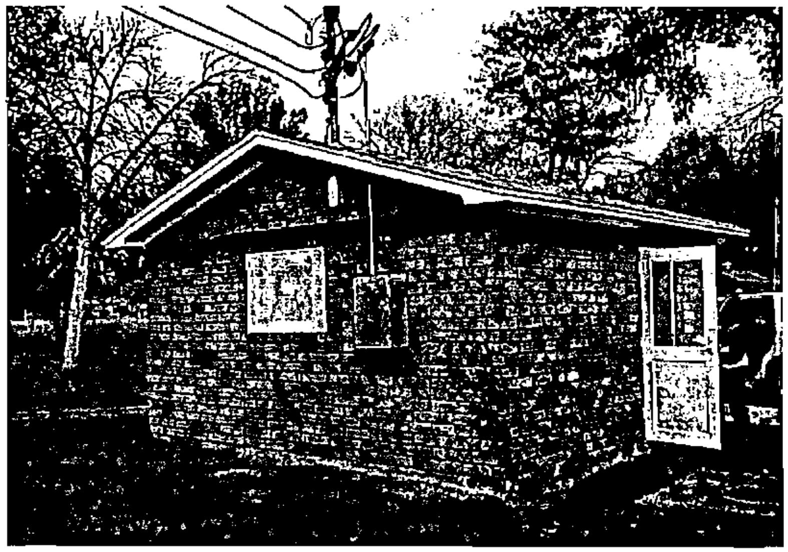
Well 28 Well House



Well 27 Well House

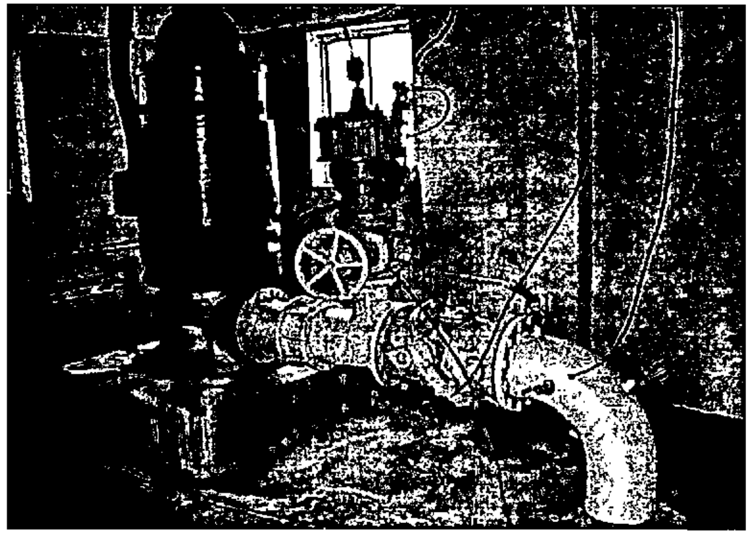


Well 10 Well House

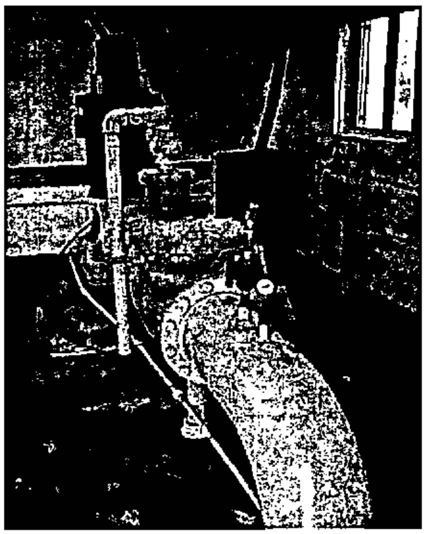


Well 21 Well House

Well 12



Well 18



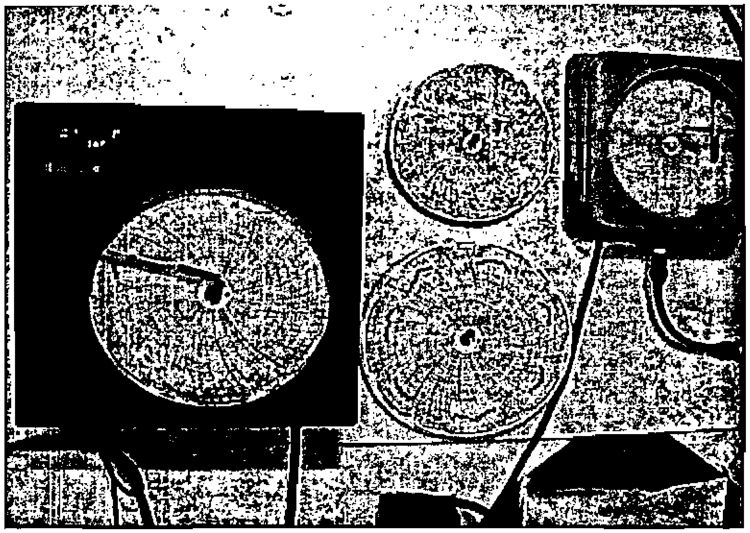
Well 35

Well 32

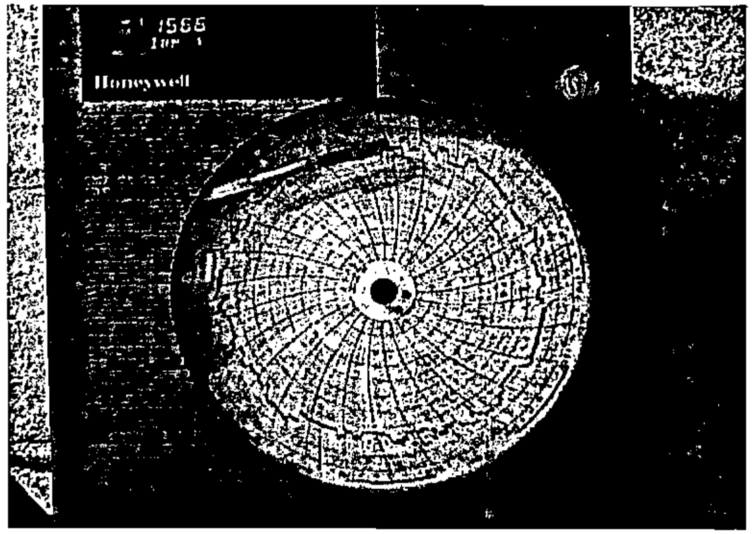
Well 31

6642

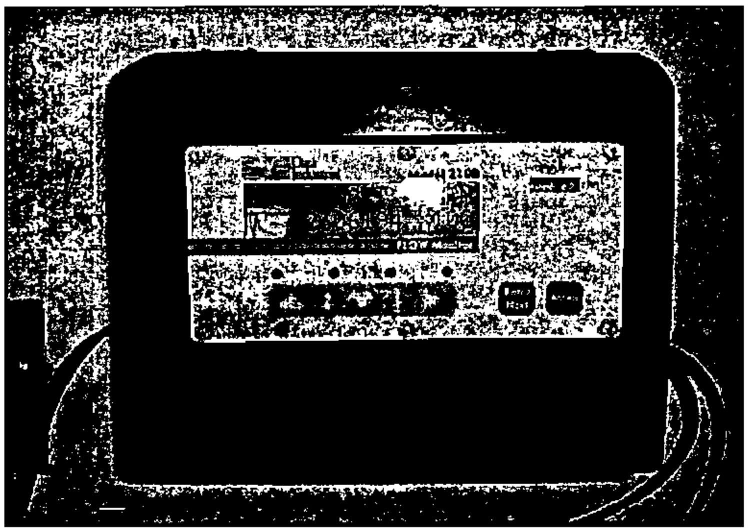
Photographs of Surface Water Diversions and Wells
City of Pocatello



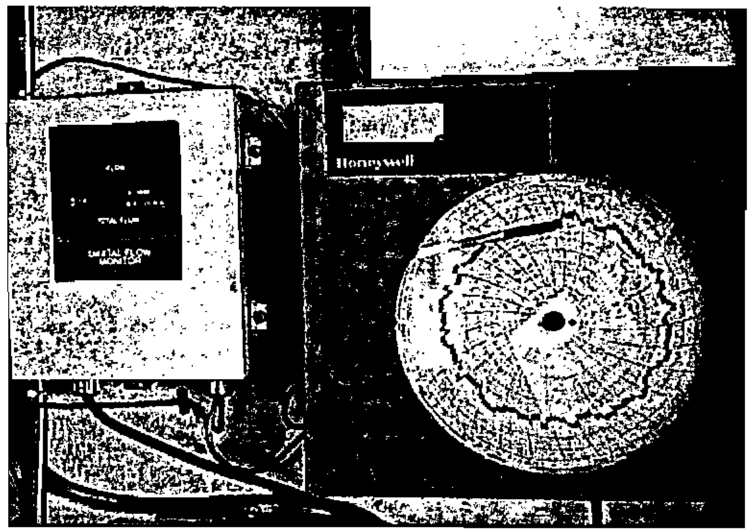
Well 29 Flow Chart



Well 21 Flow Chart



Well 16 Instrument Meter



Well 44 Flow Chart and Digital Flow Monitor

6643

CITY OF POCATELLO

EXHIBIT 108

Photographs of Pocatello and Vicinity

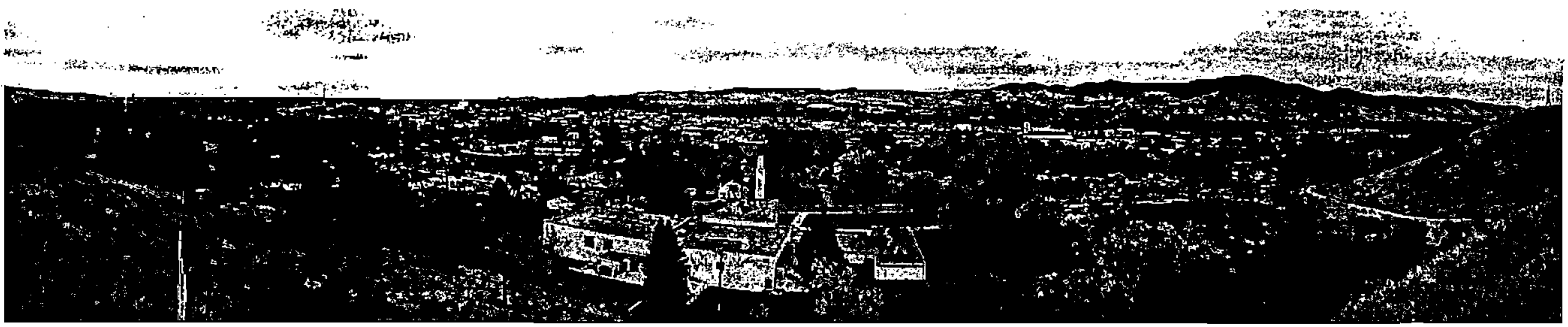
Subcase Nos.

all 38

ADMITTED
29-271 et al
(Subcase No.)
EXHIBIT
Poc. 108
Date: 3/1/07

6645

Photographs of Pocatello and Vicinity
City of Pocatello



Panorama of City of Pocatello

Photographs of Pocatello and Vicinity
City of Pocatello

City of Pocatello Storage

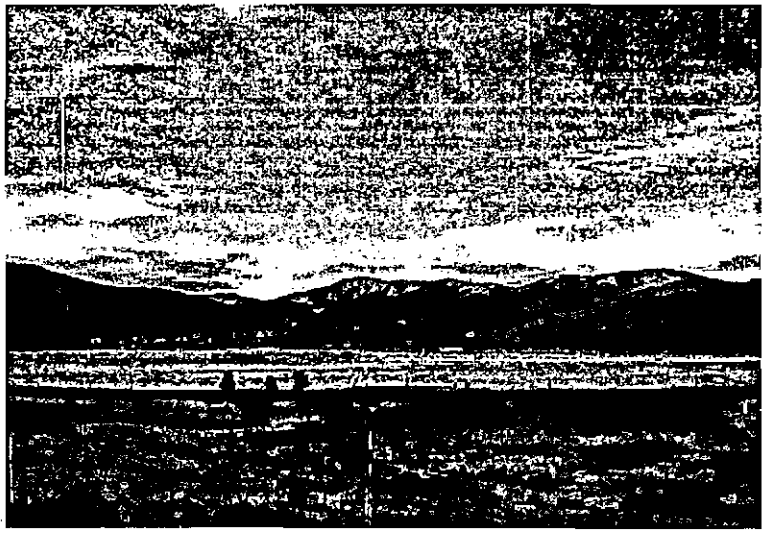
6647

Photographs of Pocatello and Vicinity
City of Pocatello

Panorama of Portneuf River near ~~Fort Hall~~ Reservoir
American Falls

Photographs of Pocatello and Vicinity
City of Pocatello

6648



Mink Creek drainage from valley floor

Portneuf River south of Pocatello, looking downstream

Portneuf River within Pocatello looking upsteam

Concrete lined section of the Portneuf River through Pocatello

CITY OF POCATELLO

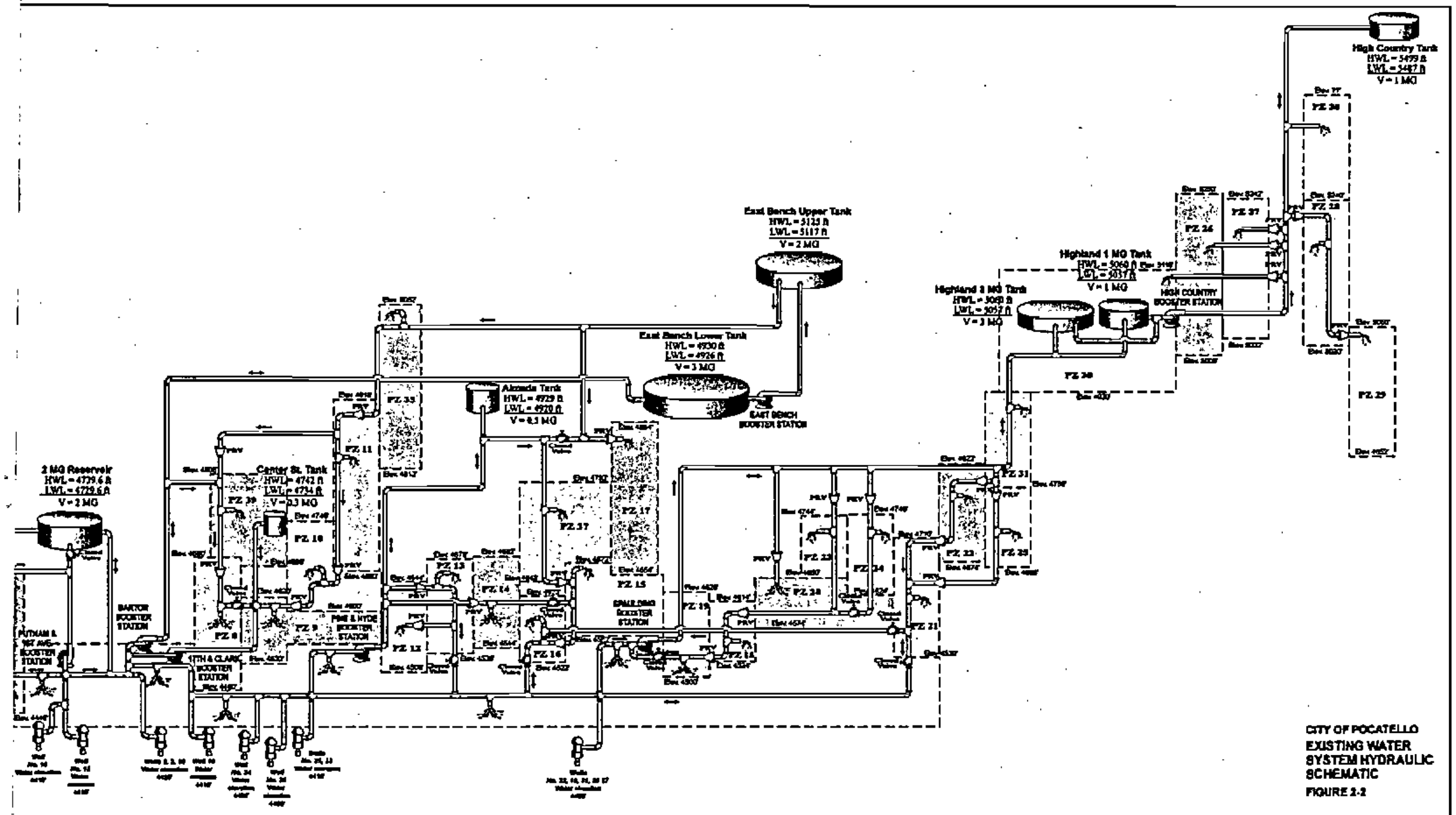
EXHIBIT 109

City of Pocatello, Existing System Hydraulic Schematic

Subcase Nos. (27)

29-00271
29-00272
29-00273
29-02274
29-02338
29-02401
29-02499
29-04221
29-04222
29-04223
29-04224
29-04225
29-04226
29-07106
29-07322
29-07375
29-07450
29-11339
29-11348
29-13558
29-13559
29-13560
29-13561
29-13562
29-13637
29-13638
29-13639

29-271 et al
(Subcase No.)
EXHIBIT
Pocatello 109
Date: 2/28/07



CITY OF POCATELLO
EXISTING WATER
SYSTEM HYDRAULIC
SCHEMATIC
FIGURE 2-2

0040

CITY OF POCATELLO

EXHIBIT 111

Water Department, City of Pocatello, Monthly Report (January to December, 1962 - 1993)

Subcase Nos.

all 38

Admitted
29-271 et al.
(Subcase No.)
EXHIBIT
Doc. 111
Date: 2/28/07

WATER DEPARTMENT MONTHLY REPORT - OCTOBER 1961

New or renewal main line construction during the month included:

The Mink Creek line project was continued and completed except for some anticipated trench maintenance. Old wood pipe, brush, and waste materials were cleaned up and hauled away. Trench and right of way was straightened up, trestles were painted, and the creek intake catch-basins and screens were repaired and cleaned. Valve boxes were installed on air and mud valves, and fences were rebuilt where taken down to allow construction.

A 36" reinforced concrete pipe was installed at the new 2,000,000 gallon reservoir as a drain and overflow line. Other work at the new tank included physical inspection of the location and depths of the existing lines, hauling pipe and fittings to stockpiles in the area, and otherwise preparing to plumb in the new tank.

Water from the creek sources totaled 46,798,000 gallons in October. September, with Gibson Jack only coming in, except for the last two days when the new line was in operation, totaled 11, 626,000 gallons.

During the month, 138,574,000 gallons of water was consumed from the system.

One main line leak was repaired at 1800 E. Clark.

7 new service lines were installed at the following locations:

600 N. Main (Hills' Bros. Used Car Lot)	150 W. Eldredge
1039 S. 5th	Bannock Hotel Motel (100 S.Garfield)
3813 Hawthorne	428 S. 10th
1408 N. Arthur	

8 service lines were renewed at the following locations:

805 N. Arthur	1122 N. Harrison
2800 Pole Line	1017 S. 5th
435 N. Lincoln	1112 N. Harrison
445 N. Lincoln	820 N. Grant

21 service lines were repaired at the following locations:

1248 E. Lewis	822 W. Center	454 S. 4th
1234 E. Lewis	824 W. Center	930 W. Center
1654 E. Center	934 E. Halliday	1055 S. Main
835 E. Halliday	611 Zener	58 Colgate
1350-56 E. Bridger	250 Fairbanks	125 N. 16th
1711 N. Main	77 Colgate	234 Cottage
1503 S. 2nd	641 N. Arthur	1300 S. 6th

WATER DEPARTMENT MONTHLY REPORT - NOVEMBER 1961

New or main line construction consisted of:

Laid a new water line from Hurley Lane and Quinn Road north on Hurley to and then west along lot line 4 - 5, Hurley Tracts, into Lou Ave. to a point 134' west of the east end of Lou Ave. At this point on Lou, a one inch connection was made to the private system serving Lou Ave. to provide water temporarily. On Nov. 24, the temporary line from Chubbuck was disconnected.

Fire hydrants were installed at the east end of Lou Ave. and on Hurley Lane approximately 700' north of Quinn. Pipe and a gate valve were pointed north on Hurley at Lot Line 4 - 5, to facilitate future extension to the north half of Hurley Lane. All pipe used was 6" cast iron. The city's stockpile of 6" cast iron pipe was exhausted and a few borrowed pieces were used, in order to "reach" Lou Ave. without an off-season purchase of pipe. The pipe used included a few pieces of mechanical joint and of open bell from the city's stock, in addition to the majority of the now almost standard "slip-joint" pipe. The materials list for the project included: 1465' of 6" cast iron pipe, two 6" - 5" V.O. - fire hydrants, two 6" gate valves, and fittings. Blasting was necessary to install the last 100' of this line.

Water consumed from the system during the month was 111,365,000 gallons, of which 64,283,000 gallons was obtained from surface water sources.

3 main line leaks were repaired at the following locations:

600 S. 1st	Whitman & Grant	200 E. Bonneville

7 new service lines were installed at the following locations:

945 Cottage	3824 Jason
862 Dolbeer	4024 Nora
920 Dolbeer	Elmer Terry (E.end of Lou Ave.)
907 Dolbeer	

1 service line was renewed at

924 W. Custer

17 service lines were repaired at the following locations:

219 S. 6th	453 S. 6th	701 S. 19th
1210 E. Halliday	459 S. 6th	Pain Implement
536 Zener	Nate Morgan Jewelers	131 16th Place
106 S. 14th	711 Willow	3811 Jason
3619 McKinley	524 W. Gould	436 N. 9th
756 E. Lander	247 S. 6th	

WATER DEPARTMENT MONTHLY REPORT - DECEMBER 1961

New or renewal construction for the month included:

The Venturi tubes on the "well line" and the "feed line" were moved down the lines to a point north of the new reservoir so that they would be in position to meter water in the adjusted piping arrangement at the reservoirs.

The 18" feed line was installed from the tank and cut into the "feed line".

Drain lines were installed in the vaults and connected to the 36" drain line.

Work is continuing on hooking up the overflow lines to the drain line and hooking up the feed line to the tank.

A vault was built on the "well line" Venturi and is in the process of being constructed at the "feed line" venturi.

During the month 112,835,000 gallons of water was consumed from the system.

Main line leaks were repaired at the following locations:

600 W. Whitman	Reservoir Rd. (18" feed line)
2nd & Sutter	

4 new service lines were installed at the following locations:

190 Chase	78 Mar Vista
72 Mar Vista	670 Highland

4 service lines were renewed at the following locations:

505 S. 9th	505 S. 2nd
509 S. 9th	740 N. Johnson

9 service lines were repaired at the following locations:

655 S. 7th	536 E. Hayden	236 W. Sherman
937 S. 5th	3216 S. 5th	906 N. Main
926 N. 10th	931 N. 10th	332 S. Grant

6 meter box installation repairs were made at the following locations:

937 S. 5th	Wood Olive's - Philbin Rd.	121 Berryman
343 N. 10th	123 S. 2nd	110 Heron

WATER DEPARTMENT MONTHLY REPORT - JANUARY 1962

New or renewal main line construction for the month included:

Connections were made with steel pipe at the new tank vaults and the valves were installed.

A vault was constructed at the "Feed Line" venturi tube relocation.

Work on pipe adjustments for the new tank has stopped until more favorable weather.

Total water consumption was 112,424,000 gallons. Of the 122,849,000 gallons secured from all sources, 63,532,000 gallons, or 51.6%, were from surface water supplies, and the balance was pumped from #2 & #6 Wells. January 1961 water production was 121,124,000 gallons, of which 12,214,000 gallons, or 10.1%, was from surface water sources.

3 main line leaks were repaired at the following locations:

1st & Center
Reservoir Rd.
1st & Lovejoy

1 new service line was installed at 2126 W. S. Highway W.

No service lines were renewed during the month

8 service lines were repaired at the following locations:

846 N. Main	251-3 N. Main
1629 S. 2nd	3530 Jason
630 E. Halliday	1026 N. 8th
939 N. Lincoln	4th & Whitman

5 meter box installation repairs were made at the following locations:

530 W. Sublette	440 University Dr.
722 Hemlock	124 N. 18th
Heron	

Fire Hydrant M. & O.

Fire hydrants were repaired at the following locations:

Harrison & Carson	Harrison & Putnam
Harrison & Bridger	Bridger & Hayes
12th & Hayden	1900 N. 5th (broken barrell)

All fire hydrants in the city at least once, and troublesome and repaired hydrants, were re-checked.

WATER DEPARTMENT MONTHLY REPORT - FEBRUARY 1962

New or renewal main line construction for the month included:

In attempting to start #16 Well, the check valve was found to be defective. Well #10 was "robbed" of it's check valve which was installed in #16. It was necessary to start #16 as the "Wellyard" wells were all flooded with the exception of #4, which was also unusable because of river water invading the aquifier, probably via the casings of the other wells. Preparations are being made now to pump Wells 4, 5, 6, and 7 into the river through a blowoff into the river from the Well #7 line at the Wellyard Bridge.

During the flood emergency, Water Dept. men assisted in hauling sand, etc., and in other City operations, in attempting to control the river. Valves were found and checked on all lines crossing the river so any broken river crossing water line could be isolated quickly. During the most hazardous intervals, men were kept at the 16" line crossing at the bridge in the "wellyard", removing debris as it piled up against the bridge. A pressure recorder was connected to the system at the shop so that any unexplained drop in pressure could be investigated immediately.

The pump motors and starting equipment from No. 6 and No. 7 Wells were pulled and hauled to Dyke's Electric, for "baking". No. 7 Well equipment was inaccessible to equipment prior to the high water and when it was realized that No. 6 could be in danger the water rose so swiftly that nothing could be done. No. 5 Well's motor was blocked up high in the pumphouse and escaped damage.

Water Dept. crews, at the end of the month, were engaged in repairing damage caused by the flood on the sewer line which goes to the Sewage Disposal Plant from the city. The line, at and near the mouth of Pocatello Creek, was floated out of the ground in two places by the high water. Nearly three days were spent hauling gravel by all the City's dump trucks for building an access road so that equipment could be taken in to the jobsite. The repairs were well on their way to completion at the end of the month, in spite of hardships imposed by the river, which is above the grade of the bottom of the redug trench, by the entire city's outfall sewerage, by Alameda sewage coming down Pocatello Creek from their damaged pipe just above, and by the inaccessibility of the damage.

During the month, 113,484,000 gallons of water was consumed from the system. Of this total, 42,603,000 gallons was obtained from surface water sources.

Water tables at most of the wells showed a big raise when checked at the end of the month. The following table shows static levels.

	Jan. 31.	Feb. 28.	Raise	Location
Well No. 4	33' 4"	23' 4"	10' 0"	
Well No. 5	28' 4"	18' 8"	9' 8"	
Well No. 6	27' 10" *	16' 6"		Well Yard
Well No. 7	26' 1"	16' 0"	10' 1"	
Well No. 8	40' 3"	39' 2"	1' 1"	W. Eldredge
Well No. 10	46' 5"	42' 2"	4' 3"	8th & Young
Well No. 12	36' 9"	30' 6"	6' 3"	1200 S. 1st
Well No. 15	69' 6"	66' 10"	2' 8"	3800 Jason
Well No. 16	40' 10"	36' 9"	4' 1"	200 E. Bonneville
Well No. 18	61' 2"	60' 10"	4"	Northgate Subdivision
Well No. 2	43' 1"	35' 6" *	7' 7"	Ross Park

6656

WATER DEPARTMENT MONTHLY REPORT - MARCH 1962

New or renewal main line construction consisted of:

Installed a "blowoff" on 14" steel line at the bridge in the Wellyard. This enables pumping of the Wellyard wells to waste, and was used in cleaning up the wells after flooding.

Installed a new 10" check valve at #10 Well

Repaired pump base at Well #16.

Removed 126' of 6" cast from along 1/16 line west of lower end of Valleyview

Connected line east of Valleyview to the main on Valleyview at Westello. One 6" x 6" tapping tee and valve, 19' - 6" cast iron pipe, and one 22½ deg. bend were used, salvaging one 6" line valve.

During the month 130,049,000 gallons of water were consumed from the system.

Main line leaks were repaired at the following locations:

100 N. 1st
300 E. Bonneville
2nd & Fredregill (3)

10 new service lines were installed at the following locations:

243 Imperial	234 Sunnyside	200 S. 7th (Presby.Church)
257 Imperial	2460 S. 2nd	204 Valleyview
534 University Dr.	911 N. Grant	433 N. 6th

2 service lines were renewed at the following locations:

507 E. Dunn	75 Valleyview (Relocate)

20 service lines were repaired at the following locations:

820 W. Young	937 Belmont	205 N. 9th
1245 S. 5th	953 E. Sublette	1448 Opal
356 S. 7th	3514 Jason	240 N. 13th
318 S. 6th	707 N. 7th	3709 Jason
1640 S. 4th	1049 Swisher	745 Hemlock
766 Myrtle	1231 N. Harrison	1237 N. Harrison
163 Lou	3534 Jason	

Meter box installation repairs were made at the following locations:

817 S. Main	3534 Jason	332 S. Grant
655 University Dr.	617 N. Johnson	131 Flamingo
1249 Allen Rd.	2426 S. 2nd	733 S. Main
168 Berryman	338 N. Main	1501 S. 1st
616 N. 4th	1535 E. Center	

6657

WATER DEPARTMENT MONTHLY REPORT - APRIL 1962

New or renewal construction for the month included:

Finished job of removing 6" cast iron from along 1/16 line west of the lower end of Valleyview. 60' of 6" open bell pipe was salvaged. A six inch fire hydrant was installed on the end of the 6" O.D. steel which crosses Valleyview at this point.

149' of 12" cast iron was installed on Duke Street from University Drive east. The developer, Marshall Bros., is furnishing 6" pipe in this amount.

The job of plumbing in the new tank, started last fall, was re-commenced during the month. 518' of 16" cast iron T.J. pipe and the following fittings were used. Four 16" 22½ deg. bends, one 16" gate valve, one 16" tee, and two 16" flange x M.J. adapters.

Working on the overflow line from the new tank connection to the drain line installed last fall.

A masonry building was constructed at the reservoirs to house metering and chlorination equipment.

During the month, 168,098,000 gallons of water were consumed from the system, obtained from sources as follows:

Mink Cr.	952,000	Well #2	44,712,000
Wellyard Wells	77,716,000	Well #18	1,774,000

20 main line leaks were repaired at the following locations:

- 1800 E. Bonneville
- Pole Line & Balsam
- Gould & Arthur
- Pole Line & Alameda Rd.
- Center St. Subway (replaced pc. of pipe)
- 100 S. 3rd
- 2nd & Fredregill
- Ash Street
- 741 Cypress
- 1546 N. Harrison
- (2) Ross Park to Roadside Park Steel
- (5) Ross Park Sprinkling System
- 500 S. Johnson
- Irving Field (8")
- Pole Line Rd.

14 new service lines were installed at the following locations:

- Don Hammond, City Cr. Rd.
- 134 Flamingo Place
- Block 5, Lot 20, Northgate Div. #1
- Block 5, Lot 21, Northgate Div. #1
- 445 N. 12th (Smr.)
- 271 Imperial
- 285 Imperial
- 804 N. Arthur
- 120 Duke
- 211 S. 17th (Smr.)
- 126 S. 15th
- 79 Valleyview
- 253 Valleyview
- 490 Univ. Drive

6658

WATER DEPARTMENT MONTHLY REPORT - MAY 1962

New or renewal construction for the month included:

The job of plumbing in the new tank was completed during the month, and the new 2,000,000 gallon tank was put in operation. The new service building was completed and both meters and the chlorinator were installed and are functioning. A small line was run up to the new service house to provide a way to test for residual chlorine at that point. 338' of 16" cast iron pipe, one 16" tee, one 16" 45 deg. bend, and one 16" gate valve were used in tieing in the big reservoir to the new tank. Other major items in completing this job were: finishing connecting the tank overflow lines to the drain line; revamping the drain facilities for the big reservoir; running lines to the venturi tube on the feed line and to the tube on the wellyard line to the meters; running the chlorinator water supply line and the solution feed line; finishing the service house which included pouring the floor, insulating the roof, sheetrocking and taping the ceiling, wiring the building, and painting.

The surface water transmission line terminates in a basin some distance south of the middle reservoir. From this basin the water goes through a meter, then into the middle reservoir through 12" pipe. With both Gibson Jack and Mink Creek water arriving at this basin the head imposed by the basin was insufficient to push this increased amount of water through the meter and through the 12" pipe into the middle reservoir. The walls of this basin were formed and poured about 6' higher to secure the additional head needed to push the water through the meter and into the middle reservoir without overflow loss of water.

The planned County Nurses' Home's location near the Bannock Memorial Hospital necessitated moving the 8" on 13th. At Bannock County's request the line was cut and elled easterly along Whitman from 13th and Whitman to Memorial Drive, then southerly along the westerly right of way of Memorial Drive to the interception of 13th and the previous pipe alignment where connection was made. The 1950 open bell pipe was salvaged and relaid along with approximately 340' of new 8" Tyton pipe in completing this realignment. Two 8" 90 deg. bends, two 8" 22½ deg. bends, an 8" x 6" tee, a 8" gate valve, and a fire hydrant (located approximately 130' northerly along Memorial from the NPL of Benton) were also used.

Removed fire hydrant lateral and plugged tee at 3rd and Gould.

Unloading pipe arriving for 1962 projects at #8 well, at the I.S.C. parking lot above the gymnasium, at Fremont Heights, and at the Shop.

During the month 235,456,000 gallons of water were consumed from the system. Sources of supply were as follows: Surface water supplies - 34,575,000; Wellyard Wells, 58,029,000; Well #2 - 45,796,000; Well #3 - 4,465,000; Well #10 - 83,041,000; Well #16 - 3,660,000; and Well #18 - 7,038,000.

Main line leaks were repaired at the following locations:

2nd & Fredregill (2)
16" at Reservoirs

5 new service lines were installed at the following locations:

1st Ward Church - 600 S. Grant
424 W. Sublette
3908 Hawthorne
923 - 25 N. Arthur
Empire Park (N. 18th)

6659

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WATER DEPARTMENT MONTHLY REPORT - JUNE 1962

New or renewal construction for the month included:

Relaid 6" pipe from easement east of Valleyview Drive out to Valleyview just above Valleyview's intersection with Westello. This relocation was done at the owner's and the developer's expense. 144' of 6" C.I. T. J. and one 6" MJ sleeve were used. No attempt was made to salvage the old pipe, which lies beneath the owner's landscaping at 224 Valleyview.

36' of 4" was extended out of the street at 4th and Gould, to clear highway improvements. This extension was from the old 4" CI line that existed to the old property line which served Wyetown.

New pipe for 1962 improvements was received and unloaded at the Shop, at Fremont Heights, at #8 Well, and at the I.S.C. Gym Parking Lot.

In cooperation with developers, Marshall Gross and Oren Clark, the Water Dept. installed 12" and 4" pipe in the University Vista Subdivision and from the north edge of University Vista from Stanford west to the easement on the east edge to I.S.C. property, then north in this easement to Terry St. Pipe for the portion of this project that was installed on Stanford Ave. was furnished by the developers and theCity furnished the balance. When this project is completed large diameter pipe will be continuous from the north end of the City to the south platted limits of Stanford Ave., and available for extension, possibly to the Ross Park Well Field, eventually. Used to date in this project is 1476' of 12" cast iron "Tyton Joint" pipe, 54' of 4", and 14' of 6", along with two 12" gate valves, one 4" gate valve, one 6" fire hydrant, one 12" tee, one 12" x 4" reducer, two 12" x 6" tees, one 12" plug, and one 12" 90 deg. bend.

During the month 323,685,000 gallons of water were consumed from the system, secured from sources as follows:

Surface supplies -	58,654,000
Wellyard Wells -	64,501,000
Well #3	79,980,000
Well #10	87,724,000
Well #16	14,405,000
Well #18	21,553,000

Main line leaks were repaired at the following locations:

300 E. Gould
N.1st N. of Maple (break)
18" steel line (middle to Big Reservoir line)
Pole Line & Hemlock
(on Pole Line)
S. 2nd (2)

12 new service lines were installed at the following locations:

McKinley & Eldredge (Apt. house in Alameda, 2")
750 Highland Blvd.
3622 Hilliard St.
E½ of Lot 2, Blk. 1, Crest Hill Estates
Portion of W½ " " " " "
E. portion of 1 " " " "
911 Samuel St.
500 E. Hayden
Lot 13, Blk I, 1st add. to Univ. Park
Lot 1 " " " " " " "
Portion of W½ Lot 2, Blk, 1, Crest Hill Estate
West portion of Lot 1, " " "

6660

WATER DEPARTMENT MONTHLY REPORT - JULY 1962

New or renewal main line construction consisted of:

Finished extension of the 12" from 19th and Terry to the south platted limits of Stanford via I. S. C. property. Materials used in this project included 303' of 12" cast iron "tyton joint" pipe, one 12" gate valve, two 12" 45 deg. bends, one 12" tee, one 12" 90 deg. bend, one 6" sleeve.

In cooperation with Town & Country Realty, 414' of 6" pipe was installed on Drake in the University Vista Subdivision. Three 6" 22½ deg. bends, one 6" tee, and one 6" fire hydrant were used (materials furnished by the realtor). This pipe was laid in ditch excavated and backfilled by others, and was done in completing an exchange of pipe, etc., in getting 12" through University Vista on Stanford.

The Fremont Heights project was started and is now nearly complete. This project of installing cast iron pipe to the rest of the subdivision was done in cooperation with the Marshall Bros. Agency, who furnished the major share of the materials. To date 2308' of 6" cast iron "Tyton Joint", 1618' of 4" T. J., five 6" gate valves, three 6" fire hydrants, two 6" x 4" reducers, seven 6" tees, one 6" x 4" tee, one 4" gate valve, one 6" 90 deg. bend, one 6" x tapt 2" tee, one 4" x tapt 2" tee, and one 6" 22½ deg. bend have been used.

Replaced 558' of 2" galv. on Valley Road with 6" cast iron, before street improvements. A 6" gate valve was installed at Eldredge and Valley N.

216' of 10" cast iron was installed across the interstate construction near the Pocatello Creek Interchange.

A six inch tee was installed in the Canyon Drive line and a six inch line run out of the street to a gate valve at the SPL of Canyon, then continuing to the temporary end of pipe 21 S of the gate valve. This tee was installed 31' east of the Lot 4 - Lot 5 lot line and the line run in on Lot 4 of Block 5, Fremont Heights, for the purpose of providing service to an area south and adjacent to Fremont Heights. This was done at the request of W. E. Schutt, owner of Lot 4 and of the adjacent area to be developed in the future, and at the expense of Mr. Schutt.

During the month, 362,715,000 gallons of water were consumed from the system. This was secured from the following sources:

Surface water supplies	72,832,000 gallons
Wellyard Wells 5,6, & 7	45,570,000 gallons
Well #3	83,003,000 gallons
Well #10	102,915,000 gallons
Well #12	6,253,000 gallons
Well #16	13,700,000 gallons
Well #18	39,098,000 gallons
U.P.R.R. Interconn.	6,245,000 gallons

This July consumption is 101,615,000 gallons under the record month's consumption of July 1960 of 464,330,000, and 82,594,000 gallons under last July's figure.

Water Department Monthly Report - Agust 1962

New or renewal main line construction consisted of;

The project of installing a 6" cast iron pipe to the rest of the Fremont Heights subdivision was completed this month. Marshall Bros. Agency furnished the major share of the materials. 1618' of 4" cast iron "tyton joint", 2308' of 6" cast iron T.J. pipe. Five 6" gate valves, three 6" fire hydrants, two 6" x 4" reducers seven 6" tees, one 6" x 4" tee, one 4" gate valve, one 6" 90 deg. bend, one 6" tapt 2" tee, one 4" x 2" tapt tee and one 6" 22¼ deg. bend were used.

738' of 6" cast iron "Tyton Joint" pipe was laid on Lou Ave. One 6" tee, one 6" Pacific States fire hydrant, at the intersections of Lou and Yellowstone Highway.

Replaced 775' of 4" lead joint cast iron pipe with 775' of 6" cast iron tyton joint pipe. One 6"x4" l.e.b. reducer, one 6" Pacific States Fire Hydrant, one 6"x4" a.b. reducer, and one 6" tee was used.

647'6" of 6" cast iron tyton joint pipe was installed on Lilac Street. One 6" tee and one 6" Pacific States Fire Hydrant was placed on the west end of Lilac.

During the month, 367,126,000 gallons of water were consumed from the system. This was secured from the following sources:

Surface water supplies	46,598,000
Wellyard Wells 5,6,&7	65,209,000
Well #3	82,738,000
Well #10	106,182,000
Well #12	8,481,000
Well #16	11,490,000
Well #18	54,998,000
UPRR Interconn.	5,053,000

This August consuption is 1, 444,000 more than last August's figure.

Main line leaks were repaired at the following locations.

Oasis& Canyon	713 Ash	400 West Wyeth
600 Block Willard	600 Wilson	707 Ash
500 Block Wilson	800 Jefferson	Birch & Poline
Maple & Washington	545 South Johnson	West Alameda Rd.
1018 South 4 th.	500 East Cedar	400 Block Eldridge
500 West Whitman	Ammon & Homer	144 Spence
200 North 9 th.	Cedar & Poleline Rd.	

Water Department Monthly Report- September 1962

New or renewal main line construction consisted of;

The industrial lands project was started this month. To date 925' of 6" cast iron "tyton joint" pipe was installed. Two fire-hydrants, two 6" gate valves, three 6" tees and one 6"x 2" tapt tee were installed.

During the month, 307,303,000 gallons of water were consumed from the system. This was secured from the following sources.

Surface water supplies	53,690,000
Wellyard wells 5,6,&7	64,081,000
Well # 3	68,044,000
Well # 10	86,995,000
Well # 16	3,749,000
Well # 18	32,415,000

This September consuption is 129,046,000 more than last September figure.

Main line leaks were repaired at the following locations;

Brennan Road	915 Brennan	1100 South 2nd.	16" line
2400 South 2nd.	568 Yellowstone	150 Charles	Reservoir

22 New services lines were installed at the following locations;

641 1/2 North 14 th.	430 Roosevelt
515 Lilac	1671 Monte Vista
525 Lilac	Blk.1 lot 3 Stanford
543 Lilac	Blk.1 lot 4 Stanford
240 Flamingo Dr.	Blk.1 lot 5 Stanford
813 Park	Blk.1 lot 6 Stanford
535 Lilac	Blk.1 lot 7 Stanford
547 Lilac	Blk.1 lot 8 Stanford
883 Park	Blk 1 lot 9 Stanford
978 Highline Rd.	Blk.1 lot 10 Stanford
Blk.3 lot 4 Drake	Blk.1 lot 11 Stanford

Water Department monthly Report - October 1962

New or renewal main line construction consisted of;

The Industrial lands project was installed to the point where the county has to level some ground before it can be completed. 234' of 6" cast Iron "tyton joint" pipe and one 6"X 10" reducer was installed this month.

The Ross Park sprinkling system was startd thes month. To date; 1368' of 6" cast iron "tyton joint" pipe, 2718' of 4" C.I. T.J. pipe, 4184' of 2" galavinized pipe, 34' of 1¼ galv. pipe, one 6" gate valve, six 4" gate valves, three 2" gate valves, two 6" X 6" tees, four 6"X4" tees, one 4"X4" tee, 27 - 4"X2" tees, ten 6"X2" tees, six 4"X1¼" tees, six 1¼" by 90 degree bends, four 2" by 90 degree bends, six 4" plugs, four 4" 45 degree bends, one 6" 45 degree bend, one 4" 22½ degree bend, eight 1¼x1¼ tees, three 1¼"x1¼" tees, one 1¼" 45 degree bend, one S.E.B. reducer, 15- 2"x1¼" 90 degree bends, three 2"x1¼" tees, seven 2"x2" tees, and 12 quick coupling valves have been installed.

About 330' of 6" steel line was killed on Cherry lane and the intersection of Hyline road and meadow brook.

During the month 160,001,000 gallons of water were consumed from the system. This was secured from the following sources.

Surface water supplies	58,627,000
Well yard wells 5,6,7	46,450,000
Well # 2	48,376,000
Well # 18	10.995,000

This October consumption is 21,427,000 more than last Octobers figure.

Main line leaks were repaired at the following locations;

Davis Drive	1700 S. nd.	Maple & Randolph
971 Park	Lawton & 2nd.	Cedar & Park
1600 S. 2nd,	Hyline Road	

6664

WATER DEPARTMENT MONTHLY REPORT - NOVEMBER 1962

New or renewal main line construction consisted of:

260' of 2" copper, one 2" gate valve, and 10' of 6" pipe was installed at the Old Fairgrounds on the Industrial Lands Project.

The Ross Park Sprinkling System was completed this month. 67' of 6" cast iron "Tyton Joint" pipe, 18' of 4" cast iron "Tyton Joint" pipe, one 6" x 10" S.E.B. Reducer, one 6" 22½° bend, one 6" x 4" reducer, one 6" Pacific States Fire Hydrant with auxiliary gate valve, two 4" gate valves, one 4" - 22½° bend and 18 valve boxes installed during the month of November.

54' of 4" lead joint pipe was installed on Poole Street.

The 16" line to the Little Reservoir was cut and plugged.

During the month 117,489,000 gallons of water were consumed from the system. This was secured from the following sources.

Surface water supplies	61,712,000
Well #4	80,624,000
Well Yard Wells #6, 7	27,956,000
Well #2	36,865,000

Total water lost due to leaks, error on wier readings, washings, etc., 9,044,000 gallons.
This November consumption is 6,124,000 gallons more than last November's figure.

Main line leaks were repaired at the following locations:

1500 North 1st	600 Block Zener
1600 North 2nd	1400 Blk. Yellowstone
700 Block Poole St.	8" Line for I.S.C.
Humbolt and 2nd	400 Block Walnut
Pole Line and Ash	200 Block Pocatello Ave.
426 East Terry	Pine & Filmore
Pole Line Road	900 Blk. North 11th

32 new service lines were installed at the following locations:

Blk. J. - Lot 19 - Drake	751 Richland	852 Park Lane
Blk J. - Lot 16 - Tulane	1643 N. 2nd	905 Park Lane
Blk. J. - Lot 17 - Tulane	1744 Pocatello Cr.	917 Park Lane
Blk. J. - Lot 18 - Tulane	805 Park Lane	760 Park Lane
Blk. I. - Lot 1 - Stanford	815 Park Lane	768 Park Lane
Blk. I. - Lot 2 - Stanford	827 Park Lane	776 Park Lane
314 Skyline	839 Park Lane	806 Park Lane
147 Jefferson	857 Park Lane	816 Park Lane
1668 Syringa	918 Park Lane	828 Park Lane
Industrial Drive	906 Park Lane	840 Park Lane
Blk. 3 - Lot 8 - Lavene		2400 Pole Line Road (2")

6665

WATER DEBARTMENT MONTHLY REPORT- DECEMBER 1962

There were no new or renewal main line construction this month.

During the month 119,465,000 gallons of water was produced and 109,226,000 gallons consumed from the system. This was secured from the following sources.

Surface water supplies	60,779,000
Well yard wells #6&7	10,879,000
W Well #2	47,708,000

Total water lost due to leaks, error on weir readings, washings, etc., 9,889,000.
This December consumption is 3,209,000 gallons less than last December's figure.

Mainline leaks were repaired at the following locations;

100 block East Bonneville	Hawthorne and Lilac
Oakwood and Melrose	Broken by Pocatello Const.
100 Block Maple	600 Block Jensen

There were no new service lines installed this Month.

4 service lines were repaired at the following losations;

1886 East Oak	1344 East Alameda Rd.
1190 East Oak	520 East Eldridge

19 service lines were renewed at the following locations;

1663 Homer	905 East Hayden
1415 N. Garfield	915 East Hayden
1425 N. Garfield	923 East Hayden
932 W. Young	1301 El Rancho Blvd.
510 Stansbury	500 S. 11 th.
524 Stansbury	525 W. Day
1640 S. 4Th.	435 W. Day
1127East Alameda Rd.	436 Park
1354 N. Garfield	100 Blk. E. Maple 2" line to
141 Spence	School shop.

Meter and curb box installation repaires were made at the following locations;

257 Valley View	71 Melrose
3982 Hawthorne Rd.	Racquet Club
1425 S. 4 th.	3900 Hawthorne
209 N. Johnson	1145 E. Fremont
320 N. 11th.	771 Cypress
727 Cherry	3980 Hawthorne
536 W. Whitman	247 S. Hayes
611 N. 11 th.	715 Dogwood

6666

WATER DEPARTMENT

MONTHLY REPORT FOR JANUARY 1963

There was no new or renewal mainline construction this month.

During the month 131,139,000 gallons of water produced and 117,738,000 gallons of water consumed from the system. This was secured from the following sources.

Surface Water Supplies	50,353,000
Well Yard Wells #6 & 7	32,967,000
Well #2	47,819,000

Total water lost due to leaks, error on weir readings, washing, etc., 13,401,000 gallons. This January consumption is 5,314,000 gallons more than last January's figure.

Main line leaks were repaired at the following locations:

100 Blk. E. Pine
Pine & Randolph
Canyon & Oasis
Yellowstone & Cedar
600 Blk. E. Bonneville
Pocatello Cr. Rd.
738 W. Bonneville

There were no new service lines installed this month.

9 service lines repaired at the following locations:

Labrae & San Anita
459 N. 10th
1143 N. Harrison
1700 Blk. S. 2nd
712 Ash
220 Thurston
College Market at 8th & Halliday
1136 S. 3rd
3506 Hawthorne

14 service lines renewed at the following places:

538 W. Greeley
172 Warren
1560 Homer
396 Pershing
1055 Linda
190 Charles
936 El Rancho
1143 El Rancho
871 Linda
1361 Charles
1383 Jane
418 Moreland
738 W. Bonneville
742 W. Bonneville

Meter and curb box installation repairs were made at the following locations:

111 E. Eldredge
121 Howard
200 Blk. N. 3rd
1021 E. Whitman
584 Jensen

6667

WATER DEPARTMENT MONTHLY REPORT FOR FEBRUARY 1963

New or renewal construction consisted of:

Repairing of 12" steel pipe on Gibson Jack Creek with 2 Dresser couplers and 17' of 12" steel pipe.

Salvaging of approximately 306' of 4" cast iron pipe at the Old County Fairgrounds.

During the month 110,776,000 gallons of water were consumed from the system, secured from the following sources:

Surface Supplies	36,701,000
Well #4	13,008
Well #6	2,463,000
Well #7	1,567,000
Well #2	29,570,000
Well #16	40,055,000

There were 123,364,000 gallons produced with 12,588,000 gallons lost due to leaks, error on wier readings, washing, etc.

Main line leaks were repaired at the following locations:

141 N. Johnson	East Bench Rd.
400 Blk. Richland	Peterson Well
500 Blk. W. Clark	647 W. Day
600 Blk. W. Whitman	300 Blk. E. Bonneville
	400 Blk. E. Bonneville

11 new service lines were installed at following locations:

1682 Syringa ✓	
Blk. 3 - Lot 1 - Drake St.	3942 Nora
" " 2 " "	Blk. 2 - Lot 2 - Drake St.
" " 3 " "	" " 3 " "
" " 7 " "	" " 4 " "
	" " 5 " "
	" " 6 " "

10 service lines were repaired at the following locations:

2601 Pole Line Rd.	316 S. Johnson
3636 Jason	Ind. Lands
735 W. Bonneville	852 Park Lane
1734 Monte Vista	454 N. 8th
750 W. Wyeth	166 W. Bryan

6668

WATER DEPARTMENT MONTHLY REPORT FOR MARCH 1963

New or renewal construction consisted of:

A project of laying 1008' L.J. 4" C.I. pipe, one 4" valve, one 6" valve, one 6" x 4" tee, one 6" x 4" reducer, one 10" plug, and one 9" 45 deg. bend was started and completed from Highland Golf Course Booster Station west on Von Elm Drive.

A project of laying 1224' of 6" T.J. C.I. pipe, two 6" pumper fire hydrants, two 6" fire hydrant valves, and one 6" tee was started and completed on Kinghorn Road this month.

8" steel line was connected to 12" C. I. line at Well #24.

A 2" copper line was installed from the end of S. 18th to Bonneville Park.

During the month 147,961,000 gallons of water were consumed from the system, secured from the following sources:

Surface supplies	50,373,000
Well #2	47,880,000
Wells #4, 6, & 7	14,027,000
Wells #19 and 20	1,224,000 estimated
Well #22	34,178,000
Well #25	279,000 estimated

This March figure is 17,912,000 gallons more than last March figure.

Main line leaks were repaired at the following locations:

East Alameda Rd.	200 Blk. S. 1st
1383 Jane	700 Blk. S. 1st
1200 Blk. S. 2nd	700 Blk. S. 1st
Tendoy School Alameda Rd.	Von Elm Dr.

14 new services were installed at the following locations:

Lot 3 Blk 3 - Drake	306 S. 12th
Lot 5 Blk 3	Lucille Ave.
Lot 6 Blk 3	1618 Syringa
Lot 1 Blk 3	1628 Syringa
1780 Pocatello Creed Rd.	1636 Syringa
47 Purkey	1683 Syringa
835 Cottage	625 Packard

6669

WATER DEPARTMENT MONTHLY REPORT FOR APRIL 1963

New or renewal construction consisted of:

[illegible] of a 6" meter and installation of a 4" pressure reducing valve on the [illegible] and Alameda System at 12th and Oak St.

During the month [illegible] gallons of water were consumed from the system, secured from the following sources:

Surface Supplies & Wells 4,6, & 7	72,061,000
Well #2	46,282,000
Well #19 & 20	13,470,000
Well #22	19,133,000
Well #24	600,000
Well #25	279,000

This April figure is 15,833,000 gallons more than last April figure.

Main line leaks were repaired at following locations:

Pole Line & Birch	Pole Line Rd.
7th & Hayden	9th & Terry
Bonneville & 2nd	300 Blk. S. 1st
500 Blk. S. Arthur	500 Blk. S. 2nd
1st & Halliday	600 West Clark
Whitman & Johnson (3)	700 Blk. Cypress

36 new services were installed at following locations:

587 Kinghorn	543 Kinghorn	1708 Syringa ✓
561 "	205 Fredregill	176 Lou
577 "	3897 Hawthorne	170 "
588 "	734 Cypress (summer line)	154 "
580 "	247 Riverside	160 "
572 "	262 Packard ✓	146 "
564 "	1707 Syringa ✓	157 "
518 "	1671 " ✓	163 "
536 "	1659 "	135 "
554 "	Between 1636-1650 Syringa ✓	1960 Bench Road ✓
595 "	1650 Syringa ✓	3953 Nora
567 "	1623 " ✓	524 S. 6th

36
9-H[illegible]
27 [illegible]

10 services were renewed at following locations:

967 East Pine	1205 N. Garfield
191 Charles	757 Cypress
1365 Ammon	121 Maplewood
2426 S. 2nd	1610 Homer
243-45 S. Garfield	1852 S. 3rd

6670

WATER DEPARTMENT MONTHLY REPORT FOR MAY 1963

New or renewal construction consisted of:

Lower 4" C. I. across Oak St. at 12th prior to the installation of storm sewer. Two 90 deg. bends, two 45 deg. bends and 18' 4" pipe were used.

Installation of 6" C. I. service line to Army-Navy Reserve Center at N.O.P. One 12" x 6" tapping tee, one 6" tapping valve, 7'-6" C.I. pipe and one 6" sleeve were used.

The project of laying 6" C. I. pipe on Industrial Lane was completed this month, using 360' of 6" C. I. pipe, one fire hydrant and valve, and one 6" tee.

Installation of 8" interconnection between Pocatello and Alameda Water Systems was started and completed this month, using one 8" x 12" tapping tee, two 8" tapping valves, three 8" 90 deg. bends, two 8" $11\frac{1}{4}$ deg. bends, 44' 8" C. I. pipe, two 8" flg. x m. j. adapters, one 8" pressure reducing valve, one 8" x 8" tapping [redacted] TEE. OAK & [illegible]

The project of installing sprinkling system at the N. O. P. Park was started this month. To date 522' of 8" C. I. pipe, 1188' of 4" C. I. pipe, ten 4" x $1\frac{1}{2}$" tees, five 8" x 4" crosses, and seven 4" plugs were used.

Install 4" [redacted] VALVE at intersection of Wayne and Cedar to kill 3 blocks of 6" steel pipe on Cedar St.

A project of extending 6" C. I. pipe east on Poplar St. was started and completed this month, using one 6" valve, 160' of 6" C. I. pipe, and one 6" x 2" tee.

During the month 234, 922,000 gallons of water were consumed from the system, secured from the following sources:

Surface supplies and Wells 4, 6, & 7.	93,179,000
Well #2	43,355,000
Well #10	35,850,000
Well #19 & 20	12,248,000
Well #22	15,214,000
Well #23	31,496,000
Well #24	1,559,000
Well #25	279,000
UPRR Interconnection	1,742,000

This May figure is 534,000 less than last May's figure.

WATER DEPARTMENT MONTHLY REPORT FOR JUNE 1963

New or renewal construction consisted of:

The project of installing 8" C. I., 6" C. I., 4" C. I., 2" galv. and 1½" galv. mainlines and laterals was completed this month. To date 360' of 8" C. I. pipe, 420' of 6" C. I. pipe, 2488' of 4" C. I. pipe, 2202' of 2" and 1½" galv. pipe, three 8" x 4" crosses, three 6" x 4" crosses, twenty eight 4" x 1½" tees, five 4" plugs tapt 2", two 4" plugs, one 12" x 8" tapping tee and one 8" tapping valve were used. N.O.P. PREK

The project of lowering 12" C. I. at Oak and Day, 4" at Day and Garfield, 4" at Day and Hayes, 8" at Day and Grant, and 2" at Day and 2nd was started and completed this month. Two 12" 11¼ deg. bends, eight 4" 90 deg. bends, four 8" 90 deg. bends and 50' of 2" copper pipe were used.

The project of replacing 4" steel with 8" C. I. on Yellowstone between Pearl and Industrial Lane was started this month. To date 1400' of 8" C. I., three 8" x 6" tees and one fire hydrant were used.

During the month 236,572,000 gallons of water were consumed from the system, secured from the following sources:

Surface Supplies & Wells 4, 6, & 7	73,815,000
Well #3	74,707,000
Well #10	21,559,000
Well #18	3,495,000
Well #19 & 20	2,058,000
Well #22	2,344,000
Well #23	51,835.000
Well #24	1,800,000
Well #25	279,000
UPRR Interconn.	4,730,000

This June figure is 87,113,000 less than last June's figure.

Main line leaks were repaired at following locations:

1310 Jane	700 Blk. Birch
Stanford & Yale	7th & Bonneville
3751 Nora	2442 S. 2nd
Well Yard 10" line	1300 S. 2nd

13 new services were installed at following locations:

3" at NOP for Army Navy Reserve Center	61 Riverside
1392 Ammon	Blk. 7 Lot 10 Flamingo
52 Pershing	609 E. Cedar
112 Lou	1121 S. 4th
230 S. 13th	854 Cottage
1½" at 120 Fairway Dr. L/D.S. Seminary	616-626 Moreland
2" at 1440 Lakeview Dr. L.D.S. Church	

6 - HAMMOND
7 - POC.

6672

WATER DEPARTMENT MONTHLY REPORT FOR JULY 1963

New or Renewal Construction Consisted Of:

The project of replacing 4" steel pipe with 8" C. I. on Yellowstone Highway was completed this month. 108' of 6" T. J. C. I., 114' of 8" T. J. C. I., 54' of 4" T. J. C. I., two 8" valves, two 6" flg. x M. J. valves, one 4" valve, one 8" x 6" cross, two 8" x 4" tees, one 6" plug, one 4" 90 deg. bend, two 4" C. I. to O. D. couplets, one 4" steel coupler and one 6" pressure reducing valve were used this month.

The project of replacing 6" steel pipe with 6" C. I. pipe was started and completed this month. 1530' of 6" T. J. C. I., 60' of 4" T. J. C. I., two 6" x 6" tees, two 6" x 4" tees, two 4" valves, two 6" valves, two 6" 45 deg. bends, one 6" sleeve, one 6" C. I. to O. D. coupler and two 6" F. H. and valves were used. BENCH ROAD

Made 6" tap on Johnny Creek for Wendell Marshall.

During the month 627,211,000 gallons of water were consumed from the system, secured from the following sources:

Surface Supplies & Wells 4, 6, & 7	121,438,000
Well #2	81,527,000
Well #10	103,461,000
Well #16	97,243,000
Well #18	47,435,000
Well #19 & 20	13,442,000
Well #21	30,735,000
Well #22	29,455,000
Well #23	82,246,000
Well #24	7,750,000 est.
Well #25	279,000 est.
U.P.R.R. Interconnection	11,786,000

This July figure is 264,496,000 gallons more than last July's figure. 163,802,000 gallons of this figure were consumed in the Alameda Area.

Main line leaks were repaired at following locations:

533 N. 15th	Filmore & Oak
1000 E. Pine	5th & Bonneville
N. O. P. Park	1321 Ammon
500 Blk. W. Wyeth	843 Samuel

13 new services were installed at following locations:

209 Appaloosa	1253 E. Lewis
Fort Hall Replica	Bench Rd.
711 Richland	Two 3" for Highland High School
359 Lincoln	3801 Jason
1217 Lavine	316 W. Halliday
843 Samuel	3911 Hawthorne Rd.

6 - ALAMEDA
7 - POC.

6673

WATER DEPARTMENT MONTHLY REPORT FOR AUGUST 1963

New or Renewal Construction Consisted of:

The project of replacing 4" steel with 4" T. J. C. I. pipe on Charles St. was started and completed this month. 794' of 4" T. J. C. I. pipe, one 4" valve, one 90 deg., one 45 deg., four 22½ deg. and 4" plug were used.

The project of replacing 4" steel with 4" T. J. C. I. pipe on ~~Charles~~ JACKSON St. was started and completed this month. 350' of 4" T. J. C. I. pipe, one 4" valve and one 4" plug tapt 2" were used.

The project of lowering water mains prior to the storm sewer project at the south end of town was started this month. To date the water mains at following locations have been lowered.

6" main at 4th and Dunn, two 6" 45 deg. bends were used.

6" main at 3rd and Lawton, four 6" 45 deg. bends and 10' of 6" C. I. pipe were used.

10" and 12" main at 2nd and Stansbury.

10" main at 3rd and Putnam, two 10" 45 deg. bends were used.

14" main on 1st and Humbolt.

6" fire line was installed for Albertson's Store at 861 Yellowstone.

During the month 521,434,000 gallons of water were consumed from the system, secured from the following sources:

Surface Supplies & Wells 4,6, & 7	76,675,000
Well #3	73,246,000
Well #10	103,420,000
Well #12	29,292,000
Well #16	44,386,000
Well #18	37,710,000
Well #19 & 20	11,848,000
Well #21	26,397,000
Well #22	20,987,000
Well #23	79,576,000
Well #24	6,750,000
Well #25	279,000
U.P.R.R.	9,868,000

This August figure is 144,308,000 gallons more than last August's figure. 145,837,000 gallons of the 521,434,000 gallons was consumed in the Alameda Area.

WATER DEPARTMENT MONTHLY REPORT FOR SEPTEMBER 1963

New or Renewal Main Line Construction Consisted Of:

Lower 10" C. I. main at Humbolt & 2nd prior to storm sewer. Six 10" repair kits were used.

Lower 10" C. I. main at Lawton & 2nd prior to storm sewer. Four 10" repair kits were used.

Lower 6" C. I. main in easement between Westello Blvd. and Mar Vista for Seventh Day Adventists Church. Two 6" 45 deg. bends were used.

Abandon 6" steel water main running north from Syringa St. to Highland Golf Course Booster Station.

Lay 90' of 6" C. I. main on West Eldredge. The pipe was bought and trench dug by McLelland and the City layed the pipe.

A 4" valve was cut in 4" steel main on Los Altos Way.

During the month 230,041,000 gallons of water were consumed from the system, secured from the following sources.

Surface Supplies & Wells 4,6, & 7,	86,665,000
Well #2	34,230,000
Well #3	17,760,000
Well #16	24,215,000
Well #18	4,526,000
Well #19 & 20	3,858,000
Well #21	3,039,000
Well #22	8,261,000
Well #23	35,141,000
Well #24	3,000,000
Well #25	300,000
U.P.R.R.	6,346,000

This September figure is 77,262,000 gallons less than last September figure. 53,599,000 gallons of the 230,041,000 gallons were consumed in the Alameda Area.

Main line leaks were repaired at following locations.

400 Blk. Richland
6" steel on Taney Lane
700 Blk. Jefferson
1700 Blk. Syringa
962 E. Oak
Cedar & Moreland
1000 Blk. S. 3rd
Maple & Wayne
900 Blk. W. Center
2nd & Lawton
Alameda Shop

12 new services were installed at following locations:

1855 Syringa
1425 Monte Vista
848 Swisher Rd.
1421 E. Clark
1414 Ammon
433 Warren
3444 Hawthorne Rd.
555 N. Main
Blk. 1 Lot 1 Marcrest Add.
Blk. 3 Lot 1 Marcrest Add.
Blk. 3 Lot 5 Marcrest Add.
Blk. 3 Lot 7 Marcrest Add.

6675

WATER DEPARTMENT MONTHLY REPORT FOR OCTOBER 1963

New or Renewal Mainline Construction Consisted Of:

A project of laying 620' of 6" cast iron pipe on Valleyview was started and completed this month. One 6" tapping tee, one 6" tapping valve, one 6" 11¼ deg. bend, and one 6" tee were used.

Replace 3 lengths of 12" C. I. pipe on Quinn Rd. that were broken by Pecatelle Construction Co.

Replace 13' of 12" C. I. pipe on Quinn Rd. and McKinley broken by Pecatelle Construction Co.

A project of laying 200' of 2" copper pipe from Jackson Turn Around to the end of the oil on Los Altos Way was started and completed this month. A 2" pressure reducing valve was installed in this line.

A project of laying 450' of 4" cast iron pipe on Spence was started and completed this month. One 4" T. J. plug, one 4" 22½ deg. bend, one 4" gate valve were used.

During the month 259,833,000 gallons of water were consumed from the system, secured from the following sources.

Surface Supplies & Wells 4, 6, & 7	96,935,000
Well #2	45,711,000
Well #3	5,253,000
Well #16	37,990,000
Well #18	1,262,000
Well #19 & 20	6,524,000
Well #22	6,080,000
Well #23	50,195,000
Well #24	2,500,000
Well #25	300,000
U. P. R. R.	7,082,000

This October figure is 99,832,000 gallons more than last October figure. 65,599,000 gallons of the 259,833,000 gallons were consumed in the Alameda Area.

Main line leaks were repaired at following locations:

Rainey Park
155 Spence
600 Blk. Willard
Hurley & Quinn
135 Spence

9 new service lines were installed:

565 McKinley
3618 Jason
3939 Hawthorne Rd.
1855 Monte Vista
909 Jessie
1047 Shoshone
224 Appaloosa
3953 Hawthorne Rd.
890 Jefferson

6 - ALAMEDA
3 - POC

6676

WATER DEPARTMENT MONTHLY REPORT FOR NOVEMBER 1963

New or Renewal of Mainline Construction consisted of:

Installation of 6" pressure reducing valve at Canyon & Oasis. One 6" pressure reducing valve; two 6" flg. x M. J. valves, one 12" x 6" red. and 14' of 6" C. I. pipe were used.

Installed 396' of 6" C. I. pipe on Lakeview Drive for McLelland Lumber.

During the month 141,236,000 gallons of water were consumed from the system, secured from the following sources.

Surface Supplies & Wells 4, 6, & 7	71,960,000
Well #23	22,272,000
Well #24	300,000
Well #25	300,000
Well #2	46,404,000

This November figure is 23,747,000 more than last November figure. 22,972,000 gallons of the 141,236,000 gallons were consumed in the Alameda Area.

Mainline leaks were repaired at following locations:

2400 Blk. S. 2nd
500 Blk. Ridge
100 Blk. Richland
1200 Blk. S. 1st
500 Blk. Richland
600 Blk. E. Pine

9 new services were installed:

1326 Iris
1720 Syringa
500 Filmore
1321 Lakeview Dr.
1346 El Rancho
1719 Syringa
207 W. Eldredge
549 Hyde
1625 Ruby

8 - Alamfor
1 - Poc.

18 service lines were renewed:

540 Randolph
1215 S. 4th
1530 Homer
1215 S. 4th
634 Richland
452 S. 6th
238 Washington
1528 S. 4th
757 El Rancho
333 W. Center
1206 S. 4th
523 W. Gould
682 Richland
1317 Monte Vista
122 Park
240 Washington
105 Park St.
150 W. Chapel

WATER DEPARTMENT MONTHLY REPORT FOR DECEMBER 1963

New or Renewal of Mainline Construction consisted of:

Lowering of 6" C. I. water line on Industrial Lane for sewer line.

Installation of 12" x 6" tapping tee and 6" tapping valve on discharge line from West Bon: Tank, for Riedels Inc.

During the month 144,084,000 gallons of water were consumed from the system, secured from the following sources.

Surface Supplies & Wells 4, 6, & 7	72,575,000
Well #23	23,625,000
Well #25	300,000
Well #2	47,584,000

This December figure is 34,458,000 gallons more than last December figure. 23,925,000 gallons of the 144,084,000 gallons were consumed in the Alameda Area.

Mainline leaks were repaired at following locations:

None.

4 new services were installed:

Blk. 1 Lot 39 2nd Add. to El Rancho ✓
" Lot 41 " " " " " ✓
" Lot 40 " " " " "
161 Foot Hill Blvd.

3 - ALAMEDA
1 - POC.

5 service lines were renewed

122 W. Young
862 El Rancho
114 Roosevelt
478 Packard
457 West Carson

7 service lines were repaired:

724 S. 19th
1106 Cherry
420 E. Center
1475 Los Altos Way
244 S. 19th
931 E. Landor
722 N. Johnson

Meter and curb box repairs were made at:

3rd & Putnam

Gate Valve M. & O.

None.

6678

WATER DEPARTMENT MONTHLY REPORT FOR JANUARY 1964

No new or renewal of main line construction.

During the month 149,286,000 gallons of water were consumed from the system, secured from the following sources:

Surface Supplies & Wells 6 & 7	79,771,000
Well #2	47,375,000
Well #23	21,840,000
Well #25	300,000

This January figure is 31,548,000 gallons more than last January figure. 22,140,000 gallons of the 149,286,000 gallons were consumed in the Alameda Area.

Main Line leaks were repaired at following locations:

Johnson & Clark (2)
Chapel & Palmer Lane
South 5th

2 new services were installed:

Blk. 3 - Lot 8 - Monte Vista Dr. 2 - ALAMEDA
1639 Jean

Service lines renewed:

None

10 service lines were repaired:

225 S. 10th	355 West Halliday
744 S. Main	735 S. Harrison
1155 El Rancho	900 Yellowstone
450 S. 10th	767 W. Cedar
1618 S. 3rd	905 S. 5th

Meter and Curb B ox repairs were made at:

758 N. 7th	535 S. 9th
1530 N. Harrison	242 N. 6th

Gate Valve M. & O.

Valve box repaired at 3rd & Halliday

Fire Hydrant M. & O.

Check fire hydrant
Repair fire hydrant at Grant & Clark

WATER DEPARTMENT MONTHLY REPORT FOR FEBRUARY 1964

No new or renewal of main line construction.

During the month 140,610,000 gallons of water was consumed from the system, secured from the following sources:

Surface Supplies & Wells #6 & 7	73,494,000
Well #2	44,653,000
Well #23	22,163,000
Well #25	300,000

This February figure is 29,834,000 gallons more than last February figure. 22,463,000 gallons of the 140,610,000 gallons was consumed in the Alameda Area.

Main line leaks repaired at following locations:

300 Blk. N. 3rd
Hurley Lane & Quinn
Fredregill broken by Gas Co.
Pearl & Hiline Rd.
1506 S. 2nd

1 new service was installed at 1140 Fern.

1 service line renewed at 374 Jefferson.

13 service lines repaired:

109 Von Elm Lane
1019 Yellowstone
843 N. 10th
736 Myrtle
714 Jensen
341 S. 6th
1007 Yellowstone
1826 E. Clark
228 Emperial
225 W. Carson
1413 Monte Vista
Club Haven
New Library

Meter & Curb Box repairs were made at:

460 N. Lincoln
400 N. 13th
259 S. Johnson
134 Idaho

Gate Valve M. & O.

Replace valve box 3rd and Halliday
Clean out valve boxes at Walnut & Park, Maple & Park, Wayne & Walnut.

Fire Hydrant M. & O.

Rep. F. H. at Clark & Grant
Rep. F. H. at 2nd & Dillon
Rep. F. H. at East Humbolt
Attempt to replace F. H. at Park & Walnut
Check F. H. south of City
Repair 4" F. H. on Hilliard

WATER DEPARTMENT MONTHLY REPORT FOR MARCH 1964

No new or renewal of mainline construction.

During the month 155,674,000 gallons of water was consumed from the system, secured from the following sources.

Surface Supplies & Wells 6 & 7	81,096,000
Well #2	47,941,000
Well # 23	24,637,000
Well #25	2,000,000

This March figure is 7,713,000 gallons more than last March figure. 26,637,000 gallons of the 155,674,000 gallons was consumed in the Alameda Area.

Mainline leaks repaired at following locations:

100 Blk. Charles
700 Blk. Cypress
Johnson & Halliday

6 service lines were installed at following locations:

1780 Syringa
1690 Bench Rd.
5803 Hawthorne Rd.
1680 Bench Rd.
1041 Renee
720 West Yellowstone

8 service lines were renewed at following locations:

1345-47 N. Hayes
250 Franklin
856 Encino
219 S. Hayes
332 N. Lincoln
1389 Santa Anita
386 Los Altos Dr.
544 S. 11th

10 service lines were repaired at following locations:

1416 Monte Vista
1413 Alameda Rd.
754 N. Main
928 N. Main
1034 N. 9th
I.S.U. Maintenance Yard
114 Roosevelt
846 N. Main
J.A.C.L. Building
1028 N. 9th

Meter and curb box repairs were made at:

856 S. 1st
934 Buchanan
255 S. Johnson
752 N. 5th
98 Cottonwood
225 E. Putnam
731 S. Harrison
1009 N. Hayes
599 S. Hayes
1326 Iris
546 S. Main
156 N. 14th
1120 S. 2nd

6681

WATER DEPARTMENT MONTHLY REPORT FOR APRIL 1964

No new or renewal of mainline construction.

During the month 180,847,000 gallons of water was consumed from the system, secured from the following sources.

Surface supplies & Wells 4, 6, & 7	75,328,000
Well #2	36,750,000
Well #10	35,389,000
Well #19 & 20	1,218,000
Well #23	31,562,000
Well #25	600,000

This April figure is 28,582,000 more than last April's figure. 33,380,000 gallons of the 180,847,000 gallons was consumed in the Alameda Area.

Mainline leaks were repaired at the following locations:

2700 Blk. S. 5th	2nd & Lander
500 Blk. Wilson	1st & Lewis
109 Taft	859 Jefferson
200 Blk. E. Walnut	Well Yard
1100 Blk. S. 2nd	

15 new service lines were installed at following locations:

370 W. Oak	544 Richland
1145 E. Carter S.L.	1798 Syringa
1789 Syringa	1331 Yellowstone
1011 Redwood	218 Cottonwood
745 S. 5th	642 Richland
618 Richland	1706-14-20 E. Center
600 Richland	570 Richland
524 W. Pine	

14 service lines were renewed at following locations:

109 Taft	840 W. Fremont
1022-26 East Terry	344 Yellowstone
1531 N. Garfield	338 Washington
435 Hyde	1229 El Rancho
1135 E. Carter	936-46 E. Sublette
Halliwell Ball Park	638 S. 7th
815 Filmore	1820 S. 4th

22 service lines were repaired at following locations:

550 S. 9th	1365 S. 2nd
529 W. Eldredge	552 Zener
416 E. Dillon	540 S. Hayes
855 E. Whitman	390 Yellowstone
157 S. 18th	830 N. 9th
220 N. Arthur	235 S. 16th
531 N. 5th	744 N. 11th
531 S. 2nd	1312 Alameda Rd.
610 Poole	655 N. Garfield
705-15 S. Arthur	425 W. Carter
3560 Hawthorne Rd.	809 S. Arthur

6682

WATER DEPARTMENT MONTHLY REPORT FOR MAY 1964

New or Renewal of Mainline Construction consisted of:

A project of installing a 6" C. I. line in the Bannock County Fair Grounds was started and completed this month.
one 6" tapping tee, one 6" tapping valve, two 6" flanges x M. J. adapters, one 6" compound meter, five 6" x 4" tees, five 4" flg. x M. J. valves, five 4" steel 90 deg. bends, two 6" M. J. tees, one 6" F. H., one 6" T. J. plug tapt 2", one 2" valve, two valve boxes and 2200' of 6" C. I. pipe were used.

The project of renewing steel pipe with C. I. pipe on Ammon St. was started this month. To date 108' of 6" C. I. pipe and one 6" valve have been used.

During the month 348,203,000 gallons of water were consumed from the system, secured from the following sources.

Surface Supplies & Wells 6 & 7	67,689,000
Well #2	10,030,000
Well #3	28,971,000
Well #10	103,375,000
Well #16	36,352,000
Well #18	19,175,000
Well #19 & 20	6,954,000
Well #21	9,189,000
Well #22	11,406,000
Well #23	52,528,000
Well #25	1,006,000
U. P. R. R.	1,528,000

This May figure is 113,281,000 gallons more than last May's figure. 81,083,000 gallons of the 348,203,000 gallons were consumed in the Alameda Area.

Mainline leaks were repaired at following locations:

165 Randolph
244 S. 2nd
3800 Blk. Hawthorne Rd.
400 Blk. E. Bonneville
729 Cypress
400 Blk. No. 16th

32 new services were installed at following locations

317 S. Hayes
Blk. 4, Lot 1, Sunnyvale Add.
Blk. 4, Lot 3, " "
Blk. 3, Lot 11, Sunnyvale Add.
Blk. 3, Lot 10, " "
Blk. 1, Lot 6, Sunnyvale Add.
Blk. 1, Lot 7, Sunnyvale Add.
Blk. 2, Lot 20, Sunnyvale Add.
Blk. 2, Lot 19, Sunnyvale Add.
Blk. 2, Lot 15, Sunnyvale Add.
Blk. 2, Lot 17, Sunnyvale Add.
Blk. 2, Lot 18, Sunnyvale Add.
Blk. 5 - W.52' Lot 2, E.15' Lot 1 - Sunnyvale Add.
768 Cypress
1808 Iris
1246 Willard
1160 Fern
339 Fairway Dr.
1" at Airport
1832 Syringa
469 Roosevelt
1436 S. 2nd
1856 Syringa
1106 E. Poplar
369 Fairway Dr.
240 Palamino

6683

WATER DEPARTMENT MONTHLY REPORT FOR JUNE 1964

New or renewal of main line construction consisted of:

The project of renewing steel pipe with C. I. pipe on Homer, Ammon, Jane, and Hyde was continued during the month. To date 4171' of 6" C.I. pipe, 774' of 4" C. I. pipe, three 6" gate valves, seven 6" tees, five 6" x 4" tees, two 6" 45 deg. bends, two 6" fire hydrants, two 4" flg. x M.J. valves, one 4" pressure reducing valve, two 4" 22 deg. bends, one 4" 11¼ deg. bend, one 4" gate valve have been used.

Installed 12" x 8" tapping tee at Peterson Well.

Cut in 8" valve on 8" line on 13th and Terry and start removing 8" line for relocation.

Install 360' of 4" C. I. pipe and two 6" x 4" reducers on 1800 Blk. E. Bonneville replacing the existing 2" galvanized line.

During the month 271,526,000 gallons of water were consumed from the system, secured from the following sources:

Surface Supplies and Wells 6 & 7	77,120,000
Well #3	59,292,000
Well #10	34,248,000
Well #16	26,476,000
Well #18	6,631,000
Well #19 & #20	3,918,000
Well #21	7,459,000
Well #22	4,554,000
Well #23	52,593,000
Well #25	1,081,000
UPRR	5,535,000

34,954,000 GALS. MORE THAN 75,140,000

This June figure is ~~[illegible] gallons less than~~ last June's figure. 69,605,000 gallons of the 271,526,000 gallons were consumed in the Alameda Area.

Main Line leaks were repaired at the following locations:

400 Blk. N. 10th	Halliday & Hayes	200 Blk. Roosevelt
Garrettway & Maple	Homer Dr.	200 Blk. Thurston
500 Blk. Franklin	512 Fairmont	

11 new service lines were installed at the following locations:

656 S. 2nd	1133 N. 8th
1268 El Rancho	1667 Monte Vista
Blk. 2, Lot 5, Lakeview Heights	645 S. 8th
Blk. 2, Lot 3, Lakeview Heights	1428 Yellowstone
Blk. 1, Lot 6, Lakeview Heights	I.S.U. Dispensary
Blk. 2, Lot 1, Lakeview Heights	

WATER DEPARTMENT MONTHLY REPORT FOR JULY 1964

New or renewal of mainline construction consisted of:

The project of renewing steel pipe with C.I. pipe on Homer, Ammon & Jane was completed this month with installation of one 6" pressure red. valve, two flg. x m.j. 6" valves on intersection of Homer and Ammon. One 6" pressure red. valve, two 6" flg. x m.j. on Homer St., two 6" pressure red. valve, four 6" flg. x m. j. valves on Ammon St. The connection between the 14" steel from the tank to the new C. I. water line was made using one 12" tee, two 12" x 6" S. E. B. Red., one 12" m. j. valve, 18' of 12" C. I. pipe, one 12" 22½ deg. bend and one steel 14" to 12" red.

Lower 8" C. I. pipe at intersection of 15th and Oak prior to storm sewer project.

Lower 2" water line at Fremont and 15th prior to storm sewer project.

Lower 12" and 6" water lines at Clark and 15th prior to storm sewer project.

Replace 1" galv. pipe with 6" C. I. on south end of 3rd prior to street work.

Salvage 486' of 8" C. I. pipe, one 8" tee from Scardino Park.

During the month 630,797,000 gallons of water were consumed from the system, secured from following locations:

Surface Supplies	113,343,000
Well #3	81,989,000
Well #10	111,907,000
Well #12	10,571,000
Well #16	83,255,000
Well #18	40,108,000
Well #19 & 20	22,060,000
Well #21	39,915,000
Well #22	34,411,000
Well #23	81,360,000
Well #25	1,092,000
U.P.R.R.	10,797,000

This July figure is 3,586,000 more than last July's figure. 178,838,000 gallons of the 630,797,000 gallons were consumed in the Alameda Area.

Mainline leaks were repaired at the following locations:

15th & Hayden	733 Ash
2nd & Dillon	Homer & Ammon
Homer & Ammon	1400 Blk. S. 2nd
Cemetery	

WATER DEPARTMENT MONTHLY REPORT FOR AUGUST 1964

New or renewal of mainline construction consisted of:

440' of 14" steel was installed from El Rancho to Scardino Park on Park Lane. One 45 deg. bend and one 30 deg. bend were used.

During the month 559,383,000 gallons of water were consumed from the system, secured from the following locations:

Surface Supplies	102,545,000
Well #3	74,254,000
Well #10	109,281,000
Well #12	41,764,000
Well #16	26,476,000
Well #18	33,898,000
Well #19 & 20	22,364,000
Well #21	32,177,000
Well #22	31,711,000
Well #23	74,971,000
Well #25	1,122,000
U. P. R. R.	8,820,000

This August figure is 37,949,000 gallons more than last August's figure. 162,345,000 gallons of the 559,383,000 gallons were consumed in the Alameda Area.

Mainline leaks were repaired at the following locations:

500 Blk. N. Main
Davis Drive
Ammon Park
Johnson & Custer
400 E. Bonneville
2800 Blk. Poleline
Terry & Memorial Dr.

59 new service lines were installed at following locations:

379 Fairway Dr.
Blk. 4 - Lot 4
Lot 6 - Lot 8
Lot 9 - Lot 11
Lot 12 - Lot 13
Lot 14 - Lot 15
on Fern St.
653 S. 5th
246 S. 5th
1827 - 1883
1961 - 1932
1922 - 1912
1858 - 1872
1848 - 1942
1952 - 1962
1972 - 1841
Monte Vista Dr.
180 E. Griffith

Blk. 5 - Lot 4
Lot 5 - Lot 6
Lot 7 - Lot 8
Lot 9 - Lot 10
Lot 11 - Lot 12
Lot 13 on Fern St.

713 Cottage
Blk. 8, Lot 25, 1st Add. Paramount
Blk. 2 - Lot 5 - Lot 6
Lot 7 - Lot 8 - Lot 9
Lot 10 - Lot 11 - Lot 14
Blk. 4 - Lot 23 - Lot 24 36
Lot 28 - Lot 29 - Lot 30 56
Lot 31 - Lot 32 - Lot 33
Lot 25 - Blk 2, Lot 12
Lot 13 of East Bench Subd.
886 Yellowstone

8 service lines were renewed at the following locations:

6686

WATER DEPARTMENT MONTHLY REPORT FOR SEPTEMBER 1964

New or Renewal of Mainline Construction Consisted Of:

Lowering of 4" C. I. main at 8th and Halliday prior to new sewer project. Two 45 deg. bends and two 22½ deg. bends were used.

270' of 6" C. I. pipe was installed on 400 Blk. of Hyde St.

Make connection from old steel mains to new C. I. mains on Charles, Jackson, Spence and Hyde St.

During the month 412,056,000 gallons of water were consumed from the system, secured from the following locations:

Surface Supplies	82,264,000
Well #2	14,366,000
Well #3	48,455,000
Well #10	101,483,000
Well #12	15,085,000
Well #18	24,649,000
Well #19 and 20	10,208,000
Well #21	14,331,000
Well #22	28,256,000
Well #23	67,363,000
Well #25	1,248,000
U. P. R. R.	4,348,000

This September figure is 182,015,000 gallons more than last September's figure. 125,754,000 gallons of the 412,056,000 gallons were consumed in the Alameda Area.

Main line leaks were repaired at the following locations:

487 Highland

44 new service lines were installed at following locations:

1381 Bench Rd.
Blk, 11 - Lot 2
Lot 10 - Lot 9
Lot 6 - Lot 5
Lot 4 - Lot 3
Blk. 12 - Lot 11
Lot 8 - Lot 7
Lot 4 - Lot 3
Lot 2 - Lot 9
Lot 12
East Bench Subd.
Blk. 4 E. Half Lot 9 East Bench Subd.
187 W. Eldredge
206 W. Alameda Rd.
Blk. 2 - Lot 24
Lot 23 - Lot 22
Lot 21 - Lot 20
Lot 19 - Lot 16
Lot 15
Blk. 4 - Lot 22
East Bench Subd.
2015 Monte Vista
563 Cottage 40
901 Wilson
3782 Hawthorne Rd.
1398 Santa Anita
217 Nixon Rd.
Blokk 11 - Lot 1 - Blk. 5 - Lot 2, Lot 1; Blk. 4 - Lot 21 - Lot 20
Lot 19 - Lot 18 - Lot 17 - Lot 16 E. Bench Subd.

6687

WATER DEPARTMENT MONTHLY REPORT FOR OCTOBER 1964

New or Renewal of Mainline Construction Consisted Of:

Installation of 324' of 8" C. I. pipe and four 8" 90 deg. bends for Idaho State University at 9th & Lovejoy.

Installation of 6" C. I., 4" C. I., 2" galv. and 1½" galv. pipe for sprinkling system at Scardino Park.

During the month 267,025,000 gallons of water were consumed from the system, secured from the following locations.

Surface Supplies & Well #4, 6 & 7	107,016,000
Well #2	49,106,000
Well #10	11,399,000
Well #18	17,868,000
Well #19 & #20	4,400,000
Well #22	23,405,000
Well #23	52,753,000
Well #25	1,078,000

This October figure is 7,192,000 gallons more than last October's figure. 81,636,000 gallons of the 267,025,000 gallons was consumed in the Alameda Area.

Mainline leaks were repaired at following locations:

400 Blk. S. 4th
95 Toponce
540 S. Garfield
Linda & Alameda Rd.
Tanney Lane
400 Blk. Richland

20 new service lines were installed at following locations:

730 E. Clark
1365 Paramount
Blk. 2 - Lot 1 - Lot 2 - Lot 3 - Lot 4 - Lot 5 - Lot 6
Lot 7 - Lot 8 - Lot 9 - Lot 10 - Lot 11 - Lot 12 &
Blk. 1 - Lot 16 & Lot 1 of West Bench Subd.
670 Zener
2400 Garret Way 6" fire line
641 Cottage
1406 - 10 E. Wyeth

15
5

19 service lines were renewed at following locations:

205 E. Walnut
635 S. 8th
473 Franklin
245 N. 3rd
442 Richland
468 Richland
406 Richland
382 Richland
1630 S. 4th
544 S. Hayes
389 Pershing
422 N. 7th
1134 Verdugo
570 W. Maple
456 Richland
865 Linda
496 Richland
360 Richland
551-53-63 W. Halliday

6688

WATER DEPARTMENT MONTHLY REPORT FOR NOVEMBER 1964

No new or renewal of mainline construction.

During the month of November 147,038,000 gallons of water were consumed from the system, secured from the following locations.

Surface Supplies & Wells #4, 6 & 7	79,195,000
Well #2	35,569,000
Well #22	934,000
Well #23	29,367,000
Well #25	973,000

This November figure is 5,802,000 gallons more than last November figure. 32,274,000 gallons of the 147,038,000 gallons was consumed in the Alameda Area.

Mainline leaks were repaired at following locations:

15th & Terry
Eldredge & McKinley
1st & Lovejoy
300 Blk. East Bonneville
2nd & Fredregill
6th & Clark (2)
500 Blk. Moreland
600 Blk. West Clark (2)
900 Blk. E. Pine

8 new service lines were installed at following locations;

Blk. 6 - Lot 11 - El Rancho 2nd Addn.
549 Packard
Fine Arts Bldg. I. S. U.
Blk. 5 - Lot 4 - Fremont Heights
823 W. Fremont
190 Jefferson
Blk.7-Lot 10, El Rancho 2nd Addn.
Blk. 1-Lot 42,El Rancho 2nd Addn.

12 service lines were renewed at following locations:

1097 Cherry Lane
245 S. 3rd
238 Idaho St.
1437 Monte Vista
118 Roosevelt
480 McKinley
115 Roosevelt
355 S. 11th
965 Encino
1030 Yellowstone
212 Yellowstone
532 Franklin

6 service lines were repaired at following locations:

128 N. 11th
717-19 S. 5th
360 S. 4th
345 Buchanan
903 N. 11th
220 Jefferson

Meter & curb box repairs were made at following locations:

433 Curtis
1202 Swisher
124 S. Johnson
1500 S. 5th
101 Dartmouth
Blk. 1-Lot42 - El Rancho 2nd Addn.
124 S. 9th

Water Department Monthly Report for December 1964

New or Renewal of Mainline Construction Consisted Of:

A project of installing 6" C.I. main east on Terry St. from University Dr. for Wendell Marshall was started and completed this month. 648' of 6" T.J. C.I.P. was used, one 6" gate valve, one 6" x 4" tee, one 6" x 6" tee and one 6" fire hydrant and auxiliary valve.

A project of relocating 8" C. I. main on S. 13th for I. S. U. was started and to date 162' of 8" T.J. C. I. P. and one 8" 90 deg. bend has been installed.

During the month of December 148,813,000 gallons of water was consumed from the system, secured from the following locations.

Surface Supplies & Wells #4, 6 & 7	67,036,000
Well #2	45,369,000
Well #23	35,421,000
Well #25	987,000

This December figure is 4,729,000 gallons more than last December figure. 36,418,000 gallons of the 148,813,000 gallons was consumed in the Alameda Area.

Mainline leaks were repaired at following locations:

800 Blk. Wayne	800 Blk. Jefferson
9th & Sublette-Curb line	941 Wayne
6th & Clark	700 Blk. Wayne

4 new services were installed at following locations:

3256 Highway West (2)	1246 El Rancho
Jr. High School on East Terry	

6 service lines were renewed at following locations:

275 Sorenson	304 N. 12th
431 S. 6th	409 S. 11th
635 Richland	1215 E. Alameda Rd.

9 service lines were repaired at following locations:

1053 E. Walnut	1015 La Brea
354 S. Grant	1237 E. Lewis
734 W. Cedar	1138 S. 3rd
Lot 3, Blk. 6, ElRancho Verde	270 Thurston
1100 Blk S. 3rd	

Meter & curb box repairs were made at following locations:

157 S. 15th	2523 Pole Line Rd.
2700 S. 5th	131 N. 5th

WATER DEPARTMENT MONTHLY REPORT FOR JANUARY 1965

New or Renewal of Mainline Construction Consisted Of:

The project of relocating 8" C. I. main on South 13th for I.S. U. was completed this month, using 594' of 8" C. I. pipe, one 8" x 4" tee, and two 8" 45 deg. bends.

During the month of January 159,511,000 gallons of water was consumed from the system, secured from the following locations:

Surface Supplies	82,283,000
Well #2	39,803,000
Well #23	36,740,000
Well #25	685,000

This January figure is 10,225,000 gallons more than last January figure. 37,425,000 gallons of the 159,511,000 gallons was consumed in the Alameda Area.

Mainline leaks were repaired at following locations:

1100 Blk. S. 2nd
900 Blk. East Maple
700 Blk. Wayne
1300 Blk. S. 2nd
1642 S. 2nd.

3 new services were installed at following locations:

4" to New Girls Dormitory I. S. U.
4" fire line to New Girls Dormitory I. S. U.
509 Wilson

3 service lines were renewed at following locations:

649 Packard
682 Randolph
594 Jefferson

13 service lines were repaired at following locations:

519 N. 11th
440 E. Carter
306 S. 7th
841-845 E. Wyeth
714 N. Lincoln
Lot 20, Blk. 5, El Rancho Verde
121 N. 18th
227 N. 9th
1005 S. 4th
2440 S. 2nd
745 N. 11th
1160 Fern
660 Park Lane

Meter and curb box repairs were made at following locations?

714 N. 16th
387 Taft
270 Thurston
310 S. 3rd
1437 E. Wyeth
429 N. 5th
190 Jefferson
490 University Dr.

WATER DEPARTMENT MONTHLY REPORT FOR FEBRUARY 1965

No new or renewal of mainline construction.

During the month of February 146,898,000 gallons of water was consumed from the system, secured from the following locations:

Surface Supplies & Wells #4 & #7	93,542,000
Well #2	18,727,000
Well #23	33,848,000
Well #25	781,000

This February figure is 6,288,000 gallons more than last February figure. 34,629,000 gallons of the 146,898,000 gallons was consumed in the Alameda Area.

Mainline leaks were repaired at following locations:

900 Blk. Wayne	300 Blk. Moreland
11th & Benton curb line	300 Blk. Moreland
900 Blk. Taney Lane	New Girls Dorm. (2)
1st & Bonneville	

4 new services were installed at following locations:

475 Yellowstone	3306-08-10 Pole Line Rd.
1" at Airport	639 McKinley

8 service lines were renewed at following locations:

1616 Monte Vista	1203 E. Lewis
1165 Encino	527 Filmore
498 Washington	771 Cypress
1659 Monte Vista	1125 Encino

7 service lines were repaired at following locations:

369 Fairway Dr.	792 Cypress
1034 La Brea	428 McKinley
1406 E. Center	1338 N. Grant
540 N. 9th	

Meter and curb box repairs were made at following locations:

3705 Pole Line	3449 Jason
140 Eldredge	1041 N. Garfield
141 S. 9th	1338 N. Grant
51 Ravine	168 Berryman
251 N. Main	624 S. 6th
1132 E. Clark	443 Roosevelt
303 S. 2nd	

Gate Valve M. & O.

None.

WATER DEPARTMENT MONTHLY REPORT FOR MARCH 1965

New or Renewal of Mainline Construction:

The project of installing 14" steel pipe from new well at Industrial Lane & McKinley to new reservoir east of Highland Golf Course. To date 1760' of 14" steel pipe has been installed.

During the month of March 165,608,000 gallons of water was consumed from the system, secured from following locations:

Surface Supplies	89,322,000
Well #2	36,541,000
Well #23	38,910,000
Well #25	835,000

This March figure is 9,934,000 gallons more than last March figure. 39,745,000 gallons of the 165,608,000 gallons was consumed in the Alameda Area.

Mainline leaks were repaired at following locations:

8" line at College	Fredregill & 2nd
300 Blk. S. 1st	Los Altos Way
2nd & Fredregill	839 Yellowstone
300 Blk. W. Clark	Old Portneuf Park Line

9 new services were installed at following locations:

355 S. Arthur	1661 Bath
1352 E. Center	1319 Pocatello Cr. Bench Rd.
131 S. 9th	925 Wilson
1 Creighton	3920 S. 5th
2700 S. 5th	

12 service lines were renewed at following locations:

344 S. 10th	1323 E. Lander
957 Encinso	1035 El Rancho
334 S. 1st	854 El Rancho
350 Oak	535 S. Hayes
456 S. Johnson	736 West Benton
207 E. Cedar	1085 Encinso

13 service lines were repaired at following locations:

153 S. 7th	369 Fairway Dr.
456 S. 11th	169 Fuller Way
956 Broadway	2645 S. 2nd
1235 S. 5th	793 MarLu
1056 Patsy	248 N. Main
3541 Valley Rd.	540 S. Johnson
3920 S. 5th	

WATER DEPARTMENT MONTHLY REPORT FOR APRIL 1965

New or Renewal of Mainline Construction:

Installed 324' of 6" C.I. pipe, one 6" valve and one 6" fire hydrant in easement off east end of Syringa St. to Pocatello Creek Rd.

The project of installing 14" steel pipe from new well at Industrial Lane & McKinley to new reservoir east of Highland Golf Course was continued this month with 5760' of 14" steel pipe installed.

During the month of April 175,048,000 gallons of water was consumed from the system, secured from the following locations:

Surface Supplies & Wells #4,#6, & #7	71,810,000
Well #2	36,361,000
Well #3	17,536,100
Well #20-A & 20-B	1,032,000
Well #22	3,689,000
Well #23	43,357,000
Well #25	1,263,000

This April figure is 5,799,000 gallons less than last April's figure. 49,341,000 gallons of the 175,048,000 gallons was consumed in the Alameda Area.

Mainline leaks were repaired at following locations:

300 Blk. Lovejoy
End Syringa St.
10" to Highland Booster Station
Oak & Randolph
Pine & Pershing

5 new services were installed at following locations:

509 Yellowstone
332 Fredregill Rd.
512 Yellowstone
New School Pocatello Cr. Rd.
431 N. 15th

17 service lines were renewed at following locations:

535 Filmore
1025 Yellowstone
498 Moreland
453 Richland
465 Richland
441 Richland
789 McKinley
370 Los Altos Dr.
745 El Rancho
206 Willard
1031 Yellowstone
245 S. 9th
489 Richland
477 Richland
417 Richland
290 E. Oak
405 Fairmont

16 service lines were repaired at following locations:

625 Poole
518 Poole
633 Poole
1123 N. Main

6694

WATER DEPARTMENT MONTHLY REPORT FOR MAY 1965

New or Renewal of Mainline Construction:

The project of installing 14" steel pipe from new well at Industrial Lane and McKinley to New Reservoir east of Highland Golf Course was continued this month with 6980' of 14" steel pipe installed.

During the month of May 313,549,000 gallons of water was consumed from the system, secured from the following locations:

Surface Supplies & Wells #4 - #6 - #7	100,742,000
Well #3	75,887,000
Well #10	28,638,000
Well #16	2,039,000
Well #18	11,998,000
Well #20-A & 20-B	7,714,000
Well #21	7,848,000
Well #22	10,907,000
Well #23	61,724,000
Well #24	4,913,000
Well #25	1,139,000

This May figure is 34,654,000 gallons less than last May's figure. 105,244,000 gallons of the 313,549,000 gallons was consumed in the Alameda Area.

Mainline Leaks were repaired at following locations:

700 Blk. Wayne	400 Blk. Wilson
1700 Blk. S. 2nd	500 Blk. E. Pine
Gould & Main	2 - 700 Blk. S. 1st.
700 Blk. Wilson	

5 new services were installed at following locations:

555 S. Grant	355 S. Garfield
40 Teponce	Airport Car Race Track
93 Stanford	

8 service lines were renewed at following locations:

405 Park	630 W. Maple
1117 S. 5th	1252 N. Hayes
1031 N. Garfield	1334 N. Garfield
1225 E. Alameda Rd.	1414 N. Garfield

WATER DEPARTMENT MONTHLY REPORT FOR JUNE 1965

New or Renewal of Mainline Construction:

The project of installing 14" steel pipe from new well at Industrial Lane and McKinley to new reservoir east of Highland Golf Course was continued this month with 960' of 14" steel pipe installed.

The project of installing 4" C. I. water line on Ruby Street, before street improvements, was started and completed with the installation of: 548' of 4" C. I. pipe, one 6" x 4" tapping tee; one 4" tapping valve; one 4" 22½ deg. bend; one 4" fire hydrant and one 4" T. J. plug.

The project of installing 4" C. I. water line on 300 Block No. 17th, before street improvements, was started and completed with the installation of 396' of 4" C. I. pipe, one 4" valve and one 4" tapt 1½" tee.

The project of replacing 6" steel with 6" C. I. pipe on Monte Vista was started before street improvements; to date 1536' of 6" C. I.; two 6" valves; two 6" tees and one 6" fire hydrant installed.

Replace 2" galv. with 404' of 2" copper on the 3100 Blk. S. 5th.

Replace 2" galv. with 4" C. I. in the intersection of 15th and Fremont and 15th and Lander before Street improvements. 76' of 4" C. I., two 4" valves; two 4" 45 deg. bends; two 4" plugs and one 6" x 4" S. E. B. Red.

During the month of June 460,207,000 gallons of water was consumed from the system, secured from the following locations:

Surface Supplies & Wells #4, #6, #7	108,503,000
Well #3	73,878,000
Well #10	80,604,000
Well #16	36,633,000
Well #18	20,278,000
Well #20-A and 20-B	10,862,000
Well #21	22,576,000
Well #22	17,042,000
Well #23	72,413,000
Well #24	16,484,000
Well #25	934,000

This June figure is 188,681,000 gallons more than last June's figure. 140,311,000 gallons of the 460,207,000 gallons was consumed in the Alameda Area.

Mainline leaks were repaired at following locations:

2nd & Fredregill	Cypress & Pole Line
1106 Cherry Lane	Highland Golf Course

Water Department Monthly Report for July 1965

New or Renewal of Mainline Construction:

Install 6" x 4" tapping tee, 4" tapping valve and 342' of 4" C. I. pipe on Dunn St. at end of Cemetery. Installed to run water into surface water ditch.

The project of replacing 6" steel with 6" C. I. on Monte Vista was completed with 50' of 6" C. I. pipe, one 6" M. J. sleeve, one 6" Pacific States valves and one 6" 90 deg. bend.

The project of installing 8" - 6" and 4" C. I. pipe on Fairway Dr. and Fairway Circle was started this month. To date 2483' of 8" C. I. pipe, 600' of 6" C. I. pipe, 828' of 4" C. I. pipe, one 8" M. J. tee, four 8" x 6" M. J. tees, three 8" M. J. valves, one 8" x 4" M. J. Tee, three 6" Pacific States fire hydrants, two 6" M. J. valves, two 6" M. J. 45 deg. bends, two 6" tapt 1½" M. J. tees, one 6" M. J. tee, one 6 " x 4" S. E. B. red., two 4" M. J. valves and one 4" 45 deg. bend has been installed.

During the month of July 535,218,000 gallons of water was consumed from the system, secured from the following locations:

Surface Supplies & Wells #4 - 6 & 7	112,987,000
Well #3	77,518,000
Well #10	108,241,000
Well #12	2,764,000
Well #16	49,087,000
Well No. 18	17,860,000
Well No. 20-A & 20-B	13,600,000
Well #21	29,675,000
Well #22	28,177,000
Well #23	71,882,000
Well #24	22,442,000
Well #25	985,000

This July figure is 95,579,000 gallons less than last July's figure. 166,761,000 gallons of the 535,218,000 was consumed in the Alameda Area

Mainline leaks were repaired at following locations:

118 Chase	2400 S. 2nd
Ammon Park - 14" steel	14" line to New Tank
17th & Clark	15th & Lander
El Rancho 14" to New Tank	300 Blk. Warren
Fairway Dr. & Von Elm	12" steel Ross Park
1200 B lk. S. 2nd	100 Blk. Moreland
Bannock & Connor	1000 Blk. East Terry

27 new services were installed at following locations:

1510 S. 3rd	1457 S. 2nd	911 N. Main	30 Debbie
996 Cottage	1020 Renee	3620 Hawthorne	
5 services on Monte Vista to vacant lots		357 Valleyview	
5 services on Renee to vacant lots		29 Debbie	
3 services on Ruby to vacant lots		364 Roosevelt	
Vacant lot on 300 Blk. No. 17th		331 Valleyview	
Vacant lot on 1700 Blk. E. Clark		18 Debbie	

6697

WATER DEPARTMENT MONTHLY REPORT FOR AUGUST 1965

New or Renewal of mainline construction:

The project of installing 14" C. I. discharge line from new tank was started and completed this month. 1955' of 14" C. I., two 14" cross valves, two 14" x 8" red., one 14" x 6" red., three 8" gate valves, one 14" 22½ deg. bend, one 14" 45 deg. Y branch and two 14" 45 deg. bends were used.

The project of installing 8", 6" and 4" C. I. pipe on Fairway Dr. and Fairway Circle was completed this month. 709' of 8" C. I., one 8" gate valve, 180' of 6" C. I., one 6" 11 1/4 deg. bend, one 6" gate valve, 300' of 1½" copper and two 1½" valves were used.

The project of replacing 14" steel pipe with 14" ductile C. I. from Hyde St. Booster Station to water tank was started this month. To date 370' of 14" ductile C. I. pipe has been installed.

During the month of August 459,681,000 gallons of water was consumed from the system, secured from the following locations:

Surface Supplies & Wells 4 - 6 & 7	95,990,000
Well #3	68,134,000
Well #10	80,931,000
Well #12	13,010,000
Well #16	42,288,000
Well #18	26,755,000
Well #20 A & 20B	4,222,000
Well #21	15,388,000
Well #22	14,921,000
Well #23	66,546,000
Well #24	20,516,000
Well #25	980,000

This August figure is 99,702,000 gallons less than last August's figure. 122,573,000 gallons of the 459,681,000 was consumed in Alameda Area.

16 new services were installed at following locations:

L.D.S. Church Quinn & Hawthorne	412 Fairway Dr.
1488 Los Altos Way	1056 N. 9th
1270 Santa Anita	1273 Santa Anita
1267 Santa Anita	1259 Santa Anita
1251 Santa Anita	978 Malibou
3400 S. 5th	157 S. 18th
541 Yellowstone	Blk. 7-Lot 20, Santa Anita
1256 Santa Anita	400 Fairway Dr.

16 service lines were renewed at following locations:

137 Wilson	955 N. 10th
934 W. Clark	348 Richland
337 W. Hayden	1216 E. Alameda Rd.
1201 E. Alameda Rd.	1175 E. Alameda Rd.
1135 E. Alameda Rd.	1755 Beth
237 Taft	1241 Alameda Rd.
1619 S. 4th	342 Jefferson
472 Hyde	785 Wayne

WATER DEPARTMENT MONTHLY REPORT FOR SEPTEMBER 1965

New or Renewal of Mainline Construction Consisted Of:

The project of replacing 14" steel pipe with 14" and 12" ductile C. I. pipe from Hyde St. Booster to east side of Interstate was continued this month with 1483' of 14" ductile C. I., 563' of 12" ductile C. I., two 14" gate valves, one 14" x 12" tee, one 14" x 4" tee and one 1" gate valve being installed.

A project of installing a 4" tee, 4" gate valve and 53' of 4" C. I. for blow off line from 4" line to Jr. High School on Buckskin Road was completed this month.

A project of installing 4" C. I. on 600 and 700 Blk. of S. Harrison was started this month. To date 659' of 4" C. I., two 4" tees, one 4" T. J. plug and one 4" fire hydrant has been installed.

During the month of September 288,052,000 gallons of water was consumed from the system, secured from the following locations:

Surface Supplies and Wells 4 - 6 & 7	110,410,000
Well #2	14,755,000
Well #3	41,400,000
Well #16	44,023,000
Well #18	17,237,000
Well #20A & 20B	1,218,000
Well #21	5,946,000
Well #22	6,433,000
Well #23	45,610,000
Well #25	1,000,000

This September figure is 124,004,000 gallons less than last September's figure. 60,207,000 gallons of the 288,052,000 gallons was consumed in the Alameda Area.

80 new services were installed at following locations:

424 - 436 - 446 - 456 - 464 - 474 - 484 - 500 - 510 - 520 - 534 - 540 - 550 - 560 - 505 - 495 - 483 - 471 - 453 - 535 - 389 - 417 - 429 - 441 Fairway Drive

120 - 134 - 108 - 117 - 120 - 134 - 142 - 156 - 133 - 127 - 121 - 115 - 111 - 109 - 107 - 110 - 116 - 118 - 126 - 145 - 131 - 127 Fairway Circle

Blk. 10 - Lot 23 - Lot 24 - Lot 25 - Lot 26 - Lot 27 - Lot 28 - Lot 29 - Lot 17 - Lot 18 - Lot 19 - Lot 21 - Lot 22 - Lot 15 - Lot 16 2nd Addition to Paramount.

Blk. 8 - Lot 23 - Lot 24 - Lot 26 - Lot 27 - Lot 15 - Lot 12 - Lot 16 - Lot 18 - Lot 19 - Lot 20 - Lot 8 - Lot 10 - Lot 11 - Lot 13 - Lot 14 - 2nd Addition to Paramount

808 N. 8th
6" fire for Old Faithful on Hawthorne Rd.
8" for Westwood Village
508 Pine
149 S. 14th

WATER DEPARTMENT MONTHLY REPORT FOR OCTOBER 1965

ew or Renewal of Mainline Construction consisted of:

The project of installing 4" C. I. on 600 and 700 Blk. S. Harrison was completed using 102' of 4" C. I. pipe, one 4" gate valve and one 10" x 4" red.

Installed 6" pressure reducing valve on 6" water line between 300 and 400 Blk. Fairway Dr.

Lower 12" water line at Maple and Moreland for storm sewer.

Block 14" water line in conduit under Interstate at Ammon Park.

During the month of October 232,875,000 gallons of water was consumed from the system, secured from the following locations:

Surface Supplies and Wells #4 - 6 & 7	116,660,000
Well #2	49,831,000
Well #16	15,199,000
Well #18	8,422,000
Well #20A & 20B	12,060,000
Well #22	3,764,000
Well #23	26,076,000
Well #25	863,000

This October figure is 34,150,000 gallons less than last October's figure. 42,763,000 allons of the 232,875,000 gallons was consumed in the Alameda Area.

42 new services were installed at following locations:

16 services at Westwood Village
533 West Quinn — 553 Cottage
Blk. 5 - Lot 27, Lot 26, Lot 25, Lot 24 Northgate Add. #1
1015, 1126, 1118, 1054, 1046, 1034, 1026, 1018, 1023, 1031, 1043, 1055, 1109, 1121 and 1131 Malibou
630 Industrial Lane — 1325 Palmer Lane
415 Yellowstone — 1216 S. 4th
527 S. 12th

10 service lines were renewed at following locations:

605 S. Harrison	629 S. Harrison
643 S. Harrison	731 S. Harrison
715 S. Harrison	245 S. Lincoln
675 Richland	650 Wayne
(2) 1310 Willard	

WATER DEPARTMENT MONTHLY REPORT FOR NOVEMBER 1965

New or Renewal of Mainline Construction consisted of:

Raise 12" water line at 12th and Oak for storm sewer.

Connect 6" lines on east and west side of Highway 30 and Maple St. to 12" line under highway. One 12" x 6" A. B. red., one 12" x 6" tee; one 12" M. J. plug; one 6" M. J. valve and 18' of 12" C. I. pipe was used.

During the month of November 162,482,000 gallons of water was consumed from the system, secured from the following locations:

Surface Supplies & Wells #4 - 6 - 7	96,585,000
Well #2	47,957,000
Well #20 A & B	2,038,000
Well #22	1,784,000
Well #23	12,491,000
Well #27	1,627,000

This November figure is 15,444,000 gallons more than last November's figure. 17,940,000 gallons of the 162,482,000 gallons was consumed in the Alameda Area.

13 new services were installed at following locations:

561 Richland ✓
554 W. Pine ✓
145 Fairway Circle ✓
160 Fairway Circle ✓
1321 East Oak ✓
610 Jefferson ✓
246 N. 18th
194 Appaloosa ✓
8" fire line 630 Ind. Lane
157 Fairway Circle ✓
825 Jessie ✓
201 N. 5th
395 Pershing ✓

13 service lines were renewed at following locations:

246 Wayne
1265 Monte Vista
141 Taft
220 S. 4th
157 Roosevelt
794 Willard
1605 Monte Vista
540 Washington
67 Cottonwood
333 Randolph
224 S. 4th
121 Roosevelt
744 N. Harrison

16 service lines were repaired at following locations:

752 Park Lane
1226 Lavine
1106 E. Terry
1040 N. 9th
1236 S. 4th
716 Hemlock
708 N. 8th
870 Highland
106 S. 13th
1714 Hubbard
720 Birch
325 W. Clark
325 Fairway
443 N. 16th
310 Valleyview
1112 N. Harrison

6701

WATER DEPARTMENT MONTHLY REPORT FOR DECEMBER 1965

New or Renewal of Mainline Construction Consisted Of:

Connection of 6" steel to 10" C. I. main at Pocatello Creek Rd. One 10" x 6" tapping tee, one 6" tapping valve, 15' of 6" C. I. pipe and one 6" C. I. to 6" steel coupler was used.

6" interconnection of Pocatello and Alameda Systems at Pine and Moreland. One 6" pressure red. valve, one 12" x 6" tapping tee, one 6" tapping valve and 8' of 6" C. I. pipe was used.

During the month of December 153,847,000 gallons of water was consumed from the system, secured from the following locations:

Surface Supplies & Wells #4-6-7	101,064,000
Well #2	48,089,000
Well #25	292,000
Well #27	3,702,000

This December figure is 5,034,000 gallons more than last December's figure.

Main Line breaks 4

3 new services were installed at following locations:

2008 Monte Vista
910 Jefferson
~~20022~~ Monte Vista
2022

4 service lines were renewed at following locations:

534-40 N. 5th	730 N. 5th
967 Cahoon	308 E. Lawton

13 service lines were repaired at following locations:

605 N. Hayes	132 N. Grant	1212 E. Clark
8th & Lovejoy	744 N. Harrison	
650 N. Main	Bridger & Harrison	
1016 Cahoon	840 N. Lincoln	
305 S. 7th	111 Randolph✓	
1655 S. 4th	402 McKinley✓	

6702

WATER DEPARTMENT MONTHLY REPORT FOR JANUARY 1966

New or Renewal of Mainline Construction Consisted Of:

Installed 200' of 6" C. I. on east side of Highland Golf Course connecting Golf Course to new tank.

Installed 50' of 8" C. I. on north end of Golf Course connecting Golf Course to new tank.

During the month of January 158,394,000 gallons of water was consumed from the system, secured from the following locations:

Surface Supplies & Wells #7	101,486,000
Well #2	49,347,000
Well #25	1,310,000
Well #27	6,251,000

This January figure is 1,117,000 gallons less than last January's figure. 1,310,000 gallons of the 158,394,000 gallons was all that was produced in Alameda. The rest of the water consumed in Alameda came from the Pocatello System.

Mainline leaks were repaired at following locations:

Garfield & Whitman	Clark & 2nd
300 Blk. N. Main	1000 Blk. S. 2nd.

New service lines were installed.

None

4 service lines were renewed at following locations:

605 N. 13th	830 E. Maple
963 Patsy	917 W. Young

10 service lines were repaired at following locations:

132 N. Grant	1619 S. 4th
602 S. Main	618 S. 4th
637 W. Day	224 W. Carter
Dillon & 6th	1426 E. Center
1000 Yellowstone	1000 S. 2nd

Meter and Curb Box repairs were made at following locations:

1942 Monte Vista	1036 N. Hayes
1500 Blk. E. Hayden	1424 S. Garfield

Gate Valve M. & O.

Locate valves on Jensen, Hilliard & Ridge
Dig up valve on Fairway Dr.

WATER DEPARTMENT MONTHLY REPORT FOR FEBRUARY 1966

New or Renewal of Mainline Construction Consisted of:

Completing the job of connecting Highland Golf Course System to the new tank line with 6" C. I. pipe. One 6" x 6" x 6" x 4" steel cross, one 6" C. I. to steel coupler, one 4" steel coupler and two 6" steel couplers were used.

During the month of February 145,318,000 gallons of water were consumed from the system, secured from the following locations:

Surface Supplies & Well #7	96,345,000
Well #2	44,608,000
Well #25	849,000
Well #27	3,516,000

This February figure is 1,580,000 gallons less than last February figure. 849,000 gallons of the 145,318,000 gallons were all that were produced in Alameda. The rest of the water consumed in Alameda Area come from the Pocatello system.

Mainline leaks were repaired at following locations:

1000 Blk. S. 2nd	400 Blk. S. 1st
500 Blk. W. Clark	600 Blk. W. Clark

2 new service lines were installed:

532 Cottage	3771 Hawthorne Rd.

2 service lines were renewed at following locations:

486 Washington	254 E. Pine

8 service lines were repaired at following locations:

1321 Ammon	3636 Hawthorne Rd.
957 E. Halliday	90 Drake
1900 N. Harrison	218 S. 17th
15 Harvard	324 N. 4th

Meter and curb box repairs were made at following locations:

432 S. Lincoln	Flamingo Place
445 N. 12th	129 Taft

Gate valve M. & O.

Repair valve at Main & Lovejoy

Fire Hydrant M. & O.

Repair F. H. at Cedar & Richland
Flush F. H. at 200 Blk. Taft
Check F. H. at 2nd & Carter

WATER DEPARTMENT MONTHLY REPORT FOR MARCH 1966

New or Renewal of Mainline Construction Consisted of:

Relocate 4" water line at Riverside Golf Course. 218' of 4" C. I. pipe, four 4" 45 deg. bends, three 4" 90 deg. bends, one 4" L. J. cross and one 4" tapt 2" tee were used.

During the month of March 168,924,000 gallons of water was consumed from the system, secured from the following locations:

Surface supplies and Wells #4, 6, & 7	91,085,000
Well #2	47,747,000
Well #23	26,559,000
Well #25	833,000
Well #27	2,700,000

This March figure is 3,316,000 gallons more than last March's figure. 30,092,000 gallons of the 168,924,000 gallons was all that was produced in Alameda Area. The rest of the water consumed in the Alameda Area came from the Pocatello System.

Mainline leaks were repaired at following locations:

128 N. Hayes
9th & Young
Arthur & Gould
100 Blk. N. Main
400 Blk. Richland
Cedar & Pershing
600 Blk. Willard
15th & Terry
4" at I.S.U. Campus

6 new service lines were installed:

Idaho Power Substation
661 W. Cedar
3800 Hawthorne Rd.
112 N. 13th
1154 E. Cedar
135 Valleyview

17 service lines were renewed at following locations:

926 Willowlane
674 West Pine
418 Randolph
540 & 544 S. Hayes
404 W. Maple
402 McKinley
163 Willard
628 W. Custer
177 Filmore
1026 Willow Lane
346 Moreland
452 E. Cedar
630 Willard
910 N. Lincoln
2325 S. 2nd
2445 S. 5th
1268 E. Walnut

16 service lines were repaired at following locations:

133 S. 2nd
121 Fairway Circle
119 Appaloosa
722 N. Johnson
156 Spence
929 N. Lincoln
1240 Lavine
900 Highland
1643 N. 2nd
1106 E. Terry
538 N. 6th
423 E. Center
734 N. 11th
1009 N. Hayes
157 Fairway Circle
1200 Blk. S. 5th

6705

..ER DEPARTMENT MONTHLY REPORT FOR APRIL 1966

.ew or Renewal of Mainline Construction Consisted Of:

Replace 235' of 12" steel pipe with 12" C. I., three 12" M.J. gate valves; two 12" M. J. tees and one 12" steel to C. I. coupler at Reservoir #3.

Remove 8" water line from bridge at Irving Field.

Relocate 4" water main in easement at 614 Northland.

Install 196' of 8" C. I. pipe; 162' of 10" C. I. pipe; one 8" M. J. gate valve and one 10" M. J. gate valve on 1700 and 1800 Blk. of North Hayes. Relocation of water main prior to River Project.

During the month of April 297,298,000 gallons of water was consumed from the system, secured from the following locations:

Surface Supplies & Wells 4, 6 & 7	90,751,000
Well #2	28,900,000
Well #10	71,435,000
Well #16	20,099,000
Well #18	5,218,000
Well #20A & 20B	10,798,000
Well #21	1,383,000
Well #22	1,074,000
Well #23	53,245,000
Well #24	783,000
Well #27	13,612,000

This April figure is 122,250,000 gallons more than last April's figure. 80,895,000 gallons of the 297,298,000 gallons was consumed in the Alameda Area.
233 gallons per person, based on the Chamber of Commerce estimated population of 42,500.

Mainline leaks were repaired at following locations:

500 Blk. N. 9th	Bonneville & 2nd
600 Blk. E. Bonneville	941 Wayne

15 new service lines were installed:

431 Willard ✓	299 Fairway Dr. ✓ 8
3/4" at Airport	1402 Ammon ✓
1100 Blk. Pocatello Cr. Rd. ✓	41 Debbie
53 Debbie	1021 Redwood ✓
370 W. Pine ✓	1195 Pershing ✓
658 S. 9th	179 Appaloosa ✓
$1\frac{1}{4}$" summer line Old Alameda Shop ✓	39 Valleyview
1- 1/2" at Airport	

6706

WATER DEPARTMENT MONTHLY REPORT FOR MAY 1966

New or Renewal of mainline construction consisted of:

Connection of 14" ductile water main at Pine & Hyde Booster Station, East Side of Interstate 15 at Armon St. One 14" 35 deg. steel bend, one 14" steel to C. I. coupler, one 14" steel to steel coupler, 36' of 14" C. I. pipe, one 14" x 12" A. B. Red., one 12" flg. x M. J. adapter and one 12" flg. valve was used.

Project of installing 6" C. I. and 4" C. I. on Belmont was started and completed this month, using 438' of 6" T. J. C. I. pipe, 316' of 4" T. J. C.I. pipe, one 6" M. J. valve, one 6" fire hydrant, one 6" M. J. tee, one 6" x 4" S. E. B. Red. and one 4" T. J. plug.

During the month of May 484,636,000 gallons of water was consumed from the system, secured from the following locations.

Surface Supplies and Well #4, 6 & 7	146,575,000
Well #2	33,523,000
Well #3	12,525,000
Well #10	101,895,000
Well #16	30,791,000
Well #18	25,782,000
Well #20A and 20B	16,002,000
Well #21	31,875,000
Well #22	13,480,000
Well #23	47,058,000
Well #25	835,000
Well #27	24,295,000

This May figure is 173,087,000 gallons more than last May's figure. 133,545,000 gallons of the 484,636,000 gallons was consumed in Alameda Area. Based on the Chamber of Commerce estimated population of 42,500., there was 368 gallons of water per day per person consumed from the system.

Mainline leaks were repaired at following locations:

300 Blk. S. 1st
Alameda Rd. & Jefferson
138 Randolph
200 Blk. N. 2nd
Terry & Memorial Dr.

11 new service lines were installed:

4" at I.S.U. Girl's Dorm #2
42 Debbie
66 Debbie
4" for Interstate South Park
917 E. Lovejoy
4" 650 N. 7th, St. Anthony Hosp.
3/4" Bank Bldg.Westwood Village
54 Debbie
340½ S. Hayes
6" Fire Line 917 E. Lovejoy
841 S. 9th

6707

WATER DEPARTMENT MONTHLY REPORT FOR JUNE 1966

New or Renewal of Mainline Construction Consisted Of:

Relocate 8" water line on Whitman Street Bridge, four 8" 45 deg. bends and one 8" valve was used.

Project of installing 6" C. I. water main from 14" transmission line in Ammon Park to Lakeview Drive was started this month. To date 186' of 6" C. I. pipe, 14" x 6" tapping tee, one 6" tapping valve, one 6" flg. x m. j. adapter, one 6" pressure red. valve, one 6" flg. x m. j. valve, two 6" 22½ deg. bends, one 6" m. j. cross, two 6" m. j. plugs, one 6" m. j. valve, one 6" m. j. tee and one 6" fire hydrant w/valve was used.

During the month of June 545,655,000 gallons of water was consumed from the system, secured from the following locations:

Surface Supplies & Wells #4, 6 & 7	136,780,000
Well #3	66,480,000
Well #10	102,600,000
Well #15	2,782,000
Well #16	49,353,000
Well #18	31,219,000
Well #20A & 20B	19,630,000
Well #21	38,862,000
Well #22	24,284,000
Well #23	47,262,000
Well #27	26,403,000

This June figure is 85,448,000 gallons more than last June's figure. 156,441,000 gallons of the 545,655,000 gallons was consumed in the Alameda Area. Based on the Chamber of Commerce estimated population of 42,500, there was 428 gallons of water per person per day consumed from the system.

Mainline leaks were repaired at following locations:

2100 Blk. S. 2nd	400 Blk. S. 1st
300 Blk. Richland	2 on Garrett Way
1000 Blk. E. Maple	300 Blk. Richland

10 new service lines were installed:

4" - 650 N. 7th, St. Anthony Hosp.	4"-Center St & Interstate
844 E. Center - future use	279 Fairway
208 Rosewood	311 S. 8th
275 Myrl	658½ N. 6th
1156 N. Arthur	Vacant lot so. of 717 N. 6th

34 service lines were renewed at following locations:

138 N. Arthur	647 N. 6th	720 N. 6th	640 S. 8th
430 Taft	758 N. 6th	505 N. 6th	2 - Colonial Hall S.8th
209 S. 8th	331 Pershing	516 N. 6th	Residence Hall S.8th
336 S. 8th	360 Yellowstone	300 Blk.N.8th School	652 N. 6th
425 S. 8th	326 Yellowstone	826 Wilson	353 Pershing
215-17 N. Hayes	358 Yellowstone	916-26 E.Bonneville	345 Pershing
802 McKinley	349 Pershing	540 S. 8th	338 Yellowstone

6708

WATER DEPARTMENT MONTHLY REPORT FOR JULY 1966

New or Renewal of Mainline Construction Consisted Of:

Project of installing 6" C. I. main from 14" transmission line in Ammon Park to Lakeview Dr. was completed this month, using 130' of 6" C. I. pipe.

Project of installing 6" C. I. pipe on Samuel and Jason was started and completed this month. 1590' of 6" T. J. C. I. pipe, five 6" M. J. valves, two 6" M. J. tees, two 6" M. J. 45 deg. bends and one 6" steamer fire hydrant with valve was used.

Lower 8" C. I. main on 100 Blk. Pershing prior to storm sewer project. Two 8" M. J. 45 deg. bends were used.

Lower 4" steel main at Elm and Pershing prior to storm sewer project. Four 4" steel 45 deg. bends and eight 4" steel couplers were used.

During the month of July 728,682,000 gallons of water was consumed from the system, secured from the following locations:

Surface Supplies & Well 4, 6 & 7	130,180,000
Well #2	80,011,000
Well #10	110,032,000
Well #12	47,110,000
Well #15	5,071,000
Well #16	99,163,000
Well #18	44,147,000
Well #20A & 20B	22,282,000
Well #21	60,280,000
Well #22	31,422,000
Well #23	58,457,000
Well #27	40,527,000

This July figure is 193,464,000 more than last July's figure. 212,968,000 gallons of the 728,682,000 gallons was consumed in the Alameda Area. Based on the Chamber of Commerce's estimated population of 42,500, there was 560 gallons of water per person per day consumed from the system.

Mainline leaks were repaired at following locations:

Gibson St. Portneuf Park	Los Altos Way
Cedar & Washington	700 Blk. N. Grant
600 Blk. W. Clark	95 Toponce
700 Blk. S. 7th in alley (2)	700 Blk. E. Bonneville
Arthur & Buell	4th St. & Portneuf River

6709

WATER DEPARTMENT MONTHLY REPORT FOR AUGUST 1966

New or Renewal of Mainline Construction Consisted of:

Lower 10" steel main and 6" C. I. main at Maple and Pershing prior to storm sewer project. Eight 10" steel couplers, four 4" steel couplers, two 6" 45 deg. M. J. bends and four 10" steel 45 deg. bends were used.

Lower 8" C. I. main at Walnut and Pershing prior to storm sewer project. Four 8" 45 deg. M. J. bends, two 6" 45 deg. M. J. bends, one 8" sleeve and 15' of 8" C. I. pipe were used.

Project of installing 6" C. I. pipe on 400 Blk. Pershing was started and completed this month, using 620' of 6" C. I. pipe and two 6" valves.

Install temporary 14" steel main at 4th St. and Riverside Dr.

Salvage 200' of 10" C. I. pipe at 4th St. and Riverside Dr.

Lower 12" C. I. main at Pine and Pershing prior to storm sewer project. Four 12" 45 deg. M. J. bends, one 12" sleeve and one 12" x 6" tee were used.

Lower 8" steel line at Cedar and Pershing prior to storm sewer project. 62' of 8" C. I. pipe, two 8" 45 deg. M. J. bends were used.

During the month of August 623,379,000 gallons of water was consumed from the system, secured from the following locations:

Surface Supplies & Well #4, 6 & 7	101,816,000
Well #3	80,238,000
Well #10	106,540,000
Well #12	58,975,000
Well #16	64,541,000
Well #18	33,600,000
Well #20 A & 20 B	21,882,000
Well #21	41,460,000
Well #22	31,233,000
Well #23	54,956,000
Well #27	28,138,000

This August figure is 163,698,000 gallons more than last August. 177,669 gallons of the 623,379,000 gallons was consumed in the Alameda Area. Based on the Chamber of Commerce's estimated population of 42,500, there was 473 gallons of water per person per day consumed from the system.

WATER DEPARTMENT MONTHLY REPORT FOR SEPTEMBER 1966

New or Renewal of Mainline Construction Consisted Of:

Project of installing 12" ductile cast iron on Swisher Road and under Interstate was started and completed this month, using 1625' of 12" D. C. I. Pipe, two 12" valves, one 12" x 6" cross, one 6" valve, 14' of 6" C. I. Pipe, one 6" 90 deg. bend, two 12" x 6" tees, one 6" M. J. plug, one 12" M. J. plug, one 6" fire hydrant with 6" Kennedy valve, one 12" tee, one 12" sleeve and one 12" 45 deg. bend.

Remove old 16" c. i. and 14" steel pipe from river crossing at Well Yard in preparation to installing new river crossing.

During the month of September 387,091,000 gallons of water was consumed from the system, or 12,903,000 gals. per day, secured from the following locations.

Surface Supplies & Well #4, 6, & 7	71,044,000
Well #2	5,149,000
Well #3	52,750,000
Well #10	93,686,000
Well #12	20,291,000
Well #16	17,447,000
Well #18	12,191,000
Well #20A & 20B	19,120,000
Well #21	21,145,000
Well #22	13,947,000
Well #23	39,626,000
Well #27	20,695,000

This September figure is 99,039,000 gallons more than last September. 104,533,000 of the 387,091,000 gallons was consumed in the Alameda Area. Based on the Chamber of Commerce estimated population of 42,500, there was 303 gallons of water per person per day consumed from the system.

Mainline leaks were repaired at following locations:

Terry & Memorial Dr.	1400 Blk. N. 1st
Arthur & Lewis	500 Blk. S. 5th
745 Wayne	Moreland & Birch
400 Blk. Moreland	500 Blk. S. Main
Riverside Golf Course	

8 new service lines were installed at following locations:

477 Taft	196 Nixon
3" fire line 855 Yellowstone	1" - 855 Yellowstone
#2 Fire Station	Blk. 6 - Lot 2 - 4th Addn. to College Terrace
319 Crescent Dr.	Olympic Park

6711

WATER DEPARTMENT MONTHLY REPORT FOR OCTOBER 1966

New or Renewal of Mainline Construction Consisted Of:

The project of installing new river crossing at 4th St. and Riverside was completed this month. 35' of 8" C. I., 84' of 10" C. I., one 10" x 8" red., two 16" steel to 10" C. I. red., two 16" steel couplers, one 10" sleeve, one 10" valve, one 10" 90 deg. bend, two 10" 45 deg. bends were used.

The project of installing new river corssing at Well Yard was completed this month. 95' of 16" D. C. I., 38' of 8" C. I., one 16" C. I. 45 deg. bend, two 16" steel 45 deg. bend, one 16" steel 65 deg. bend, two 16" steel to C. I. couplers, one 16" x 8" tapping tee, one 8" tapping valve and one 8" steel to C. I. coupler.

During the month of October 237,945,000 gallons of water was consumed from the system, or 7,931,500 gallons per day, secured from the following locations:

Surface Supplies	53,948,000
Well #2	12,711,000
Well #10	95,921,000
Well #18	7,515,000
Well #20A & 20B	3,678,000
Well #21	918,000
Well #23	56,022,000
Well #27	7,232,000

This October figure is 5,070,000 gallons more than last October. 67,850,000 of the 237,945,000 gallons was consumed in the Alameda Area. Based on the Chamber of Commerce estimated population of 42,500 there was 187 gallons of water per person per day consumed from the system.

Mainline leaks were repaired at following locations:

Riverside Golf Course	1100 Blk. S. 2nd
Colorado Ave.	Yellowstone & Industrial Lane
1600 Blk. S. 2nd.	

7 new service lines were installed at following locations:

2 - 1002 Samuel	408 E. Whitman
705 Yellowstone	580 Roosevelt
3856 Hawthorne Rd.	845 Hyde

5 service lines were renewed at following locations:

343 Fredregill	118 Maplewood
225 Wilson	454 Fairmont
534 N. 11th	

Water Department Monthly Report for November 1966

New or Renewal of Mainline Construction Consisted of:

Installed 1430' of 4" C. I. pipe, two 4" valves, two 4" 45 deg. bends, one 4" 22½ deg. bend, four 4" tapt 2" tees, one 4" tee, one 3" valve, one 4" tapt 3" plug and one 4" 90 deg. bend at Riverside Golf Course.

Installed 14" altitude valve at Highland Water Tank.

During the month of November 167,354,000 gallons of water was consumed from the system, or 5,578,000 gallons per day, secured from the following locations:

		Pounds Chlorine Used
Surface supplies & wells #4 & 6	87,803,000	264.5
Well #2	39,390,000	106
Well #10	19,699,000	59.5
Well #23	14,916,000	46
Well #27	5,546,000	72
		548.0 pounds chlorine

This November figure is 4,872,000 gallons more than last November. Based on the Chamber of Commerce estimated population of 42,500 there was 131 gallons of water per person per day consumed from the system.

Mainline leaks were repaired at following locations:

131 S. 18th
14" steel Yellowstone & Industrial Lane
Canyon Dr.
6" Highland Booster Station

7 new service lines were installed at following locations:

218 Nixon
375 Roosevelt
580 Packard
2495 Garrett Way
3840 Hawthorne Rd.
1424 S. 2nd
576 W. Maple

8 service lines were renewed at following locations:

1132 E. Lewis
311 W. Elm
635 El Rancho
1053 E. Pine
222 Warren
938 E. Benton
825 Broadway
685 Yellowstone

WATER DEPARTMENT MONTHLY REPORT FOR DECEMBER 1966

New or Renewal of Mainline Construction consisted of:

None.

During the month of December 159,964,000 gallons of water was consumed from the system, or 5,160,129 gals. per day, secured from the following locations.

		Lbs. Chlorine Used
Surface Supplies & Wells #4 & 6	102,769,000	388
Well #2	50,180,000	144
Well #27	7,015,000	27
		559 lbs.

This December figure is 6,117,000 gallons more than last December. Based on the Chamber of Commerce estimated population of 42,500 there was 121 gallons of water per person per day consumed from the system.

Mainline leaks were repaired at following locations:

600 Blk. Cottage
2500 S. 2nd.

2 new service lines were installed at following locations:

3703 Pole Line Rd.
6" fire line St. Anthony Hospital

4 service lines were renewed at following locations:

286 E. Alameda Rd.
638 West Maple
1116 N. Grant
1164 E. Pine

10 service lines were repaired at following locations:

842 E. Clark
403 S. 9th
591 Zener
704 Northland
350 S. 10th
208 S. 6th
144 Everett
616 Ridge
11 Toponce
425 W. Whitman

Meter and curb box repairs were made at following locations:

147 N. Johnson
Elm & Jefferson
1354 El Rancho
2548 S. 2nd
1424 S. 2nd
992 Cottage
241 N. 11th
715 S. Garfield
770 W. Cedar
115 S. Garfield
615 El Rancho

Gate Valve M. & O.

None

6711

WATER DEPARTMENT MONTHLY REPORT FOR JANUARY 1967

New or Renewal of Mainline Construction Consisted Of:

None

During the month of January 167,905,000 gallons of water was consumed from the system, or 5,413,064 gals. per day, secured from the following locations.

		Lbs. Chlorine Used
Surface Supplies & Wells #4 & 6	69,055,000	258
Well #2	49,749,000	163
Well #7	42,465,000	138
Well #27	6,636,000	38
		597 lbs.

This January figure is 9,511,000 gallons more than last January. Based on the Chamber of Commerce estimated population of 42,500 there was 127.36 gallons of water per person per day consumed from the system.

Mainline leaks were repaired at following locations:

1300 Blk. Monte Vista
1900 Blk. S. 2nd
300 Blk. N. Main
(2) 500 Blk. West Whitman
Flamingo Dr.
382 Richland
925 Brennan

1 new service line was installed at following location:

139 Nixon

4 service lines were renewed at following locations:

1326 E. Fremont
458 Fairmont
540 West Pine
1012 S. 3rd

8 service lines were repaired at following locations:

416 N. 3rd
1329 Monte Vista
952 N. 9th
1019 E. Hayden
1112 Pocatello Ave.
3749 Jason
1105 S. 3rd
628 S. 5th

Meter and Curb Box repairs were made at following locations:

471 Fairway Dr.
1161 Spruce
334 N. 13th
835 El Rancho

6715

WATER DEPARTMENT MONTHLY REPORT FOR FEBRUARY 1967

New or Renewal of Mainline Construction Consisted Of:

Salvage 1000' of 6" C. I. pipe on Swisher Rd.

The project of installing 16" C. I. and 12" C. I. from Ross Park Wells to Stanford was started this month. To date 666' of 16" T. J. Ductile C. I. Pipe, one 16" M. J. valve and one 16" x 16" M. J. Tee have been used.

During the month of February 150,518,000 gallons of water was consumed from the system, or 5,375,642 gals. per day, secured from the following locations:

		Lbs. Chlorine Used
Surface Supplies	58,865,000	208.5
Well #2	45,076,000	173.5
Well #7	40,599,000	155.5
Well #27	5,978,000	30
		567.5 lbs.

This February figure is 5,200,000 gallons more than last February. Based on the Chamber of Commerce estimated population of 42,500 there was 126.49 gallons of water per person per day consumed from the system.

Mainline leaks were repaired at following locations:

600 Blk. S. 1st	1100 Blk. S. 2nd
2700 Blk. Pole Line	Sherman & N. Arthur
300 Blk. West Clark	800 West Center
300 East Bonneville	200 Blk. E. Bonneville

5 new service lines were installed at following locations:

827 N. 8th	698 Cottage
838 West Center	200 Berryman Rd.
625 Yellowstone	

31 service lines were renewed at following locations:

284 Sorenson	406 Moreland	337 Richland
342 Richland	392 Moreland	303 Richland
336 Richland	430 Moreland	363 Richland
331 Richland	324 Moreland	373 Richland
335 Richland	478 Moreland	149 Randolph
341 Richland	Flush for Sewer	418 Moreland
1147 N. Hayes	Manhole	374 Moreland
334 Moreland	121 Willard	454 Moreland
338 Moreland	350 Richland	381 Richland
370 Moreland	344 Richland	466 Moreland
	324 Richland	490 Moreland

WATER DEPARTMENT MONTHLY REPORT FOR MARCH 1967

New or Renewal of Mainline Construction Consisted Of:

The project of installing 16" C. I. and 12" C. I. from Ross Park Wells to Stanford was continued this month. 968' of 16" ductile cast iron pipe and one 16" valve have been used.

The project of lowering 6" cast iron main at 15th and Center prior to storm sewer project used four 6" 45 deg. bends.

During the month of March 172,149,000 gallons of water was consumed from the system, or 5,553,193 gals. per day, secured from the following sources.

		Lbs. Chlorine
Surface Supplies & Wells 4 & 6	71,998,000	259
Well #2	49,656,000	175
Well #7	42,121,000	156
Well #27	8,286,000	39.5
		629.5 lbs.

This March figure is 3,225,000 gallons more than last month. Based on the Chamber of Commerce estimated population of 42,500 there was 130.66 gallons of water per person per day consumed from the system.

Mainline leaks were repaired at following locations:

1200 Blk. N. 1st	2000 Blk. S. 2nd (2)
600 Blk. Cottage (2)	Hayes & Connor
Center & Johnson	Willow St.
Mink Cr. Line	400 Blk. Wilson

10 new service lines were installed at following locations:

534 West Young	1442-A Yellowstone
1338 E. Whitman	1442-B Yellowstone
526 E. Lewis	1110-A Deon
3400 Bannock Highway	1110-B Deon
715 Fir	756 Wayne

16 service lines were renewed at following locations:

522 N. 8th	505 N. 8th
906-26 E. Wyeth	505 N. 8th
1104 N. Hayes	720 S. 9th
712 S. 9th	422 S. 2nd
432 S. 2nd	410 S. 2nd
312 E. Halliday	906 S. 2nd
950 S. Main	926 S. 2nd
1105 Yellowstone	936 W. Lander

Water Department Monthly Report for April 1967

New or Renewal of Mainline Construction Consisted Of:

The project of installing 16" C. I. and 12" C. I. from Ross Park Wells to Stanford was continued this month. 214' of 16" C. I. pipe, 1296' of 12" C. I. and one 12" 45 deg. bend were installed this month.

During the month of April 198,952,000 gallons of water was consumed from the system, or 6,631,733 gals. per day, secured from the following sources.

		Lbs. Chlorine
Surface Supplies & Wells 4 & 6	63,912,000	236.5
Well #2	12,645,000	42.0
Well #7	26,409,000	81.0
Well #10	81,378,000	299.5
Well #20A and 20B	5,722,000	21.0
Well #27	8,886,000	44.0
		724.0 lbs.

This April figure is 98,346,000 less than last April. Based on the Chamber of Commerce estimated population of 42,500 there was 156.04 gallons of water per person per day consumed from the system.

Mainline leaks were repaired at following locations:

600 Blk. Cottage
1531 S. 2nd

16 new service lines were installed at following locations:

1003 W. Custer ✓
378 Roosevelt ✓
4317 Opal
1324 S. 2nd
232 Northgate
1645 N. Garfield
786 Cottage
925 Belmont
215 W. Cedar ✓
388 Roosevelt ✓
346 W. Lovejoy
1327 S. 2nd
238 Northgate
285 E. Alameda Rd. ✓
772 Cottage
1250 Pershing ✓

24 service lines were renewed at following locations:

428 McKinley
1060 W. Custer
630 McKinley
1300 Blk. S. 2nd
1420 S. 2nd
447 S. Main
227 S. Johnson
422 S. Arthur
458 S. Arthur
419 S. Arthur
424-26 W. Benton
328 Stansbury
238 E. Dillon
1256 S. 2nd
160 Park
454 N. 4th
1424 S. 2nd
195 Washington
416 S. Arthur
442 S. Arthur
650 W. Sublette
427 S. Arthur
Bonneville School
755 N. 10th

6718

WATER DEPARTMENT MONTHLY REPORT FOR MAY 1967

New or Renewal of Mainline Construction Consisted Of:

The project of installing 16" C. I. and 12" C. I. from Ross Wells to Stanford was continued this month. 1740' of 16" steel, one 16" 41 deg. steel bend, 272' of 10" C. I., 52' of 16" C. I., two 10" 45 deg. bends, one 10" valve, one 16" cross, one 16" 45 deg. bend, one 16" x 10" S. E. B. red., three 16" x 12" S. E. B. red., one 16" valve, one 12" valve, one 16" tee, one 16" x 6" tee and one 12" x 10" tee were installed this month.

Install 160' of 14" steel pipe for ditch water at 8th & Denton.

During the month of May 329,226,000 gallons of water was consumed from the system, or 10,620,193 gals. per day, consumed from the following sources.

		Lbs. Chlorine
Surface Supplies	None	
Well #2	10,744,000	28.5
Wells #4 and #6	-69,690,000-	225.0
Well #7	41,782,000	112.0
Well #10	104,494,000	311.5
Well #12	5,662,000	14.5
Well #15	3,357,000	
Well #16	34,924,000	99.0
Well #18	8,497,000	26.5
Wells 20A & 20B	8,474,000	23.0
Well #21	8,161,000	13.5
Well #22	20,731,000	74.0
Well #27	12,710,000	62.5
		990.0 lbs.

This May figure is 155,410,000 less than last May. Based on the Chamber of Commerce estimated population of 42,500 there was 249.88 gallons of water per person per day consumed from the system.

Mainline leaks were repaired at following locations:

Access between Ash & Birch
Hyde & Ammon
Ross Park

15 new service lines were installed at following locations:

1967 S. 2nd for future use
3510 Hiway 30 West
1051 S. 4th
1386 Holman
1282 E. Pine
571 Cottage
3 in Northgate Add. Div.#1
1250 Pershing
1512 E. Clark for future use
660 Zener
865 Cottage
210 N. 4th
1000 Blk. E. Young

6719

WATER DEPARTMENT MONTHLY REPORT FOR JUNE 1967

New or Renewal of Mainline Construction Consisted Of:

The project of installing 16" C. I. and 12" C. I. from Ross Park Wells to Stanford was continued this month. 135' of 12" C. I., one 16" x 12" S.E.B. and one 16" C. I. to 16" steel coupler was used.

The project of replacing steel water main on Maple Street was started this month. To date 411' of 6" C. I., 216' of 8" C. I., 44' of 10" C. I., five 6" valves, one 10" valve, one 6" cross, one 8" x 4" tee, one 8" tee, one 8" x 6" SSB Red., one 10" x 8" LFB Red., two 6" C. I. x Steel couplers and one 10" C. I. x steel coupler have been installed.

During the month of June 285,197,000 gals. of water was consumed from the system, or 9,506,567 gals. per day, consumed from the following sources:

		Lbs. Chlorine
Surface Supplies	~~[illegible]~~	
Well #2	28,255,000	64.0
Wells #4 & 6	63,245,000	195.5
Well #7	33,003,000	88.5
Well #10	100,316,000	313.5
Well #12	None	
Well #15	None	
Well #16	9,283,000	17.0
Well #18	11,704,000	39.5
Well 20A & 20B	3,328,000	9.5
Well #21	3,211,000	11.5
Well #22	22,588,000	89.0
Well #27	10,264,000	46.0

This June figure is 260,458,000 less than last June. Based on the Chamber of Commerce estimated population of 42,500 there was 223.44 gals. of water per person per day consumed from the system.

Mainline leaks were repaired at following locations:

1800 Blk. N. 2nd
1000 Blk. N. 9th
Main & Custer
400 Blk. N. 16th
Poplar & Euclid
967 Taney Lane
1100 Blk. S. 2nd

15 new service lines were installed at following locations:

5 in Northgate Add. Div. #1
840 Yellowstone
1087 Wilson
435 Highland
506 West Eldredge
754 N. Arthur
Fountain in Tydeman Field
77 Orchard
Catholic Seminary Bench Rd.
162 Hawthorne Ave.
5th & Lovejoy

WATER DEPARTMENT MONTHLY REPORT FOR JULY 1967

New or Renewal of Mainline Construction Consisted of:

The project of replacing steel water line on Maple was completed this month, using 1100' of 8" C. I. pipe, 170' of 4" C. I. pipe, one 8" x 4" cross, four 8" valves, five 4" valves, six 8" x 6" tees, six 6" x 4" SEB red., two 10" x 8" SEB red., 9 valve boxes, five 4" C. I. to 4" steel couplers.

Installation of 12" C. I. from Ross Park to Stanford continued during July. 1277' of 12" ductile pipe, two 12" valves, three 45 deg. C. I. bands, one 12" pressure regulator, two 12" x 6" tees, one 4" valve, one 6" x 4" SEB red., three valve boxes, one 12" mech. plug, one 6" mech. plug were installed.

During the month of July 642,042,000 gals. of water were consumed from the system, or 20,711,032 gal. per day drawn from the following sources:

		Lbs. Chlorine
Surface Supplies	106,443,000	446.0
Well #2	3,383,000	8.5
Well #3	73,878,000	197.5
Well #7	27,161,000	85.0
Well #10	103,773,000	313.0
Well #12	15,644,000	47.0
Well #15	1,240,000	
Well #16	93,319,000	298.0
Well #18	44,510,000	135.5
Well #20 & 20B	17,494,000	77.5
Well #21	47,675,000	158.0
Well #22	23,279,000	102.0
Well #23	53,670,000	196.0
Well #27	30,573,000	128.0

This July figure is 86,640,000 less than last July. Based on the Chamber of Commerce estimated population of 42,500, there were 411.84 gals. of water per person per day consumed from the system. 487.3

Main Line Leaks were repaired at following locations:

1234 S. 2nd	Maple at Willard
15th & Fremont	1900 S. 2nd
2100 S. 2nd.	2200 S. 2nd

Nine new services were installed as follows:

1407 S. 2nd	Alameda Rd. & Hawthorne (church)
441 Yellowstone	1235 S. 5th
1365 S. 2nd	525 Wayne
354 Skyline	900 E. Clark
	715 S. Harrison

6721

WATER DEPARTMENT MONTHLY REPORT FOR AUGUST 1967

- New or Renewal of Mainline Construction Consisted Of:

Installation of 16" and 12" C. I. from Ross Park Wells to Stanford was completed this month. 672' of 12" ductile C. I. pipe, 185' of 16" steel pipe, 332' of 16" ductile C. I. pipe, ~~five~~ 4 12" 45 deg. bends, three 12" x 6" tees, three 16" 45 deg. bends, two 16" O. D. steel couplers and two 12" 90 deg. bends were used.

The project of replacing 8" C. I. across Carson St. Bridge was started and completed this month. 244' of 8" C. I., two 8" 11 1/4 deg. bends and three 8" 45 deg. bends were used.

During the month of August 678,704,000 gallons of water were consumed from the system, or 21,893,677 gals. per day secured from the following sources.

		Lbs. chlorine
Surface Supplies	106,101,000	453½
Well #3	81,294,000	260½
Well #7	5,451,000	12
Well #10	104,571,000	354
Well #12	26,580,000	83
Well #15	5,568,000	
Well #16	117,498,000	394½
Well #18	45,825,000	157½
Well #20A & 20B	21,660,000	80
Well #21	50,584,000	189½
Well #22	29,564,000	116
Well #23	49,637,000	179
Well #27	34,371,000	141
		2420½ lbs.

This August figure is 55,325,000 gals. more than last August. Based on the Chamber of Commerce estimated population of 42,500 there were 515.15 gals. of water per person per day consumed from the system.

Main line leaks were repaired at following locations:

1500 S. 2nd
2400 S. 2nd (2)
600 Blk. Wilson
700 Blk. Poole
1200 Blk. N. Main
400 Blk. Wilson
1100 Blk. S. 5th

WATER DEPARTMENT MONTHLY REPORT FOR SEPTEMBER 1967

New or Renewal of Mainline Construction Consisted of:

Cut 8" pipe and installed fittings at Pocatello Municipal Airport for highway construction, using 2 8" C.I. Sleeves, 4 8" C.I. Rings and gaskets.

Cut and blocked 4" line at Willow and Sublette using 4" sleeve and 4" M.J. Plug.

Made 2 8" Tapping Tees and 2 6" Tapping Valves on 8" line on Fairway Drive.

Started replacement of 14" Steel Line from pump station at Fairview Park on East Pine Street to Booster Pump Station at Pine and Hyde Streets. To end of month we have layed 846' of 14" C.I. Pipe.

During the month of September 457,636,000 gallons of water were consumed from the system, or 15,254,533 gallons per day secured from the following sources.

		Lbs. chlorine
Surface Supplies	86,886,000	350½
Well #2	29,153,000	86½
Well #3	22,739,000	63
Well #7	40,507,000	123½
Well #10	101,664,000	354
Well #12	19,466,000	61½
Well #15	4,430,000	
Well #18	30,025,000	114
Well #20A & 20B	9,008,000	28½
Well #21	33,567,000	116
Well #22	7,209,000	27½
Well #23	54,444,000	170½
Well #27	19,538,000	79½
		1575 lbs.

This September figure is 70,545,000 gallons more than last September. Based on the Chamber of Commerce estimated population of 42,500 there were 358.93 gallons of water per person per day consumed from the system.

Main Line leaks were repaired at the following locations:

(None)

41 new service lines installed at the following locations:

(34) Northgate #1 Addition	1002 Samuel
(3) Idaho State University	Lois Lane
3715 Hawthorne Road	261 Valleyview

WATER DEPARTMENT MONTHLY REPORT FOR OCTOBER 1967

New or Renewal of Mainline Construction consisted of:

Laying 1334 feet of 14" T.J.C.I. pipe from Pump Station at Fairview Park on East Pine to Booster Pump Station at Pine and Hyde Streets. Back filled with gravel, tamped and water trench re-surfaced.

During the month of October, 210,825,000 gallons of water were consumed from the system, or 6,800,806 gallons per day secured from the following sources.

		Lbs. Chlorine
Surface Supplies	70,940,000	309½
Well #2	46,472,000	161½
Well #7	44,101,000	134½
Well #23	35,997,000	125
Well #27	13,315,000	55½
		786.0 lbs.
		+ 723.5
		1489.2

This October figure is 27,120,000 gallons less than last October. Based on the Chamber of Commerce estimated population of 43,500 there were 156 gallons of water per person per day consumed from the system.

Main Line Leaks were repaired at the following location;

18th and Davis Drive
Alameda Road and Jefferson
1680 Bench Road
Poleline Road and Birch

6 New service lines were installed at the following location:

Texaco Station 4th & Benton
American Oil 4th & Benton
1048 El Rancho Blvd.
1118 El Rancho Blvd.
758 Ebony
Center St. Tank (4" for Interstate)

10 service lines were renewed at the following locations:

353 South 6th Ave.
636 West Whitman
219 Wayne
625 North 13th
78 Cottonwood
1266 East Pine
587 Fairmont
1056 South 4th Ave.
257 North 10th Ave.
245 North 10th Ave.

21 Service lines were repaired at the following Locations:

580 West Clark
555 South 2nd Ave.
755 North 10th Ave
310 Randolph
1526 East Fremont
1333 Lakeview
191 South 16th Place
454 North 10th Ave.
1032 West Clark
Highland Golf Course
417 Fredregill Road
904 Crescent Drive
1265 East Poplar
1026 East Center St.
939 Patsy Drive
525 Lilac
634 Pershing
1310 East Alameda Rd.
25 Willowood
716 Cherry
1504 North Garfield

WATER DEPARTMENT MONTHLY REPORT FOR NOVEMBER 1967

New or Renewal of Mainline Construction consisted of:

Laying 944 feet of 6" C.I. pipe on South Fourth Extension thus completing line from where plugged on south end to end of 4" line at north end.

At Day and Grant lowered existing 36 feet of 8" C.I. pipe 2 feet and installed 44 feet of 8" C.I. pipe for connecting 8" line on Grant to 8" line on East Street which was taken out for river project.

During the month of November, 167,895,000 gallons of water were consumed from the system, or 5,596,500 per day secured from the following sources.

		Lbs. Chlorine
Surface Supplies #4	69,676,000	1130.5
Well #2	47,127,000	153.0
Well #7	39,167,000	134.5
Well #27	11,925,000	50.0
		1468.0 lbs.

This November figure is 541,000 gallons more than last November. Based on the Chamber of Commerce estimated population of 43,500 there were 128.65 gallons of water per person per day consumed from the system.

Main Line Leaks were repaired at the following location:

250 Fairbanks (Back easement)
700 Block South 1st

2 New service lines were installed at the following location:

976 Cottage
625 East Fremont

9 service lines were renewed at the following locations;

1640 North Garfield
1646 North Garfield
178 Idaho Street
260 South 3rd
527 & 535 So. Arthur
1935 South 5th
925 East Walnut
435 South Johnson
508 Fredregill Road

20 service lines were repaired at the following locations:

715 Fir
83 Westello
330 East Lovejoy
O'Kays (North Main)
Lewis & Arthur (Motor Bank)
838 North Lincoln
1435 South 2nd
547 North 6th
5th and Wyeth
835 North Main
1048 East Benton
155 West Eldredge
548 North 13th
3469 Poleline Road
78 Princeton
945 North 9th
605 South Harrison
1521 South 5th
1506 East Wyeth
925 East Sublette

6725

WATER DEPARTMENT MONTHLY REPORT FOR DECEMBER 1967

New or Renewal of Mainline Construction consisted of:

Laying 115 feet of 8" C.I. pipe and one 22½ degree bend at intersection of Grant and Day Streets, thus completing a circulating line from Grant to Hayes Streets which was removed previous for river project.

During the month of December there were 169,048,000 gallons of water consumed from the system, or 5,453,161 gallons per day secured from the following sources.

		Lbs. Chlorine
Surface Supplies #4	74,834,000	971.5[illegible]
Well #2	48,620,000	156.0
Well #7	41,443,000	137.5
Well #27	4,151,000	18.5
		1283.5 lbs.

This December figures is 9,084,000 gallons more than last December. Based on the Chamber of Commerce estimated population of 43,500 there were 125.36 gallons of water per person per day consumed from the system.

Main Line Leaks were repaired at the following locations:

1st & Center
100 Block North Arthur
800 Block West Bridger

2 New services lines were installed at the following locations:

961 Highline
29 Creighton

5 Services were renewed at the following locations:

1212 Meadowbrook
536 South 11th
1322 East Center
605 El Rancho
1065 Encino

14 Service Lines were repaired at the following locations:

660 North 6th
288 Thurston
1006 South 4th
3651 McKinley
845 North Garfield
157 South 18th
Samuel St. Trailer Court
345 South 2nd
1108 East Sublette
520 West Young
634 Pershing
2102 North Harrison
156 North Johnson
803 South 5th

Repaired plumbing [illegible]
Made 30' of [illegible]
Blow out curb box [illegible]
Blow out curb box [illegible]
Blow out curb box 1?6 [illegible]
Blow out Main line valve box [illegible]
Blow out main line valve box, [illegible]

6726

WATER DEPARTMENT MONTHLY REPORT FOR JANUARY 1968

New or Renewal of Mainline Construction consisted of:

(None)

During the month of January 172,219,000 gallons of water were consumed from the system, or 5,555,451 per day was secured from the following sources.

		Lbs. Chlorine
Surface Supplies #4	74,340,000	1009.0
Well #2	48,379,000	151.5
Well #7	47,184,000	152.0
Well #27	2,316,000	10.5
		1323.0 lbs.

This January figure is 4,314,000 gallons more than last January. Based on the Chamber of Commerce estimated population of 43,500 there were 127.71 gallons of water per person per day consumed from the system.

Main Line leaks were repaired at the following locations:

1338 South 2nd

4 New Service lines were installed at the following locations:

887 Cottage
267 Northgate
258 Northgate
2100 Block on South 4th (2)

1 Service was renewed at the following location:

3651 Randolph

16 Service Lines were repaired at the following locations:

1426 South 11th
8342 North Main
356 North 5th
2361 North 5th
455 North 16th
1374 Spaulding
753 South 5th
414 South Garfield
1331 South 2nd
1521 South 5th
1112 Pocatello Avenue
229 Flamingo Drive
945 North 9th
3598 Hawthorne Road
419 South 11th
157 Fairway Circle

Meter and Curb Box repairs at the following Locations:

235 Teals
1322 Lakeview
#10 Pocatello Heights

Gate Valve M. & Or

400 Valeyview...raised valve box
1040 East Terry....Replaced valve lid

WATER DEPARTMENT MONTHLY REPORT FOR FEBRUARY 1968

New or Renewal of Mainline Construction consisted of:

(None)

During the month of February, 168,772,000 gallons of water were consumed from the system, or 5,819,724 per day was secured from the following:

		Lbs. Chlorine
Surface Supplies #4	62,096,000	735.5
Well #2	45,214,000	144.0
Well #7	32,086,000	106.5
Well #12	27,507,000	104.0
Well #27	1,869,000	9.0
		1099.0 lbs.

This February figure is 18,254,000 gallons more than last February. Based on the Chamber of Commerce estimated population of 43,500 there were 133.76 gallons of water per person per day consumed from the system.

Main line leaks were repaired at the following locations:

Harvard and Stanford
Poleline and Birch

19 New service lines were installed at the following locations:

854 Cottage
926 Cottage
950 Cottage
2000 Block South 4th (2)
447 East Lawton
1206½ East Humbolt
440 East Sutter
525 East Carter
1800 Block South 4th (3)
1900 Block South 4th (2)
1423 East Lander
521 East Logan
1261 City Creek Road
524 East Stansbury
435 East Lewis

4 Service lines were renewed at the following locations:

1355 Lavine Drive
215 Pearl Street
210 South Fourth
138 Wayne

14 Service lines were repaired at the following locations:

926 East Bridger
222 West Gould
1832 Pocatello Creek Rd.
954 West Clark
187 Cottonwood
1006 South Fourth
653 North Seventh
1019 Dolbeer
122 North Fourth
529 East Sutter
1246 North Main
246 North Eighth
205 Wilson
413 South Nineth

6728

WATER DEPARTMENT MONTHLY REPORT FOR MARCH 1968

New or Renewal of Mainline Construction consisted of :

Layed 152' of 6" C.I. pipe east from intersection of Samuel and Opal Streets and installed one 6" gate valve.

During the month of March, 190,431,000 gallons of water was consumed from the system, or 6,142,935 per day was decured from the following:

		Lbs. Chlorine
Surface Supplies #4 & #6	74,299,000	954.0
Well #2	48,219,000	149.5
Well #7	35,568,000	109.0
Well #12	28,526,000	99.0
Well #27	3,619,000	17.5
		1329.0 lbs.

This March figure is 18,282,000 gallons more than last March. Based on the Chamber of Commerce estimated population of 43,500 there were 141.1 gallons of water per person per day consumed from the system.

Main line leaks were repaired at the following locations:

641 Parklane
(3) at 1500 Block South Fourth
First and Carter
600 Block Parklane
Arthur and Day
Poleline and Cedar
First and Halliday
100 Block South Johnson

10 New service lines were installed at the following locations:

2001 South Fifth
35 Creighton St.
1002 Samuel
2732 Poleline Road
Pocatello Ck & Bench Rd.
15 Valley View
714 Cottage Ave.
615 Randolph
1022 East Poplar
2100 Block South Fourth

40 Service lines were renewed at the following locations:

1733 South Fifth
258 Roosevelt
1620 South Fourth
1538 South Fourth
644 West Maple
1345 South Fourth
855 El Rancho
1330 South Fourth
1373 Santa Anita
1244 South Fourth
553 Washington
1115 South Fourth
1018 South Fourth
1825 North Main
1857 South Fourth
135 Park Ave.
1559 South Fourth
1518 South Fourth
1430 South Fourth
1335 South Fourth
2607 South Second
1322 South Fourth
1639 South Fourth
646 Washington
1153 South Fourth
1120 South Fourth
914 South Fourth
455 Crescent Drive
146 Park Ave.
1525 South Fourth
Emerson School
1417 South Fourth
1317 South Fourth
1338 South Fourth
1935 South Fifth
350 Roosevelt
1236 South Fourth
1154 South Fourth
1032 South Fourth
1037 South Fourth

6729

WATER DEPARTMENT MONTHLY REPORT FOR APRIL 1968

New or Renewal of Mainline Construction consisted of:

Laying 504' of 4" C.I. pipe on South Fourth Avenue from 45 degree bend on 6" line back of Ford Johnson's to 4" Gate Valve South of Crescent Drive.

700 Block of East Pine put in 14" "T" and 14" 90 degree bend and two 12" x 14" S.E.B. reducers. Blocked "T". Put in 14'8" of 12" C.I. pipe. Hooked up to existing 12" Iowa valve.

Pine and Hyde Booster Pump cut old 14" steel line and plugged. Layed 85' of 14" C.I. Pipe and 2 14" 45 degree bends going into booster station. Put in 50' of 6" C.I. Pipe and 2 $11\frac{1}{4}$ degree bends going into booster station.

Airport dug out and layed 970' of 6" C.I. Pipe for trap club, using one 6" tapping "T" and one 6" tapping valve. Hooked up one 6" Iowa Fire Hydrant and valve on end of line. Layed 248' of 1" copper line to Trap Club.

Layed 678' of 4" C.I. Pipe on 300 and 400 blocks of North Fourth Avenue account old line was deteriated. Used two $11\frac{1}{4}$ degree bends, two 4" gate valves and one 4" "T".

Clark and Grant put in 12" line under flume for river project.

During the month of April 264,121,000 gallons of water was consumed from the system or 8,804,033 gallons per day was secured from the following sources:

		Lbs. Chlorine
Surface Supplies, Well #4 & #6	72,630,000	778.0
Well #2	21,022,000	61.5
Well #7	5,650,000	18.0
Well #10	27,055,000	92.5
Well #12	89,909,000	288.5
Well #20A & 20B	1,430,000	4.0
Well #21	10,654,000	36.5
Well #22	25,341,000	94.0
Well #27	10,430,000	46.5
		1419.5 lbs.

This April figure is 65,169,000 gallons more than last April. Based on the Chamber of Commerce estimated population of 43,500 there were 245.0 gallons of water per person per day consumed from the system.

Mainline leaks were repaired at the following locations:

411 [illegible]
[illegible]
1157 [illegible]
[illegible] East [illegible]

6730

WATER DEPARTMENT MONTHLY REPORT FOR MAY 1968

New or Renewal of Mainline Construction consisted of:

Building Vault at 17th and Clark. Installing Pressure Regulating Valve, two 8" Gate Valves and valve boxes for supplemental working of booster station.

Pocatello Creek Road and Fairway Drive installed 12" x 6" Tapping Tee on 12" main. Installed 6" gate valve and box for Empire Construction Company.

Pine and Jefferson dug out steel cross which connected old 14" steel transmission line and 10" main on Jefferson. Put in 8' of 10" C.I. pipe and hooked 10" line back up using 1 10" sleeve.

During the month of May 408,437,000 gallons of water was consumed from the system or 13,175,307 gallons per day was secured from the following sources:

		Lbs. Chlorine
Surface Supplies	55,699,000	237.0
Well #2	5,337,000	15.0
Well #3	73,315,000	219.5
Well #10	82,730,000	275.0
Well #12	74,460,000	202.0
Well #16	11,742,000	38.0
Well #18	10,636,000	40.0
Well #20A & 20B	1,677,000	8.0
Well #21	25,795,000	93.5
Well #22	6,472,000	26.5
Well #23	45,699,000	174.5
Well #27	14,875,000	68.5
		1,397.5 lbs.

This May figure is 79,211,000 gallons more than last May. Based on the chamber of Commerce estimated population of 43,500, there were 302.9 gallons of water per person per day consumed from the system.

Mainline Leaks were repaired at the following locations:

717 Cypress
200 Block So. Fourth
South Hayes and Whitman
650 South First
Palmer and Chapel
Garrett Way and Ash
Grant and Day
500 Block East Dunn

13 New Service Lines were Installed at the following locations:

Part of Lot 5 Block 2 University Park Fourth Additions
1002 East Cedar
Texaco Stn. Poca.Ck.Road
524 Mckinley on Roosevelt
4741 South Fifth
Highland High School
430 Hyland on Foothill
Airport Trap Club
Walnut & Willard (Parks)
654 West pine
(2) lots east of 570 West Maple
1316 East Whitman

L 6731

WATER DEPARTMENT MONTHLY REPORT FOR JUNE 1968

New and mainline construction consisted of:

None.

During the month of June 492,383,000 gallons of water was consumed from the system or 16,412,766 gallons per day was secured from the following sources:

		Lbs. of Chlorine
Surface Supplies Wells #4 & #6	69,025,000	533.5
Well #2	22,561,000	66.5
Well #10	58,002,000	174.0
Well #3	65,542,000	183.0
Well #12	110,015,000	322.0
Well #15	3,620,000	
Well #16	27,325,000	95.5
Well #18	24,478,000	90.0
Wells #20A & #20B	6,638,000	31.0
Well #21	26,124,000	99.0
Well #22	15,777,000	60.0
Well #23	43,119,000	159.0
Well #27	20,157,000	91.5
		1905.0 Lbs.

This figure is 207,186,000 gallons more than last June. Based on the Chamber of Commerce estimated population of 43,500 there were 377.3 gallons of water per person per day consumed from the system.

Mainline leaks were repaired at the following locations:

Second & Fredregill	1351 South Third	Fourth & Lander
Opal & Samuel	Rainey Park	1080 Cherry Lane
Hayes & Wyeth	Fourth & Wyeth	Third & Fredregill

8 New service lines were installed at the following locations:

1002 Samuel	1231 South Fourth	459 West Quinn
So. 5th So. of Cowboy Oil Co.	3661 Poleline Road	Buttreys 8" fire line
804 Park	Buttreys 2" service	

46 Service lines were renewed at the following locations:

755 North Hayes	702 Grace Drive	646 North Hayes
745 North Hayes	2504 South Second	618 North Hayes
735 North Hayes	2516 South Second	606 North Hayes
723 North Hayes	454 North Hayes	554 North Hayes
636 North Hayes	626-27 North Hayes	546 North Hayes
849 North Hayes	645 North Hayes	538 North Hayes
434 North Hayes	621-23 North Hayes	422 North Hayes
611 North Hayes	525 North Hayes	545 North Hayes
525 Washington	St. Joseph Church	St. Joseph School
358 North Hayes	535 West Lander	325 Jefferson
316 North Hayes	584 West Clark	343 Jefferson
349 North Hayes	444 North Thirteenth	355 Mc Kinley

6732

WATER DEPARTMENT MONTHLY REPORT OF JULY 1968

New and mainline construction consisted of:

Dug test holes on Cedar and Wayne; Cedar and Park; and Cedar and Randolph to determine elevation of mains.

Cedar and Willard lowered 6" main for storm sewer construction.
Cedar and Jefferson dug out 12" main. Cut and plugged.
Cedar and Park lowered 4" main for storm sewer construction.
Cedar and Randolph lowered 6" main for 16" storm sewer construction.
Cedar and Washington lowered 12" main for storm sewer construction.
700 Block Jefferson dug out 4" main. Cut and plugged.

Jefferson and Pine dug out and removed 6" steel line and replaced with 33' of 6" C.I. Pipe.
Jefferson and Poplar dug out and removed 4" steel line and replaced with 34' of 4" C.I. Pipe.

During the month of July 738,625,000 gallons of water as consumed from the system or 23,826,612 gallons per day was secured from the following sources:

		Lbs of chlorine
Surface supplies, Well #4 & #6	115,505,000	1256.0
Well #2	28,903,000	97.0
Well #3	83,539,000	239.5
Well #7	9,384,000	32.5
Well #10	110,755,000	345.0
Well #12	78,241,000	234.0
Well #15	14,828,000	
Well #16	57,313,000	196.5
Well #18	43,202,000	147.5
Well #20A& #20B	13,020,000	54.0
Well #21	67,268,000	133.5
Well #22	30,899,000	141.0
Well #23	49,080,000	170.0
Well #27	36,688,000	152.0
		3,198.5 lbs.

This figure is 96,583,000 more than last July. Based on the Chamber of Commerce estimated figure of 43,500 population there was 547.7 gallons of water per person per day consumed from the system.

Mainline leaks were repaired at the following locations:

Fourth and Clark
Gould between Arthur & Main
Fourth and Center
Second and Fredregill
Garrison Hall I.S.U.
200 Block South Fourth
River crossing at Clark Street

6733

WATER DEPARTMENT MONTHLY REPORT FOR AUGUST 1968

New and mainline construction consisted of:

Dug out 10" x 12" cross on Jefferson North of Poplar. Located 10" mainline valve South of cross and shut down main. Cut out cross and layed 401' of 10" C.I. Pipe North to Cedar Street. Set 18" cross at intersection of Jefferson and Cedar. Reduced cross to 6" goin North; 10" going South; 16" going West and left 18" going East. Layed 36' of 18" C.I. Pipe to the East R/W of Jefferson and plugged there. Layed 64' of 16" C.I. Pipe West on Cedar and tied into 12" Steel line using a 16" x 12" Cast to Steel coupler. Set a 16" gate valve on the West R/W of Jefferson. Layed 162' of 6" C.I. Pipe North on Jefferson and tied into 4" Steel line on Jefferson. Set a 6" Fire Hydrant and valve on the North West corner of Cedar and Jefferson. Set a 6" gate valve on main line just North of Fire Hydrant. Flushed and sterilized all newly installed pipe.

Installed 6" service and 10" fire line for Kraft Food on East Quinn, using a 10" tapping tee and valve. Tunneled under highway and layed 64' of 10" C.I. Pipe. Installed a 10" tee and plugged it West. Put in a 18" baldy and installed a 10" x 6" tee and put in a 6" Iowa Fire Hydrant and valve. Put in a 5' baldy and installed another 10" x 6" tee for 6" service line into vault. Installed a 10" tee for 10" fire line into vault. Plugged tee East for future use of extending line.

During the month of August 404,678,000 gallons of water was consumed from the system or 13,054,129 per day was secured from the following sources:

		Lbs of chlorine
Surface supplies & Well #4	77,635,000	948.0
Well #2	17,604,000	64.5
Well #3	83,729,000	239.5
Well #10	32,607,000	106.5
Well #12	66,587,000	215.5
Well #16	19,141,000	71.0
Well #18	16,627,000	53.0
Well #20A & 20B	5,796,000	24.0
Well #21	21,668,000	73.5
Well #22	18,164,000	77.5
Well #23	28,965,000	101.5
Well #27	16,155,000	73.5
		2,048.0 lbs.

This figure is 274,026,000 gallons less than last August. Based on the Chamber of Commerce estimated figure of 43,500 population there was 300.1 gallons of water per person per day consumed from the system.

Mainline leaks were repaired at the following locations;

Jefferson and Pine	576 Mc Kinley
Clark between Arthur & Garfield	5th and Sublette
Hayes and Wyeth	753 Birch
773 Birch	136 East Bryan

6734

WATER DEPARTMENT MONTHLY REPORT FOR SEPTEMBER 1968

New and Mainline construction consisted of:

Oak Street, Randolph to Wayne dug out existing steel line and replaced with 646' 6" of 6" C.I. Pipe. Used 5'4" of 4" C.I. Pipe; 1 4" flange by M.J. Reducer; 1 6" C.I. x Steel Adaptor; 2 4" C.I. x Steel Adaptors. Set new 6" gate valve at Oak and Randolph. Checked pipe at intersections of Oak and Warren, Willard and Washington which was all C.I. Pipe. Set new 4" gate valve at Oak and Wayne.
East Quinn for Kraft Foods put in 6" meter using 3' of 6" C.I. Pipe. Built vault footings, vault and top.

Eldredge and Conlin for School District #25 installed 10"x6" tapping tee and 6" tapping valve. Layed 42' of 6" C.I. Pipe accross Eldredge and plugged line at end. Set valve box over gate valve.

Installed 8" pressure relief valve at Fremont Street Pump Station.

During the month of September 344,282,000 gallons of water was consumed from the system or 11,476,066 gallons per day was secured from the following sources:

		Lbs of chlorine
Surface supplies & Well #4	87,408,000	1071.0
Well #2	16,889,000	55.0
Well #3	54,482,000	166.0
Well #12	70,364,000	192.0
Well #15	13,906,000	
Well #16	10,509,000	31.5
Well #18	18,176,000	71.0
Well #20A & 20B	10,012,000	42.0
Well #21	37,816,000	
Well #22	14,018,000	59.5
Well #27	10,702,000	48.5
		1,736.5 lbs.

This figure is 113,354,000 less than last September. Based on the Chamber of Commerce estimated figure of 43,500 population this was 263.8 gallons of water per person per day secured from the system.

Mainline leaks were repaired at the following locations:

100 Block West Eldredge	Lewis and Garfield	Mink Creek Line
600 Block Park Lane	1000 Block South 2nd	Oak and Randolph
3106 South 5th	Scardino Park	800 Blk West Bridger
900 Blk Taney Lane	Oak and Wayne	

7 New services were installed at the following locations:

3515 Hawthorne Road	3850 Jason Avenue (3)	4217 Opal Avenue
2281 South Fairway Dr.	2341 So. Fairway Dr.	

WATER DEPARTMENT MONTHLY REPORT FOR OCTOBER 1968

New and Mailine construction cosisted of:

Quinn Road at N.O.P. dug out 12" line and installed a 12" tapping tee & 12" tapping valve. layed 146' of 12" C.I. Pipe and hooked into the N.O.P. system using a 12" tee and 2 12" x 8" S.E.B. Reducers. Sterilized line.

Lucille & Beth dug out and eliminated 6" cross and pressure regulator valve. Put in 5' of 8" C.I. Pipe; 1 8" x 8" x 6" tee; 1 8" x 6" reducer; 1 8" solid sleeve. Set 6" valve back 2". Set valve box and backfilled.

Fern & Alameda Road cleaned up and picked up used material and installed new 6" pressure regulator valve. Built vault for valve.

Monte Vista & Jessie cleaned up and picked up used material. Set new 6" pressure regulator valve and built vault for valve.

Kraft Foods took out 10" MJ x FLG valve. Put in 12" baldy. Picked up 6" and 10" pipe and took to Alameda Shop. Removed form in vault.

N.O.P. at SouthGate removed 8" meter and 8" pressure regulator valve and 2 8" steel baldys with flanges. Took pressure regulator to Petersen Well. Put meter in shop. Installed 9' of 6" C.I. Pipe and 1 8" solid sleeve. Sterilized main.

Airport installed pump motor and shaft and installed electrical panel for operating same at Well #1.

During the month of October 246,304,000 gallons of water was consumed from the system or 7,945,290 gallons per day was secured from the following sources:

		Lbs of Chlorine
Surface supplies & Well #4	78,227,000	989.5
Well #2.	52,762,000	171.5
Well #7	21,069,000	68.0
Well #12	45,954,000	114.5
Well #15	6,417,000	
Well #18	5,998,000	25.5
Well #20A & 20B	11,382,000	46.5
Well #21	16,225,000	31.0
		1,446.5 lbs.

This figure is 35,479,000 gallons more than last October. Based on the Chamber of Commerce estimated population figure of 43,500 this was 182.7 gallons of water per person per day secured from the system.

Mainline leaks were repaired at the following locations:

900 Block Taney Lane
1680 Bench Road
200 East Bonneville
Easement between Dogwood & Cypress
Grant & Custer
N.O.P. Tee

6736

WATER DEPARTMENT MONTHLY REPORT FOR NOVEMBER 1968

New and Mainline construction consisted of:

Airpobt dug out 6" C.I. main and installed 6" tapping tee and tapping valve north of #2 Well. Installed 6" pressure relief valve and vault to handle any surge caused by new variable speed pump.

Kraft Food on Yellowstone tied 10" fire line valve to 10" C.I. mainline bell with threaded stock so valves could be turned on.

8th and Terry made a 4" tap on 8" line in steam tunnel for I.S.U.

Shut down and abandoned 4" steel main main on Moreland from Pine to Cedar. This completes the abandonment of this steel line on Moreland.

During the month of November 162,844,000 gallons of water was consumed from the system or 5,428,133 gallons per day was secured from the following sources:

		Lbs of Chlorine
Surface supplies & Well #4	74,659,000	1,252.0
Well #2	49,471,000	150.0
Well #7	27,964,000	89.5
Well #20A & 20B	4,760,000	18.0
Well #27	5,990,000	26.5
		1,536.0

This figure is 5,051,000 gallons less than last November. Based on the Chamber of Commerce estimated population figure of 43,500 this was 127.7 gallons of water per person per day secured from the system.

Mainline leaks were repaired at the following locations:

Airport 6" main	600 Block Wilson	9th & Whitman

6 New services were installed at the following locations:

735 Yellowstone	934 Samuel	Well Yard (Bevins)
1224 East Hayden	(2) 1000 Block Samuel	

20 Service lines were renewed at the following locations:

374 Wayne	622 Moreland	556 Moreland
333 No. 15th	672 Moreland	684 West Pine
640 Moreland	220 Warren	186 Washington
196 Washington	Alameda Park	954 So. 4th
555 No. 10th	1041 East Hayden	1074 Meadowbrook
350 Los Altos	826 Broadway	229 So. Garfield
527 West Carson	533 West Carson	

6737

WATER DEPARTMENT MONTHLY REPORT FOR DECEMBER 1968

New and Mainline construction consisted of:
None

During the month of December 157,287,000 gallons of water was consumed from the system or, 5,073,774 gallons per day was secured from the following sources;

		Lbs. of Chlorine
Surface supplies & Well #4	85,380,000	1207.0
Well #2	49,568,000	155.5
Well #7	10,856,000	37.0
Well #27	11,483,000	51.0
		1450.5 lbs

This figure is 11,761,000 gallons less than last December. Based on the Chamber of Commerce estimated population figure of 43,500 this was 116.6 gallons of water per person per day secured from the system.

Mainline leaks were repaired at the following locations:

100 Block West Eldredge   Park Lane at bend (none)

1 New service line was installed at the following locations:

2474 North First Ave.

6 Service lines were renewed at the following locations:

629 So Main	241 No. 3rd	332 No. 11th
256 Randolph	408 Taft	325 W. Clark

12 Service lines were repaired at the following locations:

1110 E. Lewis (S.L)	131 No. 5th	139 No. 5th
533 E. Clark	1947 So. 5th	4009 So. 5th
1154 E. Lander	556 E. Cedar	921 E. Custer
404 So. 11th	533 No. 12th	1261 No. Main

Meter and Curb boxes were repaired at the following locations:

1306 So. 1st blow out curb box
153 So. 14th blow out curb box
946 No. 8th blow out curb box
156 Nixon Road blow out curb box
206 No. 9th blow out curb box
1455 E. Clark blow out curb box
2548 So. 2nd blow out curb box
429 So. 10th blow out curb box
419 E. Chapel blew out curb box
1236 Yellowstone baow out curb box
1209 No. Harrison blow out curb box
125 So. 13th blow out curb box
2548 So. 2nd blow out curb box

6738

WATER DEPARTMENT MONTHLY REPORT FOR JANUARY 1969

New and Mainline work consisted of:

(None)

During the month of January 166,934,000 gallons of water was consumed from the system or 5,384,968 gallons per day was secured from the following sources:

		Lbs. of Chlorine
Surface supplies & Well #4	74,511,000	1141.0
Well #2	48,920,000	154.0
Well #7	31,600,000	104.5
Well #27	11,903,000	51.0
		1450.5 lbs.

This figure is 5,285,000 gallons less than last January. Based on the Chamber of Commerce estimated population figure of 43,500 this was 103.0 gallons of water per person per day secured from the system.

Mainline leaks were repaired at the following locations:

1500 Block Spaulding	100 Block Northgate	600 Block Wilson
7th and Lander	Main and Whitman	Delano W. of Everett
Whitman and Johnson	800 Block Walnut	Poleline and Birch
Maple and Garrett Way	Harvard and Stanford	702 South 1st

1 New Service Line was installed at the following location:

612 Yellowstone

8 Service Lines were renewed at the following locations:

408 East Terry	415 So. Johnson	1208 So. 3rd
1133 No. Main	133 So. Hayes	415 Taft
820 No. Harrison	153 Taft	

11 Service Lines were repaired at the following locations:

340 No. 14th	1301 Monte Vista	408 So. 4th
1400 Block Paramount	125 So. 13th	Lot So. of 1531 Spaulding
315 No. 4th	1143 So. 3rd	208 Moreland
630 Pershing	1044 No. Harrison	

Meter & Curb Boxes were repaired at the following locations:

590 Franklin raised curb box to grade.
340 No. 14th raised meter installation to grade.
1261 So. Main raised meter installation to grade.
2001 So. 5th raised meter installation to grade.
Moreland raised all meter installations to grade.
1655 No. 2nd raised meter installation to grade.
107 Turaco raised meter installation to grade.

6739

WATER DEPARTMENT MONTHLY REPORT FOR FEBRUARY 1969

New and Mainline work consisted of:

(None)

During the month of February 149,239,000 gallons of water was consumed from the system or 5,329,964 gallons per day was secured from the following sources.

		Lbs. Chlorine
Surface supplies & Well #4	82,650,000	1132.0
Well #2	44,368,000	140.0
Well #7	10,831,000	37.5
Well #27	11,390,000	54.5
		1364.0 lbs

This figure is 19,533,000 gallons less than last February. Based on the Chamber of Commerce estimated population figure of 43,500 there was 122.52 gallons of water per person per day secured from the system.

Mainline leaks were repaired at the following locations :

Rosewood and Foothill

3 new service lines were installed at the following locations :

3554 Jason	935 South 1st	185 West Bryan

3 service lines were renewed at the following locations:

827 North Main	744 So. Hayes	1518 No. Harrison

11 Service lines were repaired at the following locations:

630 Fairway Drive	820 No. Harrison	209 So. 18th
1209 No. Harriosn	1158 No. Harrison	111 West Greeley
843 No. 10th	93 Westello	1729 No. Garfield
107 Turaco	456 No. 14th	

Meter and Curb boxes were repaired at the following locations:

3559 Jason put on new curb box lid
444 No. 10th replaced original meter box lid
3918 Roleline Road renewed meter box
669 Willard dug out curb box and reset over valve
354 No. 5th repaired meter lid
405 Eldredge blowout curb box
442 No. 10th blow out curb box
1531 No. Arthur installed conorete meter lid
748 No. Grant lowered meter installation to grade
1729 No. Garfield checked curb box which was full of rocks
1543 No. Main replaced cement sidewalk lid
206 No. 12th replaced borken meter lid

6740

WATER DEPARTMENT MONTHLY REPORT FOR MARCH 1969

New and Mainline work consisted of:

(None)

During the Month of March 180,400,000 gallons of water was consumed from the system or 5,819,354 gallons per day was secured from the following sources.

		Lbs. Chlorine
Surface supplies & Well #4	80,187,000	973.0
Well #2	44,891,000	145.5
Well #7	28,071,000	91.5
Well #12	15,140,000	44.0
Well #27	12,111,000	59.0
		1313.0

This figure is 10,031,000 less than last March. Based on the Chamber of Commerce estimated population figure of 43,500 there was 133.77 gallons of water per person per day secured from the system.

Mainline leaks were repaired at the following locations:

400 block of East Bonneville	900 block of Taney Lane

4 New Service lines were installed at the following locations:

730 East Cedar	1775 Beth	206 East Bryan
2950 So. 5th		

6 Service lines were renewed at the follwoing locations:

137 Washington	440 Yellowstone	754 So. Main
212 No. 12th	135 Randolph	312 Park Ave.

14 Service lines were repaired at the following locations:

835 So. Harrison	1028 So. Main	Church 100 No. 8th
2167 Garrett Way	144 No. 11th	355 So. 7th
2370 So. 2nd	1425 E. Hayden	133 So. Hayes
Flamingo Trailer Court	118 So. Main	239 So. 9th
839 No. 10th	403 So. 9th	

Meter & Curb boxes were repaired at the following locations:

9375 Belmont replaced top part of curb box
340 East Clark replaced meter box lid
408 No. Arthur replaced cement meter lid
3530 Hawthorne Rd. dug up and reset curb box
835 No. Harrison cleaned out curb box
1067 Allen Rd. repaired meter box and set new lid
738 Ebony dug out curb box and reset
429 No. 10th blow out curb box
1216 E. Clark blow out curb box

6741

WATER DEPARTMENT MONTHLY REPORT FOR APRIL 1969

New and Mainline work consisted of:

Installed 12" D.T.T.J.C.I. main on West Quinn Road from Hawthorne Road to Poleline Road. Installed 2,485 feet of 12" pipe, 81 feet of 6" C.I. pipe, 1 6" Gate Valve, 2 12" Gate Valves, set 2 6" Fire Hydrants with valves, tamped and backfilled with gravel.

During the month of April, 307,486,000 gallons of water was consumed from the system or 10,249,533 gallons per day was secured from the following sources.

		Lbs. Chlorine
Surface Supplies & Well #4	59,818,000	209.5
Well #2	34,903,000	99.5
Well #3	16,893,000	57.5
Well #12	120,453,000	375.0
Well #16	15,486,000	49.0
Well #18	13,603,000	47.0
Well #20A & 20B	8,190,000	33.5
Well #21	8,468,000	20.5
Well #22	11,913,000	49.0
Well #27	17,759,000	86.0
		1026.5 lbs.

This figure is 43,365,000 more than last April. Based on the Chamber of Commerce estimated population figure of 43,500 there was 235.62 gallons of water per person per day secured from the system.

Mainline leaks were reported at the following locations:

1100 block East Terry
Clark & Grant
1200 block So. Grant
Riverside Golf Course

12 New Services were installed at the following locations:

714 Cottage Ave. 1"
311 West Quinn 3/4
445 West Quinn 3/4
280 Roosevelt 1/4
Airport Fire & Rescue 2"
383 West Quinn 1/4
141 East Elm 3/4
873 Jessie 1"
1044 Wilson (2) 1"
389 West Quinn 3/4
3894 Hawthorne Rd. 1"

5 Services were renewed at the following locations:

925 East Halliday
892 Mc Kinley
701 Mc Kinley
180 Randolph
1155 East Center

22 Services were repaired at the following locations:

1250 Swisher Rd.
754 No. Main
1857 So. Third
529 So. Seventh
3318 Poleline Rd.
1296 Lavine
804 East Center
1709 Bench Rd.
Kane Building
2607 So. Second
1436 East Lander
540 University Dr.
235 So. Seventeenth
805 So. Third
1440 East Wyeth
643 South Fourth
754 No. Main
1603 So. Third
160 16th Place
912 No. Ninth
1139 East Benton
630 So. Seventh

6742

WATER DEPARTMENT MONTHLY REPORT FOR MAY 1969

New and Mainline work consisted of:

Took out new Iowa fire hydrant on West Quinn Road and replaced with made up Pacific States Fire hydrant with three foot barrell account barrel too long on new fire hydrant. Tamped and filled with gravel and patched 12" main line trench. Sterilized main and flushed out. Line put into service. This completed work on 12" main on West Quinn Road.

Began installation of 12" main in South Park Area. Layed 3,916' of 12" D.T.T.J.C.I. Pipe; 6 12" M.J. Gate Valves; 1 12" M.J. Plug; 4 12" M.J. 45 degree bends; 1 12" M.J. Tee; 5 12"x6" M.J. Tees; 3 6" Fire Hydrants; 1 12" M.J. 22¼ degree Bend; 1 12" 11¼ degree M.J. Bend; 52' of 6" T.J.C.I. Pipe; 1 6" 22¼ degree M.J. Bend; 1 6" M.J. Tee; 3 6" Flg x M.J. Valves; 1 12"x6" M.J. Cross; 5 6" M.J. Gate Valves and 14 Main Line Valve Boxes.

Industrial Lane in 20' easement North made 8" tap on 10" main for Killian Plumbing Co.

During the Month of May 636,523,000 gallons of water was consumed from the system or 20,533,000 gallons per day was secrured from the following sourc

		Lbs.Chlor
Surface supplies & Well #4	77,630,000	255.5
Well #2	40,722,000	116.0
Well #3	78,595,000	247.0
Well #10	26,199,000	71.0
Well #12	123,588,000	371.5
Well #16	91,358,000	273.5
Well #18	43,695,000	148.5
Well #20A & 20B	8,368,000	37.5
Well #21	46,252,000	147.5
Well #22	29,271,000	114.5
Well #23	38,754,000	124.5
Well #27	32,091,000	143.5
		2,050.5

This figure is 228,086,000 gallons more than last May. Based on the Chamber of Commerce estimated population figure of 43,500 there was 472. gallons of water per person per day secured from the system.

Main Line leaks were reported at the following locations:

187 Melrose
700 West Lewis
Poleline & Alameda Rds.
Yellowstone & Pearl
2414 So. 2nd
300 No. 10th
400 Blk. So. 7th

4 New Services were installed at the following locations :

1310 Yellowstone 3/4"
219 West Alameda Rd. 1½"
310 So. 5th 2"
811 Cottage 3/4"

WATER DEPARTMENT MONTHLY REPORT FOR JUNE 1969

New and Mainline work consisted of:

South Park layed 2,590' of 12" D.T.T.J.C.I. pipe, 105' of 6" T.J. pipe and 12' of 4" C.I. pipe. Set 6 6" fire hydrants, 5 12" M.J. Gate Valves, 6 6" Flg. x M.J. Gate Valves, 1 6" M.J. Gate Valve, 1 4" M.J. Gate Valve, 6 12" x 6" M.J. Tees, 1 12" x 6" Flg. x M.J. Tee, 1 12" x 4" M.J. Tee, 1 4" Split Sleeve, 1 4" 22 degree bend, 1 12" plug, 1 6" plug and set 13 valve boxes. Tamped, backfilled and cleaned up. Flushed and sterilized main. Changed over service lines to 12" main.

Riverside Golf Course dug out 90 degree bend in field and cut off end plate. Replaced coupler and reset pipe and blocked. Dug out and turned pipe in river at irrigation pump station. Took out pump and checked out at shop. Put back.

During the month of June 438,714,000 gallons of water was consumed from the system or 14,623,000 per day was secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	67,230,000	767.0
Well #2	33,721,000	91.0
Well #3	78,447,000	238.5
Well #10	30,666,000	82.0
Well #12	72,994,000	204.5
Well #16	22,444,000	64.0
Well #18	31,608,000	102.5
Well #20A & 20B	4,828,000	19.0
Well #21	16,357,000	50.0
Well #22	7,795,000	29.5
Well #23	49,110,000	127.5
Well #27	23,613,000	94.5
		1,870.0 lbs.

This figure is 53,669,000 gallons less than last June. Based on the Chamber of Commerce estimated population figure of 43,500 there was 336.16 gallons of water per person per day secured from the system.

Main Line Leaks were repaired at the following locations:

1531 So. 2nd	400 Blk W. Gould	1819 Syringa (rear)
3800 So. 5th	689 Willard	

4 New Services were installed at the following locations:

1517 East Elm 1" | 935 No. Garfield 3/4" | Sexton Bldg. Cemetery 1"
16th Place & Bonneville 4" summer line for I.S.U.

7 services were renewed at the following locations:

467 Wyldwood	205 Filmore	1225 E. Wyeth
1065 Patsy	210 Yellowstone	124 Mc Kinley
1381 Santa Anita		

6744

WATER DEPARTMENT MONTHLY REPORT FOR JULY 1969

New and Mainline work consisted of:

South Park at Nora and Dolbeer dug out and tie two 6" mains onto new 12" main and set two mainline valve boxes. Dolbeer and Jason dug out and tied 6" main onto new 12" main and set two main line valve boxes. Samuel from Stockman West layed 349' of used 6" M.J.C.I. pipe and tied onto existing 6" main on Samuel.

During the month of July 737,683,000 gallons of water was consumed from the system or 23,796,225 gallons per day was secured from the following sources.

		Lbs. Chlorine
Surface supplies & Well #4	112,770,000	880.0
Well #2	49,309,000	153.0
Well #3	82,252,000	241.5
Well #10	100,954,000	286.0
Well #12	97,752,000	263.0
Well #16	52,874,000	148.5
Well #18	46,971,000	150.5
Well #20A & 20B	12,416,000	48.0
Well #21	55,769,000	192.0
Well #22	25,754,000	94.5
Well #23	62,237,000	195.5
Well #27	38,625,000	154.0
		2,806.5 lbs.

This figure is 942,000 gallons less than last July. Baseon the Chamber of Commerce estimated population figure of 43,500 there was 547.03 gallons of water per person per day secured from the system.

Main Line leaks were repaired at the following locations :

142 Ravine   1400 East Fremont   Nora & Dolbeer

2 New servids were installed at the following locations:

Lot 13 Blk. 5 Fremont Heights 2"   325 West Clark 1"

8 Service lines were renewed at the following locations:

645 South Hayes
278 Taft
220 Randolph
1042 Patsy Drive
133 Taft
224 Randolph
640 South Grant
636 Washington

14 Services were repaired at the following locations :

1423 Spaulding
1039 East Wyeth
736 Balsam
546 South Fifth
284 Hyde
Hong Kong Cusine
3625 Poleline Rd.
1156 East Center
235 North Tenth
338 Yellowstone
232 No. Fifth

WATER DEPARTMENT MONTHLY REPORT FOR AUGUST 1969

New and Mainline work consisted of:

South Main Extension layed 505' of 6" C.I. Pipe from bridge south. Set one 6" M.J. Tee at end of line and plugged line south. Set one 6" Iowa Fire Hydrant and 6" Pacific States Valve and set valve box. Backfilled and cleaned up. Layed 136' of 6" steel pipe across bridge and hooked up a 6" 45 degree steel bend on each side of bridge using one 6" Smith Blair Coupler to hook up steel to cast pipe. Havn't received o.k. from railroad to finish line thru their property.

Redhill Road at I.S.U. Layed 270' of 10" C.I. Pipe and set one 10" 45 degree bend.

During the month of August 698,679,000 gallons of water was consumed from the system or 22,538,032 galls per day was secured from the following sources.

		Lbs. Chlorine
Surface supplies & Well #4	111,050,000	~~997.5~~ 1263.5
Well #2	48,730,000	147.5
Well #3	82,191,000	257.5
Well #10	91,412,000	247.5
Well #12	103,308,000	289.5
Well #16	35,826,000	110.5
Well #18	46,140,000	147.5
Well #20A & 20B	10,140,000	38.5
Well #21	53,268,000	175.5
Well #22	21,212,000	66.5
Well #23	62,898,000	161.5
Well #27	32,504,000	128.0
		~~2,767.5~~ 3,033.5 lbs.

This figure is 294,001,000 gallons more than last August. Based on the Chamber of Commerce estimated population figure of 43,500 there was 518.11 gallons of water per person per day secured from the system.

Mainline leaks were repaired at the following locations:

Upper level Ross Park	400 Blk No. Grant	Maple & McKinley
Harvard & Stanford	Pine & Moreland	2011 So. 2nd

4 New services were installed at the following locations:

200 Berryman Rd. 3/4"	FIRE Sta. #2 1"	726 E. Sherman 3/4"
316 No. 7th 1"		

4 Servide lines were renewed at the following locations:

Williamsons Body	1230 Meadow Brook	645 Willard
745 No. 11th		

15 Services were repaired at the following locations:

418 East Lovejoy	750 South 3rd	1278 Ravine Dr.
3651 McKinley	236 North 5th	500 East Hayden

WATER DEPARTMENT MONTHLY REPORT FOR SEPTEMBER 1969

New and Mainline work consisted of:

Redhill Road at I.S.U. layed 1,980' of 10" T.J.C.I. Pipe. Set one 10" tapping tee and valve at 8th and Redhill Road and tapped into 10" main. Used one 10" 90 degree M.J. bend, one 10" M.J. gate valve, two main line valve boxes and lids, four 10" 45 degree bends to go under the sanitary sewer on Terry Street, one 10" x 8" S.E.B. reducer, one 10" solid sleeve, one 10" J.M. split sleeve, one 8" repair clamp, one 10" M.J. tee, one 10" M.J. plug. Flushed line, chlorinated and tested line and is now complete except for tamping. I.S.U. is responsible for patching this water cut.

At South Main Extension, layed 558' of 6" T.J.C.I. pipe. Set 6" tapping tee and valve at the railroad and tapped their 6" main. Used three 6" 90 degree bends to line up with tunnel liner, one 6" 45 degree bend, one 6" M.J. tee, one 6" M.J. plug, two 6" 45 degree steel bends, 5' of 6" steel pipe, one 6" steel to cast iron coupler. Set one main line valve box and lid. Flushed line, chlorinated and tested. Tamped and backfilled. Line is now complete except for patching oil cut at the Wagon Wheel.

During the month of September 489,646,000 gallons of water was consumed from the system or 16,321,533 gallons per day was secured from the following sources:

		Lbs. Chlorine
Surface Supplies & Well #4	92,480,000	1,250.5
Well #2	41,726,000	127.0
Well #3	79,307,000	233.0
Well #12	73,470,000	217.0
Well #16	26,405,000	73.0
Well #18	43,369,000	141.5
Well #20A & 20B	5,932,000	18.5
Well #21	39,303,000	124.0
Well #22	5,989,000	20.0
Well #23	59,620,000	196.5
Well #27	22,045,000	90.5
		2,491.5 lbs.

This figure is 145,364,000 gallons more than last September. Based on the Chamber of Commerce estimated population figure of 43,500 there was 375.20 gallons of water per person per day secured from the system.

Mainline leaks were repaired at the following locations:

Cedar and Poole	600 Block East Dunn	535 Jefferson
14" Scardino Park	300 East Bonneville	9th & Terry
8th & Redhill Road	3100 Poleline Rd.	

2 New Services were installed at the following locations:

699 Fairway Drive (3/4")   348 So. 1st (3/4")

6747

WATER DEPARTMENT MONTHLY REPORT
OCTOBER 1969

Mainline work consisted of:

I.S.U. at housing make 4" tap on 6" main.
West Bench Reservoir took out 2 14" gate valves and put in 94' of 14" steel pipe and installed 1 14" gate valve. Used one 14" coupler and layed 95' of 4" cast iron pipe, Used one prefab 8" steel to 4" cast iron reducer and set 1 4" tee with 2 4" plugs tapt 2".

During the month of October 222,427,000 gallons of water was consumed from the system or 7,175,064 gallons per day was secured from the following sources:

		Lbs.Chlorine
Surface Supplies & Well #4	77,130,000	1,039.5
Well #2	39,471,000	123.0
Well #3	31,728,000	92.0
Well #7	12,479,000	41.0
Well #18	4,618,000	14.5
Well #23	50,170,000	174.0
Well #27	6,831,000	29.5
		1,513.5

This figure is 23,877,000 gallons less than last Ocotber. Based on the Chamber of Commerce estimated population figure of 43,500 there was 164.94 gallons of water per day secured from the system.

Airport water consumption for October was 2,219,000 gallons from Well El using 7 pounds of chlorine.

Mainline leasks were repaired at the following locations:

733 Birch	805 No. 9th	7th & Young
700 Block So. 1st		

4 New service lines were installed at the following locations:

So. Main Ext. 3/4"	Holliday Inn 2"S.L.	601 Industrial Ln. 6" F.L
601 Industrial Ln. 1"		

3 Service lines were renewed at the following locations:

760 So. 10th	1033 Deon	236 No. 5th

14 Services were repaired at the following locations:

584 Ridge	1304 No. Main	138 McKinley
Highland Catholic Center	1615 Monte Vista	540 So. 8th
1007 East Fremont	708 No. 13th	2211 Garrettway
195 Washington	P.I.P. Armory	1635 So. 3rd
1226 East Lander	905 No. Hayes	

WATER DEPARTMENT MONTHLY REPORT FOR NOVEMBER 1969

Main Line Work consisted of:

(None)

During the month of November 158,890,000 gallons of water was consumed from the system or 5,296,333 gallons per day was secured from the following sources.

		Lbs Chlorine
Surface Supplies & Well #4	91,960,000	1061.0
Well #2	48,918,000	153.5
Well #7	11,305,000	37.0
Well #27	16,707,000	61.5
		1313.0 lbs.

This figure is 3,954,000 gallons less than last November. Based on the Chamber of Commerce estimated population figure of 43,500 there was 121.75 gallons of water per person per day secured from the system.

Airport water consumption for November was 3,856,000 gallons using 13 pounds of chlorine.

Mainline leaks were repaired at the following locations:

2500 Block South 2nd | 400 West Whitman | 127 Melrose

2 New Servid lines were installed at the following locations:

521 Yellowstone Ave. (2") | 229 South Garfield (1")

2 Service lines were renewed at the following locations:

230 North 11th | 345 South 10th

9 Service lines were repaired at the following locations:

284 Sorenson	946 North 10th	1901 South 4th
725 North Main	117 Turaco	425 West Whitman
332 North 10th	1105 South 3rd	237 South 4th

Meter and Curb Boxes were repaired at the following locations:

200 East Sutter blow out curb box
1048 Dolbeer Blow out curb box
328 Willard blow out curb box
1266 LaVine hook up service line and install curb box
180 Park Ave. dig out and reset curb box
332 South 10th Install new meter lid
429 North 10th clean out curb box
345 South 9th clean out meter box
1323 Monte Vista put on new meter lid
Industrial Lane put new vault lid on vault
234 Taft dig out and reset curb box
1028 East Hayden changed meter lid

WATER DEPARTMENT MONTHLY REPORT FOR DECEMBER 1969

Main Line work consisted of:

(None)

During the month of December 167,055,000 gallons of water was consumed from the system or 5,388,871 gallons per day was secured from the following sources:

		Lbs. Chlorine
Surface Supplies & Well #4	92,279,000	1046.0
Well #2	13,705,000	44.5
Well #7	43,640,000	139.5
Well #27	17,431,000	64.0
		1294.0 lbs.

This figure is 9,768,000 gallons more than last December. Based on the Chamber of Commerce estimated population figure of 43,500 there was 126.18 gallons of water per person per day secured from the system.
Airport water consumption for December was 7,066,000 gallons using 23.0 lbs. of chlorine. Reason for sharp increase of water consumption at the airport was due to new W.P.C. disposal plant taking care of airport sewage.

Main Line leaks were repaired at the following locations:

2100 So. 2nd
1100 So. 2nd
800 No. Lincoln
87 Valleyview
935 Brennan

4 New service lines were installed at the following locations:

305 Northgate (3/4")
311 Northgate (3/4")
317 Northgate (3/4")
790 Filmore (3/4")

5 Service lines were renewed at the following locations:

749 Grace Drive
408 Stansbury
135 Washington
130 Washington
136 Washington

15 Service lines were repaired at the following locations:

961 Hiline Rd.
126 Warren
4th and Lewis
418-28 East Lovejoy
451 Warren
133 Taft
916 East Halliday
375 Washington
835 East Halliday
495 Yellowstone
1250 Swisher Rd.
625 East Humbolt
835 No. 9th
1619 So. 4th
1046 East Lander

Meter and Curb boxes were repaired at the following locations:

405 Foothill Blv'd. raise meter installation and insullate
851 South 5th raised meter installation and put on new sidewalk lid
1039 Deon raised meter installation to grade
Consolidation Freight Ways raised meter installation to grade
3058 Poleline Rd. raised meter installation to grade
205 Northgate raised meter installation to grade

6750

WATER DEPARTMENT MONTHLY REPORT FOR JANUARY 1970

Main line work consisted of:

(None).

During the month of January 172,430,000 gallons of water was consumed from the system or 5,562,258 gallons per day was secured from the following sources:

		Lbs. Chlorine
Surface water & Well #4	90,998,000	1146.0
Well #2	19,145,000	62.5
Well #7	44,535,000	146.0
Well #27	17,757,000	66.5
		1421.0 lbs.

This figure is 5,496,000 gallons more than last January. Based on the Chamber of Commerce estimated population figure of 43,500 there was 127.86 gallons of water per person per day secured from the system.

Airport water consumption for January was 5,349,000 gallons using 15.5 lbs. of chlorine.

Main line leaks were repaired at the following locations:

500 North Johnson
500 East Bonneville
545 North Johnson
1913 South 2nd

1 new service line was installed at the following location;

3208 Poleline (1½")

2 service lines were renewed at the following locations:

618 South 4th
1136 South 3rd

10 service lines were repaired at the following locations:

1955 South 2nd
445 West Clark
1355 East Center
1400 North 1st
618 South 4th
1615 North 2nd
650 South Grant
208 South 13th
1913 South 2nd
477 Randolph

Meter & Curb boxes were repaired at the following locations:

1135 El Rancho put on new meter box lid
926 Willow Lane dug out meter installation & reset account boxes broke when owner renewed his service.
810 No. 11th changed meter box lid
26 Mar Vista changed meter box lid
129 East Eldredge dug out curb box and replaced
2211 Hiway West replaced meter lid
Eagles Hall replaced meter lid
150 Taft put on new curb box lid

WATER DEPARTMENT MONTHLY REPORT FOR FEBRUARY 1970

Main line work consisted of:

(None)

During the month of February 156,501,000 gallons of water was consumed from the system or 5,589,321 gallons of water per day was secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	88,610,000	1115.0
Well #2	9,670,000	30.0
Well #7	42,187,000	132.0
Well #27	16,634,000	63.0
		1340.0 lbs.

This figure is 7,262,000 gallons more than last February. Based on the Chamber of Commerce estimated population figure of 43,500 there was 128.49 gallons of water per person per day secured from the system.
Airport water consumption for February was 4,918,000 gallons of water using 15.0 pounds of chlorine.

Main line leaks were repaired at the following locations:

618 West Clark
300 West Gould
200 East Gould
5th & Dunn

No new service lines were installed.

No service lines were renewed.at

5 Service lines were repaired at the following locations:

337 Flamingo
464 Fairway Drive
1154 East Carter
556 South 11th
408 Stansbury

Meter & Curb boxes were repaired at the following locations:

319 North Johnson cleaned out curb box
424 South Garfield replaced meter lid
3811 Jason replaced meter lid
332 North 5th replaced meter lid
124-30 North Arthur renewed curb box lid
205 Randolph renewed curb box lid
666 Fairway Drive lowered meter installation to grade
628 West Custer lowered meter installation to grade
2445 South 5th raised meter installation to grade
Anderson Service on Poleline raised meter installation to grade
Consolidated Freight raised meter installation to grade
785 Ebony raised meter installation to grade
204 Park blow out curb box and put on new lid
420 East Poplar blow out curb box

6752

WATER DEPARTMENT MONTHLY REPORT
FOR MARCH 1970

Mainline work consisted of:

(None)

During the month of March 176,554,000 gallons of water was consumed from the system or 5,695,290 gallons of water per day was secured from the following sources.

		Lbs. Chlorine
Surface Supplies & Well #4	101,155,000	1,119.0
Well #2	10,514,000	30.5
Well #7	47,137,006	149.5
Well #27	17,748,000	69.5
		1,368.5 lbs.

This figure is 3,856,000 gallons less than last March. Based on the Chamber of Commerce estimated population figure of 43,500 there was 130.92 gallons of water per person per day secured from the system.

Airport water consumption for March was 4,540,000 gallons of water using 12.0 pounds of chlorine.

Mainline leaks were repaired at the following locations:

658 South 1st
West Bench Reservoir

6 New service lines were installed at the following locations:

623 West Gould (3/4")
422 East Terry (3/4")
1140 South 2nd (3/4")
I.S.U. (4" S.L.)
246-48 No. Main (1")
544 Packard (3/4")

1 Service line was renewed at the following locations:

264 Pershing

10 Service lines were repaired at the following locations:

1305 South 3rd
323 North Main
1423 Spaulding
658 South 1st
1050 No. Main
250 North 5th
403 North 11th
475 Willard
325 Taft
816 Broadway

Meter & Curb Boxes were repaired at the following locations:

924 West Custer replaced meter lid
500 North 5th replaced meter lid
700 West Sublette installed meter lid
834 North Grant put on new curb box lid
1549 North Arthur replaced sidewalk concrete lid

446 Fairway installed new meter box
105 Valleyview dug out and reset crub box

6753

WATER DEPARTMENT MONTHLY REPORT FOR APRIL 1970

Mainline Work consisted of:

East Terry Street at new booster station layed 924' of 8" T.J.C.I. Pipe up easement across school district property to A.M.I. property. Set 1 8" gate valve, 1 main line gate valve box and lid, 1 8" x 6" tee and 6" plug north. Set 1 8"x6" tee and 15' of 6" C.I. Pipe to 6" Pacific States Fire Hydrant. Set 6" Fire Hydrant and block and used 1 8" plug at end of line at A.M.I. property.

Took in 880' of 6" C.I. line at ran from fire hydrant just east of interstate on East Terry Street to East Gate Nursing Home. Also took in 6" fire hydrant at Nursing Home.

During the month of April 218,731,000 gallons of water was consumed from the system or 7,291,033 gallons of water per day was secured from the following sources.

		Lbs. Chlorine
Surface Supplies & Well #4	70,933,000	464.0
Well #2	35,942,000	101.5
Well #7	10,659,000	34.0
Well #12	82,151,000	257.5
Well #27	18,996,000	73.0
		930.0 lbs.

This figure is 88,755,000 gallons less then last April. Based on the Chamber of Commerce estimated population figure of 43,500 there was 167.60 gallons of water per person per day secured from the system.

Airport water consumption for April was 4,659,000 gallons of water using 13.0 pounds of chlorine.

Mainline leaks were repaired at the following locations:

510 West Whitman
Williamson Body & Equipment (Garrett Way)

4 New service lines were installed at the following locations:

3314 Mc Kinley (3")
1650 Jean St. (3/4")
Chads-Wilson & Cedar 6" F.L.
Property at West end of Lilac (1")

3 service lines were renewed at the following locations:

825 East Pine
1050 East Lovejoy
315 Randolph

17 Service lines were repaired at the following locations:

602 South 1st
834 North 8th
100 South Arthur
518 South 10th
1525 East Fremont
Wayne & Elm (2)
1006 West Clark
652 North Johnson
11 Stanford
528 South 10th
1705 East Terry
403 South 9th
1539 East Lander
1935 South 2nd
458 East Center
207 South Hayes

6754

WATER DEPARTMENT MONTHLY REBORT FOR MAY 1970

Main line work consisted of:

Installed 6" tapping tee and valve on 6" C.I. line on the North side of Terry and set main line valve box and lid. Layed 101' of 6" T.J.C.I. Pipe to 8" x 6" tee installed on 8" line out of booster station. Used one 6" -- solid sleeve.

Installed 4" tapping tee and valve on 4" service to Franklin Jr. High School at west side of vault. Set main line valve box and lid. Layed 19' of 4" T.J.C.I. Pipe to booster station. Used one 4" 90 degree bend and set one 4" Flg. x M.J. gate valve at booster station.

Duke and University Drive installed 12" tapping tee and valve and made 12" tap. Set main line valve box and lid. Layed 1758' of 12" D.T.T.J.CI Pipe south on University Drive to Terry St. and then east up Terry St. to Booster Station on East side of Interstate Hiway. Used two 12" 45 degree bends and a 12" x 4' baldy to go underneath power cable and over 6" C.I. water main and 12" sanitary sewer. Set 90 degree bend at south side of Terry St. and University Dr. At booster station set 12" tee and 12" x 8" reducer. Installed 12" gate valve and extended 12" D.T.T.J. C.I. line 12' east of gate valve and plugged with 12" T.J. plug. Ran from 12" x 8" reducer and installed one 8" 11¼ degree bend and layed 30' of 8" T.J.CI pipe. Installed one 8" Flg. x M.J. gate valve. Blocked all tees and bends with concrete.

During installation of pipe completed cinder block booster station pump house. Installed a 100 H.P. Pump and a 25 H.P. Pump and installed fittings.

During the month of May 336,802,000 gallons of water was consumed from the system or 10,864,580 gallons of water per day was secured from the following sources.

		Lbs. Chlorine
Surface supplies & Well #4	65,145,000	213.5
Well #2	43,152,000	128.0
Well #3	34,148,000	108.0
Well #12	93,820,000	293.0
Well #16	10,576,000	27.5
Well #18	11,308,000	32.0
Well #20A & 20B	4,006,000	17.5
Well #21	17,884,000	70.0
Well #23	38,376,000	117.5
Well #27	18,387,000	70.0
		1077.0 lbs.

This figure is 299,721,000 gallons less than last May. Based on the Chamber of Commerce estimated population figure of 43,500 there was 249.76 gallons of water per person per day secured from the system.

Airport water consumption for May was 6,799,000 gallons of water using 22 pounds of chloring.

6755

WATER DEPARTMENT MONTHLY REPORT FOR JUNE 1970

Main Line work consisted of:

McKinley at Industrial Laneand south. Installed 296' of 6" D.T.T.J.C.I. Pipe. Set one 6" M.J. Tee; three 6" Gate Valves and valve boxes; one 4" x 6" M.J. Tee and one 4" M.J. Plug.

Finished installation and put into operation Terry Street Booster Station.

During the month of June 527,354,000 gallons of water was consumed fro the system or 17,578,466 gallons of water per day was secured from the following sources.

		Lbs. Chlorine
Surface supplies & Well #4	81,745,000	567.0
Well #2	36,242,000	107.0
Well #3	77,037,000	231.5
Well #10	25,831,000	77.0
Well #12	92,032,000	260.0
Well #16	36,500,000	98.5
Well #18	25,470,000	39.0
Well #20A & 20B	7,262,000	30.0
Well #21	48,067,000	168.5
Well #22	6,827,000	23.5
Well #23	51,808,000	175.0
Well #27	38,533,000	137.5
		1914.5 lbs.

This figure is 88,640,000 gallons more than last June. Based on the Chamber of Commerce estimated population figure of 43,500 there was 404.10 gallons of water per person per day secured from the system.

Airport water consumption for June was 6,827,000 gallons of water using 20 pounds of chlorine.

Mainline leaks were repaired at the following locations:

Block #45 in alley	500 Block No. Main	300 West Gould
200 West Center	670 Willard	Pine & Jefferson
East Terry at Booster Station		

6 New service lines were installed at the following locations:

422 East Clark (2")	237 South 7th (1")	1500 West Harrison (1")
1701 Bench Road (1½")	1388 Lavine (3/4")	1378 Lavine (3/4")

13 Service lines were renewed at the following locations:

3331 Poleline	325 East Dunn	423 No. 9th
247 No. 9th	155 Willard	140 Warren
137 North Lincoln	401 Roosevelt	786 Poole
527 Franklin	444 So. 11th	394½ Warren
334 Randolph		

6756

WATER DEPARTMENT MONTHLY REPORT FOR JULY 1970

Main line work consisted of:

Oasis & Canyon installed new pressure regulating valve.
Fremont at Booster Station installed new pressure regulating valve.
1374 El Rancho installed new air relief valve.

During the month of July 597,368,000 gallons of water was consumed from the system or 19,269,935 gallons of water per day was secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	111,475,000	1,267.5
Well #2	49,632,000	143.5
Well #3	81,909,000	253.0
Well #10	31,231,000	94.5
Well #12	79,981,000	235.0
Well #16	36,500,000	89.5
Well #18	31,705,000	115.5
Well #20A & 20B	10,336,000	44.0
Well #21	43,998,000	140.0
Well #22	11,481, 000	44.0
Well #23	66,964,000	187.0
Well #27	43,156,000	150.5
		2,764.0 lbs.

This figure is 140,315,000 gallons less than last July. Based on the Chamber of Commerce estimated population figure of 43,500 there was 442.98 gallons of water per person per day secured from the system.

Airport water consumption for July was 8,636,000 gallons of water using 21.5 pounds of chlorine.

Mainline leaks were repaired at the following locations:

1555 East Hayden
523 West Whitman
Industrial Lane 14"
West Bench Reservoir 18"

7 New service lines were installed at the following locations:

1392 Lavine (3/4")
1001 Samuel (2-1")
610 Park Lane (3/4")
1150 East Poplar (1")
910 Jessie (3/4")
918 Jessie (3/4")

8 Service lines were renewed at the following locations:

524 North 12th
702 Cypress
734 Jefferson
736 East Benton
620 Washington
815 El Rancho
443 Taft
409 Willard

11Service lines were repaired at the following locations:

897 Washington
343 South 4th
42 Creighton
708 North Lincoln
702 Cypress
1530 South 3rd
1356 South 1st
553 South 10th
3625 Poleline Rd.
565 Jefferson
Hanger Bldg. at Old Airport

WATER DEPARTMENT MONTHLY REPORT FOR AUGUST 1970

Mainline work consisted of:

15th & Bonneville lowered 6" main for storm sewer construction. Used 4-6" 45 degree bends; 6.5' of 6" C.I. Pip and 20' of threaded stock. Lowered 6" fire hydrant line for storm sewer construction using 4 - 6" 45 degree bends; 5' of 6" C.I. Pipe and 16' of threaded stock.

During the month of August 699,255,000 gallons of water was consumed from the system or 22,556,612 gallons of water per day was secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	110,610,000	1319.5
Well #2	50,690,000	144.5
Well #3	82,282,000	221.0
Well #10	8,991,000	30.5
Well #12	107,499,000	302.0
Well #16	81,930,000	234.5
Well #18	42,119,000	134.5
Well #20A & 20B	10,678,000	37.0
Well #21	60,202,000	166.0
Well #22	20,819,000	77.0
Well #23	74,929,000	197.0
Well #27	48,516,000	170.0
		3033.5 lbs.

This figure is 576,000 gallons more than last August. Based on the Chamber of Commerce estimated population figure of 43,500 there was 518.54 gallons of water per person per day secured from the system.

Airport water consumption for August was 7,770,000 gallons of water using 23.0 pounds of chlorine.

Mainline leaks were repaired at the following locations:

Washington & Walnut
Maple & Garrett Way
Poleline Bet. Ash & Birch
End of Creighton at turnaround
5th & Lovejoy

9 New service lines were installed at the following locations:

Bonneville School 3/4"
261 Northgate 3/4"
330 Northgate 3/4"
325 Northgate 3/4"
324 Northgate 3/4"
316 Northgate 3/4"
306 Northgate 3/4"
266 Northgate 3/4"
11th & Carter (ISU) 4"

8 Service lines were renewed at the following locations:

249 Roosevelt
835 Randolph
250 Warren
261 Taft
783 Grace
559 Hyde
855 South 3rd
950 West Lander

10 Service lines were repaired at the following locations:

253 East Pine
214 Nixon Road
220 Delano
425 South 11th
450 North Main
202 McKinley
515 East Benton
1531 North Harrison
1234 East Lander
803 South 5th

WATER DEPARTMENT MONTHLY REPORT FOR SEPTEMBER 1970

Mainline work consisted of:

(None)

During the month of September 353,179,000 gallons of water was consumed from the system or 11,772,633 gallons of water per day was secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	76,905,000	1,003.5
Well #2	40,283,000	119.0
Well #3	77,569,000	214.5
Well #12	31,378,000	93.0
Well #16	4,122,000	10.0
Well #18	18,393,000	70.0
Well #21	25,794,000	69.5
Well #23	55,305,000	169.0
Well #27	23,430,000	83.0
		1,831.5 lbs.

This figure is 136,467,000 gallons less than last September. Based on the Chamber of Commerce estimated population figure of 43,500 there was 270.63 gallons of water per person per day secured from the system.

Airport water consumption for September was 6,471,000 gallons of water using 20.5 lbs. chlorine.

Mainline leaks were repaired at the following locations:

57 Greenwood
100 North 3rd
Johnson & Clark
Well #27
1006 North 9th
Irving Field
Poleline bet. Ash & Birch
Pine & Franklin
862 West Bridger

10 New service lines were installed at the following locations:

1382 Lavine 3/4"
625 Cottage 3/4"
3187 Poleline 1¼"
224 South Arthur 3/4"
1155 East Poplar 3/4"
125½ Cottage 3/4"
636 El Rancho 3/4"
1450 McKinley 3"
1345 Hiline Rd. 3/4"
49 Colgate 1" S.L.

15 Service lines were renewed at the following locations:

457 Randolph
416 South 9th
822 East Fremont
412 Mc Kinley
756 South 1st
585 Hyde
213 Wilson
193 Charles Pl.
201 Wilson
226 Roosevelt
746 Grace Drive
408 North 7th
1334 South 5th
3829 Nora
325 Park

17 Service lines were repaired at the following locations:

1252 East Pine
333-53 East Terry
1304 South 5th
1150 East Poplar
2414 South 2nd
870 Jessie
1155 East Poplar
1006 North 9th
3829 Nora

6759

WATER DEPARTMENT MONTHLY REPORT FOR OCTOBER 1970

Mainline work consisted of:

(None)

During the month of October 234,022,000 gallons of water was consumed from the system or 7,549,096 gallons of water per day was secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	81,800,000	1,278.5
Well #2	49,259,000	141.5
Well #3	18,107,000	48.5
Well #7	12,836,000	41.5
Well #12	4,559,000	17.5
Well #18	5,778,000	21.0
Well #21	5,191,000	15.5
Well #23	42,853,000	137.5
Well #27	13,639,000	48.5
		1,750.0 lbs.

This figure is 11,595,000 gallons more than last October. Based on the Chamber of Commerce estimated poplulation figure of 43,500 there was ~~173.54~~ gallons of water per person per day secured from the system.
Oct 55 173.54

Airport water consumption for October was 4,290,000 gallons of water using 13.0 lbs. of chlorine.

Main line leaks were repaired at the following locations:

Mink Creek @ Johnny Ck. Rd. — 2442 So. 2nd — 226 Delano

1 New service was installed at the following locations:

130 So. 5th 2"

6 Service lines were renewed at the following locations:

57 Greenwood
471 Randolph
539 East Bonneville
830 No. Harrison
650 No. 7th
835 No. Main

13 Service lines were repaired at the following locations:

760 So. 10th
110 Fairway Circle
3519 Valley Rd.
415 So. 10th
253 Wingate
273 Park
877 Highland Blvd.
910 Samuel
756 No. Garfield
1441 Spaulding
1165 East Cedar
178 Taft
109 Taft

Meters and Curb boxes were repaired at the following locations:

Raised to grade:

758 Birch
59 Hillcrest
5th & Fredregill
535 Washington
231 Wingate
957 Buchanan

6760

WATER DEPARTMENT MONTHLY REPORT FOR NOVEMBER 1970

Mainline work consisted of:

Municipal Airport installed one 6" tapping tee & valve, one 6" C.I. tee, one 6" C.I. solid sleeve, one 6" gate valve and 31 feet of 6" T.J.C.I. pipe from 6" line of Well #2 to water tank drain line account motor in Well #1 burnt out and this will fill tank from Well #2 until repairs can be made on motor.

Hiline & El Rancho installed one 14" Flg. valve and two Smith Blair couplers on 14" transmission line to Highland Tank. Connected 2" mainifold from 14" to 10" line for draining and filling transmission line.

Well #27 dug up old 72 degree steel bend on 14" transmission line and installed new heavy duty 72 degree steel bend. South East corner of Mitchell's Property dug up old 90 degree steel bend on 14" transmission line and installed new heavy duty 90 degree steel bend. North East corner of Mitchell's Property dug up old 90 degree steel bend and installed new heavy duty 90 degree steel bend. Yellowstone & Industrial Lane dug up old 90 degree steel bend on 14" transmission line and installed new heavy duty 90 degree steel bend.

During the month of November 175,555,000 gallons of water was consumed from the system or 5,851,833 gallons of water per day was secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	76,060,000	1176.0
Well #2	48,398,000	146.0
Well #7	43,789,000	131.5
Well #27	7,308,000	26.5
		1480.0 lbs.

This figure is 16,665,000 gallons more than last November. Based on the 1970 population census figure of 40,036 there was 146.16 gallons of water per person per day secured from the system.

Airport water consumption for November was 2,174,000 gallons of water using 8.0 lbs. of chlorine.

Main line leaks were repaired at the following locations:

(None)

3 New service lines were installed at the following locations:

609 W. Maple (6" F.L.)   G. & K. Machinery 3/4"   711 No. 6th 1½"

7 Service lines were renewed at the following locations:

457 Mc Kinley   505 No. 13th   538 No. 13th
507 Crescent Dr.   1410 East Clark   731 No. 5th
1138 So. 3rd

6761

WATER DEPARTMENT MONTHLY REPORT FOR DECEMBER 1970

Main Line work consisted of:

(None)

During the month of December 174,267,000 gallons of water was consumed from the system or 5,621,516 gallons of water per day was secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	85,419,000	1347.5
Well #2	46,353,000	143.5
Well #7	25,088,000	79.5
Well #27	17,407,000	61.0
		1631.5 lbs.

This figure is 7,212,000 more than last December. Based on the 1970 population census of 40,036 there was 140.41 gallons of water per person per day secured from the system.

Airport water consumption for December was 7,066,000 gallons of water using 23.0 pounds of chlorine.

Main line leaks were repaired at the following locations:

Industrial Lane at Mitchell's (14")   Hiline & El Rancho (6")

0 New service lines were installed at the following locations:

0 Service lines were renewed at the following locations:

6 Service lines were repaired at the following locations:

457 West Benton	798 Ebony	336 So. Lincoln
1323 East Fremont	2820 Poleline Rd.	354 So. 7th

Meter & Curb boxes were repaired at the following locations:

Raised to grade:

2nd & Lawton	1018 Patsy	1024 Patsy
1315 No. Main		

Lowered to grade:

5th & Benton (SW cor.)	1039 Patsy	1021 Deaon
1042 Patsy	1056 Patsy	1015 Patsy
1021 Patsy	1037 Patsy	1040 Deon
955 West Center	842 Jessie	862 Jessie
836 Jessie		

WATER DEPARTMENT MONTHLY REPORT FOR JANUARY 1971

Mainline work consisted of:

(None)

During the month of January 184,078,000 gallons of water was consumed from the system, or 5,941,225 gallons of water per day was secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	72,041,000	1177.5
Well #2	43,629,000	129.5
Well #7	41,422,000	128.0
Well #12	11,386,000	33.0
Well #27	15,600,000	53.5
		1521.5 lbs.

This figure is 11,648,000 gallons more than last January. Based on the 1970 population figure of 40,036 there was 148.39 gallons of water per person per day secured from the system.

Airport water consumption for January was 5,349,000 gallons using 15.5 pounds of chlorine.

Mainline leaks were repaired at the following locations:

Johnson & Whitman	1500 East Wyeth	2nd & Fredregill
3rd & Center	Alameda & Monte Vista	Hayes & Whitman
Riverside & Greenwood	16th & Clark	Industrial Ln. at Mitchell'

0 services were installed

1 service was renewed at the following location:

245 East Gould

12 services were repaired at the following locations:

646-50 No. Arthur	408 No. Main	940 No. 8th
754 Franklin	159 So. 11th	113 So. Garfield
328 No. 3rd	707 No. 7th	862 Dolbeer
Itex Bldg. on W. Center	855 So. 3rd	4009 So. 5th

Meter & Curb boxes were repaired at the following locations:

Raised to grade:

77 Oakwood	852 No. 8th	850 No. 7th
745 No. 7th	807 No. 6th	758 No. 6th
1705 No. Garfield	535 So. Hayes	

Lowered to grade:

WATER DEPARTMENT MONTHLY REPORT FOR FEBRUARY 1971

Mainline work consisted of:

(None)

During the month of February 163,608,000 gallons of water was consumed from the system or 5,843,142 gallons of water per day was secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	70,645,000	1228.5
Well #2	43,996,000	131.5
Well #7	36,670,000	99.0
Well #27	16,297,000	57.0
		1516.0 lbs.

This figure is 7,107,000 gallons more than last February. Based on the 1970 population figure of 40,036 there was 145.94 gallons of water per person per day secured from the system.

Airport water consumption for February was 4.918,000 gallons of water using 15.0 pounds of chlorine.

Mainline leaks were repaired at the following locations:

2100 So. 2nd Ave   100 No. 6th Ave.   522 So. 1st Ave.

3 New service lines were installed at the following locations:

245 Wayne (3/4")   1094 Wilson (1")   860 East Alameda (3/4")

2 Service lines were renewed at the following locations:

606 So. 7th   925 West Lewis

7 Service lines were repaired at the following locations:

248 So. 12th   1123 East Halliday   1509-17 So. 4th
517 Skyline   1010 No. Arthur   1423 East Center
11th & Benton (SW corn.)

Meter & curb boxes were repaired at the following locations:

Raised to grade:

256 No. 11th   241 So. 2nd   1371 Yellowstone
408 No. Main   321 Jefferson   241 So. 12th (2)
630 West Hayden   1437 East Wyeth   757 Randolph

Lowered to grade:

524 West Custer   726 West Hayden   10th & Lander (SW corn.)
542-44 No. 10th   349 Pershing   405 So. Grant

676

WATER DEPARTMENT MONTHLY REPORT FOR MARCH 1971

Mainline work consisted of:

(None)

During the month of March 190,377,000 gallons of water was consumed from the system or 6,141,193 gallons of water per day was secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	74,140,000	1000.0
Well #2	47,231,000	141.0
Well #7	25,383,000	79.0
Well #12	24,728,000	75.0
Well #27	18,895,000	58.0
		1353.0 lbs.

This figure is 13,823,000 gallons more than last March. Based on the 1970 population figure of 40,036 there was 153.39 gallons of water per person per day secured from the system.

Airport water consumption for March was 4,540,000 gallons of water using 13 pounds of chlorine.

Mainline leaks were repaired at the following locations:

2500 South 2nd	Well Yard	2800 Poleline Road
Day and Grant	145 South 3rd	

5 New service lines were installed at the following locations:

500 No. Johnson (1"S.L.)	250 Park (1" S.L.)	711 No. 6th (4")
1010 Poca. Ave. (1")	603 Ridge (3/4")	

9 Service lines were renewed at the following locations:

634 No. 13th	446 No. 7th	819 East Wyeth
1423 Marguerite	1057 Yellowstone	Texaco on Madison
501 Richland	625 East Halliday	606 So. 5th

11 Servido lines were repaired at the following locations:

2550 So. 5th	1935 So. 2nd	401 Parkway
648 No. 5th	848 Broadway	331 West Lovejoy
141 Berryman	304 No. 12th	408 East Dillon
1321 East Oak	854 No. Main	

Meter and Curb Boxes were repaired at the following:

Raised to grade:

42 Hillcrest	525 Fairway Dr.	1680 Bench Road
1531 Spaulding	1446 Spaulding	1428 Spaulding
840 Parklane		

WATER DEPARTMENT MONTHLY REPORT FOR APRIL 1971

Mainline work consisted of:

Layed 182' of 4" T.J.C.I. Pipe on Oak from Mc Kinley to alley east. This will supply service to Westwood Village S.E. corner.

Oak and Pershing lowered 12" M.J.C.I. Pipe 8" for hiway construction. Oak and Warren lowered 12" L.J.C.I. Pipe 8" for hiway construction.

During the month of April 232,723,000 gallons of water was consumed from the system or 7,757,433 gallons of water per day was secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	50,930,000	143.0
Well #2	36,287,000	100.0
Well #3	36,279,000	107.5
Well #12	74,020,000	227.0
Well #18	1,111,000	5.5
Well #20A & 20B	8,908,000	30.0
Well #21	9,054,000	23.5
Well #27	16,134,000	57.0
		693.0 lbs.

This figure is 13,992,000 gallons more than last April. Based on the 1970 population figure of 40,036 there was 193.76 gallons of water per person per day secured from the system.

Airport water consumption for April was 4,659,000 gallons of water using 13.0 pound of chlorine.

Mainline leaks were repaired at the following locations:

Grant & Day
Johnny Creek
306 No. Main
Arthur & Lander
500 Block of Wilson
Arthur & Fremont

8 New service lines were installed at the following locations:

410 So. Main (6" F.L.)
1440 Paramount (3/4")
410 So. Main (1½")
P.I.P. Bldg. #12 (2-1")
823 Yellowstone (1")
1800 Garrett Way (1½")
Memorial Drive at Human Development Center (3")

5 Service lines were renewed at the following locations:

651 No. 13th
304 No. 3rd
182 Roosevelt
650 No. Arthur
247 Washington

20 Service lines were repaired at the following locations:

2700 So. 5th
1656 East Bonneville
730 Park Ave.
Carson St. Bridge (Parks)
122 No. Johnson
404 Northland
279 Fairway Dr.
1826 East Bonneville
436 No. 8th
1510 So. 3rd
154 Trailcreek Rd.
176 Fairway Dr.
261 Wingate
427 No. 12th
1640 So. 4th

6765

WATER DEPARTMENT MONTHLY REPORT FOR MAY 1971

Mainline work consisted of:

(None)

During the month of May 386,482,000 gallons of water was consumed from the system or 12,467,161 gallons of water per day was secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	64,112,000	206.0
Well #2	19,470,000	50.0
Well #3	73,259,000	202.5
Well #10	2,709,000	7.5
Well #12	108,409,000	312.5
Well #16	24,599,000	62.0
Well #18	24,598,000	90.0
Well #20A & 20B	14,560,000	34.0
Well #21	22,687,000	60.5
Well #22	11,869,000	63.0
Well #27	20,210,000	72.5
		1160.5 lbs.

This figure is 49,680,000 gallons more than last May. Based on the 1970 population figure of 40,036 there was 311.39 gallons of water per person per day secured from the system.

Airport water consumption for May was 6,799,000 gallons of water using 22.0 pounds of chlorine.

Mainline leaks were repaired at the following locations;

1708 Pocatello Cr. Rd. 525 East Clark Cedar & Warren
Cedar & Yellowstone 7th & Bonneville

6 New service lines were installed at the following locations:

So. Main (Wagon Wheel) 3/4" 544 East Benton 1" 770 Filmore 3/4"
4040 Hawthorne Rd. 1" 300 East Chapel 1½" 779 West Cedar 1"

5 Service lines were renewed at the following locations:

436 No. 8th 1155 No. Garfield 1280 East Alameda Rd.
244 Park Ave. 480 Randolph

WATER DEPARTMENT MONTHLY REPORT FOR JUNE 1971

Mainline work consisted of:

(None)

During the month of June 523,413,000 gallons of water was consumed from the system or 17,447,000 gallons of water per day was secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	84,668,000	1331.5
Well #2	43,043,000	120.0
Well #3	78,883,000	233.0
Well #10	25,926,000	72.0
Well #12	41,826,000	121.0
Well #16	42,631,000	97.5
Well #18	20,356,000	64.0
Well #20A & 20B	6,900,000	23.5
Well #21	23,220,000	60.5
Well #22	14,656,000	44.5
Well #23	42,443,000	127.5
Well #27	34,181,000	121.0
P.I.P. Well #1	64,680,000	162.0
		2578.0 lbs.

This figure is 3,941,000 gallons less than last June. Based on the 1970 population figure of 40,036 there was 435.78 gallons of water per person per day secured from the system.

Airport water consumption for June was 6,827,000 gallons of water using 20 lbs. of chlorine.

Mainline leaks were repaired at the following locations:

Scardino Park
727 Dogwood
Main & Carson
Oak between Wilson & R.R.
ISU Garrison Hall
600 Block E. Dunn (2)
1136 So. 2nd
1825 So. 2nd

8 New service lines were installed at the following locations:

1264 Palmer Lane 3/4"
341 So. 7th 1" S.L.
1407 Yellowstone 2"
2271 So. 5th 3"
1001 Samuel 1"
17-19 Rice 1"
1136 So. 2nd 3/4"
808 So. 2nd 3/4"

8 Service lines were renewed at the following locations:

504 So. 8th
617 Poole
266 Washington
1006 No. 9th
266 Taft
165 Roosevelt
1410 So. 2nd
467 Willard

10 Services were repaired at the following locations:

961 Hiline Rd.
204 Northgate
617 No. 10th
Lot 5 Blk 4 Lamar Add
357 No. 8th
P.I.P. Bldg. #35
500 So. 11th
633 Swisher
830 E. Fremont
1005 West Clark

C763

WATER DEPARTMENT MONTHLY REPORT FOR JULY 1971

Mainline work consisted of:

(None)

During the month of July 764,688,000 gallons of water was consumed from the system or 24,667,354 gallons of water per day was secured from the following sources.

		Lbs. Chlorine
Surface supplies & Well #4	106,115,000	1430.5
Well #2	51,523,000	143.0
Well #3	81,784,000	238.5
Well #10	65,758,000	197.0
Well #12	81,997,000	236.0
Well #16	70,546,000	195.5
Well #18	34,721,000	105.5
Well #20A & 20B	9,574,000	31.0
Well #21	45,067,000	130.5
Well #22	18,546,000	55.5
Well #23	73,810,000	229.0
Well #27	53,445,000	177.0
Well #1 P.I.P.	71,218,000	196.0
		3365.0 lbs.

This figure is 16,732,000 gallons more than last July. Based on the 1970 population figure of 40,036 there was 616.12 gallons of water per person per day secured from the system.

Airport water consumption for July was 4,835,000 gallons of water using 23.0 lbs. of chlorine.

Mainline leaks were repaired at the following locations:

5th & Wyeth | 850 Broadway | 440 University Drive
I.S.U. East Terry

5 New Service Lines were installed at the following locations:

2209 Garrett Way (3/4") | So. Main Ext. (3/4") | 1710½ E. Wyeth (1")
636 Ridge (3/4") | Boise Cascade (8"F.L.)

3 Service lines were renewed at the following locations:

424 No. 11th | 1015 No. Harrison- | 469 Randolph

13 Service lines were repaired at the following locations:

408 No. 10th | 432 So. 11th | 535 No. Arthur
626 So. 11th | 1256 E. Whitman | 11th & Whitman
742 Wayne | 50 Creighton | 351 E. Lawton
70 Oakwood | 804 No. 7th | 410 University Dr.
Sunset Theatre

WATER DEPARTMENT MONTHLY REPORT FOR AUGUST 1971

Main line work consisted of:

Layed 265' of 8" T.J.C.I. pipe north from end of existing 8" on Yellowstone. Installed one 8" main line valve and valve box on this line and connected back into 4" steel line with 8" x 4" tee, 6' of 4" C.I. pipe, one 4" 90 degree bend and 4" steel to cast iron dresser coupling.

Installed 8" tapping tee and valve on Yellowstone 5' North of South side of 15' easement at north end of Fairgrounds Addition and set main line valve box and lid. Layed 450' of 8" T.J.C.I. pipe up easement. Installed 8" x 6" tee to connect 6" C.I. dead end line on Pershing. Installed 6" x 15" baldy and one 6" main line valve and valve box at north end of Pershing.

During the month of August 715,268,000 gallons of water was consumed from the system or 23,073,161 gallons of water per day was secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	86,295,000	1381.5
Well #2	50,300,000	134.5
Well #3	81,847,000	231.5
Well #10	62,549,000	174.5
Well #12	95,666,000	261.5
Well #16	53,407,000	167.5
Well #18	30,561,000	97.0
Well #20A & 20B	7,806,000	25.5
Well #21	49,347,000	136.0
Well #22	10,477,000	32.0
Well #23	74,384,000	223.0
Well #27	50,716,000	177.5
Well #1 (P.I.P.)	61,915,000	180.0
		3222.0 lbs.

This figure is 16,013,000 gallons more than last August. Based on the 1970 population census figure of 40,036 there was 576.31 gallons of water per person per day secured from the system.

Airport water consumption for August was 4,565,000 gallons of water using 14.0 pounds of chlorine.

Main line leaks were repaired at the following locations:

654 West Cedar	Alley at 126 Roosevelt	500 Block Packard
Airport 10th & B St.	Moreland & Cedar	Washington & Cedar
7th & Clark	Elm between Taft & Roosevelt	

6 New Service Lines were installed at the following locations:

554 Packard (3/4")	950 So. Main (1")	309 No. 8th (1")
1500 No. 2nd (3/4")	831 No. 12th (1")	750 No. 5th (1½")

WATER DEPARTMENT MONTHLY REPORT FOR SEPTEMBER 1971

Mainline work consisted of:

Layed 253' of 8" T.J.C.I. Pipe on easement north of Fairgrounds Addition. Installed one 8" gate valve on East end of line & plugged line. Installed 40' of 6" C.I. Pipe, two 8" x 6" tees, two 6" gate valves and hooked dead end 6" mains at end of Margurite and Veda to 8" main in easement. Installed one 6" Pacific States Fire Hydrant at North end of Veda. Sterilized main, flushed out and put into operation.

West end of Valleyview installed 40' of 16" steel pipe for tank overflow to prevent under-mining of gully.

Layed 460' of ~~16~~ 14" steel pipe on Mink Creek Line to replace old 12". Installed 40' of 14" steel pipe to act as culverts where line crosses gullies. Stopped digging on the 30th account of snow & mud.

During the Month of September 321,516,000 gallons of water was consumed from the system or 10,717,200 gallons of water per day was secured from the following sources:

		Lbs. Chlorine
Surface Supplies & Well #4	63,800,000	1148.5
Well #2	19,658,000	50.5
Well #3	70,650,000	185.0
Well #12	20,755,000	65.0
Well #16	30,862,000	95.0
Well #18	4,111,000	14.0
Well #21	29,941,000	91.0
Well #22	6,545,000	23.5
Well #27	19,658,000	69.5
Well #1 (P.I.P.)	55,536,000	161.5
		1903.5 lbs.

This figure is 31,663,000 gallons less than last September. Based on the 1970 population figure of 40,036 there was 267.68 gallons of water per person per day secured from the system.

Airport water consumption for September was 3,504,000 gallons of water using 15.0 pounds of chlorine.

Main line leaks were repaired at the following locations:

300 blk. E. Clark	9th and Sherman	Poleline (bet. Ash & Birch)
2nd & Fredregill	I.S.U. @ LDS Inst.	

7 New service lines were installed at the following locations:

2000 So. Fairway (2")	3712 Hawthorne Rd. (3/4")	1044 Swisher (3/4")
506 Warren (3/4")	Lot 7 Blk K Univ. Park (1")	345 Willard (3/4")
Lot 15 Blk K Univ. Park (1")		

Water Department Monthly report for October 1971

Mainline work consisted of:

Layed 3500' of 14" steel line on Mink Creek Line to replace old 12" steel. Project not complete as yet. Took in 570' 6" CI, 139' 4" CI, 2-6" Gate valves, 1-4" G.V., & 1-6" F.H. on Fawn St. (1st Add. Paramount).

During the month of October 225,966,000 gallons of water was consumed from the system or 7,289,225 gallons of water per day was secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	69,705,000	226.0
Well #2	49,609,000	133.5
Well #3	2,881,000	8.5
Well #12	22,249,000	66.6
Well #20A & 20B	3,630,000	6.0
Well #21	2,899,000	8.0
Well #22	3,041,000	11.5
Well #27	6,485,000	27.0
P.I.P. Well #1	65,467,000	173.5
		660.5 lbs.

This figure is 8,056,000 gallons less than last October. Based on the 1970 population figure of 40,036 there was 182.06 gallons of water per person per day secured from the system.

Airport water consumption for October was 2,624,000 gallons of water using 10.5 pounds of chlorine.

Mainline leaks were repaired at the following locations:

Pocatello Creek Rd. & Hiline
862 Jessie
325 Filmore
956 Taney Lane
1832 Syringa

28 New services were installed at the following locations:

153 West Cedar (3/4")
169 Hurley Ln. (3/4")
3860 Yellowstone (6")
P.I.P. Bldg. #3 (1")
736 East Custer (1½")
Pocatello Heights (1")
Poca. Heights (1" S.L.)
Lots 16 - 26 Block 4 1st Add. Paramount (11 3/4")
Lots 14 - 23 Block 5 1st Add. Paramount (10 3/4")

4 Service lines were renewed at the following locations:

160 Spruce
617 No. 10th
3883 Hawthorne Rd.
956 Taney Ln.

1 Service line was repaired at the following locations:

741 Syringa

6772

WATER DEPARTMENT MONTHLY REPORT FOR NOVEMBER 1971

Mainline work consisted of:

Layed 1,040' of 14" steel pipe on the Mink Creek line to replace old 12" steel. The project is now complete except for making the connection into the existing line which will not be done until next spring. Reset all fence taken down during this project.

During the month of November 191,608,000 gallons of water was consumed from the system or 6,386,933 gallons per day was secured from the following sources:

		Lbs. Chlorine
Surface Supplies & Well #4	71,030,000	924.5
Well #2	46,874,000	121.0
Well #27	8,813,000	23.0
P.I.P. Well #1	64,891,000	182.5
		1,251.0 lbs.

This figure is 16,053,000 gallons more than last November. Based on the 1970 population census of 40,036 there was 159.52 gallons of water per person per day secured from the system.

Airport water consumption for November was 2,716,000 gallons of water using 8.5 lbs. of chlorine.

Mainline leaks were repaired at the following locations:

29 Westello | Mink Creek Line

7 New services were installed at the following locations:

636 Cottage (3/4")
565 El Rancho (1")
29 Rice (1")
322 Skyline (3/4")
316 No. 7th (1")
186-88 Willard (1")
1011-C Deon (1")

3 Service lines were renewed at the following locations:

1255 So. 3rd
755 No. 10th
430 Crescent Drive

7 Service lines were repaired at the following locations:

1018 No. 9th
425 West Wyeth
584 Ridge
318 Fredregill Rd.
627 No. 11th
1033 No. 10th
715 West Bonneville

6773

WATER DEPARTMENT MONTHLY REPORT FOR DECEMBER 1971

Mainline work consisted of:

(None)

During the month of December 196,636,000 gallons of water was consumed from the system or 6,343,096 gallons per day was secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	71,883,000	1347.0
Well#2	50,161,000	131.5
Well #27	7,993,000	26.5
Well #1 P.I.P.	66,599,000	186.5
		1591.5 lbs.

This figure is 22,369,000 gallons more than last December. Based on the 1970 population of 4,036 there was 158.43 gallons of water per person per day secured from the system.

Airport consumption for December was 2,929,000 gallons using 9.0 pounds of chlorine.

Mainline leaks were repaired at the following locations:

Quinn Rd. & Hurley Ln. 1100 Block E. Terry

21 New service lines were installed at the following locations:

Lots 12-20 Block 3 Marcrest 1st Addition (9 - 3/4")
Lots 1 -11 Block 4 Marcrest 1st Addition (11 - 3/4")
169 Park Ave. 3/4"

2 Service lines were renewed at the following locations:

351 East Lawton 1051 No. 9th

6 Service lines were repaired at the following locations:

725 W. Bonneville	200 Blk E. Lawton	3208 Poleline
784 Poole	262 Franklin	1306 So. 3rd

Meter & curb boxes were repaired at the following locations:

Lowered to grade at:

14 Cornell

6774

WATER DEPARTMENT MONTHLY REPORT FOR JANUARY 1972

Mainline work consisted of:

(None)

During the month of January 200,599,000 gallons of water was consumed from the system or 6,470,935 gallons per day was secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	74,892,000	1293.5
Well #2	50,000,000	142.5
Well #27	9,192,000	31.0
P.I.P. Well #1	66,515,000	179.0
		1646.0 lbs.

This figures is 16,521,000 gallons more than last January. Based on the 1970 population figure of 40,036 there was 161.62 gallons of water per person per day secured from the system.

Airport consumption for January was 2,211,000 gallons of water using 9.5 pounds of chlorine.

Mainline leaks were repaired at the following locations:

Carson St. Bridge	1234 No. Main	195 Charles Place
Imperial & Sunnyside	1305 So. 3rd	

No new service lines were installed:

2 service lines were renewed at the following locations:

1048 East Benton	1105 So. 3rd

9 service lines were repaired at the following locations:

195 Imperial	102 Jefferson	205 Sunnyside
252 Wingate	905 So. 5th	1134 No. Main
3526 Valley Road	1305 So. 3rd	3113 Dahl

Meter and Curb Boxes were repaired at the following locations:

Meters were frozen, thawed and insullated at the following location:

1206 Poleline	132 Stanford	1338 So. 1st
496 Eldredge	112 Berryman	713 So. Hayes
268 Fairway	132 Stanford	923 No. Arthur
7th & Center (conoco)	630 No. 6th	1979 Monte Vista
830 East Maple	505 No. 5th	1513 So. 5th
Wagon Wheel (So. Main)	240 No. Hayes	963 Malibu
619 So. 11th	245 East Gould	139 So. Main
245 E. Gould	Maple & Yellowstone (Sinclair)	
1234 No. Main		

6773

WATER DEPARTMENT MONTHLY REPORT FOR FEBRUARY 1972

Mainline work consisted of:

(None)

During the month of February 194,057,000 gallons of water was consumed from the system or, 6,691,620 gallons per day was secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	75,850,000	1223.5
Well #2	47,066,000	137.5
Well #27	8,410,000	78.5
P.I.P. Well #1	62,731,000	176.0
		1615.5 lbs.

This figure is 30,449,000 gallons more than last February. Based on the 1970 population figure of 40,036 there was 167.14 gallons of water per person per day secured from the system.

Airport consumption for February was 2,217,000 gallons of water using 8.0 lbs. of chlorine.

Mainline leaks were repaired at the following locations:

Clark Street Bridge — 114 Nixon Road — 515 Jefferson
169 Park Ave.

4 New service lines were installed at the following locations:

546 Kinghorn 3/4" — 236 Teal 3/4" — 248 Teal 3/4"
266 Teal 3/4"

3 Service lines were renewed at the following locations:

1525 So. 3rd — 643 No. 12th — 506 So. 5th

6 Service lines were repaired at the following locations:

169 Park Ave.	1150 East Clark	946 No. 10th
6th & Putnam	139 No. 5th	128 Nixon

Meters & Curb Boxes were repaired at the following locations:

Meters were frozen, thawed and insulated at the following locations:

3804 Nora	222 So. 2nd	845 Hyde	137 So. Main
653 E. Center	626 W. Day	643 So. Harrison	633 So. Hayes
245 E. Gould	1737 No. Harrison	1215 E. Alameda	153 No. Hayes
1344 So. 4th	504 E. Center	316 Northgate	331 W. Lovejoy
129 No. 2nd	328 So. 4th	39 Cottonwood	542 Pershing
963 Malibou	450 No. Main	535 Jefferson	245 E. Gould
251 No. Main	854 Cottage	1446 E. Clark	2167 Poleline

WATER DEPARTMENT MONTHLY REPORT FOR MARCH 1972

Mainline work consisted of:

(None)

During the month of March 246,028,000 gallons of water was consumed from the system or 7,939,612 gallons per day was secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	58,212,000	420.5
Well #2	26,446,000	77.0
Well #7	8,902,000	15.5
Well #12	69,502,000	203.5
Well #22	5,882,000	20.5
Well #27	10,813,000	37.0
P.I.P. Well #1	66,271,000	197.0
		971.0 lbs.

This figure is 55,651,000 gallons more than last March. Based on the 1970 population figure of 40,036 there was 198.31 gallons of water per person per day secured from the system.

Airport water consumption for March was 2,197,000 gallons of water using 8.0 pounds of chlorine.

Mainline leaks were repaired at the following locations:

Upper Level Ross Park   325 Northgate   1900 So. 2nd
544 Fairmont

5 New service lines were installed at the following locations:

140 Highland (1")   864 Washington (1")   864 Washington (1")
630 Franklin (1½")   3736 Hawthorne Rd. (3/4")

9 Service lines were renewed at the following locations:

531 No. 7th   319 So. 10th   956 West Clark
250 West Maple   1603 So. 3rd   602 Franklin
340 East Putnam   1250 East Lewis   270 Taft

12 Service lines were repaired at the following locations:

Poca. Heights #11   103 Howard   127 Berryman
815 Poleline   1354 No. Garfield   1235 No. Arthur
1119 No. Main   1453 No. Harrison   1836 So. 3rd
3112 Hubbard   534 No. 11th   3860 Yellowstone

Meter & Curb Boxes were repaired at the following locations:

(Raised to grade)

P.I.P. Bldg. #3   755 No. 10th   757 El Rancho   481 University Dr.

WATER DEPARTMENT MONTHLY REPORT FOR APRIL 1972

Mainline work consisted of:

At 3230 McKinley installed one 8" x 4" tapping tee and a 4" tapping valve and layed 35' of 4" T.J.C.I. Pipe.

Mink Creek Line at the end of Juniper Dr. replaced 238' of 12" steel pipe with 36' of C.I. Pipe and 202' of D.T.T.J.C.I. Pipe and lowered approximately two feet using one 14" stl to 14" C.I. coupler and one 14" C.I. to 12" steel coupler.

Mink Creek Line above Johnny Creek Rd. connected new 14" steel main, layed last fall and hooked into line replacing old 12" steel line using 274' 14" steel pipe, two 12" x 4" steel coupler and two 14" steel couplers. Layed 36' of 8" L.J.C.I. Pipe to act as culvert.

During the month of April 317,520,000 gallons of water was consumed from the system or 10,584,000 gallons per day was secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	60,869,000	206.5
Well #2	42,117,000	115.5
Well #3	11,175,000	27.5
Well #12	98,683,000	294.0
Well #16	997,000	
Well #21	5,781,000	16.5
Well #22	18,695,000	61.5
Well #27	16,028,000	51.5
P.I.P. Well #1	63,175,000	186.0
		959.0 lbs.

This figure is 84,797,000 gallons more than last April. Based on the 1970 poplulation figure of 40,036 there was 264.36 gallons of water per person per day secured from the system.

Airport water consumption for April was 2,945,000 gallons of water using 7.0 lbs. chlorine.

Mainline leaks were repaired at the following locations:

Alley No. 200 Walnut	Mink Creek Line	Gibson & Arthur
700 So. 1st Ave.	Elm & Randolph	

8 New service lines were installed at the following locations:

1016 Swisher Rd. 3/4"	637 Packard 3/4"	2405 Garrett Way 1" S.L.
53-55 Creighton 2-3/4"	421 Griffith 1"	437 Griffith 1"
3260 Mc Kinley 3/4"		

13 Service lines were renewed at the following locations:

436 East Bonneville	253 So. 4th	1335 East Lander
77 Foothill Blvd.	288 Thurston	533 No. 12th
647 Randolph	Mink Creek (2)	222 So. 6th
343 No. 10th	131 Park Ave.	950 Meadowbrook

WATER DEPARTMENT MONTHLY REPORT FOR MAY 1972

Mainline work consisted of:

96'

West Bench Reservoir replaced ~~85'~~ of 16" steel pipe ~~and 95' of 6" steel pipe~~ and used two 16" dresser couplers.

During the month of May 533,113,000 gallons of water was consumed from the system or 17,197,193 gallons per day was secured from the following sources.

		Lbs. Chlorine
Surface supplies & Well #4	70,889,000	1117.5
Well #2	23,308,000	64.5
Well #3	81,227,000	198.0
Well #10	14,427,000	43.0
Well #12	96,879,000	289.0
Well #16	46,305,000	126.0
Well #18	19,117,000	66.5
Well #20A & 20B	7,891,000	27.0
Well #21	47,551,000	128.5
Well #22	22,884,000	71.0
Well #27	35,212,000	110.0
P.I.P. Well #1	67,423,000	194.0
		2435.0 lbs.

This figure is 146,631,000 gallons more than last May. Based on the 1970 population figure of 40,036 there was 429.54 gallons of water per person per day secured from the system.

Airport water consumption for May was 2,319,000 gallons of water using 8.5 pounds of chlorine.

Mainline leaks were repaired at the following locations:

Mc Kinley & Maple	976 Cottage	600 Block Wayne
Grant & Clark	10th & Custer	1672 Poca. Creek Rd.
Von Elm Lane		

8 New service lines were installed at the following locations:

P.I.P. Bldg. #37 (1")	147 No. Grant (3/4")	938 So. 2nd (1")
Cedar's So. Main Ext. (1½")	640 East Poplar (3/4")	4140 Stockman (1")
3230 Mc Kinley (1½")	56 Creighton (3/4")	

7 Service lines were renewed at the following locations:

695 El Rancho	125 Roosevelt	346 Mc Kinley
810 Rosewood	1006 West Clark	815 East Cedar
829 Wayne	660 East Cedar	

11 Service lines were repaired at the following locations:

746 East Center	1255 No. Arthur	438 No. 15th
618 Richland	1303 East Center	351 Foothill Blvd.
1398 Santa Anita	631 So. 7th	LDS Church Princeton
5th & Lovejoy	666 Yellowstone	

WATER DEPARTMENT MONTHLY REPORT FOR JUNE 1972

Mainline work consisted of:

(None)

During the month of June 535,012,000 gallons of water was consumed from the system or 17,833,733 gallons per day was secured from the following sources.

		Lbs. Chlorine
Surface supplies & Well #4	68,945,000	1283.5
Well #2	24,823,000	70.5
Well #3	78,909,000	219.5
Well #10	31,293,000	96.5
Well #12	71,632,000	205.5
Well #16	37,281,000	96.0
Well #18	15,923,000	54.5
Well #20A & 20B	8,352,000	30.5
Well #21	23,031,000	72.0
Well #22	9,947,000	33.0
Well #23	59,875,000	186.0
Well #27	39,814,000	130.5
P.I.P. Well #1	65,187,000	184.5
		2662.5

This figure is 11,599,000 gallons more than last June. Based on the 1970 population figure of 40,036 there was 445.44 gallons of water per person per day secured from the system.

Airport water consumption for June was 3,917,000 gallons using 11.0 pounds of chlorine.

Mainline leaks were repaired at the following locations:

655 West Whitman	950 Taney Lane	So. Fairway Drive
16th & Bonneville	233 Tanager	1720 Poca. Creek Rd.
260 So. 4th	Portneuf Park	

9 New service lines were installed at the following locations:

1054 Swisher 3/4"	4785 So. 4th 3/4"	1336 So. 5th ISU 2"
278 Teal 3/4"	828 Jefferson 1"	1040 Cottage 3/4"
925 Wilson 1½"	148 Nixon 3/4"	2530 So. 4th 3/4"

12 Service lines were renewed at the following locations:

701 East Center	1036 East Halliday	219 No. 13th
578 Filmore	407 Wyldwood	1397 Santa Anita
941 Park Ave.	254 Mc Kinley	258 Mc Kinley
1024 East Bonneville	329 So. 10th	241 Roosevelt

WATER DEPARTMENT MONTHLY REPORT FOR JULY 1972

Mainline work consisted of:

Lowered 4" C.I. line at I.S.U. Spud Bowl on Humbolt for storm sewer crossing. Used four 4" 90 degree bends, seven foot of 4" C.I. Pipe, one 4" Skinner Bell Joint Repair Clamp.

3rd & Fremont raised 4" C.I. Pipe 8" for storm sewer.

During the month of July 720,697,000 gallons of water was consumed from the system or 23,248,290 gallons per day was secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	93,927,000	1544.5
Well #2	33,460,000	94.5
Well #3	79,745,000	218.5
Well #10	57,845,000	165.5
Well #12	91,638,000	261.0
Well #16	59,845,000	174.0
Well #18	28,654,000	95.0
Well #20A & 20B	14,624,000	54.0
Well #21	53,750,000	162.0
Well #22	19,243,000	64.0
Well #23	66,766,000	220.5
Well #27	53,422,000	178.0
Well #1 (P.I.P.)	67,778,000	186.0
		3427.5 lbs.

This figure is 43,991,000 gallons less than last July. Based on the 1970 population figure of 40,036 there was 580.68 gallons of water per person per day secured from the system.

Airport water consumption for July was 5,318,000 gallons, using 17.5 lbs. chlorine.

Mainline leaks were repaired at the following locations:

Clark St. Bridge	1538 East Hayden	600 East Bonneville
15th & Hayden	767 Birch	172 So. 15th
1500 So. 2nd		

20 New service lines were installed at the following locations:

3919 Hawthorne Rd. 3/4"	547 W. Eldredge 1"	500 Blk W. Eldredge 3/4"
648 So. 6th 1"	4000 Blk Nora 8-3/4"	736 East Custer 6" F.L.
688 Randolph 3/4"	Airport 3/4"	4530 So. 5th 6"
1230 Yellowstone 2-1"	P.I.P. #37 1"	845 Barton Rd. 6"

WATER DEPARTMENT MONTHLY REPORT FOR AUGUST 1972

Mainline work consisted of:

Hayden, 13th to 15th replaced old 2" galvanized line with 4" C.I. Pipe using, 714' of 4" T.J.C.I. Pipe, one 4" x 4" tapping tee, one 6" x 4" tapping tee, two 4" tapping valves, one 4" C.I. Sleeve and two main line valve boxes and lids. Sterilized main, hooked up existing services to main and put into operation.

1500 Block of East Fremont replaced old 2" galvanized line with 4" C.I. Pipe using: 309' of 4" T.J.C.I. Pipe, one 12" x 4" tapping tee, one 4" tapping valve, one 4" C.I. Sleeve and one main line valve box and lid. Sterilized main, hooked up existing services and put into operation.

During the month of August 604,000,000 gallons of water was consumed from the system or 19,483,870 gallons per day was secured from the following sources :

		Lbs.Chlorine
Surface supplies & Well #4	89,600,000	1429.5
Well #2	43,840,000	128.5
Well #3	80,973,000	234.0
Well #10	43,484,000	127.5
Well #12	58,209,000	170.0
Well #16	34,353,000	111.0
Well #18	18,245,000	66.0
Well #20A & 20B	12,703,000	46.0
Well #21	28,742,000	85.5
Well #22	10,390,000	33.5
Well #23	71,068,000	231.5
Well #27	45,315,000	151.5
Well #1 (P.I.P.)	67,078,000	157.0
		2971.5 lbs.

This figure is 111,268,000 gallons less than last August. Based on the 1970 population figure of 40,036 there was 486.65 gallons of water per person per day secured from the system.

Airport water consumption for August was 4,006,000 gallons using 15.0 pounds of chlorine.

Mainline leaks were repaired at the following locations:

1002 East Clark
736 Birch
So. 4th @ Ford Johnson's
1st & Center

11 New service lines were installed at the following locations:

610 Industrial Ln. 1"
507 Pershing 1"
1405 Lakeview 3/4"
Syringa School 2" (S.L.)
777 Filmore 3/4"
1356 So. 1st 3/4"
1265-67 Hiline 1"
257 Valleyview 3/4"
1800 Garrett Way 1"
415 So. 2nd 2"
920 Dolbeer 3/4"

6782

WATER DEPARTMENT MONTHLY REPORT FOR SEPTEMBER 1972

Mainline work consisted of:

Westello Blv'd. connected two deadend lines between Toponce and Mountain Drive and between Mountain Drive and Hillcrest. Used 384' of 6" T.J.C.I. Pipe, two 6" gate valves, two 6" tees, two 6" M.J. plugs, two mainline valve boxes & lids. Sterilized and put into operation.

Added 1,285' of 8" T.J.C.I. pipe, two 8" gate valves, two 6" fire hydrants, one 6" gate valve, 28' of 6" T.J.C.I. pipe, one 8" tapping valve and one 10" x 8" tapping tee layed on South Fairway Drive connecting end of 8" line to 10" line on Primrose.

Added 510' of 6" T.J.C.I. pipe, five 6" fire hydrants and two 6" gate valves to upper end of South Fairway Drive for Third Addition to Fairway.

During the month of September 322,912,000 gallons of water was consumed from the system or 10,763,733 gallons per day was secured from the following sources:

		Lbs. Chlorine
Surface Supplies & Well #4	81,373,000	1156.5
Well #2	14,110,000	41.5
Well #3	71,709,000	196.5
Well #10	5,460,000	18.0
Well #12	4,729,000	16.5
Well #16	15,371,000	51.0
Well #18	913,000	3.0
Well #20A & 20B	6,885,000	26.5
Well #21	9,587,000	29.0
Well #22	25,325,000	77.5
Well #27	24,507,000	81.5
Well #1 (P.I.P)	62,943,000	190.0
		1887.5 lbs.

This figure is 1,396,000 gallons more than last September. Based on the 1970 population figure of 40,036, there was 268.85 gallons of water per person per day secured from the system.

Airport water consumption was 2,685,000 gallons using 10 lbs. of chlorine.

Mainline leaks were repaired at the following locations:

817 So. Main
710 So. 5th
162 Wilson
5th & Bonneville
300 No. Johnson

10 New services were installed at the following locations:

536½ No. 6th 3/4"
153 Fredregill 1"
344 Skyline 3/4"
710 No. 5th 4" F.L.
640 Ridge 3/4"
840 Mc Kinley 3/4"
301 Valleyview 1"
125 Lakeview 1"
1410 Yellowstone 3/4"
710 No. 5th 1"

6433

WATER DEPARTMENT MONTHLY REPORT FOR OCTOBER 1972

Mainline work consisted of:

HUD project WSF ID 10-26-1002 worked on building well house for Well #28 and Barton Road Booster.

During the month of October 245,954,000 gallons of water was consumed from the system or 7,934,000 gallons per day was secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	93,660,000	1510.0
Well #2	45,916,000	136.0
Well #16	7,313,000	23.5
Well #20A & 20B	3,099,000	9.5
Well #22	15,676,000	49.0
Well #27	14,926,000	50.5
P.I.P. Well #1	65,364,000	203.5
		1982.0 lbs.

This figure is 19,988,000 gallons more than last October. Based on the 1970 population figure of 40,036 there was 198.17 gallons of water per person per day secured from the system.

Airport water consumption was 3,080,000 gallons using 12 pounds of chlorine.

Mainline leaks were repaired at the following locations:

1856 Pocatello Creek 1000 Patsy

62 New service lines were installed at the following locations:

Fairway Dr. (57) 1"	160 Hoffman 3/4"	1060 Yellowstone 3/4"
1354 Spaulding Ln. 3/4"	355 Skyline 3/4"	333 Roosevelt 1"

6 Service lines were renewed at the following locations:

845 East Wyeth	439 East Halliday	143 No. 10th
653 Washington	239 East Chapel	422 So. Hayes

9 service lines were repaired at the following locations:

1246 Willard	153 So. 3rd	1605 No. Garfield
1525 So. 3rd	79 Mountain Dr.	436 East Whitman
138 So. 12th	515 Northland	456 West Sherman

Meter & Curb Boxes were repaired at the following locations:

(Raised to Grade at:)

610 Industrial Ln.	1962 Jean	3567 Valley Rd.
257 Valleyview		

6784

WATER DEPARTMENT MONTHLY REPORT FOR NOVEMBER 1972

Main line work consited of:

Hud Project WSF ID 10-26-1002 worked on building Well House for Well #28 and Barton Road Booster Station. Layed 1,497' of 12" T.J.C.I. Pipe from Well #28 north to connect into system.

1300 East Cedar replaced old 2" galv. line with 286' of 6" T.J.C.I. Pipe using one 4" x 4" tapping tee, one 4" tapping valve, one 4" P.E. x 6" M.J. Adaptor and one 6" fire hydrant.

1200 Lavine installed 50' of 6" T.J.C.I. Pipe and one 6" gate valve.

During the month of November 194,626,000 gallons of water was consumed from the system or 6,487,533 gallons per day was secured from the following sources.

		Lbs. Chlorine
Surface supplies & Well #4	77,815,000	1,263.0
Well #2	46,064,000	128.0
Well #27	7,135,000	24.0
P.I.P. Well #1	63,582,000	181.5
		1,596.5

This figure is 3,018,000 gallons more than last November. Based on the 1970 population figure of 40,036 there was 162.04 gallons of water per person per day secured from the system.

Airport water consumption was 2,179,000 gallons using 6.5 pounds of chlorine.

Mainline leaks were repaired at the following locations:

500 West Whitman

5 New service lines were installed at the following locations:

953 No. Main (1")
740 Ash (1")
P.I.P. Bldg. #37 (1")
545 Wilson (1½")
1071 Renee (4"F.L.)

2 service lines were renewed at the following locations:

642 El Rancho
752 Grace Dr.

2 service lines were repaired at the following locations:

725 No. 10th
720 So. 8th

6785

WATER DEPARTMENT MONTHLY REPORT FOR DECEMBER 1972

Mainline work consisted of:

HUD Project WSF-ID-10-26-1002 made connection from pump to discharge line in Well #28. Set pump motor and base; connected surge control valve and set control panel and electrical equipment.
Dug test holes for 12" main continuation. East Center, 18th & Bonneville, Barton Road and at Franklin Jr. Hi unloaded 12" & 16" D.T.T.J.C.I. Pipe for project.
Barton Road Booster Station installed two starting panels.

During the month of December 205,169,000 gallons of water was consumed from the system or 6,618,354 gallons per day was secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	82,972,000	1293.0
Well #2	48,342,000	143.5
Well #27	8,657,000	24.0
P.I.P. Well #1	65,198,000	187.5
		1648.0 lbs.

This figure is 8,533,000 gallons more than last December. Based on the 1970 population figure of 40,036 there was 165.31 gallons of water per person per day secured from the system.

Airport water consumption was 2,674,000 gallons using 12.0 lbs of chlorine.

Mainline leaks were repaired at the following locations:

Airport 1200 So. 2nd

8 New service lines were installed at the following locations:

560 Hyde 3/4"	566 Hyde 3/4"	58 Hyde 3/4"
596 Hyde 3/4"	2200 E. Terry 6" F.L.	475 Pershing 3/4"
104 Berryman 3/4"	110 Berryman 3/4"	

2 Service lines were renewed at the following locations:

935 So. 3rd 317 So. 3rd

4 Service lines were repaired at the following locations:

423 No. 9th	1660 No. Garfield	195 Imperial
208 So. 8th		

6786

WATER DEPARTMENT MONTHLY REPORT FOR JANUARY 1973

Mainline work consisted of:

HUD Project WSF-ID-10-26-1002: South 2nd at Ross Park blasted rock from trench so we could finish laying 12" line from Well #28 to connect to system. Layed.

Franklin Jr. Hi. and Barton Road unloaded 16" T.J.C.I. Pipe.

Well #28 insulate inside of building. Installed meter, chlorinator, and surge control valve.

Barton Road Booster Station installed pot pumps, and motor. Set surge control valve, check valve and relief valve inside of building.

Other work included started drilling Well #29 at Willard & Walnut on the 9th of the month. Drilled to 150' as per contract and started drilling into 2nd 150'. End of month had drilled to 172'.

During the month of January 203,228,000 gallons of water was consumed from the system or 6,555,741 gallons per day was secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	84,638,000	1266.0
Well #2	49,509,000	137.0
Well #27	8,253,000	27.5
B.I.P. Well #1	60,838,000	173.0
		1603.5 lbs.

This figure is 2,629,000 gallons more than last January. Based on the 1970 population figure of 40,036 there was 163.75 gallons of water per person per day secured from the system.

Airport water consumption was 2,002,000 gallons using 7.5 pound of chlorine.

Mainline leaks were repaired at the following locations:

611 Wayne	109 Von Elm	Arthur & Lovejoy
Poleline bet. Ash & Maple	600 Wilson	422 No. 18th

2 New service lines were installed at the following locations:

169 Hurley Lane (3")   130 So, 16th (1")

4 Service lines were renewed at the following locations:

183 Wayne	712 East Poplar	176 Randolph
456 No. 15th		

WATER DEPARTMENT MONTHLY REPORT FOR FEBRUARY 1973

Mainline work consisted of:

HUD Project WSF-ID-10-26-1002 Barton Road Booster dug out trench for electrical conduit. Installed roof drain on building and worked on roof. Cut and welded window frames and weld on screens for station. Painted piping and installed scales for chlorinator.

Pine and Hyde Booster installed 150 H.P., 1500 G.P.M. Pot pump and motor.

Scardino Park dug out trench and connected to 10" line to run 8" line to El Rancho. Used one 10" x 8" tee, one 8" x 6" tee, 16' of 8" C.I. Pipe, 7' of 6" C.I. Pipe, one 8" gate valve, one 6" gate galve, one 6" plug and one 8 " plug.

During the month of February 188,457,000 gallons of water was consumed from the system or 6,730,607 gallons per day was secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	76,750,000	1209.0
Well #2	44,552,000	117.0
Well #27	6,443,000	22.0
P.I.P. Well #1	60,712,000	173.0
		1521.0 lbs.

This figure is 5,600,000 gallons less than last February. Based on the 1970 population figure of 40,036 there was 168.11 gallons of water per person per day secured from the system.

Airport water consumption was 1,971,000 gallons using 6.0 pounds of chlorine.

Mainline leaks were repaired at the following locations:

900 West Center	700 West Lewis	1600 So. 2nd
1708 Pocatello Cr. Rd.	100 No. 17th	

6 New service lines were installed at the following locations:

1450 Yellowstone 3/4"	550 Hyde 1"	205B West Griffith 1"
540 W. Eldredge 3/4"	110 Valleyview 1"	3036 Pololine 3/4"

2 Service lines were renewed at the following locations:

750 East Poplar	840 West Wyeth

5 Service lines were repaired at the following locations:

245 No. Main	1323 So. 2nd	428-34 So. 5th
1024 East Bonneville	38 Maplewood	

WATER DEPARTMENT MONTHLY REPORT FOR MARCH 1973

Mainline work consisted of:

HUD Project: WSF - ID - 10-26-1002 Began construction of Moonlight Road from Eastgate Nursing Home by Burgraph Construction Co.

Barton Road Booster Station installed suction side of booster station. Installed 148' of 16" T.J.C.I. Pipe, 24' of 12" T.J.C.I. Pipe, 3' of 6" T.J.C.I. Pipe, 14' of 6" steel pipe, three 16" x 12" tees, one 16" x 6" tee, three 12" gate valves, one 6" gate valve, one 16" 90 degree bend, and one 16" plug. Set 6" relief valve.

Ross Park at South Second Avenue finished laying 12" transmission line to existing system.and hooked onto 10" line over the top of Ross Park. Also set 6" fire hydrant at the south of Well #28. Used 849' of 12" T.J. C.I. Pipe, three 12" gate valves, one 12" x 6" tee, one 12" M.J. plug, one 12" sleeve, 51' of 10" T.J.C.I. Pipe, one 10" gate valve, one 10" sleeve, 11' of 6" T.J.C.I. Pipe, one 6" Pacific States Fire Hydrant, one 6" fire hydrant valve and set five mainline valve boxes and lids.
Installed 1" drain line for 10" line over the top of Ross Park. Flushed out line and all complete except for sterilization.

Regular work: Scardino Park at booster worked on line to El Rancho using 36' of 8" T.J.C.I. Pipe. Installed 8" pressure regulating valve with 3" bypass using two 8" fitting adaptors, two 8" x 3" tees, two 8" butterfly valves, one 8" pressure regulating valve, two 3" flanged gate valves, one 3" flanged regulating valve, two 3" flanged 90 degree bends. Poured footing for vault and cut out sod to continue line.

Well #21 filled in floor with gravel and poured and finished concrete floor.
Well #3 put new valve seat in 12" gate valve.
Well #29 drilled to 340' with no improvement in strata. Will swab out well and test.

During the month of March 213,509,000 gallons of water was consumed from the system or 6,887,337 gallons of water per day was secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	89,870,000	1343.0
Well #2	46,395,000	128.0
Well #27	9,512,000	32.0
P.I.P. Well #1	67,732,000	203.0
		1706.0 lbs.

This figure is 32,519,000 gallons less than last March. Based on the 1970 population figure of 40,036 there was 172.03 gallons of water per person per day secured from the system.

Airport consumption was 1,989,000 gallons of water using 5.5 lbs. of chlorine.

WATER DEPARTMENT MONTHLY REPORT FOR APRIL 1973

Mainline work consisted of:

HUD Project WSF-ID-10-26-1002: Moonlight road construction by Burgraph Construction Co. completed.

Sterilized 12" line on South Second at Ross Park and is already in operation.

Barton Road Booster Station installed discharge side of booster and started laying 16" transmission line to tank sites. Installed 996' of 16" D.T. Pipe, 9' of 10" D.T. Pipe, 3' of 6" D.T. Pipe, two 16"x10"x16" tees, one 16"x6"x16" tee; two 16" class 250 gate valves, three 10" class 250 gate valves, one 6" class 250 gate valve, one 16" class 250 90 degree bend and one 16" plug.

Installed 16" recorder and vault for same.

Other work: 1062 El Rancho installed pipe and fittings to connect to Scardino Park Booster. Layed 175' of 8" T.J.C.I. Pipe, one 8"x8" tee, two 8" P.E. to 6" M.J. reducers, one 6" solid sleeve, one 8" gate valve and hooked up to pressure regulating station. Backfilled and cleaned up and planted grass.

Well #29 perforated and swabbed out casing. Swabbing for 72 hours. Started test pumping and test pumped for 48 hours. Shut down for 24 hours and started test pumping again. Not complete yet.

153 South 7th Ave. replaced two section (32') of 4" C.I. Pipe.

During the month of April 262,466,000 gallons of water was consumed from the system or 8,882,200 gallons per day was secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	71,035,000	597.0
Well #2	50,101,000	137.5
Well #12	45,012,000	150.5
Well #16	2,450,000	8.5
Well #18	2,807,000	8.0
Well #22	12,840,000	42.0
Well #27	14,035,000	48.0
P.I.P. Well #1	64,186,000	177.5
		1169.0 lbs.

This figure is 55,094,000 gallons less then last April. Based on the 1970 population figure of 40,036 there was 221.85 gallons of water per person per day secured from the system.

Airport consumption was 2,765,000 gallons of water using 8 pounds of chlorine.

6790

WATER DEPARTMENT MONTHLY REPORT FOR MAY 1973

Mainline work consisted of:

HUD Project WSF-ID-26-1002: Laying transmission line to tank sites. Layed 7,601' of 16" D.T.T.J.C.I. Pipe, installed three 16" class 250 gate valves, five 16" class 150 gate valves, one 16" class 250 tee, one 16" x 12" P.E. x M.J. reducer, one 12" class 250 gate valve, two 16" x 6" x 16" tees, one 12" plug, two 6" gate valves, 23' of 12" C.I. pipe and 36' of 6" C.I. pipe.

Finished vault for recorder at Barton Booster Station. Also finished roof on Barton Booster.

Mitchell Construction Co. began work on tank site foundations.

Other work: Took in 1,030' of 6" C.I. pipe, two 6" gate valves and two 6" fire hydrants when Goodwin Construction Co extended 6" line west on West Cedar to Colorado and then south on Colorado for G.K. Machinery Building.

Took in 36' of 6" C.I. pipe on 1200 block of Pershing when Mac Beth Plumbing extended main to serve 1220 & 1222 Pershing.

Finished test pumping of Well #29

During the month of May 567,171,000 gallons of water was consumed from the system or 18,295,838 gallons per day was secured from the following sources:

		Lbs.Chlorine
Surface Supplies & Well #4	77,247,000	521.5
Well #2	14,768,000	37.5
Well #3	5,974,000	16.0
Well #10	20,194,000	56.5
Well #12	106,147,000	332.0
Well #16	47,231,000	145.5
Well #18	24,134,000	74.0
Well #20A & 20B	16,747,000	53.5
Well #21	22,182,000	85.5
Well #22	23,713,000	90.5
Well #23	22,376,000	85.5
Well #27	37,757,000	127.0
Well #28	81,628,000	248.0
P.I.P. Well #1	67,346,000	197.0
		2,070.0 lbs.

This figure is 34,058,000 gallons more than last May. Based on the 1970 population figure of 40,036 there was 456.98 gallons of water per person per day secured from the system.

Airport consumpion was 3,174,000 gallons of water using 10.0 lbs. of chlorine.

WATER DEPARTMENT MONTHLY REPORT FOR JUNE 1973

Mainline work consited of:

HUD Project WSF-ID-26-1002: Layed transmission line to tank site from Barton Road laying 540' of 16" D.T.T.J.C.I. Pipe. Began laying return line from East Center Street Exchange. Layed 4,050' of 12" D.T.T.J.C.I. Pipe. Set three 12" gate valves and installed two 10" pressure regulating valves. Formed and poured concrete vaults for regulating valves.

Formed and poured footing and vaults for air relief valves on 16" transmission line.

Other work: 400 Fairway Drive layed 126' of 10" T.J.C.I. Pipe up easement for Parks Department.

Took in 47' of 10" C.I. Pipe, one 10" gate valve and one 6" gate valve to Grand Central area.

Took in 905' of 6" T.J.C.I. Pipe, one 6" fire hydrant and three 6" gate valves on Iris and Sego installed by Goodwin Construction Co. for part of Sunnyvale Second Addition.

Idaho Street capped 1½" main line account leaking at east end.

During the month of June 656,650,000 gallons of water was consumed from the system or 21,888,333 gallons per day was secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	81,808,000	1013.0
Well #2	23,173,000	62.0
Well #3	73,825,000	204.0
Well #10	42,300,000	132.5
Well #12	106,147,000	330.0
Well #16	51,960,000	155.0
Well #18	33,492,000	110.5
Well #20A & 20B	18,344,000	63.0
Well #21	27,731,000	92.0
Well #22	26,232,000	89.0
Well #23	37,758,000	123.5
Well #27	50,786,000	170.0
Well #28	16,717,000	51.0
Well #1 P.I.P.	66,377,000	195.0
		2790.5 lbs.

This figure is 121,638,000 gallons more than last June. Based on the 1970 population figure of 40,036 there were 546.71 gallons of water per person per day secured from the system.

Airport consumption was 4,147,000 gallons of water using 14.0 lbs. of chlorine.

WATER DEPARTMENT MONTHLY REPORT FOR JULY 1973

Mainline work consited of:

Hud Project WSF-ID-26-1002: At Barton Booster Station turned water into line thru booster and checked for leaks and flushed line to 6" blow off. Finished laying distribution line from Center Street Exchange east of Freeway on [illegible] and from East Terry on Moonlight Road to intersection of streets laying 7,483' of 12" D.T.T.J.C.I. Pipe. Set seven 12" gate valves, two pressure regulating valves, two 12" tees, one 12" 90 degree bend and one 12" T.J. plug. Formed and poured footing for the two pressure regulating stations and formed foundation for the 1st.

Other work included: Layed 365' of 10" T.J.C.I. Pipe from well purchased from Satterfield. Installed one 10" gate valve, one 10" 45 degree bend and one 10" 90 degree bend. Line completed to north side of Fairway and only has to be connected to 8" line to Highland Golf Course in street.
Well #29 installed 6" discharge in casing and 2" chlorinator pipe. Dug out for foundation and sump drain. Formed and poured footings and foundation to pump house.

During the month of July 703,879,000 gallons of water was consumed from the system or 22,705,774 gallons per day was secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	91,218,000	1274.5
Well #2	27,868,000	78.0
Well #3	78,065,000	219.5
Well #10	49,936,000	161.0
Well #12	97,956,000	287.5
Well #16	44,341,000	136.5
Well #18	36,835,000	114.5
Well #20A & 20B	18,121,000	59.5
Well #21	29,989,000	101.5
Well #22	26,958,000	82.5
Well #23	50,288,000	156.0
Well #27	53,659,000	177.5
Well #28	29,786,000	83.0
Well #1 (P.I.P.)	68,859,000	201.0
		3132.5 lbs.

This figure is 16,818,000 gallons loss than last July. Based on the 1970 population figure of 40,036 there was 567.13 gallons of water per person per day secured from the system.

Airport consumption was 6,722,000 gallons of water using 21.0 pounds of chlorine.

Mainline leaks were repaired at the following locations:

560 Packard Yellowstone & INdustrial Lane 300 North Main

6793

WATER DEPARTMENT MONTHLY REPORT FOR AUGUST 1973

Mainline work consisted of:

HUD Project WSF-ID-26-1002: Finished vaults for pressure regulating valves on Monte Vista. Layed transmission line from lower tank to upper tank and layed distribution line from Moonlight Road & Monte Vista to upper tank laying; 1,863' of 12" D.T. Pipe; 2,970' of 16" D.T. Pipe; set two 16" gate valves; one 16" 45 degree bend; one 12" 90 degree bend; two 12" gate valves; one 12" tee and one 12" plug.

Layed line west from east side of insterstate on Center Street under interstate and under north & south on-off ramp and tied into 12" main at 19th & Lewis using; 1,090' of 12" D.T. Pipe; two 12" gate valves; one 10" pressure regulating valve; two 12" tees; two 12" x 12" x 6" tees; one 12" plug and one 6" P.S. Fire Hydrant. Finished vault for pressure regulating valve station.

Chicago Bridge & Iron completed construction of lower 3,000,000 gallon steel tank, thus completing their part of project.

Barton Booster Station was painted inside and out.

Other work included:

Connected well to Highland Golf Course line. Installed air valve. Lay 52' of 8" C.I. Pipe; one 8" 22½ degree bend; one 10" x 8" reducer; one 8" sleeve and one 8" plug. Put into operation.

Well #29 poured and finished floor of pump house. Set cinder blocks finishing walls and formed for concrete roof.

During the month of August 729,536,000 gallons of water was consumed from the system or 23,533,419 gallons per day was secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	98,648,000	1406.5
Well #2	37,485,000	102.5
Well #3	59,473,000	165.0
Well #10	50,451,000	163.0
Well #12	112,651,000	328.0
Well #16	45,157,000	142.0
Well #18	39,539,000	123.0
Well #20A & 20B	20,271,000	66.0
Well #21	33,729,000	105.0
Well #22	25,373,000	74.0
Well #23	49,193,000	151.0
Well #27	55,117,000	152.0
Well #28	33,865,000	109.0
P.I.P. Well #1	68,594,000	194.5
		3,281.5 lbs.

This figure is 125,536,000 gallons more than last August. Based on the 1970 population figure of 40,036 there was 587.80 gallons of water per person per day secured from the system.

Airport consumption was 5,034,000 gallons of water using 15.5 pounds of chlorine.

Mainline leaks were repaired at the following locations:

1900 So. 2nd	Well Yard	510 So. 1st
P.I.P. Bldg. #36		

133 New service lines were installed at the following locations:

640 Pershing (1")	850 E. Center (3/4")	580 Roosevelt (6"F.L.)
So. Fairway (46-3/4")	932 W. Custer (1")	Fremont Heights (77-1")
3730 Jason (1")	1257 Yellowstone (1½")	350 E. Dillon (1½")
354 E. Dillon (1½")	809 So. 4th (2-2")	

6 Service lines were renewed at the following locations:

1331 No. Harrison	141 So. 12th	244 Gray
738 Ebony	228 Taft	535 Washington

15 Service lines were repaired at the following locations:

258 Mc Kinley	551 Fairmont	555 West Center
210 Jones Drive	167 West Bryan	3555 Hawthorne Road
1537 So. 2nd	541 So. 10th	106 So. 13th
505 No. 13th	849 No. 12th	726 West Hayden
923 Renee	357 No. 8th	809 So. 4th

Meter & crub boxes were repaired at the following locations:

(Raised to grade at)

840 West Center	3861 Sandpiper	682 Randolph
1320 Fern		

(Lowered to grade at)

327 Roosevelt

(Blow out curb boxes at)

535 Washington	228 Taft	1206 East Poplar
1320 Fern		

1548 So. 3rd checked on broken vault top
1209 Willard replaced broken meter box lid
3801 Bluegrouse replaced regular meter box lid with sidewalk lid

WATER DEPARTMENT MONTHLY REPORT FOR SEPTEMBER 1973

Mainline work consisted of:

Hud Project WSF-ID-26-1002: At both sites commenced sand blasting inside of tanks and started painting. Barton Road dug up three 16" gate valves and set mainline valve boxes.
At lower tank site installed 3" blow off and at East Terry layed 18' of 6" C.I. pipe on blow off. Ran pumps at Barton Booster Station to fill 16" lines to lower tank and flushed out 16" lines.
East Center at Interstate layed 623' of 12" D.T.T.J.C.I. pipe under interstate, installed one 12" 22½ degree bend and one 12" sleeve. Line completed. Made ten 3/4" taps at five pressure regulating valves.

Other work included: Well #29 welded rebar in roof, poured and finished nine yards of concrete in roof section. Painted inside of well house and installed windows. Set power panel inside. Formed, poured pump base and finished.

During the month of September 311,021,000 gallons of water was consumed from the system or 10,367,366 gallons of water per day was secured from the following sources.

		Lbs. Chlorine
Surface supplies & Well #4	76,088,000	1739.0
Well #2	13,370,000	36.5
Well #12	32,845,000	102.0
Well #16	1,298,000	4.0
Well #18	3,570,000	10.5
Well #20A & 20B	20,614,000	75.0
Well #21	8,279,000	31.0
Well #22	11,037,000	34.5
Well #27	14,381,000	48.5
Well #28	66,437,000	199.0
P.I.P. Well #1	63,102,000	184.0
		2464.0 lbs.

This figure is 11,891,000 gallons less than last September. Based on the 1970 population figure of 40,036 there was 258.95 gallons of water per person per day secured from the system.

Airport consumption was 3,110,000 gallons of water using 10.0 lbs. of chlorine.

Mainline leaks were repaired at the following locations:

1900 So. 2nd	1708 Poca. Cr.Rd. (2)	Garfield & Lewis
560 Fairmont	2360 So. 2nd	714 Cottage
Poca. Cr. Exch. (2)		

6796

WATER DEPARTMENT MONTHLY REPORT FOR OCTOBER 1973

Mainline work consisted of:

HUD Project WSF-ID-26-1002: Repaired leaks at Barton Booster and at Barton Road east of interstate.

Duke & University installed 6" by pass from north side of valve at north side of Duke to south side of Duke south of pressure regulating station. Dug out and installed pressure regulating station. Set pressure regulating valve, 4' of 12" D.T. pipe and one 12"x6"x12" tee.

Lower tank site layed 102' of 16" D.T. pipe from pump house using one 16" 45 degree bend and one 16" sleeve. Layed 108' of 12" D.T. pipe from tank overflow to drain pump. Formed, poured and finished vault for drain line. Formed, poured and finished vault top. Formed pad for electrical transformer.

Upper tank site hooked up 12" and 16" lines. Layed 62' of 16" D.T. pipe, 51' of 12" D.T. pipe, one 16" S.E.B. coupler and one 12" sleeve.

Other work: Well #29 installed chlorination hose. Installed pump motor, and well column. Dug out and installed 4" conduit.

Highland Golf Course Well installed check valve and drain line.

Samuel & ~~Kristy~~ McDougall installed 6" x 6" tapping tee and valve. Layed 36' of 6" C.I. pipe to north right of way of Samuel for new line on ~~Kristy~~. McDougall Contractor to complete line from that location.

Larkspur plugged 6" main 18' east of east property line of Ramada Inn.

During the month of October 260,755,000 gallons of water was consumed from the system or 8,411,451 gallons per day was secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	86,648,000	1341.5
Well #2	36,411,000	102.0
Well #12	12,769,000	42.0
Well #20A & 20B	3,557,000	8.5
Well #22	17,046,000	34.5
Well #27	17,538,000	60.5
Well #28	20,747,000	66.0
P.I.P. Well #1	66,039,000	191.0
		1846.0 lbs.

This figure is 14,801,000 gallons more than last October. Based on the 1970 population figure of 40,036 there was 210.09 gallons of water per person per day secured from the system.

Airport consumption was 1,963,000 gallons of water using 8.0 pounds of chlorine.

6797

WATER DEPARTMENT MONTHLY REPORT FOR NOVEMBER 1973

Mainline work consisted of:

Hud Project WSF-ID-26-1002 at lower tank site dug out and layed power signal cable.

Sterilized three million and two million gallon tanks and return line to Terry Street. Flushed out and filled lower or three million gallons tank and cut into system on November 15, 1973.

Checked 16" line for leaks and cut Moonlight Road for water run off.

Hauled slag to Moonlight Road hauling 44 loads.

Project now completed.

Other work: Well #29 connected 12" steel pipe to pump discharge and surge control valve.

During the month of November 206,973,000 gallons of water was consumed from the sytem or 6,899,100 gallons per day was secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	82,070,000	1317.5
Well #2	47,429,000	141.0
Well #27	11,452,000	49.5
Well #28	2,572,000	7.0
Well #1 P.I.P.	63,450,000	186.0
		1701.0 lbs.

This figure is 12,347,000 gallons more than last November. Based on the 1970 population figure of 40,036 there was 172.32 gallons of water per person per day secured from the system.

Airport consumption was 1,787,000 gallons of water using 5.5 pounds of chlorine.

Mainline leaks were repaired at the following locations:

University Drive & Terry Street

8 New Services were installed at the following locations:

836 Park Ave. (1")	978 Hiline Rd. (1")	850 Jefferson (1")
860 Jefferson (1")	1050 Yellowstone (2"s.l)	900 Ystone (1½"s.l.)
1144 No. Lincoln (3/4")	224 W. Carter (3/4")	

1 service line was renewed at the following location:

1387 Lavine

6 Service lines were repaired at the following locations:

265 Franklin	592 Ridge	142 No. 17th
1131 No. Lincoln	544 Zener	322 So. 11th

6798

WATER DEPARTMENT MONTHLY REPORT FOR DECEMBER 1973

Mainline work consisted of:

Well #29 connected piping and drilled hole in pump base. Installed water control and 5 kw transformer. Set 2" pipe for meter and installed hooded vents for pump house. Made connections for water lube and surge control valve.
Airport Well #1 removed gas motor from pump house and Street Dep't. used this on their rotory snow plow.

During the month of December 203,852,000 gallons of water was consumed from the system or 6,575,871 gallons per day was secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	79,765,000	1,385.5
Well #2	48,721,000	150.0
Well #27	9,467,000	35.5
P.I.P. Well #1	65,899,000	194.0
		1,765.0 lbs.

This figure is 1,317,000 gallons less than last December. Based on the 1970 population figure of 40,036 there was 164.25 gallons of water per person per day secured from the system.

Airport consumption was 1,491,000 gallons using 4.0 pounds of chlorine.

Mainline leaks were repaired at the following locations:

2nd & Humbolt	Grant & Whitman	Cedar & Yellowstone
400 So. 7th	Mt. Moriah Cemetery	1500 So. 2nd
University & Terry		

11 New services were installed at the following locations:

1342 East Poplar (1½")	3950 McDougall (3/4")	3960 McDougall (3/4")
3964 McDougall (3/4")	4006 McDougall (3/4")	1316 E. Poplar (1½")
664 Franklin (1½")	666 Franklin (1½")	668 Franklin (1½")
707 No. 12th (1")	1435½ So. 2nd (3/4")	

2 service lines were renewed at the following locations:

692 Washington — 221 Howard

6 Service lines were repaired at the following locations:

455 So. 8th	1205 So. 3rd	2501 So. 5th
415 So. 7th	1118 So. 3rd	Hawthorne & Quinn

6799

WATER DEPARTMENT MONTHLY REPORT FOR JANUARY 1974

Mainline work consisted of:

Well Yard Booster pulled 60 H.P. motor and dismantled. Installed new bearings and re-assembled and painted. Assembled 100 amp switch and installed in booster station. Replaced 60 H.P. motor and tested ok.

Fremont Booster Pump #1 replaced bearings.

Lower East Bench Tank Booster Station put pot pumps back in place and checked for leaks.

During the month of January 209,842,000 gallons of water was consumed from the system or 6,769,097 gallons per day was secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	85,273,000	1404.5
Well #2	50,349,000	151.0
Well #27	8,619,000	29.0
Well #1 P.I.P.	65,601,000	192.0
		1776.5 lbs.

This figure is 6,614,000 gallons more than last January. Based on the 1970 population figure of 40,036 there was 169.09 gallons of water per person per day secured from the system.

Airport consumption was 991,000 gallons of water using 4.0 pounds of chlorine.

Mainline leaks were repaired at the following locations:

100 No. Arthur	838 West Bridger	1500 So. 2nd
1618 So. 2nd	1900 So. 2nd	El Rancho & canal
1420 So. 2nd	Alameda & Fern	200 No. 2nd

0 New service lines were installed

3 Services were renewed at the following locations:

245 North Main	824-38 W. Bonneville	204 North Main

9 Service lines were repaired at the following locations:

247 East Center	635 W. Greeley	1065 Encino
204 North Main	1154 South 4th	3634 Jason
3747 Blue Grouse	1323 East Clark	618 North 12th

WATER DEPARTMENT MONTHLY REPORT FOR FEBRUARY 1974

Mainline work consisted of:

Airport #1 and #3 pumps at booster station installed two 8" butterfly valves inside of booster station.

Well #27 dismantled surge control valve and cleaned loose diaphram.

Removed #2 pump at East Bench 3M gallon tank and rewelded.pot.
Painted East Bench Booster Station and installed guages and safety chain.

Well #29 dug out vault. Hooked up flanges and orfice. Installed piece of 12" pipe and 12" gate valve just west of vault at pump house. Plumbed in meter, surge control valve, pre lube and water control and finished plumbing.

Alameda Tank string signal cable and run under interstate.

Highland tank start trench for signal cable to Scardino Booster.

During the month of February 189,729,000 gallons of water was consumed from the system or 6,776,036 gallons per day was secured from the following sources:

		Lbs. Chlorine
Surface Supplies & Well #4	76,426,000	1,219.0
Well #2	45,255,000	140.0
Well #27	9,068,000	32.5
P.I.P. Well #1	58,980,000.	169.5
		1,561.0 lbs.

This figure is 1,272,000 gallons more than last February. Based on the 1970 population figure of 40,036 there was 169.25 gallons of water per person per day secured from the system.

Airport consumption was 1,348,000 gallons of water using 4.5 pounds of chlorine.

8 Mainline leaks were repaired at the following locations:

1647 So. Fairway	1300 Block Paramount	1720 Poca. Creek Rd.
200 No. 2nd	3rd & Putnam	2000 So. 2nd
303 East Bonneville	500 So. 1st	

9 New services were installed at the following locations:

255-59 So. Johnson (1")	820 East Young (1")	1036 Swisher (3/4")
1100 East Cedar "A" (1½")	1100 E. Cedar "B" (1½")	1100 E. Cedar "C" (1½")
1100 East Cedar "D" (1½")	442 No. Arthur (1½")	1350 Yellowstone (3/4")

WATER DEPARTMENT MONTHLY REPORT FOR MARCH 1974

Mainline work consisted of:

400 Block of Willard installed 574' of 12" D.T.T.J.C.I. Pipe, 24' of 8" D.T.T.J.C.I. Pipe, 53' of 6" T.J.C.I. Pipe, two 12" butterfly valves, one 12" gate vavle, one 8" gate valve, two 6" fire hydrants, one 8" tee, one 16" tee, one 12" x 8" reducer, three 12" x 16" reducers and two 8" C.I. to 8" steel couplers.

Dug trench and installed signal cable from Scardino Booster Station to Highland Tank.

Weld pipe at airport and installed new 50 H.P., 500 G.P.M. PACO Pump in booster station.

Picked up pump at Dyke's Electric and installed at Satterfield Well for Highland Golf Course.

During the month of March 213,681,000 gallons of water was consumed from the system or 6,892,936 gallons per day was secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	87,941,000	1123.5
Well #2	50,123,000	197.5
Well #27	9,966,000	29.5
P.I.P. Well #1	65,651,000	192.5
		1543.0 lbs.

This figure is 172,000 gallons more than last March. Based on the 1970 population figure of 40,036 there was 172.17 gallons of water per person per day secured from the system.

Airport water consumption was 1,291,000 gallons using 4.5 pounds of chlorine.

5 Mainline leaks were repaired at the following locations:

Custer & Lincoln
Arthur & Day
730 North Garfield
Alameda between Fairbanks and Everett
Main & Clark

16 New services were installed at the following locations:

4002 Yellowstone (1½")
2nd Add. Marvilla (11-3/4")
736 So. 10th (3")
915-21 Redwood (1")
533 East Clark (4"F.L.)
313 West Cedar (1")

8 Sevice lines were renewed at the following locations:

450 West Quinn
126 Willard
413 East Chapel
227 Park Ave.
645 No. 10th
285 Park Ave.
346 Randolph
408 East Dillon

6802

WATER DEPARTMENT MONTHLY REPORT FOR APRIL 1974

Mainline work consisted of:

400 Block of Willard sterilized, flushed and put into operation new 12" main. Shut down old 4" main and filled main line valve boxes.

3rd & Lovejoy renewed 30' of old 4" C.I. Pipe and installed new 6" gate valve; replacing old 4" gate valve which was removed.

Set up Well #27 and Scardino Booster station on signal wire with Highland Tank.

El Rancho & Holman installed 6" pressure regulating valve and built vault for same.

South end of Santa Anita installed 6" tapping tee and valve to connect 6" C.I. main for south end of Lavine.

Water Department Shop 306 West Pine installed 4" tapping tee and valve and layed 54' of 4" C.I. Pipt to new addition of building.

Quinn Road west of Hawthorne Road layed 364' of 12" D.T.T.J.C.I. Pipe and plugged.

Tested Well #29 and pumped out through fire hydrant.

Ran signal cable from Fremont Booster towards West Highland Tank following south side of Canyon Drive.

Fairway 4th Addition made 4 3/4" taps on 6" main for Bengal Const. Co. so they can chlorinate line.

During the month of April 274,426,000 gallons of water was consumed from the system or 9,147,533 gallons per day was secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	55,735,000	148.5
Well #2	18,102,000	52.5
Well #3	7,744,000	22.0
Well #12	106,400,000	331.5
Well #16	1,404,000	3.5
Well #21	1,721,000	5.5
Well #22	6,398,000	20.5
Well #27	14,422,000	44.0
P.I.P. Well #1	62,500,000	184.5
		812.5 lbs.

This figure is 11,960,000 gallons more than last April. Based on the 1970 population figure of 40,036 there was 228.48 gallons of water per person per day secured from the system.

Airport water consumption was 1,026,000 gallons using 3.5 lbs. of chlorine.

9 mainline leaks were repaired at the following locations:

500 West Clark	100 North Garfield	500 West Whitman
Willard & Elm	348 West Clark	400 West Whitman
1134 Verdugo	900 East Pine	700 West Bonneville

41 New services were installed at the following locations:

216 East Lawton (3/4")	935 Wayne (1"S.L)	1154 Dolbeer (3/4")
3520-29 McKinley (1")	1002 Samuel (2")	486 Yellowstone (4"F.L.
646 Ridge (1")	Northgate 2nd Addition (34-3/4")	

24 Services were renewed at the following locations:

320 Warren	640 No. 12th	337 No. 12th	850 Willard
444 Willard	464 Willard	472 Willard	480 Willard
490 Willard	445 Willard	455 Willard	485 Willard
405 Willard	413 Willard	1323 E. Fremont	138 Randolph
256 Fairbanks	1145 El Rancho	156 No. 12th	151 Fairbanks
515 Northland	1236 So. 2nd	592 Ridge	540 E. Lawton

19 Services were repaired at the following locations:

633 W. Carson	1369 Holman	425 W. Whitman	409 Willard
702 So. 1st	Lot 32 Marvilla	592 Ridge	222 No. 9th
3504 Jason	444 E. Gould	633 E. Whitman	1555 NO. Harrison
296 Yellowstone	651 No. 13th	1424 So. 1st	1342 No. Hayes
234 So. 19th	LDS Quinn & Hawthorne		400 Yellowstone

Meter & Curb boxes were repaired at the following locations:

(Raised to grade at:)

934 Highland	2nd& Lawton	761 Balsam	1421 Lakeview
820 E. Young			

(Lowered to grade at:)

1047 Shoshone   957 No. Garfield

(Blow out curb boxes at:)

429 Wyldwood   983 Brennan   1043 Patsy

665 Pershing repaired meter box lid
1366 Poplar replaced missing vault lid
1460 Iris replaced missing meter box lid
3766 Blue Grouse repaired meter box
2075 So. Fairway replaced broken meter box
198 Wayne dug out and replaced curb box
450 Curtis reset loose meter box lid
957 No. Garfield replaced meter box lid

WATER DEPARTMENT MONTHLY REPORT FOR MAY 1974

Mainline work consisted of:

Upper East Bench Tank made 4" flg. connection for sterilizing and flushed lines at 2 million gallon tank. Sterilized 12" main from 2 million gallon tank to below 3 million gallon tank and from 2 million gallon tank to 19th Avenue. Flushed out lines and filled 2 million gallon tank to 6 feet.

Airport repaired control panels at wells and booster station account power lines hit by sky diver and blew out circuits in the panels.

West Bench reservoir capped 12" steel line and dug out 18" steel line so contractor can begin work on 5 million gallon tank site.

During the month of May, 502,232,000 gallons of water was consumed from the system or 16,201,032 gallons per day was secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	78,638,000	254.5
Well #2	19,214,000	58.5
Well #3	71,633,000	194.5
Well #10	4,829,000	17.0
Well #12	104,285,000	328.5
Well #16	56,913,000	167.5
Well #18	22,865,000	75.0
Well #27	33,776,000	110.0
Well #21	22,344,000	73.0
Well #22	19,494,000	73.0
Well #28	1,374,000	4.0
Well #1 (P.I.P.)	66,817,000	195.5
		1,551.0 lbs.

This figure is 64,939,000 gallons less than last May. Based on the 1970 population figure of 40,036 there was 404.66 gallons of water per person per day secured from the system.

Airport water consumption was 2,913,000 gallons using 14.0 lbs. of chlorine.

Mainline leaks were repaired at the following locations:

2200 So. 2nd — 1708 Pocs. Cr. Rd. — 400 West Cedar — 1205 So. 3rd
Quinn & Hawthorne — West Bench Reservoir — East Bench at 2M gal. tank

96 New service lines were installed at the following locations:

429 Taft (1½")
Fairway 4th (7-1")
204 West Cedar (3/4")
1254 So. 5th (1½")
486 Yellowstone (1½")
584 Cottage (3/4")
210 West Cedar (3/4")
680 West Cedar (1½")
Fairway 4th (80-3/4")
691 Jefferson (3/4")
326 West Cedar (1½")

WATER DEPARTMENT MONTHLY REPORT FOR JUNE 1974

Mainline work consisted of:

West Bench at 5 million gallon tank site excavated out dirt and hauled gravel back in for footings and foundation.

521 Richland dug out and plugged off old 1¼" galvanized line that was part of the old Richland Townsite line.

Airport made 4" tap on 6" main for Idaho State University.

Airport re-routed 8" line around Mc Nabb's property. Owner furnished pipe, and fittings. Installed 8" tee and one 8" gate valve. Re-connected his 3/4" service to new line.

Replaced 6" steel line in the 700 and 800 blocks of Wayne. Layed 1,298' of 6" C.I. Pipe, 53' of 4" C.I. Pipe, three 6" gate valves, two 4" fire hydrants, replacing existing fire hydrants. Sterilized main, flushed out and connected services to new main and put into operation.

Set pressure regulating station on Ada Street.

During the month of June 732,101,000 gallons of water was consumed from the system or 24,403,367 gallons per day was secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	99,970,000	1373.0
Well #2	25,072,000	75.5
Well #3	78,113,000	207.5
Well #10	70,678,000	183.0
Well #12	100,265,000	302.0
Well #16	64,496,000	21.0
Well #18	42,658,000	121.5
Well #21	33,871,000	99.5
Well #22	24,319,000	78.0
Well #27	51,628,000	159.5
Well #28	16,989,000	55.0
Well #29	57,351,000	144.5
P.I.P. Well #1	66,691,000	184.0
		3004.0 lbs.

This figure is 75,451,000 gallons more than last June. Based on the 1970 population figure of 40,036 there was 609.54 gallons of water per person per day secured from the system.

It might be noted that several high temperature records were tied that were set in 1940 and that several new records were set for this month when the temperature reached 98 to 100 degrees during the course of several days.

Airport consumption was 5,740,000 gallons using 20.5 lbs. chlorine.

Mainline leaks were repaired at the following locations:

1921 No. Harrison   2nd & Fredregill   700 Yellowstone   800 Wayne

7 New service lines were installed at the following locations:

815 So. Main (1½")   680 West Cedar (1½")   1690 No. Hayes (1½")
645 So. Main (1")   1135 Yellowstone (3/4")   East End Poplar (2")
E½ Lot 17 Blk 3 Taney Tracts (3/4")

23 Service lines were renewed at the following locations:

610 East Halliday	546 No. 5th	429 No. 7th
355 So. 10th	2537 Valley Road	247 East Center
560 No. Grant	556 West Greeley	737 Wayne
743 Wayne	753 Wayne	775 Wayne
570 East Cedar	726 Wayne	746 Wayne
750 Wayne	770 Wayne	776 Wayne
780 Wayne	796 Wayne	620 East Cedar
798 Wayne	810 Wayne	

16 Service lines were repaired at the following locations:

1036 Swisher	200 Wingate	746 East Center
1353 So. 2nd	408 So. 4th	928 No. Main
622 So. 6th	853 Wayne	2312 So. Fairway
1827 Park Lane	1042 No. Garfield	735 Wayne
785 Wayne	765 Wayne	428 Filmore
814 Wayne		

Meter & curb boxes were repaired at the following locations:

(Raised to grade at:)

358 No. 11th	226 West Carter	1127 Malibou
2043 So. Fairway	1869 So. Fairway	

(Lowered to grade at:)

3766 Bluegrouse   519 West Gould   Hiline & Poca. Creek

(Blow out curb boxes at:)

992 Cahoon	212 West Eldredge	923 West Center
480 Randolph		

10th & Fremont N.E. corner replaced curb box lid
823 West Lewis replaced concrete meter box ring
512 West Carter cleaned out curb box
546 So. Main replaced broken meter box lid
87 Westello tightened meter box lid
Hyde & Jane repalced pressure regulating vault lid

Water Department Monthly Report for July 1974

Mainline work consisted of:

Took in Fairway Estates 4th Addition water system which included eight 6" fire hydrants with valves, eighteen 6" gate valves and boxes, and 4,605' of 6" T.J.C.I. pipe.

Poplar & Hyde turned off mainline gate valves so Bengal Cons't. Co. could tie into 6" main for East Ridge Estates water system.

Airport repaired booster station panels account power line hit by sky diver again.

500 Block of West Eldredge made tap for chlorination so contractor could sterilize main on Local Improvement District No. 104.

Ammon Park made 6" tap and set 14" x 6" tapping tee and 6" tapping valve for Bengal Construction Co. for East Ridge Water system.

During the month of July 805,780,000 gallons of water was consumed from the system or 25,992,903 per day was secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	106,484,000	1,467.5
Well #2	29,964,000	90.5
Well #3	82,122,000	244.5
Well #10	108,932,000	317.0
Well #12	106,002,000	317.0
Well #16	36,997,000	-
Well #18	45,646,000	147.5
Well #21	36,456,000	116.0
Well #22	26,983,000	91.0
Well #27	56,866,000	176.5
Well #28	29,214,000	95.5
Well #29	69,821,000	193.5
P.I.P. #1	70,293,000	187.5
		3,444.0 lbs.

This figure is 101,901,000 gallons more than last July. Based on the 1970 population figure of 40,036 there was 649.24 gallons of water per person per day secured from the system.

It might be noted that his month was unusually dry with no rainfall. (.14 of an inch of rainfall for the month.) Temperatures ranged to 95 to 98 degrees daily.

Airport consumption was 6,984,000 gallons of water using 27.5 pounds of chlorine.

WATER DEPARTMENT MONTHLY REPORT FOR AUGUST 1974

Mainline work consisted of:

Removed 100 H.P. Motor from Fremont Booster and took to Dyke's Electric account burnt out. Used two 60 H.P. stand by motors until repairs could be made. Installed after repairs and put back into operation.

Well #10 pulled submersible pump, motor and column and took to Dyke's Electric account burnt out.

Well Yard Booster removed electrical equipment in preparation to building new pump house.

100 East Alameda Road installed 10" x 10" tapping tee and valve for New Pocatello Mall.

800 Yellowstone installed 8" x 8" tapping tee and valve for New Pocatello Mall.

200 East Cedar cut in 8" C.I. Tee, 10" x 8" coupling and 10" gate valve for New Pocatello Mall.

Monte Vista & Jean turned off mainline valves for Bengal Cons't. Co. to hook onto main for rextension of water main on Marcrest 2nd Addition.

During the month of August 690,290,000 gallons of water was consumed from the system or 22,267,419 gallons per day was secured from the following sources:

		Lbs. Chlorine
Surface Supplies & Well #4	101,318,000	1403.0
Well #2	27,500,000	86.0
Well #3	81,953,000	216.0
Well #10	31,449,000	99.0
Well #12	85,765,000	264.5
Well #16	65,347,000	
Well #18	36,382,000	122.5
Well #21	32,994,000	111.0
Well #22	29,653,000	96.0
Well #27	48,387,000	169.0
Well #28	25,130,000	82.0
Well #29	54,948,000	166.0
P.I.P. Well #1	69,648,000	187.0
		3002.0 lbs.

This figure is 39,246,000 gallons less than last August. Based on the 1970 population figure of 40,036 there was 556.18 gallons of water per person per day secured from the system.

Airport consumption was 8,665,000 gallons using 34.0 lbs. chlorine.

Water Department monthly report for September 1974

Mainline work consited of:

Well Yard built new cinder block pump house for booster station

Well #2 at Ross Park built new cinder block pump house for well.

Hurley & Yellowstone made 10" tap on 12" main for Empire Construction Co. for New P.I.P. Warehouses.

South Von Elm & Primrose disconnected 4" main from 6" main and hooked 6" main onto 10" main. Eliminated 4" main altogether.

East Bench Booster Station installed pressure recoreder.

During the month of September 531,418,000 gallons of water was consumed from the system or 17,713,933 gallons per day was secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	94,718,000	1392.5
Well #2	6,747,000	21.5
Well #3	78,258,000	209.0
Well #12	79,702,000	214.5
Well #16	37,276,000	
Well #18	24,130,000	93.0
Well #21	26,568,000	92.0
Well #22	28,711,000	98.5
Well #27	40,633,000	142.0
Well #28	25,008,000	85.5
Well #29	23,990,000	56.5
P.I.P. WELL #1	65,677,000	182.5
		2587.5 lbs.

This figure is 220,397,000 gallons more than last September. Based on the 1970 population figure of 40,036 there was 442.45 gallons of water per person per day secured from the system.

Airport consumption was 5,983,000 gallons of water using 18.0 pounds of chlorine.

Mainline leaks were repaired at the following locations:

ISU Garrison Hall	600 West Sublette	100 North 3rd
400 West Whitman	1000 East Maple	Municipal Airport
1400 East Clark		

47 New service lines were installed at the following locations:

Highland Hi (4"F.L.)	134 No. 6th (4"F.L.)	Marcrest 2nd (27-3/4")
804 No. Arthur (1½")	1224 Pershing (3/4")	PIP Bldg. #10 (2-3/4")
Municipal Airport (1")	East Ridge Est. (3-1")	3444 Hawthorne (2"sl)
W.end Oakwood (2"temp)	155 Franklin (1")	414 E. Center (4"FL)
1380 E. Poplar (1½")	1362 E. Poplar (1½")	4280 Ystone (1½")
767 Filmore (1")	115 So. 15th (4"FL)	1505 Ridge Dr. (2")

Water Department Monthly Report for October 1974

Mainline work consited of:

Richland and Poplar killed two 2" mains at the 4" steel main. This should have the old Richland system eliminated.

397 Valleyview dug out 6" main and insulated account shallow depth.

Repaired regulator back of Pine and Hyde Booster

Wired Well Yard Booster Station and Well #2 and hooked to power.

Terry Street Booster Station just east of Insterstate installed 12" x 6" tapping tee and 6" tapping valve and made connection from 12" main at south side of Terry to the 6" main at the north side of Terry. Eliminating Terry Street Booster Station.

This month we took in Northgate 2nd Addition which included 2,330' of 8" C.I. pipe, 4,185' of 6" C.I. pipe, six 8" gate valves, fifteen 6" gate valves and ten 6" fire hydrants.

Took in East Ridge Estates which included 3,977' of 6" C.I. pipe, eleven 6" gate valves and four 6" fire hydrants.

Took in Ponderella Gardens which included 450' of 6" C.I. pipe, one 6" gate valve and one 6" fire hydrant.

At South Von Elm we made two 6" taps on 6" main and one 6" tap on 10" main for fire hydrants to be installed by Empire Construction Co.

During the month of October 305,894,000 gallons of water was consumed from the system or 9,867,548 gallons per day was secured from the following sources.

		Lbs. Chlorine
Surface supplies & Well #4	101,474,000	1420.5
Well #2	21,697,000	65.5
Well #3	48,822,000	137.0
Well #12	11,617,000	32.0
Well #16	8,894,000	
Well #18	5,950,000	20.5
Well #21	4,320,000	15.5
Well #22	6,300,000	18.5
Well #27	19,231,000	74.0
Well #28	11,254,000	42.0
P.I.P. Well #1	66,335,000	176.0
		2001.5 lbs.

6811

This figure is 45,139,000 gallons more than last October. Based on the 1970 population figure of 40,036 there was 246.47 gallons of water per person per day secured from the system.

Airport consumption was 2,897,000 gallons of water using 9.5. lbs. of chlorine.

Mainline leaks were repaired at the following locations:

1700 North Arthur	1720 Poca. Cr. Rd.	1798 Poca Cr. Rd.
100 So. 2nd	10th & Terry	

27 New services were installed at the following locations:

1570 Yellowstone (6" FL.)	630 Ridge (3/4")	Ponderella Gard. (8-3/4")
115 So. 15th (2")	3411 Poleline (1")	3230 McKinley (2-1½")
647½ West Pine (3/4")	204 Park Ave. (3/4")	1500 Ystone (1")
East Ridge Est. (7-2")	414 E. Center (3/4")	650 Park Ln. (1")
141 W. Chapel (3/4")		

7 Service lines were renewed at the following locations:

557 Richland	418 Fairmont	2555 So. 2nd
422 Franklin	245 Warren	234 No. 9th
1252 E. Hayden		

11 services were repaired at the following locations:

646 So. Main	1626 No. Arthur	730 Balsam
936 Cahoon	P.I.P. Bldg. #C	465 West Cedar
954 So. 4th	So. end Cemetery	146 So. 17th
401 No. 5th	910 Highland	

Meter and curb boxes were repaired at the following locations:

(Raided to grede at:)

3711 Dove	1732 So. Fairway	2150 So. Fairway	2642 So. Fairway
2025 So. Fairway	1881 So. Fairway	1709 So. Fairway	2419 So. Fairway
300 Park Lane	1000 Park Lane	1860 Jean	2534 So. Fairway
255 Warren			

(Lowered to grade at:)

246 No. 11th   460 So. Lincoln

(Blow out curb boxes at:)

950 Willow Lane   848 Broadway   169 Warren   150 W. Eldredge

Water Department Monthly Report for November 1974

Mainline work consisted of:

Alameda Tank weld two bullet holes in tank.

Well #16 removed motor and pulled up pump to install chlorinator hose.

200 Block of south 20th blocked 12" tee.

Pine and Moreland repaired pressure regulator.

Fairway and Hiskey worked on pressure regulator.

Terry Street Booster Station installed three curb stops for drainage system.

Cemetery Booster Station pulled 125 H.P. pump motor and set up drain.

Well #29 disconnected 250 H.P. motor and took to Dyke's Electric for repairs.

Two million gallon tank on East Bench made 3/4" tap and connected piping for signal system.

Drained 16" steel line over Red Hill from Cemetery Booster Station.

Fern and Alameda repaired pressure regulator.

Installed 12" gate valve on 12" C.I. line upper level of Red Hill.

West Quinn Road layed 3,899' of 12" D.T.T.J.C.I. Pipe, 150' of 6" C.I. Pipe and 2' of 8" D.T.C.I. Pipe. Set nine 12"x12"x6" tees, four 12" butterfly valves, one 8" butterfly valve, eight 6" fire hydrants, two 6" M.J. plugs and one 12" M.J. plug. Made 3/4" tap at Hawthorne Road, sterilized and flushed out main.

During the month of November 209,734,000 gallons of water was consumed from the system or 6,991,133 gallons per day was secured from the following sources:

		Lbs. Chlorine
Surface Supplies & Well #4	87,252,000	1362.5
Well #2	49,506,000	151.0
Well #27	9,026,000	29.5
Well #28	872,000	5.0
Well #1 P.I.P	63,078,000	171.5
		1719.5 lbs.

This figure is 2,761,000 gallons more than last November. Based on the 1970 population figure of 40,036 there was 174.62 gallons of water per person per day secured from the system.

Airport consumption for November was 1,715,000 gallons of water using 6.0 lbs. of chlorine.

Mainline leaks were repaired at the following locations:

Wayne & Cherry	200 South 20th	127 Charles Place
141 No. Johnson		

47 New services were installed at the following locations:

Oakwood Manor (6")	845 West Whitman (1")	800 Yellowstone (10-1"
800 Yellowstone (4-2")	333 Hurley Ln. (3/4")	711 Swisher (3/4")
P.I.P. Bldg. 14 (4"F.L.)	536-38 So. 10th (1")	Sunnyvale 2nd (7-2")
Sunnyvale 2nd (12-3/4")	Sunnyvale 2nd (2-1½")	Sunnyvale 2nd (5-1")
Ifft Park So. 5th (2")		

3 Service lines were renewed at the following locations:

East Ridge Estates	725 So. 10th	1165 East Cedar

10 Service lines were repaired at the following locations:

935 East Center	1023 Yellowstone	674½ West Pine
318 So. Garfield	30 Cornell	1026 Cahoon
598 Jensen	225 So. 10th	Blue Grouse
1132 East Poplar		

Meter & Curb Boxes were repaired at the following locations:

(Raise to grade at)

233 Warren	1224 Pershing	East Ridge Estates
145 Parkview	924 Park Lane	Pocatello Mall

(Lowered to grade at)

2695 Lois Lane	2690 Lois Lane

(Blow out curb boxes at)

30 Cornell	394 Warren

338 Lark Lane checked meter in box
Pocatello Hi School on Garfield replaced concrete ring on meter box

Fire Hydrant M. & O.

575 Kinghorn repaired fire hydrant #13 account hit by auto
1014 Hiline Road repaired fire hydrant #147
Cedar & Florence removed fire hydrant #201

Water Department Monthly Report for December 1974

Mainline work consisted of:

Clark Street bridge removed old 12" C.I. Pipe and replaced with 61' of 12" Steel Pipe.

Replaced 33' of 12" C.I. Pipe on West Quinn account deffective length of pipe.

Dismantled surge control valve, pressure relief valve in the Cemetery Booster and stored in new Water Shop. Blocked pipe inside of booster station.

Replaced 250 H.P. motor in Well #29 after repairs.

Replaced faulty relay in Well #27.

During the month of December 214,791,000 gallons of water was consumed from the system or 6,928,742 gallons per day was secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	86,153,000	1310.0
Well #2	49,776,000	156.5
Well #27	13,606,000	45.0
Well #28	1,009,000	3.5
P.I.P. Well #1	64,247,000	186.5
		1701.5 lbs.

This figure is 10,939,000 gallons more than last December. Based on the 1970 population figure of 40,036 there was 173.06 gallons of water per person per day secured from the system.

Airport consumption was 1,422,000 gallons using 4,5 lbs. chlorine.

Mainline leaks were repaired at the following locations:

151 16th Place   5th & Whitman   1215 So. 4th   1053 East Pine
200 E. Bonneville   400 Taft

No new services were installed in December

2 Service lines were renewed at the following locations:

429 So. 12th   348 No. 9th

9 Service lines were repaired at the following locations:

700 Jensen   1505 E. Ridge Dr.   633 E. Whitman   541 E. Whitman
1215 So. 4th   3731 Sandpiper   1217 Lavine   3625 McKinley
165 Fairway Circle

WATER DEPARTMENT MONTHLY REPORT FOR JANUARY 1975

Mainline work consisted of:

Repaired pressure regulating valve on Jane. Bled air from lines at Jane and Ammon.

Changed pilot control on pressure regulating valve at Monte Vista.

Removed casing from Cemetery Booster Station.

Repaired solonoid #1 pump at Barton Booster Station.

During the month of January 219,259,000 gallons of water was consumed from the system or 7,072,871 gallons per day was secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	84,585,000	1390.5
Well #2	50,440,000	159.5
Well #27	16,441,000	55.0
Well #28	3,839,000	14.0
F.I.P. Well #1	63,954,000	181.5
		1800.5 lbs.

This figure is 9,417,000 gallons more than last January. Based on the 1970 population figure of 43,036 there was 176.66 gallons of water per person per day secured from the system.

Airport consumption was 1,504,000 gallons of water using 4.0 pounds of chlorine.

Mainline leaks were repaired at the following locations:

400 Hyde	2020 East Lewis	400 South 1st	Wilson & Pine
Arthur & Wyeth	2800 Poleline	300 South 1st	

2 New services were installed at the following locations:

Bucyrus Erie-So. guard Station (3/4") Bucyrus Erie-W. Guard Sta. (3/4")

3 Service lines were renewed at the following locations:

147 Roosevelt 843 No. 10th 735 W. Sublette

8 Service lines were repaired at the following locations:

470 West Oak	355 So. 10th	1182 Lavine	472 Hyde
234 So. 12th	424 So. Johnson	436 So. Johnson	2530 Ada

6816

WATER DEPARTMENT MONTHLY REPORT FOR FEBRUARY 1975

Mainline work consisted of:

Well Yard dug up two 16" mains to check size and elevation.

Installed two new mercois at two million gallon tank on the East Bench, and checked running.

Set up pressure recorder in Well #22. 50 lbs. Set regulators going into Alameda system at 80 pounds.

Changed motor in chlorinator booster at the City Reservoir and installed 2" drain line.

Airport Booster Station changed 3" check valve to a 3" hydraulic check valve.

Made repairs to control panel at Scardino Booster Station.

During the month of February 197,808,000 gallons of water was consumed from the system, or 7,064,571 gallons per day was secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	74,303,000	1207.0
Well #2	45,296,000	145.0
Well #27	15,007,000	51.0
Well #28	4,667,000	16.5
P.I.P. Well #1	58,525,000	163.5
		1583.0 lbs.

This figure is 8,079,000 gallons more than last February. Based on the 1970 population figure of 40,036 there was 176.46 gallons of water per person per day secured from the system.

Airport consumption was 1,421,000 gallons of water using 4.0 pounds of chlorine.

Mainline leaks were repaired at the following locations:

652 Park Ave. 4th & Riverside 1856 Poca. Cr. Rd.

6 New services were installed at the following locations:

670 Park Ave (3/4") 1706 No. Main (1") 3115 Poleline (2-2")
624 E. Center (4"F.L.) 624 E. Center (1½")

4 Service lines were renewed at the following locations:

428 No. 12th 1135 So. 3rd 827 W. Wyeth 477 Wyldwood

3 Service lines were repaired at the following locations:

746 So. 2nd 275 Hoffman 133 So. 2nd

Water Department Monthly Report for March 1975

Mainline work consisted of:

Moved 250 H.P. Submersible Pump from Dykes to Water Department Shop.

Airport worked on jockey Pump.

Bench Road & South Von Elm layed 797' of 6" T.J.C.I. Pipe, one 6" butterfly valve and one 10" x 6" M.J. Reducer, replacing 6" steel line from Highland Booster at South Von Elm to Bench Road. This eliminated old 4" steel main on South Von Elm and old booster station. Connected 6" into 10" of South Von Elm. Installed 6" pressure regulating valve and vault for same. Sterilized, flushed and put line into operation.

100 Block of East Elm to Pershing and Elm, thence to Pershing and Maple installed one 8" x 6" tapping tee, one 6" tapping valve, layed 840' of 6" T.J.C.I. Pipe, one 6" 90 degree bend, one 6" x 6" tee, one 6" M.J. x 4" P.E. Reducer, one 4" sleeve and one 6" Pacific States Fire Hydrant and valve. Sterilized and flushed new main. Connected services to new main and killed 4" steel main in the 100 block of Pershing. This eliminated old 4" steel main from the 100 block of Pershing to Maple and Pershing where we connected into 4" C.I. main.

Took in 277' of 6" T.J.C.I. Pipe, one 6" gate valve and one 6" fire hydrant installed in the 500 block of West Eldredge by contractor.

During the month of March 222,907,000 gallons of water was consumed from the system or 7,190,548 gallons per day was secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	86,371,000	1291.0
Well #2	50,611,000	159.5
Well #27	16,807,000	56.5
Well #28	4,019,000	15.5
P.I.P. Well #1	65,099,000	183.0
		1705.5 lbs.

This figure is 9,226,000 gallons more than last March. Based on the 1970 population figureof 40,036 there was 179.6 gallons of water per person per day secured from the system.

Airport consumption was 2,095,000 gallons of water using 6.5 pounds of chlorine.

Mainline leaks were repaired at the following locations:

Iris Street 200 North 2nd Idaho & Grant 2nd & Fredregill
East Bench at 2M gallons tank

Water Department Monthly Report for April 1975

Mainline work consisted of:

Well #10 put in plate for submersible motor.
Airport dismantled jockey pump, replaced bearing, and turned cooling fan around.
Hiskey Street unloaded 18" pipe for project.
Washed and bleached all four sections of reservoir #4 and two sections of middle reservoir.
Repaired meter and surge valve at Well #18.
Old reservoir #1 dug out for vault and pressure regulator.
Well yard installed two 10" X 16" tapping tees and two 10" tapping valves for new booster station. Dug out pot for pump and poured concrete.

During the month of April 231,996,000 gallons of water were consumed from the system or 7,733,200 gallons per day were secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	77,234,000	666.0
Well #2	34,100,000	106.5
Well #12	36,889,000	105.0
Well #27	15,932,000	52.5
Well #28	5,083,000	18.5
P.I.P. Well #1	62,758,000	177.5
		1,126.0

This figure is 42,430,000 gallons less than last April. Based on the 1970 population figure of 40,036 there was 193.16 gallons of water per person per day secured from the system.

Airport consumption was 1,374,000 gallons of water using 4.5 lbs. chlorine.

Mainline leaks were repaired at the following locations:

Main & Wyeth	Wingate & Heron	400 So. 1st	5th & Terry
1100 So. 3rd	1525 So. 2nd		

8 New Services were installed at the following locations:

547 Wayne (1")	Alameda Park (4"SL)	636 Pershing (2")	874 W. Bryan (3/4"
884 Bryan (3/4")	440 East Center (1")	676 Zener (3/4")	755 No. Main (1")

10 Services were renewed at the following locations:

251 No. Main	627 W. Halliday	2370 So. Second	827 So. 10th
742 Birch	905 So. 5th	1369 LeVine	645 So. 10th
655 So. 10th	1525 So. 2nd		

15 Services were repaired at the following locations:

2525 Ada	935 So. 3rd	1125 E. Lander	2464 So. Fairway
217 Cottonwood	318 So. 6th	Animal Shelter	426 So. 9th
209 So. 13th	221 So. 13th	1337 E. Lewis	194 Jones Drive
742 Birch	884 W. Bryan	856 No. 8th	

Water Department Monthly Report for May 1975

Mainline work consisted of:

Well #10 installed and removed submersible pump and motor.

Well Yard Booster Station built pumphouse, hauled panel from Cemetery Booster to Well Yard and installed and tested pump and motor.

Fairway 5th Addition on Butte Street laid 2443 feet of 18" C. I. pipe and installed 3 18" butterfly valves, 1 18" x 6" x 18" WYE, 1 18" x 18" x 6" x 6" cross, 1 18" x 8" cross, 1 18" x 10" cross, 1 18" x 6" tee, 2 10" P.E. x 6" M. J. reducers, 2 18" plugs and 1 6" M. J. plug. This main was sterilized and flushed.

Reservoir - West Bench laid 2" pipe for chlorinator and wash line.

East Bench, Alameda Tank, and East Center unloaded pipe.

Farr-ens Subdivision installed 3 8" x 6" tapping tees and 1 6" x 6" tapping tee.

During the month of May 340,684,000 gallons of water were consumed from the system or 10,989,806 per day were secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4	70,774,000	227.5+
Well #2	43,276,000	134.5
Well #12	83,660,000	230.0
Well #16	15,127,000	0.0
Well #18	1,889,000	5.5
Well #21	12,523,000	34.5
Well #22	7,776,000	19.0
Well #27	24,189,000	85.5
Well #28	16,105,000	56.0
Well #29	65,365,000	187.5
		980.0

This figure is 161,548,000 gallons less than last May. Based on the 1970 population figure of 40,036 there was 274.5 gallons of water per person per day secured from the system.

Airport consumption was 1,535,000 gallons of water using 4.5 lbs. chlorine.

Mainline leaks were repaired at the following locations:

521 East Dunn B & E Big Gun Bldg. 552 Fairmont Ave. Ross Park
200 King Street

12 New Services were installed at the following locations:

558 Richland (1")
Old Airport (3/4")
675 Yellowstone (3/4")
Airport B.L.M. (3/4")
427 Lark Lane (4")
800 Yellowstone (1½") S.L.
971-73 Jessie (1")
1400 Bench Road (1½")
1230 Pershing (3/4")
220 West Maple (3/4")
4280 Yellowstone (2-3/4")

Water Department Monthly Report for June 1975

Mainline work consisted of:

600 Block Wayne laid 558 feet of 6" C. I. pipe and installed 1 6" butterfly valve, 1 6"x 6"x 6" tee, 1 6"x 6"x 1½" tee, 1 flange x C. I. coupling, 1 6" steel plug, 1 6" steel x 6" C. I. coupling. Main was sterilized and flushed. Services changed and connected to new main. Renewed 2" line with 1½" copper at 600 Wayne at west alley. Tied in 6" line to 4" in alley. Hauled in three loads of gravel.

Well #10 installed pump and motor.

Fairway 5th Addition sterilization tap on 18" main on Hiskey Street.

Airport laid 542 feet of 6" C. I. pipe and installed 1 6"x 6" tapping tee and valve, 1 6" 90° Ell, 1 6" tee, 1 6" M.J. plug, 1 6" P.S. fire hydrant and valve, and 1 valve box. Main was sterilized and flushed.

Upper Level-Well Yard made road for new pipeline. Laid 116' of 16" pipe and installed 1 16" valve.

Well Yard Booster Station finished building top to pumphouse.

East Bench Tank made 3/4" tap on 16" main. Ran signal system from vault to vault.

During the month of June 582,937,000 gallons of water were consumed from the system or 19,431,233 per day were secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4 & #6	79,920,000	265.5 + 564.5 = 8.
Well #2	28,977,000	87.5
Well #3	48,579,000	140.0
Well #10	14,018,000	31.5
Well #12	96,492,000	276.5
Well #16	61,471,000	
Well #18	24,680,000	78.5
Well #21	29,031,000	83.0
Well #22	27,121,000	82.0
Well #27	43,418,000	145.0
Well #28	22,550,000	70.0
Well #29	43,071,000	111.0
PIP Well #1	63,609,000	186.5
		~~1,557.0~~ - 2387.0

This figure is 149,164,000 less than last June. Based on the 1970 population figure of 40,036 there was 485.34 gallons of water per person per day secured from the system.

Airport consumption was 4,403,000 gallons of water using 13.5 lbs. chlorine

Mainline leaks were repaired at the following locations:

Beth & Renee
20th & Lewis
600 Blk. Wayne at Alley
1600 No. 2nd

142 New services were installed at the following locations:

680 Moreland (3/4")
1615 West Quinn (3/4")
Alley at Oakland (1" S.L.)
1730 West Quinn (8")
1026 Belmont (3/4")
28- 1" Fairway 5th Addition
107- 3/4" Fairway 5th Addition
381-383 Packard (1")
385-389 Packard (1")

Water Department Monthly Report

July - 1975

Mainline work consisted of:

West Reservoir laid 1674 feet of 16" pipe, 162 feet of 4" pipe, 8 feet of 8" pipe, 410 feet of 12" pipe, and 8 feet of 14" pipe. Installed 1 8x8x8 tee, 1 12x8 reducer, 2 12x12x12 tee, 1 16x16x16 tee, 2 30^{o} ells, 3 16" 45^{o} ells, 1 4" 45^{o} ell, 1 16x4 tee 2 16x14 tees, 2 14" 90^{o} ells, 2 14" flange butterfly valves, 2 14" flange x M.J. couplings, 1 16" M.J. butterfly valve, 1 18" flange x M.J. coupling, 1 18" butterfly valve, 1 4" P.S. gate valve, 1 2" x 5½" galvanized nipple, 1 2" compression coupling, 1 4" M.J. plug. Assembled and installed 14" pressure regulating valve. Sterilized line.

East Bench-upper tank run 2" drain line. So. Von Elm repaired damaged cables to signal system.

Installed, hooked up and tested probe on top of tank at airport. Flushed new main

During the month of July 735,626,000 gallons of water were consumed from the system or 23,729,871 per day were secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4 & 6	94,182,000	321.0 + 1290 = 1611.0
Well #2	35,283,000	109.0
Well #3	66,951,000	185.5
Well #10	56,143,000	160.0
Well #12	101,501,000	290.5
Well #16	50,665,000	
Well #18	42,818,000	123.0
Well #21	39,353,000	105.5
Well #22	30,000,000	90.5
Well #27	57,885,000	182.5
Well #28	25,238,000	70.0
Well #29	67,260,000	175.0
PIP Well #1	68,347,000	168.5
		1,981.0 - 3592.0

This figure is 70,154,000 less than last July. Based on the 1970 population figure of 40,036 there was 592.71 gallons of water per person per day secured from the system.

Airport consumption was 9,445,000 gallons of water using 26 lbs. chlorine.

Mainline leaks were repaired at the following locations:

1856 Pocatello Creek Road
1444 South 4th
1678 Pocatello Creek Road
200 Blk Taft & Wilson
529 South 7th

61 New Services were installed at the following locations:

883 Renee (1")
2405 Garrettway (1½")
1013 Dolbeer (1")
424 South 7th (1" S.L.)
750 Filmore (2 - 1")
Airport Hertz Bldg. (3/4")
1154 McKinley (1½")
Harrison & Halliday (1")
Street Dept. Shop (1")
Trailer at B - E (3/4")
1900 Blk. W. Quinn (8")
Farr-Ens Estates (48 3/4")
(1 - 1")

6822

Water Department Monthly Report

August - 1975

Mainline work consisted of:

Lower tank East Bench made 3/4" tap. Reservior pulled out 2" galvanized line. City reservior laying block for vault. Installed 126' 18" D.I. pipe, 176' 16" D.I. pipe, 1-90^0 16" ell., 2-22^0 18" pipe, 1-18" butterfly valve, 1-16" butterfly valve. Reservior installed fittings and pipe and laid block for vault. 1-18 x 18 x 16 tee. Reservior 180' 18" pipe. West Reservior completed vault. 200 block Warren 414' 6" C.I. pipe, 1-4" gate valve p.s. 1-4" pe x 6" M.J. Reducer. 100 and 200 block Warren 378' 6" C. I. pipe, 1-6" x 6" tee, 1-6" butterfly valve, 1-6" valve box. Maple and Warren 1-4" P. S. gate valve. 100 Block Warren 432' 6" C.I. pipe. 100 and 200 block Warren made 3/4" taps and sterilized line. 200 block Warren killed old main.

During the month of August 650,247,000 gallons of water were consumed from the system or 20,975,709 per day were secured from the following sources:

		Lbs. Chlorine
Surface supplies & Well #4 & #6	95,986,000	322.5 + 1242 = 1564.
Well #2	35,694,000	130.0
Well #3	61,281,000	174.0
Well # 10	50,871,000	145.0
Well #12	82,684,000	245.0
Well #16	18,897,000	000.0
Well #18	52,940,000	138.0
Well #21	34,019,000	101.5
Well #22	31,087,000	94.5
Well #27	46,523,000	161.0
Well #28	20,505,000	58.0
Well #29	43,819,000	119.0
PIP Well #1	75,941,000	208.0
		~~1,869.5~~ - 3434.0

This figure is 40,043,000 less than last August. Based on the 1970 population figure of 40,036 there was 523.92 gallons of water per person perday secured from the system.

Airport consumption was 9,136,000 gallons of water using 28 lbs. of chlorine.

Mainline leaks were repaired at the following locations:

10th and Bridger
B E between bldg. 36 & 37
876 Randolph
Lovejoy and S.E. corner
844 South 9th

10 New Services were installed at the following locations:

1416-18 Jensen (1")
1420-22 Jensen (1")
1424-26 Jensen (1")
National Car Rental Airport (3/4")
1232 So. 2nd (1 1/2")
1234 So. 2nd (1 1/2")
S.W. corner of Quinn Road
1238 E. Benton (3/4")
1717-21 So. Von El (1")
505 Lilac (3/4")

Water Department Monthly Report

September - 1975

Mainline work consisted of :

100 Block Warren hook to 4" off Oak, 1-6 x 4 M. J. Reducer, 1-6" Sleeve, 20'-6" C. I. pipe.

200 Block Warren hook fire hydrant to new 6" main, dug up 4" plug,

300 Block Warren lay pipe and install fittings, 1-4" valve, 1-4" P.E. x 6" M. J. Reducer, 1-valve box, 360'-6" C.I. pipe, lay pipe and tap main to sterilize, strip oil, 1-4" sleeve, 1-4" M. J. x 6" P.E. Reducer, 12'-4" C. I. pipe

400 Block Warren lay pipe, 432'-6" C. I. main, lay pipe, 90'-6" C. I. pipe, blew off 6" C. I. main.

452, 454, 464, 478 Warren hook service to new main. 404, 412, 433 Warren hook to new 6" C. I. Main. 441, 457, 467 Warren hook to new 6" C. I. Main.

Pocatello Creek Road (1678) repair leak on steel main.

Walnut and Warren replace pipe and fitting, 146'-6" C. I. pipe, 28'-6" C.I. pipe, 1-8" cross, 2-6" Butterfly valve, 1-8" butterfly valve.

303, 470 Pine hook service to new main.

Pine and Warren hook 6" main on Warren to 12" on Pine.

During the month of September 512,974,000 gallons of water were consumed from the system or 17,099,133 per day were secured from the following sources:

		Lbs. of Chlorine
Surface supplies and Well #4 & #6	90,738,000	1516.0
Well #2	49,520,000	155.0
Well #10	28,707,000	85.5
Well#12	82,919,000	233.5
Well #18	49,310,000	130.0
Well #21	26,343,000	90.5
Well #22	29,916,000	88.0
Well #27	35,184,000	116.5
Well #28	32,779,000	84.0
Well #29	14,275,000	40.5
Pip Well #1	73,283,000	195.0
		2,734.5

This figure is 18,444,000 less than last September. Based on the 1970 population figure of 40.036 there were 427.09 gallons of water per person per day secured from the system.

Airport consumption was 5,879,000 gallons of water using 18.5 lbs. of chlorine.

Mainline leaks were repaired at the following locations:
100 Block South 1st

9 New Services were installed at the following locations:

Avis Car Wash (3/4")	3152 South 5th (1")	Highland P.U.D (2")
ArmyBldg. P.I.P. (1")	1706 North Hayes (1 1/2")	1001 Yellowstone (1 1/2")
3rd & Gould (3/4")	1023 Yellowstone (11/2")	980 Nixon Road (3/4")

WATER DEPARTMENT MONTHLY REPORT

October - 1975

Mainline work consisted of:

West Bench Reservoir, lay 400' of new 14" steel pipe, & 265' old.
1000 block of El Rancho, replace water pressure regulator.
El Rancho & Holman, install 2-6" tapping tees above & below P.R. station for pressure relief vault.
El Rancho & Holman, install 3" pressure relief valve.

During the month of October ~~299,998,000~~ 293,393,000 gallons of water were consumed from the system, or 9,677,354.84 gallons per day, were secured from the following sources:

	GALLONS CONSUMED	LBS. OF CHLORINE
Surface supplies & Wells #4 & #6	94,510,000	1463.5
Well #2	45,194,000	146.0
Well #10	6,771,000	20.0
Well #12	3,892,000	12.0
Well #18	9,718,000	20.5
Well #21	5,838,000	19.5
Well #22	17,043,000	59.0
Well #27	17,921,000	60.5
Well #28	17,312,000	50.0
P.I.P. Well #1	75,194,000	201.0
TOTALS:	299,998,000	2052.0

This figure is ~~5,896,000~~ 12,501,000 less than last October. Based on the 1970 population figure of 40,036, there were 241.72 gallons of water per person, per day secured from the system.

Airport consumption was 3,259,000 gallons of water using 10 lbs. of chlorine.

Mainline leaks were repaired at the following locations:
500 block Roosevelt

32 New Services were installed at the following locations:

1200 Yellowstone (1 1/2")
1007 Yellowstone (1")
1321 N. Harrison (1")
3-6" fire lines (Bucyrus Erie)
631 Hyde (1")
927 Yellowstone (3/4")
1100 Yellowstone (1")
1718 N. Hayes (1 1/2")
180 N. 17th. (3/4")
8-(3/4") Hancock Place
8-(1") Hancock Place
3-(3/4") Renee St.
2-(2") Eastridge

19 Services were repaired at the following locations:

707 Franklin
445 N. 12th
923 E. Benton
477 Wyldwood
Main & Center
1524 E. Clark
858 N. 10th
242 Gem
331 S. Garfield
93 Stanford
446 Fairway
1855 S. Fairway
734 N. Grant
2626 S. 2nd
504 S. 8th
1449 S. 3rd
1300 Block- S. 4th
2350 S. Fairway
978 Cahoon

6825

WATER DEPARTMENT MONTHLY REPORT

November - 1975

Mainline work consisted of:

Highland Sub-division, make 6" tap on 14" main.

During the month of November 218,475,000 gallons of water were consumed from the system, or 7,282,500 gallons per day, were secured from the following sources:

	GALLONS CONSUMED	LBS. OF CHLORINE
Surface supplies & Well #4	83,576,000	262 +1222
Well #2	39,206,000	124.5
Well #27	16,946,000	57.5
Well #28	6,848,000	23
P.I.P. Well #1	71,899,000	190.5
TOTALS:	218,475,000	~~658.5~~ 1881.5 lbs

This figure is 8,741,000 more than last November. Based on the 1970 population figure of 40,036, there were 181.90 gallons of water per person, per day secured from the system.

Airport consumption was 1,971,000 gallons of water using 7 lbs. of chlorine.

Mainline leaks were repaired at the following locations:

- 301 East Chapel
- 40 Davis
- 3rd & Bonneville
- So. 2nd
- 200 block N. 18th

79 New Services were installed at the following locations:

- Cemetery (2")
- Hewlett Dr. (1")
- Bucyrus Erie bldg. #19 (1")
- 725 W. Sublette (1 1/2")
- 4869 S. 5th (3/4")
- 14, 18, 26, 30 Rice (3/4")
- Stockman Rd.-3- (1")
- 2575 Poleline Rd. (3/4")
- 325 East Putnam (4") F.L.
- Viewpoint Sub-division-65- (3/4")

11 Services were repaired at the following locations:

- 1531 S. 2nd
- 306 N. 4th
- 636 N. 14th
- 3960 Stockman Rd.
- 3765 Jason
- Yellowstone at Fisher Gas
- 10th & Clark
- 1274 Yellowstone
- Nora & Dolbeer
- 1510 N. Arthur
- 152 N. 18th

3 Services were renewed at the following locations:

- 826 E. Center
- 830 Jones Dr.
- 824 E. Center

Meter and curb boxes were repaired at the following locations:

RAISED TO GRADE:

- 2535 Ada
- 642 W. Cedar

6826

WATER DEPARTMENT MONTHLY REPORT

December - 1975

MAINLINE WORK CONSISTED OF:

Took in Fairway 5th subdivision which included: 5705' of 6" T.J.C.I., 2790' of 8" T.J.C.I., 3-18" gate valves, 9-8" gate valves, 27-6" gate valves, 14-6" fire hydrants.
Took in Farr-ens Estates subdivison which included: 2105' of 6" T.J.C.I., 6-6" gate valves, 5-6" fire hydrants.
Took in Grove II (Eastridge Subdivision) which included 1-6" fire hydrant.

During the month of December 196,677,000 gallons of water were consumed from the system, or 6,344,419.35 gallons per day, were secured from the following sources:

	GALLONS CONSUMED	LBS. OF CHLORINE
Surface Supplies and Well #4	94,062,000	1,292
Well #2	27,469,000	90
Well #27	16,312,000	56.5
Well #28	5,637,000	18.5
P.I.P. Well #1	53,197,000	179
TOTALS:	196,677,000	1,636

This figure is 18,114,000 less than last December. Based on the 1970 population of 40,036 there were 158.47 gallons of water per person, per day secured from the system.

Airport consumption was, 1,510,000 gallons of water using 6 lbs. of chlorine.

MAINLINE LEAKS WERE REPAIRED AT THE FOLLOWING LOCATIONS:

2100 S. 2nd.	B.E. Building #16
1000 Block of S. 2nd.	2200 Block of 2. 2nd.
5th & Lander	600 Block of W. Clark

46 ~~45~~ NEW SERVICES WERE INSTALLED AT THE FOLLOWING LOCATIONS:

The Highlands Subdivision-34-(3/4")	1228 S. 2nd.-(1 1/2")
The Highlands Subdivision-(2")	1230 S. 2nd.-(1 1/2")
1602 S. Von Elm-(2")	2611 S. Fairway-(1")
The Highlands Subdivision-6-(1")	555-57 Wayne (1")

13 SERVICES WERE REPAIRED AT THE FOLLOWING LOCATIONS:

Paramount & Hyde	Ardella & Lucille
716 W. Cedar	1240 Alameda
227 S. 9th	851 W. Eldredge
255 Riverside	605 S. Harrison
938 E. Bridger	946 E. Bridger
144 S. 14th.	1100 Yellowstone
1730 N. Main	

4 SERVICES WERE RENEWED AT THE FOLLOWING LOCATIONS:

2501 S. Fairway	1356 Ridge
326 W. Center	941 Willow Lane

WATER DEPARTMENT MONTHLY REPORT

January - 1976

✓ MAINLINE WORK CONSISTED OF:

Cree pump house-installed 6" and 3" gate valves. Installed new wiring. 110 volt lights & plugs. Worked on altitude valve.

During the month of January 214,695,000 gallons of water were consumed from the system, or 6,925,645 gallons per day were secured from the following sources:

	GALLONS CONSUMED	LBS. OF CHLORINE
Surface supplies & Well #4	91,098,000	1,078.5
Well #2	37,111,000	137.5
Well #27	17,562,000	58.0
Well #28	6,867,000	26.0
P.I.P. Well #1	52,057,000	164.0
TOTALS:	214,695,000	1,464.0

This figure is 4,564,000 gallons less than last January. Based on the 1970 population figure of 40,036, there was 172.99 gallons of water per person, per day secured from the system.

Airport consumption was, 1,356,000 gallons using 7.5 lbs. of chlorine.

MAINLINE LEAKS WERE REPAIRED AT THE FOLLOWING LOCATIONS:

Trail Creek & Riverside
3736 Cardinal
✓ 655 Cree
124 Valleyview

6 NEW SERVICES WERE INSTALLED AT THE FOLLOWING LOCATIONS:

1460 Yellowstone (4" F.L.) ✓
947-49 Dence (1") ✓
3515 Jason (1") ✓
1460 Yellowstone (3/4") ✓
Bucyrus Erie #12 (2") ✓
900 Yellowstone (4" F.L.) ✓

3 SERVICES WERE RENEWED AT THE FOLLOWING LOCATIONS:

908 Wilson
237 Wayne
912 Wilson

6 SERVICES WERE REPAIRED AT THE FOLLOWING LOCATIONS:

753 Park
851 So. 5th
730 No. Arthur
725 E. Bridger
3736 Cardinal
1236 E. Clark

METERS & CURB BOXES WERE REPAIRED AT THE FOLLOWING LOCATIONS:

Raised to grade:
865 Randolph
1240 Lavine

Lowered to grade:
960 Lucille

Blew curb boxes out:
241 Wilson
422 Wayne
595 Willard
3824 Hubbard
851 Wayne
343 E. Bonneville

6828

WATER DEPARTMENT MONTHLY REPORT

FEBRUARY - 1976

MAINLINE WORK CONSISTED OF:

Clearview Tank: Work on Pilot for Altitude Valve, make repairs and clean Altitude Valve.

During the month of February 204,155,000 gallons of water were consumed from the system, or 7,039,827 gallons per day were secured from the following sources:

	GALLONS CONSUMED	LBS. OF CHLORINE
Surface Supplies & Well #4	88,488,000	1,052.5
Well #2	44,799,000	144.5
Well #27	15,705,000	48.5
Well #28	6,756,000	23.5
P.I.P. Well #1	48,407,000	155.5
TOTALS:	204,155,000	1,424.5 LBS.

This figure is 6,347,000 gallons more than last February. Based on the 1970 population figure of 40,036, there was 175.99 gallons of water per person, per day secured from the system.

Airport consumption was, 1,520,000 gallons using 6 LBS. of Chlorine.

MAINLINE LEAKS WERE REPAIRED AT THE FOLLOWING LOCATIONS:

1,000 BLK of So. 3rd.
100 Blk of Imperial
B.E. Bldg. #5
Cactus Drive

2 NEW SERVICES WERE INSTALLED AT THE FOLLOWING LOCATIONS:

938 So. 2nd. (2")
1850 No. Arthur (4"FL)

3 SERVICES WERE RENEWED AT THE FOLLOWING LOCATIONS:

456 Wayne
159 So. 11th
375 McCormack

12 SERVICES WERE REPAIRED AT THE FOLLOWING LOCATIONS:

535 Crescent Dr.
631 So. Main
Boise Cascade
153 Grant
1552 E. Terry
B.E. Bldg. #5
1st & Day
2455 Butte
133 Plateau
B.E. Bldg. #5
234 So. Main
810 Jefferson

METERS AND CURB BOXES WERE REPAIRED AT THE FOLLOWING LOCATION:

Blew curb boxes out:
425 So. Johnson
285 Randolf
156 Randolf
421 Wayne

Replaced Meter Box Lids:
453 So. 6th
300 Blk W. Center
250 Everett
Ford Johnson's So. 4th

Repaired Curb Box:
B.E. Bldg. #5

6829

WATER DEPARTMENT MONTHLY REPORT

MARCH - 1976

MAINLINE WORK CONSISTED OF:
Cree pump - 80 Hours, Anderson - 225 Hours, Tank Booster - 186 Hours. So. Main Ext layed 5,554 feet of 12" pipe, So. Main Ext 4 - 12" Butterfly Valves.

During the month os March 212,587,000 gallons of water were consumed from the system, or 6,857,645.16 gallons per day were secured from the following sources:

	GALLONS CONSUMED	LBS. OF CHLORINE
Surface Supplies	97,491,000	899
Well #2	39,084,000	133.5
Well #27	17,150,000	51
Well #28	7,239,000	25.5
P.I.P. Well #1	51,623,000	162
TOTALS	212,587,000	1,271 LBS.

This figure is 10,320,000 less than last March. Based on the 1975 population figure of 42,565,000 there was 161.11 gallons of water per person, per day secured from the system.

Airport consumption was, 1,525,000 gallons using 6 LBS. of chlorine.

MAINLINE LEAKS WERE REPAIRED AT THE FOLLOWING LOCATIONS:

Walnut & Willard	Scardino Park
Hayes & Connor	6th & Putnam

12 NEW SERVICES INSTALLED AT THE FOLLOWING LOCATIONS:

206 W. Maple (1 1/2")	1205 Yellowstone (1 1/2")
2281 E. Terry (1 1/2")	675 Jefferson (3/4")
800 Blk S. 2nd. (1")	1645 Jean (3/4")
Bucyrus Erie #42 (1")	1705 N. Garfield (3/4")
1850 N. Arthur (3/4")	4850 Bannock Hwg. (3/4")
905 Yellowstone (1 1/2")	423 E. Dunn (1 1/2")

7 SERVICES WERE RENEWED AT THE FOLLOWING LOCATEIONS:

205 Eldredge	1043 N. 9th
129 Eldredge	416 Wayne
Apache	121 S. 9th
620 N. 9th	

24 SERVICES WERE REPAIRED AT THE FOLLOWING LOCATIONS:

5008 Apache	850 S. Main	2671 S. Fairway
604 S. 8th Ave.	206 W. Maple	2424 S. Fairway
115 N. Main	1600 S. Von Elm	800 S. 2nd.
1007 Yellowstone	1207 McKinley	781 Fairway
1176 Lavine	3315 Poleline	Eldredge & McKinley
121 S. 9th	4847 Mowhawk	4801 Comanche

6830

WATER DEPARTMENT MONTHLY REPORT

APRIL - 1976

MAINLINE WORK CONSISTED OF:
Cree pump - 35 Hours, Anderson - 393 Hours, Tank Booster - 176 Hours. So. Main Ext. layed 652 feet of 12" pipe, So. Main ext. 2-12" Butterfl Valves, Main & Putnam layed 77 ft. pipe, Installed 1-6" Kennedy Valve on west Quinn. Clearview Ave. layed 462 ft. and installed 1-6" tapping valve, So. Main killed old 6" line intalled to 12" line, College & Johnny Cr. - installed 1-6" Kennedy Valve, College Rd. Layed 323 ft. 6" pipe.

During the month of April 240,824,000 gallons of water were consumed from the system, or 8,027,466 gallons per day were secured from the following sources:

	Gallons Consumed	LBS. of Chlorine
Surface Supplies	66,775,000	188½
Well #2	47,718,000	151½
Well #12	51,461,000	159½
Well #27	18,479,000	54
Well #28	6,771,000	25½
P.I.P. Well #1	49,620,000	158½
Totals	240,824,000	737.5

This figure is 8,828,000 more than last April. Based on the 1975 population figure of 42,565 there was 188.59 gallons of water per person, per day secured from the system.

Airport consumption was, 1,629,000 gallons using 6 lbs. of chlorine.

MAINLINE LEAKS WERE REPAIRED AT THE FOLLOWING LOCATIONS:

200 S. 4th	Airport C Street	960 Tanylane
So. Main	1900 Blk S. 2nd	Clearview Ave.

21 NEW SERVICES INSTALLED AT THE FOLLOWING LOCATIONS:

324-28 W. Cedar (1")	320 S. 11th (1")	1375 City Cr.2-1"
57-59 Foothill (1")	Holman 2 ed. 10-1", 4-3/4"	
Temple2-3/4"		

9 SERVICES WERE RENEWED AT THE FOLLOWING LOCATIONS:

765 Eldridge	779 Eldridge	100 Blk S. 3rd
1525 E. Fremont	940 Garfield	773 Eldridge
440 Washington	620 So. 8th	310 N. 10th

29 SERVICES WERE REPAIRED AT THE FOLLOWING LOCATIONS:

5055 Apache	4970 Apache	109 Appaloosa
875 Lucille	1645 Jean	3851 Hawthorne Rd.
3622 Hilliard	Fisher Trailer Park	230 Willard
5035 Apache	2615 Fay	353 W. Terry
717 S. 3rd.	946 W. Lewis	4912 Mohawk
2201 S. Fairway	154 Canyon	895 Highland
2379 S. Fairway	1168 Eldridge	1342 Zener

6831

WATER DEPARTMENT MONTHLY REPORT

May-1976

MAINLINE WORK CONSISTED OF:
Booster #1 - 357 Hours, Booster #2 - 9 Hours, Anderson - 125 Hours, Cree - 309. / So. Main Ext. - 4,116 ft. of 12" pipe, 3- 12" Butterfly Valve, Monte Vista & Booth 610 ft of 12" pipe 140 ft of 8" pipe, 1- 8" Butterfly Valve, 1- 12" Butterfly Valve. 700 Park Lane-repair 8" Cast Main. Industrial Lane(Mitchel Const.)- Install 1- 6" Tapping Valve. So. Main 1-6" F.H., 1-6" Valve, 10 ft 6" pipe

During the month of May 460,386,000 gallons of water were consumed from the system, or 14,851,161 gallons per day were secured from the following sources:

	GALLONS CONSUMED	LB. OF CHLORINE
Surface Supplies	79,670,000	223
Well #2	37,133,000	116
Well #3	33,640,000	94
Well #10	9,480,000	28½
Well #12	81,143,000	237
Well #16	50,695,000	
Well #18	25,446,000	77½
Well #21	10,209,000	33½
Well #22	19,755,000	67½
Well #27	33,943,000	116½
Well #28	13,381,000	48½
Well #29	14,887,000	30½
PIP	51,004,000	172
TOTAL	460,386,000	1,244½

This figure is 119,702,000 more than last May. Based on the 1975 population figure of 42,565 there was 348.91 gallons of water per person, per day secured from the system.

Airport consumption was, 2,931,000 gallons using 11½ lbs. of chlorine.

MAINLINE LEAKS WERE REPAIRED AT THE FOLLOWING LOCATIONS:

611 Wayne	Bucyrus Erie	Lovejoy and 3rd
800 Blk N. 8th		

54 NEW SERVICES WERE INSTALLED AT THE FOLLOWING LOCATIONS:

1777 E. Clark (2")	Lander & Main (3/4")	4645 Johnny cr. (3/4
Main & Center (3/4")	333 E. Humbolt (1½")	Kim Drive(1")
301 E. Gould (3/4")	Philbin & Quinn (1")	1172 E. Fremont (1")
	Fairway 6th(8-1")	Fairway 6th (37-3/4"

17 SERVICES WERE RENEWED AT THE FOLLOWING LOCATIONS:

745 Mckinley	627 S. 9th	228 N. Main
224 N. Main	233 N. Main	241 N. Main
258 N. Main	257 N. Main	100 Blk N. Main
302 W. Center	126 N. Main	128 N. Main
1142 E. Lander	139 N. Main	134 N. Main
138 N. Main	144 N. Main	

6832

WATER DEPARTMENT MONTHLY REPORT

June - 1976

MAINLINE WORK CONSISTED OF:

Continued laying pipe down Bannock Highway to Anderson Well.
Pipe: 1,564 ft. - 12" pipe — Valves: 2 - 12" Butterfly valves
36 ft. - 8" pipe — 2 - 6" valves
46 ft. - 6" pipe
Fire Hydrant: 1 - 6" FH installed

Began laying pipe from 2,000,000 gal. tank to Monte Vista Road.
Pipe: 1,188 ft. - 12" pipe Valves: 1 - 12" Butterfly valve

Booster #1 Indian Hills - 471 Hours
Booster #2 Indian Hills - 82 Hours
Anderson Indian Hills - 116 Hours (turned off 6-20-76)
Cree Indian Hills - 373 Hours

During the month of June 603,167,000 gallons of water was consumed from the system or 20,105,566.67 gallons per day were secured from the following sources:

	GALLONS CONSUMED	LBS. OF CHLORINE
Surface Supplies	101,248,000	1,063.0
Well # 2	19,699,000	56.5
Well # 3	79,721,000	224.5
Well #10	47,694,000	132.5
Well #12	61,778,000	182.5
Well #16	50,695,000	0.0
Well #18	50,533,000	137.0
Well #21	24,353,000	84.0
Well #22	26,234,000	91.0
Well #27	45,146,000	158.5
Well #28	19,192,000	71.5
Well #29	31,550,000	100.0
PIP # 1	45,324,000	147.0
TOTAL	603,167,000	2,448.0

This figure is 20,230,000 more than last June. Based on the 1975 population figure of 42,565 there was 472.35 gallons of water per person, per day secured from the system.

Airport consumption was 3,357,000 gallons using 15 lbs. of chlorine.

Mainline leaks were repaired at the following locations:

967 Pine
1642 S. 2nd
400 Blk W. Center
200 Blk Yellowstone - Repair Bands 2-4"
Wilson & Maple Tighten repaired sleeve
838 W. Bridger
Mohawk
Arthur & Center
1215 McKinley
Jane & Ammon
611 Wayne
100 Blk Yellowstone

WATER DEPARTMENT MONTHLY REPORT

JULY - 1976

MAINLINE WORK CONSISTED OF:

Continued laying pipe to Monte Vista Road.
Pipe: 5,154 ft. - 12" pipe   Valves: 5 - 12" Butterfly valve
1 - Pressure Reducing valve(10")

Began laying pipe on Booth Road.
Pipe: 1,026 ft. - 8" pipe

Booster #1 Indian Hills - 580 Hours
Booster #2 Indian Hills - 129 Hours
Cree Indian Hills - 464 Hours

During the month of July 824,689,000 gallons of water was consumed from the system or 26,602,870.97 gallons per day were secured from the following sources:

			GALLONS CONSUMED	LBS. OF CHLORINE
Surface Supplies	[illegible]		110,282,000	388.0
Well # 2	[illegible]	6,530	31,538,000	88.0
Well # 3	[illegible]	4,225	82,984,000	238.0
Well #10	[illegible]	[illegible]	112,038,000	293.5
Well #12	[illegible]	[illegible]	109,019,000	334.0
Well #16	[illegible]	3,680	48,016,000	0.0
Well #18	3000	1,446	61,846,000	161.5
Well #21	1000	1,443	31,232,000	105.5
Well #22	1000	[illegible]	30,943,000	100.0
Well #27	2000	[illegible]	65,799,000	211.5
Well #28	2100	[illegible]	27,278,000	89.5
Well #29	2700	1,800	61,066,000	177.0
PIP # 1	1750		52,648,000	171.5
TOTAL			824,689,000	2,358.0

This figure is 89,063,000 more than last July. Based on the 1975 population figure of 42,565 there was 645.82 gallons of water per person, per day secured from the system.

Airport consumption was 4,511,000 gallons using 16.5 lbs. of chlorine.

MAINLINE LEAKS were repaired at the following locations;

575 Jefferson
108 Wayne
837 Bridger
172 Melrose
1st & Putnam

1672 Pocatello Cr. Road
1798 Pocatello Cr. Road
Monte Vista Ext.
100 Blk. E Terry

WATER DEPARTMENT MONTHLY REPORT

AUGUST - 1976

MAINLINE WORK CONSISTED OF:

Finished laying pipe on Booth Road

Valves: 1 - 8" Valve; 1 - 6" Valve

Began Laying pipe from Monte Vista Rd. to Alameda Water Tank
Pipe: 3,362 ft. 12" pipe — Valves: 2-- 12" Butterfly valves; Install 1-- 90°-12" Elbow

Began laying pipe at B.E.
Pipe: 388 ft. 10" pipe — Valves: 1-- 10" Valve

Booster #1 Indian Hills - 492 Hours
Booster #2 Indian Hills - 133 Hours
Cree Indian Hills - 343 Hours

During the month of August 553,808,000 gallons of water was consumed from the system or 17,864,774.19 gallons per day were secured from the following sources:

	GALLONS CONSUMED	LBS. OF CHLORINE
Surface Supplies	95,755,000	303.5
Well # 2	21,624,000	61.0
Well # 3	77,919,000	217.5
Well #10	75,140,000	198.5
Well #12	74,980,000	234.5
Well #18	32,573,000	95.0
Well #21	18,669,000	53.5
Well #22	26,511,000	89.0
Well #27	42,226,000	136.5
Well #28	16,808,000	58.5
Well #29	11,594,000	37.0
PIP # 1	49,453,000	179.0
TOTAL	553,808,000	1,663.5

This figure is 96,439,000 less than last August. Based on the 1975 population figure of 42,565 there was 419.71 gallons of water per person, per day secured from the system.

Airport consumption was 5,059,000 gallons using 13.5 lbs. of chlorine.

MAINLINE LEAKS were repaired at the following locations:

456 N 15th	Maple & Hyde	580 Fairmont
500 Blk. W Bonneville		Cactus Dr.

91 NEW SERVICE LINES were installed at the following locations:

Horizon Subdivision	1715 N Garfield	(3/4")	241 Melrose	(1")
52-3/4" lines	407 Randolph	(3/4")	1415 S 5th	(1")
Lakeview Heights Subd.	Troubled Acres		B.E. Bldg. #16	(1")
14-3/4" lines	Lt.1 Blk.1		1414 S 1st	(1")
West Haven Subdvision	lt.3 Blk.2	(3/4")	3928-30 McDougall	(1")
10-3/4" lines	619½ Park	(3/4")	1039-41 Redwood	(1")
1010 Yellowstone (1½")	540 Pershing	(3/4")	1043-45 Redwood	(1")
	Lot E. of 241 Melrose	(3/4")		

6835

WATER DEPARTMENT MONTHLY REPORT

SEPTEMBER - 1976

MAINLINE WORK CONSISTED OF:

Finished laying pipe from Monte Vista Rd. to Alameda Water Tank
Pipe: 186 ft. 12" pipe — Valves 1 - 8" Valve; 1 - 12" Valve; 2 - 12" P.R. Valves
Install 1 - 90° Elbow
Replace 4" Valve in Regulator

Finished laying pipe at B.E.
Pipe: 111 ft. 10" Pipe

Began laying pipe above Butte St
Pipe: 1,436 ft. 18" pipe — Install 1 - 90° Elbow

Booster #1 Indian Hills - 377 Hours
Booster #2 Indian Hills - 54 Hours
Cree Indian Hills - 244 Hours

During the month of September 473,984,000 gallons of water was consumed from the system or 15,799,466.67 gallons per day were secured from the following sources:

	GALLONS CONSUMED	LBS. OF CHLORINE
Surface Supplies	87,660,000	251.5
Well # 2	47,291,000	138.5
Well #10	70,565,000	229.0
Well #12	77,696,000	230.0
Well #18	19,552,000	57.0
Well #21	14,689,000	36.5
Well #22	25,460,000	95.0
Well #27	36,830,000	123.0
Well #28	34,945,000	100.5
Well #29	5,161,000	15.5
PIP # 1	48,028,000	150.5
TOTAL	473,984,000	1,427.0

This figure is 38,990,000 less than last September. Based on the 1975 population figure of 42,565 there was 371.18 gallons of water per person, per day secured from the system.

Airport consumption was 3,343,000 gallons using 9.5 lbs. of chlorine.

MAINLINE LEAKS were repaired at the following locations:

1214 E Maple
1156 E Maple
1790 Poc. Cr. Road
200 Blk. N 3rd. Oakland
1021 Patsy
1200 E Maple
Monte Vista Ext.(2)
1684 Poc. Cr. Road

160 NEW SERVICE LINES were installed at the following locations:

Henderson Subdivision
22-3/4" lines
12- 1" lines
Hillside Subdivision
107-3/4" lines
3- 1" lines
870-72-74 W Alameda (1½")

1886 Jean (3/4")
3058 Poleline (3/4")
4043 Nora (3/4")
4045 Nora (3/4")
320 Park (3/4")
Hawthorne (3-1")

2780 Bannock Hwy. (3/4")
2785 Bannock Hwy. (3/4")
860-62 Lucille (1")
255 S 18th 2- (1")
235 S 19th
Lt.1-Blk.2 S. 19th (1")

6896

WATER DEPARTMENT MONTHLY REPORT

OCTOBER - 1976

MAINLINE WORK CONSISTED OF:

Continued laying pipe above Butte St.
Pipe: 925 ft. 18" pipe Valves: 1 - 18" B.F. valve

Booster #1 Indian Hills - 326 Hours
Booster #2 Indian Hills - 0 Hours
Cree Indian Hills - 139 Hours

During the month of October 281,120,000 gallons of water was consumed from the system or 9,068,387.1 gallons per day were secured from the following sources:

	GALLONS CONSUMED	LBS. OF CHLORINE
Surface Supplies	97,755,000	315.5
Well # 2	45,608,000	137.5
Well #10	4,919,000	16.0
Well #12	21,185,000	66.0
Well #18	3,884,000	12.0
Well #21	978,000	2.0
Well #22	13,682,000	53.5
Well #27	22,722,000	77.5
Well #28	20,156,000	62.0
PIP # 1	50,231,000	164.0
TOTAL	281,120,000	906.0

This figure is 608,967.14 less than last October. Based on the 1975 population figure of 42,565 there was 213.05 gallons of water per person per day secured from the system

Airport consumption was 2,634,000 using 8.0 lbs. of chlorine.

MAINLINE LEAKS were repaired at the following locations:

1684 Poc. Cr. Rd.	Juniper Dr.	110 Blk. N Harrison
1200 E. Maple	Monte Vista Rd.	Alameda & Brennan
1422 Poplar	1200 Blk. S. 2nd	1578 Cottage

209 NEW SERVICE LINES were installed at the following locations;

Tiffany Park Subdivision	Sunset West Subdivision		2 Rice	(3/4")
108-3/4" lines	24-3/4" lines		4 Rice	(3/4")
16- 1" lines	11- 1" lines		16 Temple	(3/4")
Anderson Subdivision	Horizon Subdivision		18 Temple	(3/4")
24- 1" lines	6-3/4" lines		237 W Cedar	(1")
Syringa Subdivision	1270 Aspen	(3/4")	Opal St.	(1")
4- 2" lines	1340 W Quinn Rd.	(3/4")	N Side City Cr.	(1")
1- 1½" line	1004-1010 Booth	(1½")	[illegible]	(3/4")
			[illegible]	(2")

WATER DEPARTMENT MONTHLY REPORT

NOVEMBER - 1976

MAINLINE WORK CONSISTED OF:

Continued laying pipe from above Butte St. down under Interstate 15:
Pipe: 1,044 ft. 18" pipe

Booster #1 Indian Hills - 135 Hours
Booster #2 Indian Hills - 11 Hours
Cree Indian Hills - 83 Hours

During the month of November 240,554,000 gallons of water was consumed from the system or 8,018,466.67 gallons per day were secured from the following sources:

	GALLONS CONSUMED	LBS. OF CHLORINE
Surface Supplies	93,652,000	294.0
Well # 2	45,617,000	139.5
Well #18	33,808,000	105.0
Well #27	20,808,000	69.0
Well #28	10,641,000	30.0
PIP # 1	36,036,000	110.5
TOTAL	240,562,000	748.0

This figure is 22,087,000 more than last November. Based on the 1975 population figure of 42,565 there was 188.38 gallons of water per person per day secured from the system.

Airport consumption was 1,799,000 gallons using 5.5 lbs. of chlorine.

MAINLINE LEAKS were repaired at the following locations;

W. Quinn Rd. at Tiffany Park Subd.
662 Moreland

28 NEW SERVICE LINES were installed at the following locations:

3725 Poleline	(3/4")	650 N 4th	(1")
Evergreen Estates		288 Willard	(1")
6-3/4" lines		5100 Pinyon	(1")
1200 Yellowstone	(3/4")	2041-42 MonteVista	(1")
986 Taney Ln.	(3/4")	5155 Pinyon	(1")
B-4, L-7 Cheyenne	(3/4")	5185 Pinyon	(1")
B-6, L-7 Cheyenne	(3/4")	5209 Pinyon	(1")
205 Willard	(1½")	1827-29 S Fairway	(1")
1162-68 McKinley	(1½")	1410-12 Primrose	(1")
2561 Garrett Way	(1½")	120 N 12th	(1")
1448 Lakeview	(2")	765 W Cedar	(¾")
1460 Lakeview	(2")	1415 Bench Rd.	(4")

6838

WATER DEPARTMENT MONTHLY REPORT

DECEMBER - 1976

MAINLINE WORK CONSISTED OF:

Continued laying pipe from above Butte St. down under Interstate 15:
Pipe: 1,004 ft. 18" pipe Valves: 1 - 18" B.F. Valve

Booster #1 Indian Hills - 137 Hours
Booster #2 Indian Hills - -0- Hours
Cree Indian Hills - 78 Hours

During the month of December 226,717,000 gallons of water was consumed from the system or 7,313,451.61 gallons per day were secured from the following sources:

	GALLONS CONSUMED	LBS. OF CHLORINE
Surface Supplies	99,153,000	252.5
Well # 2	48,644,000	150.0
Well #18	24,202,000	73.5
Well #27	12,236,000	41.0
Well #28	8,452,000	24.5
PIP # 1	34,030,000	96.0
TOTAL	226,717,000	637.5

This figure is 30,040,000 more than last December. Based on the 1975 population figure of 42,565 there was 171.82 gallons of water per person per day secured from the system.

Airport consumption was 1,808,000 gallons using 5.0 lbs. of chlorine.

MAINLINE LEAKS were repaired at the following locations:

Garret Way & Colorado
535 Wilson
Sierra Dr.
Eldredge & Hawthorne
1242 N Main

94 NEW SERVICE LINES were installed at the following locations:

East Village
69-3/4" lines
4- 1" lines
1- 3" line
Syringa Terrace
8- 2" lines
4- 1½" lines

1440 Lakeview (2")
1155 Yellowstone (1")
2030 Ardella (1")
2143-45 Ardella (1")
L-3,B-3,Cheyenne (3/4")
L-4,B-3,Cheyenne (3/4")
L-8,B-3,Cheyenne (3/4")

3 METER & INSTALLAIONS ONLY were installed at the following locations:

1066 Yellowstone
2 - 2" meter & installation
1 1½" meter & installation

6839

WATER DEPARTMENT MONTHLY REPORT

JANUARY - 1977

MAINLINE WORK CONSISTED OF:

Continued laying pipe from above Butte St. down under Interstate 15:
r Pipe: 324 ft. 18" pipe

Booster #1 Indian Hills - 134 Hours
Booster #2 Indian Hills - -0- Hours
Cree Indian Hills - 85 Hours

During the month of January 229,312,000 gallons of water was consumed from the system or 7,397,161.29 gallons per day were secured from the following sources:

	GALLONS CONSUMED	LBS. OF CHLORINE
Surface Supplies	105,179,000	289.0 ✓ 728
Well # 2	50,569,000	155.0
Well #27	12,043,000	41.5
Well #28	9,143,000	27.0
PIP # 1	52,398,000	159.5
TOTAL	229,332,000	~~672~~.0 1400

This figure is 14,637,000 more than last January. Based on the 1975 population figure of 42,565 there was 173.79 gallons of water per person per day secured from the system.

Airport consumption was 1,941,000 gallons using 5.5 lbs. of chlorine.

MAINLINE LEAKS were repaired at the following locations:

Poplar & Franklin	915 N Main	300 Blk. W Clark
1000 Blk E Terry	330 N 12th	726 W Whitman

47 NEW SERVICE LINES were installed at the following locations:

Sagewood Hills Subd.	5249 Mohawk	(1")
45-3/4" lines	335 E Center (in basement)	(3/4")

3 SERVICE LINES were RENEWED at the following locations:

217 S Johnson	765 Bryan	284 Hyde

8 SERVICE LINES were REPAIRED at the following locations:

406 N 8th	976 Nixon	729 W Center
1100 E Poplar	4976 Clearview	1129 N Main
862 Randolph	1812 E Clark	

FIRE HYDRANT M. & O.

Pearl & Willard	- Replace "O" Ring and top gasket
Willard & McCormack	- " " " "
Griffith & Margaurite	- " " " "
Jane & Ammon	- " " " "
Alameda at Shakeys	- " " " "
Chapel & Willard	- " " " "
Main & Center	- Repair Stem

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WATER DEPARTMENT MONTHLY REPORT

FEBRUARY - 1977

MAINLINE WORK CONSISTED OF:

Continued laying pipe from above Butte St. down under Interstate 15:
Pipe: Lay 666 ft. 18" pipe

Booster #1 Indian Hills - 136 Hours
Booster #2 Indian Hills - -0- Hours
Cree Indian Hills - 73 Hours

During the month of February 209,996,000 gallons of water was consumed from the system or 7,499,847.14 gallons per day were secured from the following sources:

	GALLONS CONSUMED	LBS. OF CHLORINE
Surface Supplies	98,612,000	288.0 ✓ 744
Well # 2	45,588,000	142.5
Well #27	11,041,000	36.5
Well #28	6,929,000	20.0
PIP # 1	47,826,000	144.5
TOTAL	209,996,000	~~631.~~5 1375.5

This figure is 5,841,000 more than last February. Based on the 1975 population figure of 42,565 there was 176.20 gallons of water per person per day secured from the system.

Airport consumption was 1,558,000 gallons using 5.5 lbs. of chlorine.

15 MAINLINE LEAKS were repaired at the following locations:

1524 E Lander	2300 S 2nd	Yellowstone & Quinn Rd.
900 Blk. So. 4th	914 W Eldredge	580 W Clark
917 W Center	902 S Grant	231 S 8th
400 Blk. Jefferson	358 N Grant	590 Randolph
1134 Yellowstone	246 Taft	Walnut between Willard and Washington

5 NEW SERVICE LINES were installed at the following locations:

5161 Bannock Hwy.	(3/4")	4313-15 Iris	(1")	4303-05 Iris	(1")
943-45 Buchanan	(1")	1449 N Arthur	(3/4")		

7 SERVICE LINES were RENEWED at the following locations:

431 S 9th	(½")	285 Randolph	(½")	E. Village	(4")
405 N 10th	(½")	316 N 10th	(½")	345 N 10th	(½")
931 Gray	(½")				

22 SERVICE LINES were REPAIRED at the following locations:

747 N Garfield	580 W Clark	4040 Diablo
121 Fullerway	2460 S 2nd	Appaloosa & Butte
3811 Jason	Pol line & Cedar	358 N Grant
2020 Horizon	2745 Lois Ln.	590 Randolph
2nd & Stansbury	120 S 11th	1100 Yellowstone
1039-41 Redwood	1043-45 Redwood	B-5,L-25 E. Village
B-1, L-10&12 Ranier Dr.	B-5, L-10 Ranier Dr.	B-3,L- 4 E. Village

WATER DEPARTMENT MONTHLY REPORT

March - 1977

MAINLINE WORK CONSISTED OF:

Continued laying pipe from I-15 to McKinley (N.E. Water Improvement Project)
Pipe: Lay 2,884 ft. 18" pipe Valves: 1 - 18" B.F. valve
Install 1 - 90° Elbow
Well #2 - Installed 2-1" gate valves Hook-up new control panel #10 Well Hous
Booster #1 Indian Hills - 151 Hours
Booster #2 Indian Hills - -0- Hours
Cree Indian Hills - 82 Hours

During the month of March 233,296,000 gallons of water was consumed from the system or 7,530,225.81 gallons per day were secured from the follwoing sources:

	GALLONS CONSUMED	LBS. OF CHLORINE
Surface Supplies	109,134,000	320.5 + 819
Well # 2	50,729,000	156.5
Well #27	12,732,000	40.5
Well #28	8,416,000	24.0
PIP # 1	52,285,000	159.5
TOTAL	233,296,000	7~~01.~~0 1520

This figure is 20,709,000 more than last March. Based on the 1975 population figure of 42,565 there was 176.91 gallons of water per person per day secured from the system.

Airport consumption was 1,370,000 using 4.5 lbs. of chlorine.

9 MAINLINE LEAKS were repaired at the following locations:

345 N 10th	Garrett Way & Colo.	Willard & Walnut
Airport to Trap Club	300 Blk. S. 1st.	Carson St. Bridge
Bench Road	954 S 4th	

59
~~55~~ NEW SERVICES were installed at the following locations:

4044 McDougall	(3/4")	Riverside Golf Course	(1")	3938 McDougall	(1")
4050 McDougall	(3/4")	2235 Poc. Cr. Rd.	(1")	1180 Freeman	(1½")
Sagewood Hills 29-3/4" lines		1355 Pershing	(3/4")	1183 Freeman	(1")
		5125 Pinyon	(3/4")	2227 Poc. Cr.	(1½")
Hiline & McCormack	(3/4")	1180 Freeman	(3/4")	2225 Poc. Cr.	(1½")
Hawthorne Terrace 2- 1¼" lines		Franklin Rd. 4 - 1½"Lines		1120 McKinley 3 - 2" lines	
1735-37 Ardella	(1")	3936-38 Teal	(1")	1100 Poc. Cr. Rd	(4")

4 SERVICE LINES were RENEWED at the following locations:

938 E Lander	(½")	890 Taft	(½")	657 Randolph	(½")
526 W Cedar	(½")				

6842

WATER DEPARTMENT MONTHLY REPORT

April - 1977

MAINLINE WORK CONSISTED OF:

Continued laying pipe on Butte & Bench Rds. (N.E. Water Improvement Proj.)
Pipe: Lay 3,978 ft. 18" pipe — Valves: Install 1-18" B. F. valve
Lay 56 ft. 6" pipe — Install 1- 6" gate valve
Install: 1-90° elbow — Install 3-18"x6" tees
2-22½° elbow
Yellowstone & Cedar: Plug 6" steel line and extend 8" C.I. to property.
700, 800, & 900 Blk. Yellowstone (ALA. Rd. Proj.)--install 3 new Fire Hydrants
Highland Tank: Repair signal cable

Booster #1 Indian Hills - 314 Hours
Booster #2 Indian Hills - 49 Hours
Cree Indian Hills - 180 Hours

During the month of April 385,658,000 gallons of water was consumed from the system or 12,855,266.67 gallons per day were secured from the following sources:

	GALLONS CONSUMED	LBS. OF CHLORINE
Surface Supplies	100,400,000	473.5 + 797
Well # 2	38,427,000	117.5
Well # 3	25,262,000	72.5
Well #10	6,955,000	16.5
Well #12	63,625,000	184.0
Well #16	9,719,000	26.0
Well #18	21,165,000	68.5
Well #21	12,130,000	37.5
Well #22	15,038,000	44.0
Well #27	28,560,000	92.5
Well #28	10,444,000	30.0
Well #29	2,750,000	11.5
PIP # 1	51,181,000	161.0
TOTAL	385,658,000	~~1,335.0~~ 2132.0

This figure is 144,834,000 more than last April. Based on the 1975 population figure of 42,565 there was 302.01 gallons of water per person per day secured from the system.

Airport consumption was 1,553,000 using 6 lbs. of chlorine.

7 MAINLINE LEAKS were repaired at the following locations:

608 Whitman	800 Blk Yellowstone	1672 Poc. Cr. Rd.
1744 Pocatello Cr. Rd.	1856 Pocatello Cr. Rd.	Garret Way & Maple
500 Blk S 7th		

24 NEW SERVICE LINES were installed at the following locations:

1005 Dolbeer	(3/4")	1144 Freeman	(1")	2651 Garrett Way	(1½")
1056 S Main	(3/4")	2833 Bannock Hwy.	(1")	Jason	(2-1½")
755 Aspen	(3/4")	840 E Alameda	(1")	900 Blk. McKinley	(1½")
2049-51 Ardella	(3/4")	350 E Cedar	(1")	Creekside Subdv.	
Jason & Swisher	(2")	958 Lott Rd.	(1")	8-2" serv.	
212-18 Hoffman	(1½")	Hoffman	(1-6" Fire Line)		
220-26 Hoffman	(1½")				

6843

WATER DEPARTMENT MONTHLY REPORT

May - 1977

MAINLINE WORK CONSISTED OF:

Continued laying pipe for N.E. Water Improvement Project:

Butte: Lay 176'- 6" pipe
Install 3-F.H.& valves

Spaulding: Lay 678'-18" pipe

E. Quinn: Lay 1,780'-18" pipe
Install 1 -45° elbow
" 1 -40° elbow
" 1 -90° elbow
" 1 -18" B.F. valve
" 1 - 8" B.F. valve

McKinley: Lay 2,502'-18" pipe
Install 2 -18" B.F. valves
" 1 - 18x12 reducer
" 1 -90° Elbow
" 1 - 18x18x18 tee

McKinley & overpass: Install 1-12x12 tee

Highland Tank: Lay 152'-18" pipe
Tie 18" line into tank

Yellowstone & Chapel: Install F.H.
Replace 6" steel main with cast iron

Yellowstone & Alameda: Move 6" F.H.

Booster # 1 Indian Hills - 212 Hours
Booster # 2 Indian Hills - 134 Hours
Cree Indian Hills - 2 Hours

During the month of May 303,963,000 gallons of water was consumed from the system or 9,805,258.07 gallons per day were secured from the following sources:

	GALLONS CONSUMED	LBS. OF CHLORINE
Surface Supplies	76,915,000	238.0 + 850.5
Well # 2	29,084,000	88.0
Well # 3	41,803,000	124.5
Well #12	47,290,000	143.0
Well #16	1,218,000	3.0
Well #18	7,618,000	25.5
Well #21	5,263,00	18.0
Well #22	12,082,000	37.5
Well #27	22,492,000	66.5
Well #28	8,919,000	20.0
PIP # 1	51,279,000	169.5
TOTAL	303,963,000	~~933.5~~ 1784.0

This figure is 156,423,000 less than last May. Based on the 1975 population figure of 42,565 there was 230.36 gallons of water per person per day secured from the system.

Airport consumption was 2,525,000 using 7 lbs. of chlorine.

3 MAINLINE LEAKS were repaired at the following locations:

Maple & Hyde 1200 E Eldredge 100 Blk. S Johnson

WATER DEPARTMENT MONTHLY REPORT

June - 1977

MAINLINE WORK CONSISTED OF:

Continued laying pipe for N.E. Water Improvement Project:

Lay 886'-18" pipe
658'-12" pipe
30'- 8" pipe
34'- 6" pipe

Install: 1 - 18" B.F. Valve
1 - 12" B.F. Valve
1 - 10" B.F. Valve
1 - 6" G.V.
1 - 6" F.H.

-Tie 18" line into Spaulding Pump House: -

Lay 270'-18" pipe, 72'-12" pipe, 18'- 6" pipe
3 - 12" B.F. Valves
1 - 6" B.F. Valve
3 - 12" Gate Valves
1 - 6" Gate Valve

Replace bearings & pig-tails #3 pump, Freemont Booster Station

Booster # 1 Indian Hills - 275 Hours
Booster # 2 Indian Hills - 41 Hours
Cree Indian Hills - 160 Hours

During the month of June 554,274,000 gallons of water was consumed from the system or 18,475,800 gallons per day were secured from the following sources:

	GALLONS CONSUMED	LBS. OF CHLORINE
Surface Supplies	74,790,000	221.0 + 841
Well # 2	24,468,000	65.5
Well # 3	69,651,000	199.0
Well #10	40,795,000	110.5
Well #12	97,572,000	281.0
Well #16	38,858,000	113.0
Well #18	42,677,000	140.5
Well #21	22,689,000	77.5
Well #22	22,415,000	70.0
Well #27	47,239,000	144.0
Well #28	14,232,000	39.5
Well #29	7,895,000	21.0
PIP # 1	50,993,000	157.0
TOTAL	554,274,000	~~1,639~~.5 2480.5

This figure is 48,893,000 less than last June. Based on the 1975 population figure of 42,565 there was 434.06 gallons of water per person per day secured from the system.

Airport consumption was 3,360,000 using 9 lbs. of chlorine.

12 MAINLINE LEAKS were repaired at the following locations:

2nd & Fredrigill	966 Taney Ln.	5001 Mohawk
133 Fullerway	200 N Grant	18" N. of Highland tank
420 N 10th	303 N Hayes	Willow & Sublette
600 Blk. W Clark	400 Blk. W Clark	Main & Benton

WATER DEPARTMENT MONTHLY REPORT

July - 1977

MAINLINE WORK CONSISTED OF:

Completed N.E. Water Improvement Project:

Reset 18" mainline on Quinn Rd. from Hiline Canal
Sterilized 18" line from Butte to Eldredge

Began laying pipe on Pocatello Cr. Road:

✓Lay	2,004'- 6" pipe	✓ Install 2 - 6" F.H. & tees
✓Install	6 - 6" B.F. valves	Sterilize 6" mainline

Yellowstone & Cedar: Renew 8" line and F.H.

Repair Chlorinator Wells #3 & 24

Booster #1 Indian Hills - 692 Hours
Booster #2 Indian Hills - 122 Hours
Cree Indian Hills - 452 Hours

During the month of July 681,238,000 gallons of water was consumed from the system or 21,975,419 gallons per day were secured from the following sources:

	GALLONS CONSUMED	LBS. OF CHLORINE
Surface Supplies	73,557,000	232.5 + 914
Well # 2	28,925,000	86.0
Well # 3	75,558,000	213.5
Well #10	48,598,000	153.0
Well #12	102,410,000	317.5
Well #16	73,140,000	220.5
Well #18	53,063,000	160.5
Well #21	28,465,000	82.0
Well #22	26,702,000	87.0
Well #27	60,328,000	172.5
Well #28	32,135,000	100.0
Well #29	25,885,000	81.0
PIP # 1	52,470,000	166.0
TOTAL	681,238,000	~~2,042.0~~ 2956.0

This figure is 143,451,000 less than last July. Based of the 1975 population figure of 42,565 there was 516.28 gallons of water per person per day secured from the system.

Airport consumption was 5,141,000 using 13 lbs. of chlorine.

5 MAINLINE LEAKS were repaired at the following locations:

600 Blk. W Cedar	2607 S 2nd.	Johnny Cr. Rd.
600 E. Dunn	McKinley & Z St.	

6846

WATER DEPARTMENT MONTHLY REPORT

August - 1977

MAINLINE WORK CONSISTED OF:

Extend mainline on Jessie St.

✓Lay 324' - 6" pipe
✓Install 2- 6" valves

E. Quinn & Yellowstone

✓ Extend 18" pipe 60' out from 18 x 8 Tee

Well #15

Kill old 6" line into pump station
Install adapter

B.E. Well

Install 12" reducer

Airport

Replace well signal cable

Resevoir

Fix leak on ½" line

Booster #1 Indian Hills - 665 Hours
Booster #2 Indian Hills - 137 Hours
Cree Indain Hills - 411 Hours

During the month of August 613,105,000 gallons of water was consumed from the system or 19,777,580.65 gallons per day were secured from the following sources:

	GALLONS CONSUMED	LBS. OF CHLORINE
Surface Supplies	58,686,000	201.5 + 875
Well # 2	30,291,000	82.0
Well # 3	60,112,000	179.0
Well #10	47,408,000	123.5
Well #12	100,495,000	299.0
Well #16	72,491,000	224.5
Well #18	44,836,000	134.5
Well #21	25,152,000	81.5
Well #22	23,759,000	76.5
Well #27	55,672,000	158.5
Well #28	28,172,000	86.0
Well #29	13,922,000	31.5
PIP # 1	52,109,000	162.5
TOTAL	613,105,000	~~1,840.5~~ 2715.5

This figure is 59,297,000 more than last August. Based on the 1975 population figure of 42,565 there was 464.64 gallons of water per person per day secured from the system.

Airport consumption was 3,479,000 gallons using 10 lbs. of chlorine.

10 MAINLINE LEAKS were repaired at the following locations:

1400 Blk. S 3rd.
Frontage Rd.
McKinley
1419 ElRancho
800 Blk. S 3rd.
960 Taney
1242 N Main
1300 N Main
1200 E Maple
900 Santa Anita

6847

WATER DEPARTMENT MONTHLY REPORT

September - 1977

MAINLINE WORK CONSISTED OF:

Extend mainline at end of Yellowstone Ave.

60' + Lay 2,262' - 8" pipe
Install 3 - 8" B.F. valves
Lay 18' - 6" pipe
Install 1 - 6" gate valve
Install 1 - 6" Fire Hydrant

Install #1 & 2 Boosters, Well #31 put into service

Repair signal cable Highland Booster

Drain Well #29 for winter

East Village - Turn 18" valves on

Booster #1 Indian Hills - 563 Hours
Booster #2 Indian Hills - 91 Hours
Cree Indian Hills - 285 Hours

Extend mainline Montevista

Lay 658' - 6" pipe
Install 2- 6" valves
Renew 6" line (Lucille)
Put line into service

Jason St. - Mainline

Lay 468'-12" pipe
Install 2-12" B.F. valve
Lay 22'- 6" pipe
Tie 6" into 12" line from well
Cut & plug 6" steel line (North)

Replace chlorine auxilary valve and line at #2

During the month of September 424,919,000 gallons of water was consumed from the system or 14,163,966.67 gallons per day were secured from the following sources:

	GALLONS CONSUMED	LBS. OF CHLORINE
Surface Supplies	59,832,000	199.0 + 894.5
Well # 2	33,674,000	103.5
Well # 3	23,971,000	52.0
Well #10	21,606,000	53.0
Well #12	69,122,000	213.0
Well #16	45,539,000	145.5
Well #18	24,202,000	79.0
Well #21	14,792,000	58.5
Well #22	19,200,000	57.5
Well #27	38,745,000	113.0
Well #28	23,356,000	75.5
Well #29 (drained for winter)	2,869,000	10.0
PIP # 1	48,011,000	164.5
TOTAL	424,919,000	~~1324.0~~ 2218.5

This figure is 49,065,000 less than last September. Based on the 1975 population figure of 42,565 there was 332.76 gallons of water per person per day secured from the system.

Airport consumption was 2,824,000 gallons using 8 lbs. of chlorine.

WATER DEPARTMENT MONTHLY REPORT

October - 1977

MAINLINE WORK CONSISTED OF:

HUD Project on Jason St.

Sterilize 12" mainline & flush off
Replace blown out plug
Cut & plug abandoned 6" line

Replace"O" ring & stem on pump valve at Barton Station
Repair signal cable on Butte & Douglas

Drain for winter: Well #3, 12,21,22

Booster #1 Indian Hills - 637 Hours
Booster #2 Indian Hills - 49 Hours
Cree Indian Hills - 237 Hours

So. Grant Extension

✓Lay 2,556' - 8" pipe
✓Install 2 - 8" B.F. valves
✓Install 1 - 8" M.J. plug
✓Lay 35' - 6" pipe
✓Install 2 - 6" F.H. valve
✓Install 2 - 6" Fire Hydrant
Install 1-8 on 12" tap tee & valve

During the month October 271,812,000 gallons of water was consumed from the system or 8,768,129.03 gallons per day were secured from the following sources:

	GALLONS CONSUMED	LBS. OF CHLORINE
Surface Supplies	65,890,000	205.5 + 919.5
Well # 2	48,066,000	144.0
Well #16	35,142,000	112.0
Well #18	66,749,000	196.0
Well #21 (drained for winter)	645,000	3.0
Well #27	25,674,000	79.5
Well #28	18,581,000	56.5
PIP # 1	11,065,000	22.0
TOTAL	271,812,000	~~818.5~~ 1,738.0

This figure is 9,308,000 less than last October. Based on the 1975 population figure of 42,565 there was 205.99 gallons of water per person per day secured from the system.

Airport consumption was 2,839,000 using 7 lbs. of chlorine.

7 MAINLINE LEAKS were repaired at the following locations:

10th & Lewis	10th & Bonneville	28 Willowood
Iris	Samuel	Pocatello Cr. Rd.
900 Blk. Willow		

48 NEW SERVICES were installed at the following locations:

Stockman Subd. 11-3/4"	2845 Poleline	1½"	4280 Yellowstone	4"
	1813 Cottage	1"	4020 Yellowstone	1"
Evergreen Heights 16-3/4"	2645 So. 2nd	3/4"	1080 So. 1st	1"
	1002 E. Poplar	1½"	3559 Jason	1"

WATER DEPARTMENT MONTHLY REPORT

November - 1977

MAINLINE WORK CONSISTED OF:

Sterilized 8" on So. Grant Ext.
Plugged 8" line at Bannock Hwy. and Donrich out of Anderson Well, ran temporary line to houses.

Blown fuses on Jockey pump, trouble shooting system to Jockey pump.
Repair micro switch @ Well #27.

Booster #1 Indian Hills - 406 Hours
Cree Indian Hills - 102 Hours

During the month of November 204,646,000 gallons of water was consumed from the system or 6,821,533.33 gallons per day were secured from the following sources:

	GALLONS CONSUMED	LBS. OF CHLORINE
Surface Supplies	65,620,000	186.5 816
Well # 2	41,604,000	126.0
Well #16	13,399,000	44.5
Well #18	64,887,000	211.0
Well #28	12,201,000	39.5
PIP # 1	6,935,000	21.5
TOTAL	204,646,000	629.0 1445.0

This figure is 35,908,000 less than last November. Based on the 1975 population figure of 42,565 there was 160.26 gallons of water per person per day secured from the system.

Airport consumption was 2,072,000 using 6 lbs. of chlorine.

7 MAINLINE LEAKS were repaired at the following locations:

1200 Ridge	9th & Custer	1003 Diablo
Industrial Lane	Butte & Douglas	1200 E. Poplar
Mink Creek		

62 NEW SERVICES were installed at the following locations:

1510 Bench 3-2"		Surry Ridge Subd. 50-3/4"		566 Randolph	3/4"
1120 Yellowstone	3/4"	1531 Chokecherry	3/4"	932 Lott Rd.	3/4"
1022 Dolbeer	3/4"	4685-87 Navajo	1"	920 Lott Rd.	3/4"
1811 So. 2nd	1"			1261 Wilson	1"

8 SERVICE LINES were RENEWED at the following locations:

238 McKinley	4098 Donrich	42 So. Tech Farm

6850

WATER DEPARTMENT MONTHLY REPORT

December - 1977

MAINLINE WORK CONSISTED OF:

Place new packing and gaskets on small Freemont Booster.

Replace leather gaskets in 30AWR Ross valve at reservoir.

Replace relay on Spaulding signal system.

Booster #1 Indian Hills - 215 Hours
Booster #2 Indian Hills - 0 Hours
Cree Indian Hills - 93 Hours

During the month of December 209,025,000 gallons of water were consumed from the system or 6,742,741.94 gallons per day were secured from the following sources:

	GALLONS CONSUMED	LBS. OF CHLORINE
Surface Supplies	76,125,000	202.5 + 693.0
Well # 2	48,092,000	141.5
Well #18	70,500,000	223.0
Well #28	8,005,000	25.5
PIP # 1	6,303,000	21.0
TOTAL	209,025,000	1,306.5

This figure is 17,692,000 less than last December. Based on the 1975 population figure of 42,565 there was 158.41 gallons of water per person per day secured from the system.

Airport consumption was 2,135,000 using 7 lbs. of chlorine.

5 MAINLINE LEAKS were repaired at the following locations:

5th & Clark	Cactus (2)	Fern & Alameda
929 Northgate		

30 NEW SERVICES were installed at the following locations:

268 Cottonwood	(3/4")	800 Yellowstone	(1½")	1219 Yellowstone	(1")
275 Melrose	(3/4")	1066 Yellowstone	(3-2")	Hilton Inn	(4")
5056 Mahagony	(3/4")	747 N Johnson	(1")		
Syringa 1st 20-3/4"					

2 NEW FIRE LINES were put in at the following locations (City made taps only)

Hilton Inn	(6")	202 So. 5th	(4")

6851

WATER DEPARTMENT MONTHLY REPORT

January 1978

MAINLINE WORK CONSISTED OF:

Booster #1 Indian Hills-219 Hrs.
Booster #2 Indian Hills- 0 Hrs.
Cree Indian Hills- 95 Hrs.

Began laying pipe on Johnny Creek Rd.

Pipe: Lay 990' - 12" pipe
Make 12" x 12" tap

Replace 3/4" line at Creek basin chlorinator

Repair signal cable to Highland Tank

Pull 800' signal cable into TV Cable conduit

During the month of January 213,649,000 gallons of water were consumed from the system or 6,891,903.23 gallons per day were secured from the following sources:

	GALLONS CONSUMED	LBS. OF CHLORINE
Surface Supplies	77,520,000	209.5 + 659
Well # 2	48,753,000	139.5
Well #18	71,300,000	220.5
Well #28	8,082,000	25.0
PIP # 1	7,994,000	26.5
TOTAL	213,649,000	1,280.00

This figure is 505,258.06 less than last January. Based on the 1975 population figure of 42,565 there was 161.91 gallons of water per person per day secured from the system.

Airport consumption was 3,174,000 gallons using 8 lbs. of chlorine. 25

4 MAINLINE LEAKS were repaired at the following locations:

192 Charles Pl.
McKinley & Z Street -(18" trans. line)
So. Von Elm -(14" trans. line torn out by contractor)
Oakland

18 NEW SERVICES were installed at the following locations:

Maryzelle Subdv. 11-3/4"
1756 Hawthorne 2-3/4"
585 Washington (3/4")
371-73 Foothill (1")
2350 Loaine (1")
2326-28 Darrell Loop (1")
1755 Jean (1")

2 SERVICES were RENEWED at the following locations:

925 E. Custer (½")
142 Franklin (3/4")

12 SERVICES were REPAIRED at the folowing locations:

275 Melrose (2 times)
948 N. 10th
600 So. 3rd.
192 Charles Pl.
765 Balsam
1636 Troy
1415 Bench Rd.
304 Northland
736 N. 8th
316 So. 9th
3246 So. 5th

6852

WATER DEPARTMENT MONTHLY REPORT

February 1978

MAINLINE WORK CONSISTED OF:

Booster #1 Indian Hills-178 Hrs.
Booster #2 Indian Hills- 0 Hrs.
Cree Indian Hills- 73 Hrs.

Laying pipe on Johnny Creek Rd.

Pipe: Lay 2,124' - 12" 2' - 6"
Install 2 - 12" BF valves
1 - 6" gate valve
1 - 6" BF valve
1 - 12x12x6 tee

Overhaul chlorinator @ #10

Pull Well #31, install 85'-14" suction casing, 85'-chlorinator hose. Run test for 35 minutes.

Started construction on Johnny Creek Booster station.

During the month of February 196,951,000 gallons of water were consumed from the system or 7,033,964.28 gallons per day were secured from the following sources:

	GALLONS CONSUMED	LBS. OF CHLORINE
Surface supplies	72,240,000	208 + 632
Well # 2	44,135,000	122
Well #18	64,400,000	187
Well #28	8,089,000	22.5
PIP # 1	8,087,000	27.5
TOTAL	196,951,000	1,199.00

This figure is 13,045,000 less than last February. Based on the 1975 population figure of 42,565 there was 165.25 gallons of water per person per day secured from the system.

Airport consumption was 2,562,000 gallons using 5.5 lbs. of chlorine.

5 MAINLINE LEAKS were repaired at the following locations:

1005 So. 4th	1500 So. 2nd	Alameda Rd.
8th & Center (12")	300 So. 1st (10")	

2 NEW SERVICES were installed at the following locations:

1641 Chokecherry	(3/4")	181 Industrial Lane	(3/4")

6 SERVICES were RENEWED at the following locations:

966 Taney	(3/4")	247 Myrl	(3/4")	635 E. Benton	(½")
421 N. 8th	(3/4")	2535 S. 2nd	(½")	360 Pershing	(½")

10 SERVICES were REPAIRED at the following locations:

963 Diablo	2257 Diane	1041 N. Garfield	308 E. Lawton
1269 W. Alameda	1520 Kinghorn	1345 Hiline	
1004 S. 4th	422 N. 10th	2647 S. 2nd	

6853

WATER DEPARTMENT MONTHLY REPORT

March 1978

MAINLINE WORK CONSISTED OF:

Laying Pipe on Johnny Creek Rd., Sunset & Juniper Hill Rd.

Pipe:	Lay 4,230'-12" pipe	Install:	5-12" B.F. Valves
	8'- 6" pipe		4- 6" B.F. Valves
			1-12x12x6x6 M.J. cross
			1-12x6x12 Tee
Booster #1 Indian Hills - 208 Hrs.			1-12" Reducer
Booster #2 Indian Hills - -0- Hrs.			1-12x12 Tee
Cree Indian Hills - 79 Hrs.			1-12x12x12 Tee

Laying pipe for Portneuf Towers - W. Day & Gould Streets

	Lay 450'- 8" pipe	Install:	1- 8" B.F. Valve
	1'- 6" pipe		1- 6" B.F. Valve
	1'- 4" pipe		1- 4" B.F. Valve
			1- 8x8x4 Tee
(Tie into old 8" line.)			1- 8x8x6 Tee

Well #2, Ross Park; Fix leak on flair on service line to well.

Disassemble Well #31 and pull.

W. Day St.- Repair broken 6" drain pipe

Install new packing in pump, Replace upper & lower bearing and rewind motor at PIP.

Replace 6" chlorine line at feed line.

Replace chlorinator at Well #22.

Remove chlorinator at Well #16.

During the month of March 230,660,000 gallons of water were produced from the system or 7,440,645.16 gallons per day were secured from the following sources:

	GALLONS CONSUMED	LBS. OF CHLORINE
Surface Supplies	73,445,000	247 + 568
Well # 2	49,600,000	147.5
Well #16	19,353,000	58.5
Well #18	71,303,000	222.0
Well #28	9,073,000	28.5
PIP # 1	7,886,000	27.0
TOTAL	230,660,000	1,298.5

This figure is 2,636,000 less than last March. Based on the 1975 population figure of 42,565 there was 174.81 gallons of water per person per day secured from the system.

Airport production was 2,484,000 gallons using 6.5 lbs. of chlorine.

WATER DEPARTMENT MONTHLY REPORT

April 1978

MAINLINE WORK CONSISTED OF:

Laying Pipe on Johnny Creek Rd., Lance Dr. & Juniper Hill Rd.

Pipe: Lay 1,080'-12" pipe
10'- 6" pipe

Install: 6-12" B.F. Valves
2- 6" B.F. Valves

W. Quinn @ Well #32:

Pipe: Lay 54'- 8" D.I.
Tie into well line
Make 8" x 12" tap

Booster #1 Indian Hills = 275 Hrs.
Booster #2 Indian Hills = 0 Hrs.
Cree Indian Hills = 110 Hrs.

Replace 1000' signal cable @ Airport
Change bearings #10 & #12 meters
Test run Well #31 8 times
Sterilize 8" line from Gould St. to Day St.
Test run Well #32
Install valve on chlorinator @ Well #32
Start Well #22

During the month of April 263,057,000 gallons of water were produced from the system or 8,768,566.67 gallons per day were secured from the following sources:

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	56,280,000	199.0
Well # 2	48,162,000	144.0
Well #16	65,865,000	205.5
Well #18	30,467,000	89.5
Well #22 (started 4-19)	5,817,000	21.5
Well #28	10,068,000	33.5
Well #32	33,914,000	121.5
PIP # 1	12,484,000	44.0
TOTAL	263,057,000	858.5

This figure is 4,086,700 less than last April. Based on the 1975 population figure of 42,565 there was 206 gallons of water per person per day secured from the system.

Airport production was 3,189,000 gallons using 7 lbs. of chlorine. 60 ma/ams

80 NEW SERVICES were INSTALLED at the following locations:

Crestview Subdivision
14-3/4"
8- 1"
Surrey Ridge
22-3/4"
1- 1"

Indian Hills 6th Subdv.
25- 1"
1410 Lavine (3/4")
1412 Lavine (3/4")
598 Willard (3/4")
1040 So. Main (3/4")

2121 Colonial (3/4")
2722 Kristen (3/4")
610 W. Pine (3/4")
1221 Lilac (3/4")
950 Dolbeer (2")
144 Wilson (4")

WATER DEPARTMENT MONTHLY REPORT

May 1978

MAINLINE WORK CONSISTED OF:

Laying Pipe up Johnny Creek Rd. to new Johnny Cr. Tank

Pipe: Lay:	108'-12"	pipe	Install:	4-12" valves @ tank
	2,070'- 8"	pipe		1-12" B.F. valve @ Booster
	44'- 6"	pipe		3- 6" B.F. valves
	100'-10"	pipe		4- 8" B.F. valves
	200'- 2"	plastic pipe for vault drains @ tank		3- 6" Fire Hydrants
				1-10" Valve
				2- 8" Tees

Start #12 & 21
Repair power line at reservoir
Pull well #27
Install new oriface plate well #32
Hook 10" line to 18" @ well #27
Start well #29
Tied into Johnny Cr. Tank

Booster #1 Indian Hills = 535 Hrs.
Booster #2 Indian Hills = 27 Hrs.
Cree Indian Hills = 211 Hrs.

During the month of May 347,200,000 gallons of water were produced from the system or 11,200,000 gallons per day were secured from the following sources:

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	59,300,000	203.0
Well # 2	48,062,000	141.5
Well # 3	9,715,000	17.0
Well #12	37,287,000	114.5
Well #16	68,693,000	202.0
Well #18	9,963,000	33.5
Well #21	7,754,000	31.5
Well #22	13,927,000	42.0
Well #28	16,968,000	50.0
Well #29	2,014,000	5.0
Well #32	56,922,000	188.5
PIP # 1	16,595,000	53.0
TOTAL	347,200,000	1,081.5

This figure is 43,237,000 more than last May. Based on the 1975 population figure of 42,565 there was 263.13 gallons of water per person per day secured from the system.

Airport production was 2,731,000 gallons using 6.5 lbs. of cholrine.

3 MAINLINE LEAKS were repaired at the following locations:

20th & Bonneville (trans. line) 730 W. Bonneville 1030 Sage

6856

WATER DEPARTMENT MONTHLY REPORT

June 1978

MAINLINE WORK CONSISTED OF:

Johnny Creek Rd.
Pipe Lay: 686'-8" pipe, 638'-6" pipe. Installed: 1-8" M.J. valve, 2-6" B.F valves, 3-6" Valves, 2-6" Fire hydrants, 2-6" Tees, signal cabel from vault to Johnny Creek Booster, suction override and gauges-Johnny Cr. Booster, 1-P.R. valve. Tie new 6" into old 6" east of sunset. Tie into 6" cross @ Juniper Hill and Shane, Tie in 4" line @ Shane. Tie in 8" into old 6" @ Johnny Cr. and College. Install mercoids Johnny Cr. tank. Paint Johnny Cr. Tank, repaired leak on bell @ Well yard.

6" on 12" tap to install Fire Hydrant-Johnny Cr. and Sunset, 6" on 6" tap-hook into old line Johnny Cr.-So. of College, 6" on 12" tap to install Fire Hydrant @ 1400 Sunset. 6" on 12" tap @ Juniper Hill Dr. and Lance. Sterilized 12" Johnny Cr. Hooked up orifice line, reversed orifice plate on 12" line @ pump st.. Start Johnny Cr. Booster.

Booster # 1 Indian Hills= 335 Hrs., Booster # 2 Indian Hills= 58 Hrs., Cree Indian Hills= 185 Hrs.

Plug old 6" line thru Railroad Tracks. Plugged -2nd & Lovejoy. 8" on 12" tap @ 2nd & Lovejoy. Sterilized 6" @ So. 3rd.

During the month of June 649,878,000 gallons of water was produced from the system or 21,662,000 gallons per day produced from the following sources:

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	78,890,000	243.5
Well # 2	33,862,000	100
Well # 3	67,366,000	192
Well # 10	38,752,000	123
Well # 12	83,124,000	247
Well # 16	64,573,000	190.5
Well # 18	33,976,000	107
Well # 21	17,459,000	48.5
Well # 22	22,187,000	64
Well # 27	25,802,000	95
Well # 28	31,481,000	97
Well # 29	55,865,000	157
Well # 32	63,000,000	176
PIP # 1	33,538,000	106
	649,878,000	1,946.5

This figure is 95,604,000 more that last June. Based on the 1975 population figure of 42,565 there was 508.93 gallons of water per person per day produced from the system.

Airport production was 3,485,000 gallons using 8.5 lbs. of chlorine.

6857

WATER DEPARTMENT MONTHLY REPORT

July 1978

MAINLINE WORK CONSISTED OF:

Johnny Creek Rd.
Plug 4" main at Johnny Cr. & Juniper-removed cross and tie into old line. Repaired 4" main on Sage Dr. Tied into old line at Cedar Lake and Johnny Cr. Tied into pressure regulator then into old line at Johnny Cactus.Plugged 4" main at 1175 Cactus.

Cree- Indian Hills = 86 Hrs.

So. 3rd.
Pipe Lay: 646' 6" pipe. Installed: 2- 6" B.F. Valves, 1 6" F.H.,3rd & Putnman plug in tap, 3rd & Dunn plug in tap. Repaired leak on main (3rd & Sutter) used 2- 4" Solid sleeves, 3' 4" C.I.

Hawthorne.
Pipe Lay: 1,268' of 6" pipe. Installed: 1-6" valve, 1-6" Fire Hydrant Valve, 3-6" Fire hydrants, 2-6" Tees, 2-6" Butterfly Valves, 1-6"M.J. flanged valve, 1-6" Tyton joint plug.6" on 12" Chlorine tap, 3/4" chlorine tap.

Well 15
Set up 12" pipe out of well and orifice vault(54'pipe). Installed-Orifice plate in vault for meter, 1-12x12 cast steel coupling in orifice vault. Dug and put in footing for vault.

Sagewood Hills.
Made 2- 3/4" Chlorine taps.

During the month of July 811,559,000 gallons of water was produced from the system or 26,179,323 gallons per day produced from the following sources:

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	63,685,000	288.5
Well #2	42,209,000	121.5
Well #3	69,279,000	193
Well #10	80,615,000	243.5
Well #13	103,170,000	306.5
Well #16	65,038,000	200
Well #18	45,888,000	147.5
Well #21	21,923,000	70
Well #22	29,741,000	81
Well #27	38,383,000	116
Well #28	42,288,000	132
Well #29	63,961,000	176
Well #32	65.100.000	203
PIP #1	44.354,000	131.5
Well #6	35,925,000	0
	811,559,000	2,410

This figure is 130,321,000 more than last July. Based on the 1975 population figure of 42,565 there was 615.04 gallons of water per person per day produced from the system. Airport production was 4,606,000 gallons using 8 lbs. of chlorine.

6 MAINLINE LEAKS were reapired at the following locations:
1234 E. Alameda (Tendoy School), 1168 W. Eldredge, King St.(Keebler Co), 419 E. Dunn, 2500 Blk. So. 2nd.& 3rd. & Sutter.

6858

WATER DEPARTMENT MONTHLY REPORT

August 1978

MAINLINE WORK CONSISTED OF:

Booth Road: 6" on 8" tap. Layed 9' of 6" pipe. Installed: 6" tapping valve, 6" P.S. Fire Hydrant, 1-6x8 tapping tee.

South 3rd: Installed 10" M.J. cross, 2-10" x 6" M.J. reducers, 10" solid sleeve, 2 6" solid sleeves. Pipe layed: 82' of 6" pipe, 12' of 12" steel pipe. Repaired storm sewer. Raised valve boxes knocked down by street department.

Warren: Removed old service. Pipe Layed: 1,278' of 6" pipe. Installed: 1-6"steel coupling 1-6" butterfly valve, 1-6" M.J. tee for fire hydrant, 1-6" M.J. valve, 2-6" M.J. plugs, 1-6" fire hydrant.Made chlorine tap.

Hi-Line: Made 8" on 8" tap. Installed 1-8" valve, 1-8" tapping tee. 3/4" chlorine tap.

Boise Cascade @ Airport: Made 6" on 6" tap for fire line.

Cree-Indian Hills- 68 Hours.

During the month of August 723,653,000 gallons of water was produced from the system or 23,343,645 gallon per day produced from the following sources:

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	54,978,000	286.5
Well #2	33,384,000	97
Well #3	70,825,000	214
Well #4	33,915,000	0
Well #10	74,521,000	189.5
Well #12	95,399,000	297
Well #16	69,487,000	217.5
Well #18	31,987,000	105.5
Well #21	18,049,000	56
Well #22	24,135,000	64.5
Well #27	32,257,000	108.5
Well #28	35,112,000	108
Well #29	43,920,000	125
Well #32	65,900,000	200
PIP #1	39,784,000	119
	723,653,000	2,188

This figure is 110,548,000 more than last August. Based on the 1975 population figure of 42,565 there was 548.42 gallons of water per person per day produced from the system.

Airport production was 3,899,000 gallons using 6 lbs. of chlorine. 31 manhours.

7 MAINLINE LEAKS were repaired at the following locations.
So. grant & Idaho, Maple & Filmore, Cactus Dr., Sage Dr., 400 Block Taft, 153 Valleyview, 556 Randolph.

WATER DEPARTMENT MONTHLY REPORT

September 1978

MAINLNE WORK CONSISTED OF:

AIRPORT (AGRICULTURE BUILDING):Killed 2" galvinized line at main.

WARREN: Tie new 6" pipe into 8" steel. Material used: 1-6" Ell, 1-8" M.J. tee, 2-8" couplings.
CHEYENE & BANKOCK HIGHWAY: Made a 6" on 8" tap. Pipe layed: 54' of 6", 2,880 ' of 10", 60' of 12". Installed: 1-6" tapping tee and valve, 1-10"solid sleeve, 1-10" M.J. reducer, 3-10" butterfly valves, 1-12" M.J. reducer, 1-12" plug, 1-12" tee.
986 E. POPLAR: Repaired 4" steel main. Pipe layed: 4' of 4". Installed: 2-4" steel couplings.
CREE: 34 Hours.

During the month of September 394,238,000 gallons of water was produced from the system or 13,141,267 gallons per day produced from the following sources:

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	50,419,000	226
Well #2	41,138,000	125.5
Well #3	14,289,000	38
Well #4	11,125,000	---
Well #10	23,994,000	68
Well #12	58,809,000	186
Well #16	43,084,000	140
Well #18	3,165,000	11
Well #21	8,799,000	30
Well #22	15,388,000	48
Well #27	17,340,000	61
Well #28	22,591,000	71
Well #29	4,902,000	17.5
Well #32	61,744,000	179.5
PIP #1	17,451,000	53
	394,238,000	1,259.5

This figure is 30,681,000 less than last September. Based on the population figure of 42,565 there was 308.73 gallons of water per person per day produced from the system.

Airport production was 3,677,000 gallons using 6.5 lbs. of chlorine. 30 manhours.

6 MAINLINE LEAKS were repaired at the following locations.

So. Grant (Well Yard)	Ross Park (Upper end)	469 Randolph
900 Blk. Of Wayne	7th & Benton	Alameda & Jefferson

Pipe Layed: 10' of 4", 1 length of 10". Installed: 2-4" steel couplings, 2-4" solid sleeves, 2-10" sleeves.

6860

WATER DEPARTMENT MONTHLY REPORT

October 1978

MAINLINE WORK CONSISTED OF:

Bannock Highway: Installing new water main. Pipe layed: 3606 feet of 12" pipe, 20 feet of 6" D.I. pipe. Installed: 6-12" Butterfly valves, 4-12" M.J. tees, 2-6" Butterfly valves, 1-6" M.J. plug, 1-valve box, 1-12" x 6" M.J. tee, 1-12" Tyton plug, 1-12" push in plug. Made one 3/4" chlorine tap.

Bench Rd. & Shetland: Made a 6" on 6" tap. Installed: 6" mueller gate valve, 1- mueller tapping tee. Made a 3/4" sterilization tap. Material used: 1-3/4" corp. stop.

Hawthorne Rd: Layed 378' of 6" pipe. Installed: 1-6" Butterfly valve, 1-6" P.S. fire hydrant, 1-6" M.J. 90° Ell.

500 Block on Wilson: Repair leak on bell.

1000 Block North 9th: Repair mainline leak: Material used: 2-4" solid sleeves. Layed 5 feet 4" of C.I. pipe.

1100 East Terry: Repair mainline leak: Material used: 2-6" solid sleeves, 3feet of C.I. pipe.

Cree-Indian Hills: 17 hrs.

Maintain pumps.

During the month of October 359,034,000 gallons of water was produced from the system or 11,581,742 gallons per day produced from the following sources:

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	47,779,000	243.5
Well #2	49,238,000	143
Well #4	15,517,000	---
Well #10	9,710,000	27
Well #12	37,452,000	113
Well #16	48,078,000	155.5
Well #21	8,349,000	32
Well #22	15,231,000	49
Well #27	17,538,000	60
Well #28	20,922,000	66.5
Well #32	59,154,000	192.5
PIP Well #1	17,294,000	50.5
Cree Well	12,772,000	---
	359,034,000	1132.5

This figure is 87,222,000 more than last October. Based on the population figure of 42,565 there was 272.10 gallons of water per person per day produced from the system.

Airport production was 3,095,000 gallons using 5.5 lbs. of chlorine. 32 manhours.

61 NEW SERVICES were installed at the following locations:

Surrey Ridge 1st addition: 57 all 3/4"
5175 Bannock Highway (3/4")
2490 Bannock Highway (1")
1377 W. Quinn (1")
630 Washington (3/4")

WATER DEPARTMENT MONTHLY REPORT

November 1978

MAINLINE WORK CONSISTED OF:

HIGHWAY 30 WEST: Installing new water main. Pipe layed: 3247' of 6" pipe. Installed: 2-6" Pacific States fire hydrants, 5-6" M.J. butterfly valves, 2-6" flanged M.J. fire hydrant valve, 1-6" push in plug, 8-valve boxes, 1-4" tapping valve, 1-4"x 4" tapping tee, 1-4"x 6" M.J. reducer. Made a 4" on 4" tap.

MOHAWK & CLEARVIEW: Cut and plug 6" line. Plug 6" line at Clearview booster. Cut and plug 8" line, Plug 8" line at Clearview booster. Materials used: 1-6" M.J. solid sleeve, 1-6" M.J. plug, 2-8" Tyler push in plugs.

SHETLAND HEIGHTS: made 4-3/4" taps and 6-1" taps.

VELTON: Made a 6" on 6" tap. Pipe layed: 9' of 6" pipe. Installed: 1-6" tapping valves, 1-6" Pacific States fire hydrant.

72 STANFORD: Made a 4"on 4" tap. Pipe layed: 13' of 4" pipe. Installed: 1-4" tapping valves, 1-4" tapping tee, 1-4" fire hydrant.

1400 HAWTHORNE: Made 1-3/4" Chlorine tap on 6" main.

BANNOCK HIGHWAY: Put 12" plug back in line.

2445 SO. 5th: Installed 4" fire line tap. Material used: 1-16"x 4" Smith Blair tapping tee, 1-4" Kennedy tapping valve.

During the month of November 227,090,000 gallons of water was produced from the system, or 7,569,666.66 gallons per day produced from the following sources:

	GALLONS PRODUCED	LBS OF CHLORINE
Surface Supplies	45,946,000	185
Well #2	48,442,000	132
Well #4	21,698,000	----
Well #16	11,572,000	36.5
Well #27	7,933,000	27.5
Well #28	10,883,000	33.5
Well #32	58,472,000	182.5
PIP Well #1	7,855,000	24
Cree Well	14,289,000	----
	227,090,000	621

6862

This figure is 22,444,000 more than last November. Based on the population figure of 42,565 there was 177.84 gallons of water per person per day produced from the system.

Airport production was 3,025,000 gallons using 7.5 lbs. of chlorine. 37 manhours.

12 NEW SERVICES were installed at the following locations:

Shetland Heights	Lot 1	(3/4")	Shetland Heights	(2")
Shetland Heights	Lot 2	(3/4")	Shetland Heights	(2")
Shetland Heights	Lot 23	(3/4")	1920 Bonneville	(1")
Shetland Heights	Lot 24	(3/4")	2349 Bannock Highway	(3/4")
1451 Cottage		(3/4").	200 So. Main (deduct)	(1")
4331 Hawthorne		(1")	Bannock Highway Country Club.	(1½")

10 SERVICES were RENEWED at the following locations:

1241 Jensen	(3/4")	170 So. 9th	(½")
1007 E. Sublette	(½")	467 Park	(3/4")
3400 So. 5th	(1")	933 Meadowbrook	(3/4")
1733 So. 5th	(½")	537 So. Johnson	(3/4")
1334 No. Arthur	(½")	816 No. Garfield	(½")

8 SERVICES were REPAIRED at the following locations:

Shetland Heights	(2")	439 No. 12th	(1")
1429 So. 2nd	(1")	786 Bryan	(3/4")
2065 Kenneth	(3/4")	251 NO. Grant	(3/4")
90 Stanford	(1")	390 Yellowstone-twice	(3/4")

Meter M. & O.

3,284	Meters were read	67	Meters were changed
281	Meters were re-read	24	Meters were installed
85	Meters were repaired	10	Meters were removed
2	Meters were frozen		

Valve M. & O.

Ada & Hiskey: Tore down 6" valves to remove sticks. Installed 2-½" curb cocks to test pressure.

Bannock Highway: Re-set valve box.

Mohawk: Blow out valve box.

3rd & Crescent: Replace wheel valve handle on 2" line.

4th & Clark: Cleaned out main line valve box & replaced lid.

5th & Benton: Replace valve

69 Rosewood: Blow out valve box, Raise to grade.

WATER DEPARTMENT MONTHLY REPORT

December 1978

MAINLINE WORK CONSISTED OF:

HIGHWAY 30 WEST: Tied new 6" line into tee at fire hydrant. Pipe Layed: 54' of 6" pipe. Installed: 1-6" Butterfly vlave, 1-8" x 6" reducer, 1-90^{O} Ell. Made a 3/4" sterilization tap.

SUE ROAD: Pipe Layed: 526' of 6" pipe. Installed: 1-6" Pacific States fire hydrant, 1-6" flanged x M.J. pratt valve, 1-6" M.J. 90^{0} Ell.Made a 6" on 12" tap, hooked up 6" line. Installed: 1-12" x 6" Kennedy tapping tee, 1-6" Kennedy tapping valve, 1-6" M.J. solid sleeve. Made a 3/4" Chlorine tap.

BROADWAY & OPAL: Installed a 1½" gate valve.

Maintained Pumps.

During the month of December 218,747,000 gallons of water was produced from the system, or 7,056,354.84 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS OF CHLORINE
Surface Supplies	44,608,000	708
Well # 2,	50,222,000	137
Well # 4	38,537,000	---
Well # 27	7,428,000	25
Well # 32	61,883,000	191.5
Well # 28	9,829,000	30.5
PIP Well #1	6,224,000	19.5
	218,747,000	1,111.5

This figure is 9,722,000 more than last December. Based on the population figure of 42,565 there was 165.78 gallons of water perperson per day produced from the system.

Airport production was 3,742,000 gallons using 13.5 lbs. of chlorine. 38 Manhours.

6 MAINLINE LEAKS were repaired at the following locations.

Sage Dr., 4912 Mohawk, Roosevelt & Pine, So. 2nd & Bonneville, 300 No. 8th and 838 W. Bridger.

I NEW service was installed at 4747 Clearview. (3/4")

WATER DEPARTMENT MONTHLY REPORT

January 1979

MAINLINE WORK CONSISTED OF:

Unthawing frozen mains in the City area.

Repairing 22 Mainline leaks at the following locations.

Filmore & Maple	3rd & Dunn	941 W. Fremont
1400 So. 3rd	1400 N. Main	300 W. Gould
400 W. Clark	Johnny Creek	1230 So. 2nd
79 Foothill	2864 So. 5th	7th & Clark
529 N. Johnson	525 N. Johnson	605 So. Harrison
Wyeth & Johnson	700 Cypress	3742 Oriole
400 Blk. Jefferson	6th & Lewis	723 W. Lewis
2nd & Benton		

During the month of January 242,333,000 gallons of water was produced from the system, or 7,817,193.55 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS OF CHLORINE
Surface Supplies	45,299,000	706
Well #2	49,508,000	150.5
Well #6	37,173,000	---
Well #16	24,703,000	70
Well #18	3,230,000	28.5
Well #28	10,258,000	30
Well #32	62,034,000	192.5
PIP WELL#1	1,410,000	4
	242,333,000	1,181.5

This figure is 28,684,000 more than last January. Based on the population figure of 42,565 there was 183.65 gallons of water per person per day produced from the system.

Airport production was 3,316,000 gallons using 7 lbs. of chlorine. 36 man hours.

WATER DEPARTMENT MONTHLY REPORT

February 1979

MAINLINE WORK CONSISTED OF:

So. Grant Ext: Dig test holes to check frozen main, unthaw 8" main, cut 4' of 8" pipe and repaired with 2-8" solid sleeves.

8th and Lewis: Repair 8" sewer line.

No. Arthur: Killed old 4" main line.

Alameda & Jefferson: Plug 2" line.

300 Pocatello Ave.: Replace 6" main.

City Area: Unthaw frozen mains.

During the month of February 232,468,000 gallons of water was produced from the system, or 8,302,428.57 gallon perday produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	21,850,000	175.5
Well #2	44,767,000	120.5
Well #6	35,515,000	-----
Well #16	49,307,000	161
Well #27	7,393,000	25
Well #28	9,839,000	30.5
Well #32	55,284,000	170
PIP Well #1	8,513,000	24
	232,468,000	706.5

This figure is 35,517,000 more than last February. Based on the population figure of 42,565 there was 195.05 gallons of water per person per day produced from the system.

Airport production was 3,138,000 using 2.5 lbs. of chlorine. 49 man hours.

WATER DEPARTMENT MONTHLY REPORT

MARCH 1979

MAINLINE WORK CONSISTED OF:

√Allen Rd.: Made 6" on 12" tap. Pipe layed: 756' of 6". Installed: 45^{O} ell, 1-6" Kennedy tapping tee, 1-6" Kennedy tapping valve, 1-6" Pratt fire hydrant valve, 1-6" Pacific States fire hydrant, 1-6" M.J. tee, 1-6" M.J. plug.

√300 Blk. Pocatello Ave: Replaced 6" main. Pipe layed: 306' of 6" ductile. Installed: 1-6" solid sleeve.

900 Blk. W. Fremont: Kill old 4" line. Material used: 1-4" solid sleeve, 1-4" plug.

1800 Garrett Way (Safeways'): Made a 1" tap on 8" line.

Bench Rd.: Installed a 3" meter vault.

During the month of March 252,010,000 gallons of water was produced from the system, or 8,129,354.84 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	24,352,000	180.5
Well #2	50,510,000	138.5
Well #6	34,880,000	
Well #16	51,743,000	160
Well #27	7,963,000	27.5
Well #28	10,408,000	32
Well #32	60,374,000	180.5
Well #31	1,200,000	
PIP Well #1	10,580,000	31.5
	252,010,000	750.5

This figure is 21,350,000 more than last March. Based on the population figure of 42,565 there was 190.99 gallons of water per person per day produced from the system.

Airport production was 3,726,000 using 8 lbs. of chlorine & 88 man hours.

WATER DEPARTMENT MONTHLY REPORT

April 1979

IDAHO ST:Made a 6" on 12" tap. Made a 3/4" sterilization tap. Pipe layed: 846' of 6". Installed: 1-6" Pratt butterfly valve, 1-6" flanged x M.J. tapping valve, 1-6" M.J. tee, 1-6" Pacific States fire hydrant, 1-45° Ell, 1-6" 90° Ell, 1-6"x 12" tapping tee, 1-6" 22½° M.J. Ell, 1-3/4" corp. stop.

So. Hayes & W. Carter: Pipe layed: 502' of 6" D.I. Installed: 1-6"x 6"x 6" M.J. tee, 2-6"x 6"x 4" M.J. tee, 1-6" butterfly valve, 2-6" M.J. Pratt valves, 2-6" Pacific States fire hydrants, 1-6" Pratt fire hydrant valve, 1-6" tee for fire hydrant, 1-6" M.J. solid sleeve, 1-6"x 4" plain end M.J. reducer. Repaired sewer line.

Bannock Highway & Allen Rd.: Made a 3/4" sterilization tap. Installed 1-3/4" corp. stop.

Portneuf Golf Estates: Dug hole for 6" meter. Reset 6" meter & flush system. Dug up and reset valve box on 6" tap. line. Pipe layed: 6' of 6". Installed: 2-6" butterfly valves, 2-6" flanged tees, 1-6" cast coupling, 1-2"x 4" plug.

West Bench Booster Station: Made 3-12" on 16" taps for lines into new pump station. Tied 3-12" lines into booster out of 12" tap valves. Pipe layed: 18' of 12", 3' of 6"D.I. Installed: 3-12"x 16" tapping tees, 3-12" Kennedy tapping valves, 3-12" cast x steel couplings, 1-12"x 6" M.J. tee, 1-6" M.J. 90° Ell.

1744 Bench Rd:Dug up and repaired leak on repair band.

During the month of April 304,689,000 gallons of water was produced from the system, or 10,156,000 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	6,399,000	120
Well #2	48,828,000	133.5
Well #6	48,615,000	----
Well #12	19,534,000	40.5
Well #16	62,717,000	197.5

	GALLONS PRODUCED	LBS. OF CHLORINE
Well #18	2,346,000	8
Well #21	6,538,000	23
Well #22	8,029,000	20
Well #27	14,636,000	49.5
Well #28	12,970,000	35
Well #32	58,894,000	172
PIP Well #1	15,183,000	47
	304,689,000	846.0

This figure is 41,632,000 more than last April. Based on the population figure of 42,565 there was 238.60 gallons of water per person per day produced from the system.

Airport production was 2,824,000 using 4.5 lbs. of chlorine and 57 man hours.

7 MAIN LINE LEAKS were REPAIRED at the following locations:

715 Birch	1744 Pocatello Creek	1790 Pocatello Cr
1215 N. Main	700 E. Clark	1109 Booth Rd.
8th & Sublette		

3 NEW SERVICES were INSTALLED at the following locations:

Portneuf Golf Estates 6"	3834 Jason 1"	154 Park 3/4"

21 SERVICES were RENEWED at the following locations:

778 & 782 Birch 3/4"	1356 So. 3rd. 1/2"	148 Melrose 3/4"
256 & 254 N. 10th 3/4"	1225 E. Whitman 1/2"	931 E. Lander 3/4
1045 E. Fremont 3/4"	1056 Fairbanks 3/4"	111 So. 16th 1"
1215 N. Main 1/2"	1440 E. Wyeth 3/4"	424 Taft 3/4'
6405 So. 1st 3/4"	1125 E. Lander 3/4"	238 So. 11th 3/4'
1105 & 1115 E. Lander 3/4"	640 N. 12th 1/2"	647 W. Day 1/2'
4046 Yellowstone 3/4"	753 N. 8th 3/4"	777 Balsam 3/4'

9 SERVICES were RENEWED & HOOKED TO NEW MAIN at the following locations:

1067 & 1069 Allen 3/4"	1349 Allen 3/4"	713 So. Hayes 3/
744 ½ So. Hayes 3/4"	709 So. Hayes 3/4"	703 So. Hayes 3/
1099 Allen 3/4"	704 So. Hayes 3/4"	744 So. Hayes 3/

WATER DEPARTMENT MONTHLY REPORT

MAY 1979

CITY CREEK BOOSTER STATION: Pipe Layed: 7' of 6" D.I., 30' of 10" D.I. Installed: 3-10" gate valves, 1-6" gate valve, 1-6" M.J. 90° Ell, 1-10"x 6" M.J. tee, 2-10" M.J. 45° Ells, 1-10"x 4" reducer, 2-14"x 10" M.J. Y's, 1-14" Trans. coupling.

MAPLE ST., LOS ALTOS & LOS ALTOS WAY PROJECT: Pipe layed: 1620' of 6" pipe, 6' of 4". Installed: 1-6" Pacific States valve, 1-6" coupling, 1-6" coupling/weld plug, 10-6" Pratt butterfly valves, 2-6" M.J. crosses, 4-6" M.J. tees, 1-6" push on plug, 1-6" Pacific States fire hydrant, 1-6" M.J. plug, 1-6" fire hydrant valve, 1-6" M.J. 22½° Ell, 1-4" steel transition gasket, 1-valve box lid. Made a 3/4" sterilization tap.

RESERVOIR: Repaired leak on 2" line. Material used: 1-2" comp. coupling, 1-6" nipple, 1-2" plug.

BANNOCK HIGHWAY: Made 2-6" water taps.

1756 POCATELLO CREEK: Dug up and installed a repair band.

During the month of May 602,726,000 gallons of water was produced from the system, or 19,442,774.19 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supples	60,020,000	213.5
Well #2	33,842,000	91
Well #3	38,347,000	105
Well #10	39,586,000	134.5
WEll #12	99,714,000	285.5
Well #15	2,895,000	9.5
Well #16	62,317,000	198.5
WEll #18	17,746,000	58.5
Well #21	23,917,000	95
Well #22	16,185,000	51
Well #27	30,972,000	102.5
Well #28	30,752,000	80

	GALLONS PRODUCED	LBS. OF CHLORINE
Well #29	38,221,000	103
WEll #32	62,026,000	182.5
PIP Well	37,489,000	107.5
Cree Well	8,697,000	[illegible]

This figure is 255,526,000 more than last May. Based on the population figure of 42,565 there was 456.78 gallons of water per person per day produced from the system.

Airport production was 4,004,000 using 16 lbs. of chlorine and 35 man hours.

9 MAIN LINE LEAKS were REPAIRED at the following locations:

1200 Blk. So. 2nd	1156 E. Maple	535 Jefferson
777 Ebony	919 E. Pine	1623 Jade
702 So. 1st	Hawthorne & Ridge	W. end of Ash

9 NEW SERVICES were INSTALLED at the following locations:

1531 Zener (1")	170 E. Quinn (1")	1100 Booth Rd. (2")
4230 Stockman (1")	3134 So. 5th (3/4")	777 Golf Dr. (3/4"
1011 Pocatello Cr. (1½")	929-31 W. Clark (1")	1134 Yellowstone (3

16 SERVICES were RENEWED at the following locations:

736 N. 8th	(1/2")	336 W. Terry	(3/4")	210 W. Conner	(1/2"
446 So. 9th	(3/4")	608 Willard	(3/4")	868 Willard	(3/4"
1256 E. Maple	(3/4")	1255 Los Altos Way	(3/4")	823 E. Lewis	(3/4"
1455 Los Altos Way	(3/4")	525 Washington	(1")	945 N. 9th	(3/4"
1465 Los Altos Way	(3/4")	436 McKinley	(3/4")	320 N. 11th	(3/4"
148 Washington	(3/4")				

14 SERVICES were RENEWED & HOOKED TO NEW MAIN at the following locations:

184 Idaho	(3/4")	182 Idaho	(3/4")	180 Idaho	(3/4"
178 Idaho	(3/4")	160 Idaho	(3/4")	134 Idaho	(3/4"
164 Idaho	(3/4")	100 Idaho	(3/4")	754 So. Hayes	(3/4"
294 Fairmont	(3/4")	295 Franklin	(3/4")	1106 E. Maple	(3/4"
1114 E. Maple	(3/4")	1156 E. Maple	(3/4")		

WATER DEPARTMENT MONTHLY REPORT

June 1979

LOS ALTOS & LOS ALTOS WAY PROJECT: Pipe layed: 54' of 6". 9' of 4". Installed: 5-6" butterfly valves, 4-6" plain end x 4" M.J. reducers, 1-6" steel coupling, 4-4" steel couplings, 5-valve boxes complete.

SO. 7TH PROJECT: Pipe layed: 486' of 6". Installed: 3-6" butterfly valves, 1-6" M.J. cross, 1-6" M.J. tee.

WELL YARD: Repaired leak on 10" main.

Maintain Pumps

During the month of June 730,314,000 gallons of water was produced from the system, or 24,343,800 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	97,238,000	827
Well #2	27,222,000	72.5
Well #3	71,076,000	217
Well #10	76,249,000	244
Well #12	60,087,000	180
Well #16	53,292,000	166.5
Well #18	25,151,000	72
Well #21	24,987,000	81.5
Well #22	24,700,000	77
Well #27	8,554,000	28
Well #28	38,167,000	96.5
Well #29	50,369,000	137.5
Well #31	63,397,000	170
Well #32	59,734,000	182.5
PIP WELL	32,851,000	99.5
Cree Well	16,240,000	----
	730,314,000	2651.5

6872

This figure is 80,436,000 more than last June. Based on the population figure of 42,565 there was 571.90 gallons of water per person per day produced from the system.

Airport production was 5,796,000 using 17 lbs. of chlorine and 31 manhours.

10 MAIN LINE LEAKS were REPAIRED at the following locations:

1516 Spaulding	148 Washington	356 So. Hayes
525 Franklin	1534 So. 2nd	792 Wilson
936 E. Center	1756 Pocatello Creek	915 E. Center
So. Grant & Clinton		

36 NEW SERVICES were INSTALLED at the following locations:

155 E. Griffith (1")	1325 Pershing (3/4")	2445 So. 5th (3/4")
4830 Kim (1½")	2015 So. Grant (1")	717 Swisher (3/4")
5621 Bannock Highway (1")	721-25 Swisher (1")	433 Sue (1")
1800 Garrett Way (3/4")	5015 Mohawk (2-2")	1031 Belmont (3/4")
Mt. Meadows Subdivision (20-1") (4-3/4")		

18 SERVICES were RENEWED at the following locations:

394 Franklin (3/4")	651 N. Arthur (3/4")	350 Randolph (3/4")
936 E. Center (3/4")	915 E. Center (3/4")	2445 So. 5th (3/4")
1458 Los Altos Way (3/4")	938 E. Center (1/2")	824 E. Center (3/4")
826 E. Center (3/4")	280 N. Arthur (3/4")	426 So. 9th (1")
Terry & Stanford (2")	1007 E. Fremont (3/4")	708 Birch (3/4")
1676 Kinghorn (1")	1021 E. Fremont (3/4")	204 N. Johnson (3/4'

22 SERVICES were RENEWED and HOOKED TO NEW MAIN at the following locations:

1206 E. Maple (3/4")	294 Franklin (3/4")	1214 E. Maple (3/4")
1256 E. Maple (1") Summer line	303 Los Altos (3/4")	295 Hyde (3/4")
323 Los Altos (3/4")	1256 E. Maple (3/4")	1418 E. Maple (3/4")
1478 Los Altos Way (3/4")	1488 Los Altos Way (3/4")	310 Los Altos (1")
1468 Los Altos Way (3/4")	1428 Los Altos Way (3/4")	313 Los Altos (3/4")
1425 Los Altos Way (3/4")	1445 Los Altos Way (3/4")	1438 Los Altos W. (
1465 Los Altos Way (3/4")	Los Altos Way Lot 7 (3/4")	1475 Los Altos W. (1'
Los Altos Way Lot 8 (3/4")		

WATER DEPARTMENT MONTHLY REPORT

July 1979

SO. 7TH PROJECT: Replacing main line. 1386' of 6" pipe layed. Installed; 4-6" butterfly valves, 2-10"x6" tapping tees, 2-6" kennedy tapping valves, 3-6" solid sleeves, 2-4" M.J. solid sleeves 2-6" M.J. tees, 1-4" x 6" reducers, 1-4" plug. Made 2-6" on 10" taps. 2-3/4" sterilization taps

FOOTHILL PLAZA-POCATELLO CREEK: Made 4" on 8" tap for fire line. Made 3-6" on 8" taps. Installe 3-6" tapping valves.

OLD ORCHARD SUBDIVISION: Made 2-3/4" sterilization taps.

During the month of July 882,992,000 gallons of water was produced from the system, or 28,483,612 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	81,884,000	369.5
Well #2	32,531,000	90.5
Well #3	74,840,000	217.5
Well #10	95,604,000	215
Well #12	99,352,000	298
Well #16	61,571,000	198
Well #18	43,071,000	138
Well #21	30,565,000	82
Well #22	31,000,000	96
Well #28	48,444,000	129.5
Well #29	70,652,000	199.5
Well #31	92,828,000	272
Well #32	61,436,000	186
PIP Well	41,649,000	123
Cree Well	17,565,000	----
	882,992,000	2,614.5

6874

This figure is 71,433,000 more than last July. Based on the population figure of 42,565 there was 669.18 gallons of water per person per day produced from the system.

Airport production was 5,771,000 gallons of water using 14.5 lbs. of chlorine and 29 manhours.

13 <u>MAIN LINE LEAKS</u> were <u>REPAIRED</u> at the following locations:

759 Franklin	Maple & Filmore	338 Washington
1256 Maple	Cedar & McKinley	Cedar & Poole
166 Roosevelt	600 W. Sublette	N. Arthur & Sublette
535 Jefferson	141 N. Arthur	Well Yard
316 N. 9th		

93 <u>NEW SERVICES</u> were <u>INSTALLED</u> at the following locations:

5023 Cherokee (3/4")	315½ So. 7th (3/4")	2331 Bannock Hwy. (3/
Airport (1")	Old Orchard Sub. (51-1")	Northstar Sub. (22-3/
Cedarview 1st. Sub. (16-3/4")		

17 <u>SERVICES</u> were <u>RENEWED</u> at the following locations:

341 So. 7th (1")	731 Grace (3/4")	734 Grace (1/2")
950 No. 10th (3/4")	338 Washington (3/4")	409 So. 14th (3/4")
235 So. 3rd (3/4")	720 So. 9th (3/4")	712 So. 9th (3/4")
357 N. 8th (3/4")	338 Pocatello Ave. (3/4")	105 N. 11th (3/4")
1226 Jensen (1/2")	648 NO. 5th (3/4")	1062 Everett (3/4")
638 No. 8th (3/4")	156 NO. 11th (3/4")	

50 <u>SERVICES</u> were <u>RENEWED</u> and <u>HOOKED TO NEW MAIN</u> at the following locations:

655 So. 7th (1")	654 So. 7th (3/4")	540 So. 7th (3/4")
635 So. 7th (3/4")	631 So. 7th (1")	638 so. 7th (1")
630 So. 7th (1")	541 So. 7th (3/4")	529 So. 7th (3/4")
554 So. 7th (3/4")	544 So. 7th (3/4")	449 So. 7th (1")
736 E. Benton (1/2")	517 So. 7th (1/2")	520 So. 7th (1/2")
509 So. 7th (3/4")	506 So. 7th (1")	753 So. 7th (3/4")
425 So. 7th (3/4")	415 So. 7th (1/2")	488 So. 7th (1")
444 So. 7th (1")	435 So. 7th (1")	424 So. 7th (3/4")
424 So. 7th S.L. (1")	406 So. 7th (1")	354 So. 7th (1")
405 So. 7th (3/4")	250 E. Halliday (3/4")	306 So. 7th (3/4")

WATER DEPARTMENT MONTHLY REPORT

AUGUST 1979

SO. 7TH PROJECT: Replacing main line. Pipe layed: 23' of 4", 83' of 6". Installed: 14"x6" tapping tee, 1-6" tapping valve, 1-3" 90^0 Ell, 1-3"x4" flange reducer, 1-6" 90^0 Ell, 1-4" butterfly valve, 2-10" solid sleeves, 2-6" M.J. solid sleeves, 2-6" butterfly valves, 1-4"x6" reducer, 1-4"x 6" M.J. x M.J. reducer, 1-4" flange valve. Made a 4" on 6" tap.

BARTON ROAD: Made a tap on 16" transmission line & 4" line. Pipe Layed: 12' of 6". Installed: 1-6" tapping valve, 1-4" tapping valve, 1-16"x 6" tapping tee, 1-6" 90^0 Ell, 1-4"x 6" reducer, 1-4" tapping tee.

AIRPORT WELL: Cut out old 90^0 replaced with 8" tee. Pipe layed: 15' of 10" pipe. Installed: 1-10" butterfly valve, 1-10" solid sleeve, 1-8" solid sleeve, 1-8" tee, 1-8"x 10" M.J. reducer.

WEST BENCH BOOSTER: Installed fire hydrant line: Pipe layed: 834' of 6", 42' of 2". Installed: 2-6" tapping tees, 1-6" tapping valve, 2-6" M.J. 90^0 Ell, 4-6" M.J. tees, 2-6" Pacific States fire hydrants, 5-6" butterfly valves, 1-6" 90^0 bend, 3-6" plugs, 1-2" gate valve. Made a 6" on 6" tap.

GARFIELD & CLARK: Installed new fire hydrant w/valve. Material used: 1-6" M.J. valve, 1-6" Pacific States fire hydrant.

12TH & SUBLETTE: Installed new fire hydrant. Pipe layed: 6' of 6" pipe. Installed: 1-6" Pacific States fire hydrant, 1-6" Pratt M.J. valve, 1-6" M.J. solid sleeve, 1-valve box.

WESTWOOD VILLAGE: Made a 4" on 8" tap.

1545 JEAN: Made a 3/4" sterilization tap.

During the month of August 620,091,000 gallons of water was produced from the system, or 20,002,935 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Suface Supplies	64,307,000	846.5
Well #2	25,211,000	69.5
Well #3	61,572,000	165
Well #10	36,888,000	102.5
Well #12	76,788,000	236
Well #16	44,097,000	143.5
Well #18	19,994,000	66.5
Well #21	22,191,000	71.5
Well #22	24,200,000	72.5
Well #27	7,850,000	21
Well #28	31,041,000	96.5
Well #29	24,239,000	76.5
Well #31	36,603,000	117
Well #32	60,469,000	173
Cree Well	16,664,000	———
P.I.P Well	67,746,000	199.5
	620,091,000	2,457

This figure is 103,562,000 less than last August. Based on the population figure of 42,565 there was 469.93 gallons of water per peron per day produced from the system.

Airport production was 4,407,000 gallons of water using 10.5 lbs. of chlorine and 25 manhours.

13 MAIN LINE LEAKS were REPAIRED at the following locations:

Alameda & Jefferson	920 E Pine	10th & Halliday
Well Yard	10th & Clark	Barton & 5th
35 Westello	1025 N. 9th	315 Filmore
Taft & Elm	700 Blk. Ash	1534 So. 2nd
170 Fullerway		

WATER DEPARTMENT MONTHLY REPORT
SEPTEMBER 1979

MAIN LINE WORK:
QUINN & TEAL: Made a 8" on 12" tap

BENCH ROAD: Lay 8" transmission line. Pipe layed: 432' of 8" pipe. Installed: 2-8"x 14" Cast x steel couplings. Made a 1" tap.

During the month of September 619,967,000 gallons of water was produced from the system, or 20,665,566 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	54,140,000	317.5
Well #2	25,241,000	72.5
Well #3	63,393,000	172.5
Well #10	12,950,000	34.5
Well #12	86,979,000	272
Well #16	60,250,000	195
Well #18	29,793,000	81
Well #21	25,245,000	89
Well #22	29,800,000	90.5
Well #27	21,703,000	69.5
Well #28	33,746,000	113.5
Well #29	31,327,000	97.5
Well #32	58,935,000	183
PIP Well	70,235,000	206
Cree Well	16,230,000	-----
	619,967,000	1994

This figure is 225,729,000 More than last September. Based on the population figure of 42,565 there was 485.50 gallons of water per person per day produced from the system.

Airport production was 5,857,000 gallons of water using 14.5 lbs. of chlorine and 17 man hours.

10 MAIN LINE LEAKS were REPAIRED at the following locations:

Alameda & Jefferson	700 No. 9th	1st & Putnam
2nd & Putnam	1700 So. 4th	980 Taney Lane
No. Grant & Day	132 Valleyview	9th & Custer
9th & Sublette		

8 NEW SERVICES were INSTALLED at the following locations:

1657 Jean (1")	1556 Bench (2")	3935 Donrich (3/4")
Westwood Village (5-3/4")		

24 SERVICES were RENEWED at the following locations:

755 E. Sublette (1/2")	773 W. Cedar (3/4")	5265 Mohawk (3/4")
815 No. 11th (1/2")	1050 E. Clark (3/4")	1025 McKinley (3/4")
458 No. Lincoln (3/4")	448 No. Lincoln (3.4")	855 W. Wyeth (3/4")
916 No. 10th (3/4")	100 W. Pine (1")	1009 So. 2nd (1")
685 Randolph (3/4")	503 W. Pine (3/4")	706 No. 10th (3/4")
1124 E. Center (3/4")	226 No. 12th (3/4")	305 Northland (3/4")
Old Orchard Subdivision (6-1")		

13 SERVICES were REPAIRED at the followling locations:

1038 No. Garfield (1")	907 W. Center (1/2")	740 Myrtle (3/4")
513 No. 12th (1/2")	1006 So. 1st (3/4")	1207 So. 2nd (1 ½")
980 Centenial Dr. (3/4")	3898 Horseshoe Cir. (3/4")	1707 Glacier (3/4")
Airport (2")	1349 Allen (3/4")	903 Wayne (3/4")
1061 Sagewood (1½")		

METER M. & O.

9,109 Meters were read	43 Meters were installed	268 Meters were re-read
196 Meters were changed	94 Meters were repaired	6 Meters were removed
17 Test meters were read		

FIRE HYDRANT M. & O.

Jefferson & Maple-Repair broken fire hydrant

5th & Fredregill-Set out & pick up fire hydrant meter daily

WATER DEPARTMENT MONTHLY REPORT

OCTOBER 1979

MAIN LINE WORK:

320 W CENTER: Made a 4" on 8" tap.

645 W. HALLIDAY: Repaired 2-4" sewer lines.

600 W. CLARK: Repair leak on lead bell

WELL YARD: Repair leaded bell, Put 16" bell repair clamp on 16" tee

CITY RESERVOIR: Repair leak on 12" line to tank. Pipe layed; 4' of 12". Material used: 1-12" Pratt butterfly valve, 1-12" solid sleeve, 1-valve box complete

BANNOCK HIGHWAY & MATTWOOD: Made a 6" on 12" tap.

During the month of October 398,390,000 gallons of water was produced from the system, or 12,851,290.32 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	56,498,000	273.5
Well #2	47,555,000	142
Well #3	9,523,000	26.5
Well #12	37,958,000	238.5
Well #16	58,870,000	199
Well #18	8,850,000	27
Well #21	9,712,000	35.5
Well #22	11,900,000	35.5
Well #27	11,175,000	36.5
Well #28	27,623,000	236.5
Well #29	7,630,000	25
Well #32	31,473,000	96
PIP Well	69,910,000	237.5
Cree Wll	9,713,000	------
	398,390,000	1609

This figure is 39,356,000 more than last October. Based on the population figure of 42,565 there was 301.92 gallons of water per person per day produced from the system.

Airport production was 6,898,000 gallons of water using 14 lbs. of chlorine and 28 man hours.

WATER DEPARTMENT MONTHLY REPORT
NOVEMBER 1979

MAIN LINE WORK:

Airport Well; Put in new 8" line. Pipe layed: 10' of 8" pipe. Installed: 1-8" M.J. 90^0 Ell/ 1-8" butterfly valve.

Barton Rd.: Tie into 16x12 reducer on transmission line. Pipe Layed: 828' of 12" pipe. Installed: 12"x6" M.J. Tee, 1-6" fire hydrant valve, 1-12" M.J. butterfly valve, 1-6" Pacific States fire hydrant, 1-12" push in plug. Made a 3/4" Chlorine tap.

Pocatello Creek: Made 3-3/4" Chlorine taps for Campbell Construction.

Pole Line Rd. Installed 1-6" butterfly valve, 1-6" M.J. solid sleeve, Pipe Layed: 2' of 6".

Bannock Highway: Made a 4" on 10" Tap.

New Reservoir: Made a 1/2" tap.

During the month of November 237,914,000 gallons of water was produced from the system, or 79,304,66.667 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	66,221,000	744 lbs.
Well #2	48,540,000	144 lbs.
Well #16	50,259,000	161.5
Well #27	11,082,000	37 lbs.
Well #28	12,338,000	39.5
Well #32	628,000	-0-
PIP Well	48,846,000	160.5
	237,914,000	1,286.5

This figure is 10,824,000 more than last November. Based on the population figure of 42,565 there was 186.31 gallons of water per person per day produced from the system.

Airport production was 4,245,000 gallons of water using 12.5 lbs. of chlorine and 40 man hours.

9 MAIN LINE LEAKS were REPAIRED at the following locations:

1859 Pocatello Creek	400 Blk. So. 1st	End of Hoffman St.
1744 Pocatello Creek	200 Blk. So. 4th	800 So. Main
1700 So. Von Elm	2nd & Fredregill	176 Wayne

22 NEW SERVICES were INSTALLED at the following locations:

2766 Bannock Highway (3/4")	4105 Hawthorne (3/4")	3235 Pole Line (3/4")
573 Roosevelt (3/4")	1675 Shane (1")	2235 Garrett Way (3/4")
666 Cheyenne (2")	1775 Hampshire (1")	2300 Butte (1 ½")
Boise Cascade @ Airport (1")	1565 Hampshire (1")	480 Roosevelt (3/4")
Cedar Lake Subdivision 10 (1")		

12 SERVICES were RENEWED at the following locations:

Alameda & Jefferson (Tendoy School) (2")	436 Fairmont (3/4")	628 So. 9th (3/4")
258 Cottonwood (3/4")	426 So. Grant (1/2")	626 E. Lewis (3/4")
120 So. 11th (3/4")	632 So. 9th (3/4")	405 So. 5th (1/2")
203 E. Whitman (1")	745 Cherry St. (3/4")	126 So. 11th (3/4")

13 SERVICES were REPAIRED at the following locations:

652 No. 14th (1")	645 Warren (3/4")	87 Cottonwood (3/4")
627 N. Grant (1/2")	521 E. Logan (3/4")	4858 Navaho (1")
332 N. 5th (1")	536 N. 15th (1/2")	618 So. 4th (1/2")
852 Northgate (3/4")	3817 Nora (1/2")	436 Fairmont (1/2")
888 Mt. McGuire (3/4")		

METER M.& O.

975 Meters read	17 Meters installed	29 Meters changed
81 Meters repaired	15 Meters removed	315 Meters re-read

FIRE HYDRANT M.& O.

Bitterroot-Set out & pick up fire hydrant meter daily
Butte & Hiskey-Set out & pick up fire hydrant meter daily
MT. McGuire-Set out & pick fire hydrant meter daily
10th & Halliday-Replace nozzel cap on fire hydrant
Franklin & Elm-Replace nozzel cap on fire hydrant
Memorial Dr.-Repair broken fire hydrant

WATER DEPARTMENT MONTHLY REPORT
DECEMBER 1979

MAIN LINE WORK:

SAGEWOOD HILLS SUBDIVISION: Made 6-3/4" sterilization taps.

POLE LINE RD. & ALAMEDA: Lay new 6" main. Pipe layed: 72' of 6". Installed: 4-6" M.J. 45^0 ells.

CEDAR & MORELAND: Cut out old 12" gear valve. Installed: 1-12" butterfly valve, 1-12" M.J. solid sleeves.

PINE & MORELAND: Cut out old 12" gear valve, installed new one. Pipe layed: 6' of 12". Installec 1-12" butterfly valve, 1-12" solid sleeve.

During the month of December 250,252,000 gallons of water was produced from the system, or 80,726,45.16 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
SURFACE SUPPLIES	70,615,000	200 lbs.
WELL #2	49,665,000	149.5 lbs.
WELL #16	52,214,000	153.5 lbs.
WELL #27	11,541,000	39.5 lbs.
WELL #28	10,813,000	35 lbs.
WELL #32	999,000	3 lbs.
PIP WELL	54,405,000	184.5 lbs.
	250,252,000	765 lbs.

This figure is 31,505,000 more than last December. Based on the population figure of 42,565 there was 189.65 gallons of water per person per day produced from the system.

Airport production was 4,432,000 gallons of water using 18 lbs. of chlorine and 31 manhours.

6883

WATER DEPARTMENT MONTHLY REPORT
JANUARY 1980

During the month of January 246,736,000 gallons of water was produced from the system, or 7,959,226 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #6	72,978,000	192.5
Well #2	48,517,000	143.5
Well #16	49,657,000	154.5
Well #27	10,639,000	34.5
Well #28	10,034,000	28.5
Well #32	253,000	----
PIP Well	54,658,000	180.5
	246,736,000	734 lbs.

This figure is 4,403,000 more than last January. Based on the population figure of 42,565 there was 186.98 gallons of water per person per day produced from the system.

Airport production was 3,149,000 gallons of water using 12 lbs. of chlorine and 38 manhours.

6 MAIN LINE LEAKS were REPAIRED at the following locations:

314 W. Clark	1531 Spaulding Ln.	Airport
59 Colgate	W. Center & Main	Harvard & Stanford

1 NEW SERVICE was INSTALLED at the following location:

1201-1229 Booth Rd. (2")

3 SERVICES were RENEWED at the following locations:

4046 Yellowstone (3/4")	1345 Hiline (3/4")	1439 Saratoga (3/4")

WATER DEPARTMENT MONTHLY REPORT
FEBRUARY 1980

MAINLINE WORK:

Alamdeda & Delano: Raise mainline pipe: Pipe layed: 30' of 12". Installed: 4-45° Ell.

During the month of February 230,889,000 gallons of water was produced from the system, or 7,961,690 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	80,046,000	673 Lbs.
Well #2	45,996,000	137 Lbs.
Well #16	34,813,000	111 Lbs.
Well #27	8,800,000	30 Lbs.
Well #28	9.848,000	28.5 Lbs.
Well #32	1,012,000	4.5 Lbs.
PIP Well	50,374,000	168 Lbs.
	230.889.000	1,152 Lbs.

This figure is 1,579,000 less than last February. Based on the population figure of 42,565 there was 187.03 gallons of water per person per day produced from the system.

Airport production was 3,056,000 gallons of water using 13 Lbs. of chlorine and 37 manhours.

9 MAINLINE LEAKS were REPAIRED at the following locations:

1515 ElRancho	1555 N. Main	Cedar & Washinton
698 Washington	Ash & Birch	540 N. Grant
139 Fullerway	Well yard	Cemetary

3 NEW SERVICES were INSTALLED at the following locations:

1146 N. Harrison (3/4")	5333 Bannock Highway (3/4")	1786 Hurley Dr. (3/4")

5 SERVICES were RENEWED at the following locations:

955 W. Alameda (1½")	540 N. Grant (1/2")	836 N. 11th (3/4")
724 N. 7th (3/4")	698 Washinton (3/4")	

WATER DEPARTMENT MONTHLY REPORT
MARCH 1980

MAINLINE WORK:

Alameda & McKinley: Raise 8" main. Pipe layed: 14' of 8". Installed: 4-8" 45^{0} bends.

2020 Pocatello Creek: Made a 4" tap.

Sage Dr.: New main line installation: Pipe layed: 120' of 6". Installed 1-6" Pacific States fire hydrant, 1-6" Iowa gate valve, 1-90^{0} bend.

During the month of March 240,718,000 gallons of water was produced from the system, or 7,765,097 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	111,746,000	320 lbs.
Well #2	49,515,000	140 lbs.
Well #16	3,162,000	10.5 lbs.
Well #27	11,957,000	41.5 lbs.
Well #28	10,327,000	27 lbs.
Well #32	8,140,000	29.5 lbs.
PIP Well	45,871,000	169 lbs.
	240,718,000	737.5 lbs.

This figure is 11,292,000 less than last March. Based on the population figure of 42,565 there was 182.43 gallons of water per person per day produced from the system.

Airport production was 3,783,000 gallons of water using 14 lbs. of chlorine and 38 manhours.

12 MAINLINE LEAKS were REPAIRED at the following locations:

2nd & Lander	632 E. Bonneville	Alameda & Delano
741 Ash	2500 So. 2nd	428 E. Pine
370 Richland	4932 Mohawk	746 N. 6th
1135 E. Bonneville	Elm & McKinley	Reservoir

WATER DEPARTMENT MONTHLY REPORT
APRIL 1980

MAINLINE WORK:

Sage & Cactus Drive: Replacing main line. 2,244' of 6" pipe, Installed: 5- 6" butterfly valves, 5-6" Pratt fire hydrant valves, 5-6" Iowa fire hydrants, 2-45^0 fittings, 2-6" 22½^0 fittings, 3-Valve box and lids, 6-6" M.J. tees.

2288 Hiskey: Made 2-4" taps. Installed: 2-4" Kennedy tap valves, 2-4" tapping sleeves.

1415 Bench Rd.: Made 4-1" taps on 4" main.

During the month of April 327,665,000 gallons of water was produced from the system, or 10,922,166 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	75,445,000	248.5
Well #2	48,132,000	147
Well #12	33,518,000	108
Well #16	42,573,000	145
Well #21	6,705,000	36.5
Well #22	12,900,000	41
Well #27	24,280,000	104.5
Well #28	12,644,000	37
Well #29	7,990,000	28
Well #32	57,563,000	198
PIP Well	5,915,000	28
	327,665,000	1,121.5 LBS.

This figure is 22,976,000 more than last April. Based on the population figure of 42,565 there was 256.60 gallons of water per person per day produced from the system.

Airport production was 3,397,000 gallons of water using 12 lbs. of chlorine and 33 manhours.

WATER DEPARTMENT MONTHLY REPORT

MAY 1980

MAIN LINE WORK:

West Bridger: Installing new main line. Pipe layed: 1,120' of 6" pipe. Installed: 3-6" Pratt fire hydrant valves, 3-6" Iowa fire hydrants, 1-6" 90° elbow, 5-6" Dresser butterfly valves, 2-6"Crosses, 2-6" Pacific States gate valves, 8"x 6" M.J. Cross, 2-8" solid sleeve, 2-8" Iowa gate valve, 1-6" M.J. Tee, 7-valve boxes, 1-6" solid sleeve, 3-4" solid sleeves 4-6"x4" reducers. Made 3/4" sterilization tap.

West Lewis: Made 6" tap on 12" main and installed new main line pipe. 320' of 6" pipe. Installed: 1-6" Kennedy tapping valve, 1-6"x 12" Kennedy tapping tee, 2-Valve boxes, 1-6" Pratt fire hydrant valve, 1-6" Iowa fire hydrant, 1-6" 90° fitting. Made 3/4" sterilization tap.

1455 Gwen: Made 4" tap for new fire line.

Ranch Dr. & Skyline: Installed 1-4" Kennedy tapping valve.

During the month of May 339,575,000 gallons of water was produced from the system, or 10,954,032 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	66,690,000	230.5
Well # 2	47,118,000	138.0
Well # 3	5,917,000	21.5
Well #12	33,766,000	93.5
Well #16	52,475,000	183.0
Well #21	9,022,000	49.5
Well #22	13,550,000	40.0
Well #27	24,618,000	108.5
Well #28	15,005,000	44.5
Well #29	6,522,000	21.0
Well #32	59,792,000	213.5
Pip Well	4,216,000	17.0
W. Bench Booster	884,000	3.0
	339,575,000	1,163.5

This figure is 263,151,000 less than last May. Based on the population figure of 42,565 there was 257.35 gallons of water per person per day produced from the system.

Airport production was 3,521,000 gallons of water using 13.5 lbs. of chlorine and 40 manhours.

4 MAIN LINE LEAKS were REPAIRED at the following locations:

So. Von Elm	1808 Pocatello Creek Rd.	Terrace & Sunrise
118 & 112 W. Gould		

6 NEW SERVICES were INSTALLED at the following locations:

1455 Gwen (2")	1860 Rainer (3/4")	1633 Olympus (3")
30 Orchard (2-1")		

36 SERVICES were RENEWED at the following locations:

4580 Johnny Creek (1")	1225 Cactus (1")	1060 Cactus (1")
970 Sage (3/4")	1075 Cactus (1")	1175 Cactus (1")
1163 Cactus (3/4")	1185 Cactus (1")	1140 Cactus (1")
4210 Johnny Creek (3/4")	1170 Cactus (1")	1041 Gray (3/4")
82 Hawthorne Ave. (3/4")	1160 Willard (3/4")	541 So. Johnson (1/2"
545 So. Johnson (1/2")	635 W. Bridger (3/4")	655 N. Hayes (3/4")
644 W. Bridger (3/4")	638 W. Bridger (3/4")	190 E. Griffith (3/4"
810 N. Main (3/4")	735 W. Bridger (3/4")	720 W. Bridger (3/4")
745 W. Bridger (3/4")	736 W. Bridger (3/4")	974 Willow Lane (3/4"
417 Packard (3/4")	841 W. Bridger (3/4")	826 W. Bridger (3/4")
746 W. Bridger (3/4")	835 W. Bridger (3/4")	830 W. Bridger (3/4")
837 W. Bridger (3/4")	1048 Everett (3/4")	426 So. 9th (1")

14 SERVICES were REPAIRED at the following locations:

422 N. 10th (3/4")	3880 Henderson (3/4")	1783 Morning Glory (3/
253 Valleyview (1")	351 E. Lawton (1")	556 So. 6th (3/4")
749 Birch (1")	4280 Yellowstone (3/4")	711 Ebony (3/4")
424 Taft (3/4")	415 So. 7th (1/2")	1841 Derby (3/4")
1425 E. Lewis (1/2")	2380 Pole Line (1")	

WATER DEPARTMENT MONTHLY REPORT

JUNE 1980

MAIN LINE WORK:

Booth & Pocatello Creek: Extending main line. Pipe layed: 600' of 6". Installed: 2-6" tees, 3-6" Dresser butterfly valves, 1-6" M.J. 22½° bend, 3-6" Tyler push on plugs, 1-6" Kennedy gate valve, 3-valve boxes.

Custer & Grant: Installed new 6" Iowa fire hydrant: Material used: 1-6" Pratt butterfly fire hydrant valve, 1-valve box.

Johnson & Halliday: Kill 8" main. Installed: 1-8" solid sleeve, 1-8" plug.

1800 Garrett Way: Made a 4" tap on 8" main.

Cedar Lake Rd: Made a 6" tap on 6" main.

Cottage & Highway 30 W.: Made 6" tap on 6" main and lay new 8" main. Pipe layed: 80' of 8". Installed: 1-6" Kennedy tapping valve, 1-6" Mueller tapping tee, 1-6"x 8" reducer, 1-8" 90° elbow, 1-valve box.

During the month of June 592,939,000 gallons of water was produced from the system, or 19,764,633 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface supplies	84,420,000	259.5
Well #2	38,529,000	113.5
Well #3	42,616,000	131.5
Well #10	35,999,000	86.0
Well #12	68,102,000	195.0
Well #16	55,678,000	170.5
Well #18	16,930,000	60.0
Well #21	22,484,000	82.5
Well #22	29,600,000	87.5
Well #27	36,567,000	128.5
Well #28	29,240,000	83.0
Well #29	39,974,000	113.0
Well #31	7,585,000	25.0
Well #32	58,683,000	180.0
PIP Well	17,935,000	59.5
Cree Well	7,219,000	000.0
W. Bench Booster	1,378,000	4.5
	592,939,000	1,779.5

6890

This figure is 137,375,000 less than last June. Based on the population figure of 42,565 there was 464.34 gallons of water per person per day produced from the system.

Airport production was 5,244,000 gallons of water using 19.5 lbs. of chlorine and 33 manhours.

6 MAIN LINE LEAKS were REPAIRED at the following locations:

Canyon & Oasis	Airport (old well house)	Mink Creek Rd.
1768 Pocatello Creek	463 Jefferson	919 E. Pine

9 NEW SERVICES were INSTALLED at the following locations:

1621 Agate (3/4")	2520 So. 5th (1½")	1915 Grandview (1")
1122 Yellowstone (1")	986 Mt. McGuire (1")	500 Blk. W. Cedar (3/4")
1800 Garrett Way (3") S.L.	1906 Cottage (3/4")	343 E. Maple (3/4")

14 SERVICES were RENEWED at the following locations:

138 N. 2nd (3/4")	2306 Pocatello Creek (1")	229 Roosevelt (3/4")
430 Park (3/4")	735 W. Lewis (3/4")	558 So. Garfield (3/4")
434 W. Halliday (3/4")	815 E. Center (1/2")	152 Franklin (3/4")
275 Franklin (3/4")	722-728 W. Lewis (3/4")	725 W. Lewis (1½")
333 Wayne (3/4")	210 McKinley (3/4")	

24 SERVICES were REPAIRED at the following locations:

1332 N. Grant (1/2")	3528 Hawthorne (1/2")	302 W. Center (3/4")
1161 Santa Anita (3/4")	1819 Rainer (3/4")	1807 Rainer (3/4")
2145 Marigold (2")	30 Orchard (1")	43 Duke (1")
932 Lott (3/4")	1330 Juniper (1")	105 N. 11th (3/4")
1450 Saratoga (3/4")	525 So. Main (1")	1306 So. 1st (1/2")
1544 Saratoga (3/4")	311 Stansbury (1/2")	632 So. 9th (1/2")
604 So. 19th (1½")	431 N. 16th (1/2")	2649 So. Fairway (1")
Booth & Pocatello Cr. (2-1¼")	Blk.6 Lot 24 Kinghorn (1")	127 Fullerway (3/4")

METER M.& O.

10,148-Meters were read	39-Meters installed	89-Meters changed
20-Meters repaired	274-Meters re-read	17-Test meters read
4-Meters removed		

WATER DEPARTMENT MONTHLY REPORT

JULY 1980

MAIN LINE WORK:

Philbin Rd.: Lay new main to Malt Plant: 3,940' of 8" pipe, 240' of 6" pipe layed. Installed 5-8" Dresser butterfly valves, 7-Valve boxes, 1-8" solid sleeve, 8"x 6" tee, 1-8" push in pl 1-6" Dresser fire hydrant valve, 1-6" Iowa fire hydrant, 1-6" Dresser butterfly valve, 1-45^0 bend. Made 3/4" sterelization tap.

Chokecherry: Lay new main: 1,994' of 6" pipe layed. Installed: 1-6" Kennedy tapping valve, 1-6" Mueller tapping sleeve, 1-6" 45^0 bend, 1-6" Dresser butter fly valve, 2-valve boxes. Made 6" tap on 6" line.

Birdie Dr.: Made 8" tap on 10" main.

During the month of July 827,017,000 gallons of water was produced from the system, or 26,677,968 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	94,155,000	300.5
Well #2	42,770,000	119.0
Well #3	63,152,000	159.0
Well #10	66,983,000	159.5
Well #12	102,069,000	299.0
Well #16	55,344,000	162.5
Well #18	29,042,000	105.0
Well #21	32,690,000	105.0
Well #22	34,500,000	102.0
Well #27	42,739,000	143.0
Well #28	50,941,000	146.0
Well #29	53,967,000	152.0
Well #31	43,084,000	135.0
Well #32	61,429,000	183.0
PIP Well	36,681,000	125.5
Cree Well	15,942,000	-----
West Bench Booster	1,196,000	8.5
	827,017,000	2,404.5 LBS.

6892

This figure is 55,975,000 less than last July. Based on the population figure of 42,565 there was 626.76 gallons of water per person per day produced from the system.

Airport production was 4,903,000 gallons of water using 18 lbs. of chlorine and 31 manhours.

8 MAIN LINE LEAKS were REPAIRED at the following locations:

1451 Cottage	6001 Country Club Dr.	Walnut & Franklin
Mohawk & Mohawk Pl.	Cedar & Pole Line	138 N. 7th
2607 So. 2nd	4997 Cherokee	

8 NEW SERVICES were INSTALLED at the following locations:

215 Taft (1")	267 N. Buchanan (3/4")	945 W. Custer (3/4")
1199 Swisher (3/4")	1400 City Creek (1")	5674 Country Club Dr. (1")
1051 N. 9th (S.L. 1")	So Bannock Highway (3/4")	

17 SERVICES were RENEWED at the following locations:

702 N. Main (3/4")	241 Park (3/4")	804 N. 7th (3/4")
1509 So. 4th (1")	45 Stanford (3/4")	334 N. 13th (3/4")
369 Wayne (3/4")	193 Randolph (3/4")	197 Randolph (3/4")
437 Randolph (3/4")	31 Harvard (1")	355 N. Buchanan (3/4")
4997 Cherokee (1")	325 E. Dunn (3/4")	786 Ebony (3/4")
930 So. 4th (3/4")	924 So. 4th (3/4")	

32 SERVICES were REPAIRED at the following locations:

495 Yellowstone (1")	1451 Cottage (3/4")	230 So. 7th (3/4")
422 N. Garfield (3/4")	550 So. 9th (1")	6001 Country Club Dr. (3/4")
5976 Country Club Dr. (1")	6025 Country Club Dr. (1")	1406 N. Main (1")
868 Willard (3/4")	1109 Booth (2")	1866 Churchhill Downs (3/4")
2695 Castle Peak Way (3/4")	423 Parkway (3/4")	515 So. 8th (3/4")
1777 Lancaster (3/4")	1035 Yellowstone (3/4")	1900 N. Harrison (1")
626 W. Carson (3/4")	2031 Sandy (3/4")	100 Blk. N. 2nd (3/4")
Airport (1/2")	1456 Saratoga (3/4")	1510 Golden Gate (3/4")
2105 Colonial Ln. (3/4")	1445 Chokecherry (1")	830 E. Lander (1/2")
930 So. 4th (3/4")	362 N. Main (3/4")	3910 Henderson (3/4")
Cedar Lake Rd. (2-1")		

L 6893

WATER DEPARTMENT MONTHLY REPORT
AUGUST 1980

MAINLINE WORK:

Birdie Rd. & Center St.: Made 2-3/4" sterilization taps.

Shoshoni & Turf: Made 6" tap on 6" main. Tie into 6" main. Installed: 1-6" Mueller tapping valve, 1-6" tapping sleeve, 1-Valve box, 1-6" M.J. 22½° bend.

Tyhee & Hiline Rd.: Installed 6" Pacific States fire hydrant for W.P.C. Materials: 1-6" 90° bend, 1-12"x 6" fire hydrant extension, 1-24"x 6" fire hydrant extension. Pipe Layed: 20' of 6" D.I. Tyhee School: Installed 1-6" Pacific States fire hydrant. Materials used: 1-6" Smith Blair flange adapter, 1-6" fire hydrant. Pipe layed: 7' of 6" pipe.

During the month of August 678,010,000 gallons of water was produced from the system, or 21,871,290 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	94,580,000	320.5
Well #2	39,215,000	109.0
Well #3	63,864,000	159.5
Well #10	34,610,000	110.5
Well #12	80,751,000	237.5
Well #16	44,115,000	129.5
Well #18	23,217,000	83.0
Well #21	27,818,000	85.5
Well #22	30,750,000	238.0
Well #27	38,259,000	149.5
Well #28	39,781,000	120.5
Well #29	37,846,000	109.0
Well #31	21,696,000	53.0
Well #32	61,319,000	191.0
PIP Well	28,845,000	99.5
Cree Well	10,448,000	000.0
West Bench Booster	896,000	3.0
	678,010,000	[illegible]

This figure is 57,919,000 more than last August. Based on the population figure of 42,565 there was 513.83 gallons of water per person per day produced from the system.

Airport production was 5,556,000 gallons of water using 20 lbs. of chlorine and 31 manhours.

9 MAIN LINE LEAKS were REPAIRED at the following locations:

Debbie Drive	Maple & Moreland	1023 N. Garfield
2nd & Bonneville	Washington & Oak	1720 Pocatello Creek
3000 American Rd.	315 Filmore	7th & Lander

2 NEW SERVICES were INSTALLED at the following locations:

148 Barton Rd. (2")	4047 Mountain Loop (1½")

15 SERVICES were RENEWED at the following locations:

833 E. Halliday (3/4")	81 Debbie (1")	1428 E. Lewis (3/4")
957 W. Clark (3/4")	345 N. 5th (3/4")	1642 So. 2nd (3/4")
1419 Monte Vista (3/4")	408 So. 4th (3/4")	Reservoir (3/4")
540 So. 9th (3/4")	200 N. 5th (3/4")	406 Roosevelt (3/4")
860 N. Grant (3/4")	1110 E. Lewis (1")	1063 Gray (3/4")

16 SERVICES were REPAIRED at the following locations:

241 N. Grant (3/4")	1338 Saratoga (3/4")	1356 Jensen (3/4")
856 So. 2nd (3/4")	322 Jefferson (1")	1244 So. 4th (3/4")
256 N. 12th (3/4")	960 So. 8th (2")	1787 Cottage (3/4")
3444 Hawthorne (2")	239 E. Chaple (1/2")	250 N. 5th (1")
656 So. 4th (1/2")	501 N. Main (1/2")	5866 Country Club Dr. (1")
1137 E. Lander (1/2")		

METER M.& O.

9,895-Meters were read	279-Meters were re-read	25-Meters were installed
145-Meters were changed	7-Meters were removed	29-Meters were repaired

VALVE M.& O.

829 Willard-Repair Main Line Valve.	2nd & Dunn-Blow out main line valve box.
Main & Young-Repair broken fire hydrant valve.	Main & Custer-Clean out valve.
900 Blk. So. 9th-Repair 4" wheelgate vlave.	So. 8th (Colonial Hall)-Replace 1½" valve.

WATER DEPARTMENT MONTHLY REPORT
SEPTEMBER 1980

MAIN LINE WORK:

9th Street Project: Installing new main line. Pipe layed: 1,440' of 6" pipe, 16' of 4" pipe. Installed: 2-6" Kennedy tapping valves, 3-6" Pratt fire hydrant valves, 3-6" Iowa fire hydrants 5-6" tees, 2-6"x12" Kennedy tapping tees, 10-valve boxes, 5-6" Dresser butterfly valves, 4"x6" reducers-2, 1-6" M.J. 45° elbow, 2-4" solid sleeves, Made a chlorine tap.

During the month of September 403,941,000 gallons of water was produced from the system, or 13,464,700 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS OF CHLORINE
Surface Supplies	86,825,000	278.0
Well # 2	37,175,000	133.5
Well # 3	10,060,000	22.5
Well #12	50,995,000	147.5
Well #16	33,640,000	102.0
Well #18	5,375,000	18.5
Well #21	18,411,000	70.5
Well #22	22,000,000	74.5
Well #27	29,325,000	237.5
Well #28	26,167,000	78.0
Well #29	8,529,000	24.5
Well #31	787,000	3.0
Well #32	58,939,000	179.5
PIP Well	11,178,000	37.5
Cree Well	3,789,000	000.0
West Bench Booster	746,000	1.5
	403,941,000	1,408.0

This figure is 216,026,000 less than last September. Based on the population figure of 42,565 there was 316.33 gallons of water per person per day produced from the system.

Airport production was 3,514,000 gallons of water using 13.5 lbs. of chlorine and 30 manhours.

WATER DEPARTMENT MONTHLY REPORT
OCTOBER 1980

MAIN LINE WORK:

Willard: Lay new main line pipe. 1,860' of 6", 25' of 8" pipe layed. Installed: 2-6" Pratt fire hydrant valves, 2-6" Pacific States fire hydrants, 2-6" tees, 1-6" push in plug, 6- va boxes, 2-6" Dresser butterfly valves, 1-8" Pacific States gate valve, 8x8x6" tee-1, 1-8" st coupling.

Philbin Rd. (New Malt Plant): Made 6" tap on 6" main. 640' of 6" pipe layed. Installed: 1-6" Kennedy tapping valve, 2-6" Mueller tapping tees, 3-Valve boxes, 2-6" Pratt fire hydrant va 2-6" Pacific States fire hydrants, 2-90° bends. Made 3/4" Chlorine tap.

933 Yellowstone: Made a 4" tap on 6" main. Installed: 1-6" Kennedy tapping tee.

During the month of October 339,364,000 gallons of water was produced from the system, or 10,947,225 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	85,217,000	292.5
Well # 2	50,698,000	235.0
Well #12	27,624,000	84.5
Well #16	19,879,000	61.0
Well #21	12,898,000	43.5
Well #22	17,050,000	49.0
Well #27	22,074,000	77.5
Well #28	22,533,000	67.0
Well #29	4,315,000	14.0
Well #32	60,572,000	183.5
PIP Well	7,754,000	26.0
Cree Well	7,894,000	000.0
W. Bench Booster	856,000	2.5
	339,364,000	1,136.0

This figure is 59,026,000 less than last October. Based on the population figure of 42,565 there was 257.19 gallons of water per person per day produced form the system.

Airport production was 3,658,000 gallons of water using 13.5 lbs. of chlorine and 46 manhours.

6897

WATER DEPARTMENT MONTHLY REPORT

NOVEMBER 1980

MAIN LINE WORK:

Willard: Lay new main line pipe. 200' of 6" pipe layed. Installed: 2-6"x 4" M.J. reducers, 1-4" solid sleeve, 1-4" M.J. plug, 1-4" butterfly valve, 1-6" solid sleeve, 1-Valve box.

Country Club. Dr. Install new main line pipe. 740' of 6" pipe layed. Installed: 1-6" solid sleeve.

Hilo & Chokecherry: Made 3/4" & 1" Sterilization taps.

During the month of November 232,905,000 gallons of water was produced from the system, or 7,763,500 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	74,878,000	234.0 lbs.
Well # 2	48,427,000	141.0 lbs.
Well #16	23,579,000	77.5 lbs.
Well #27	15,835,000	58.5 lbs.
Well #28	9,469,000	27.5 lbs.
Well #32	58,222,000	183.5 lbs.
Cree Well	2,495,000	000.0
	232,905,000	722.0 lbs.

This figure is 5,009,000 less than last November. Based on the population figure of 42,565 there was 182.39 gallons of water per person per day produced from the system.

Airport production was 3,655,000 gallons of water using 12 lbs. of chlorine and 44 manhours.

13 MAIN LINE LEAKS were REPAIRED at the following locations:

Mohawk Place	715 Dogwood	4892 Mohawk
Alameda & Jefferson	7th & Clark	Colorado Ave.
Hurley & Quinn	Gould & Harrison	8th & Carter
No. 1st	200 Blk. So. 8th	900 Blk. E. Maple
767 N. 6th		

WATER DEPARTMENT MONTHLY REPORT
DECEMBER 1980

MAIN LINE WORK:

Country Club Dr.: Tie into exisiting main. Pipe layed: 20' of 6". Installed: 2-6" butterfly valves, 2-Valve boxes, 3-6" Smith Blair couplings, 1-6" push in plug.

Mohawk Place: Installed new main. Pipe layed: 296' of 6". Installed: 1-6" Kennedy tapping valve, 1-6" Mueller tapping sleeve, 3-6" 90^0 bends, 1-6" Pratt butterfly valve, 1-6" Pacific States fire hydrant, 2-Valve boxes. Made 3/4" chlorine tap.

During the month of December 236,579,000 gallons of water was produced from the system, or 7,631,580 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	78,360,000	244.0 lbs.
Well #2	48,983,000	135.5 lbs.
Well #16	12,521,000	38.5 lbs.
Well #27	16,525,000	64.0 lbs.
Well #28	9,858,000	32.0 lbs.
Well #32	60,898,000	201.5 lbs.
W. Bench Booster	772,000	3.0 lbs.
Cree Well	8,662,000	000.0 lbs.
	236,579,000	718.5 lbs.

This figure is 13,673,000 less than last December. Based on the population figure of 42,565 there was 179.29 gallons of water per person per day produced from the system.

Airport production was 2,950,000 gallons of water using 9.5 lbs. of chlorine and 34 manhours.

8 MAIN LINE LEAKS were REPAIRED at the following locations:

1300 Zener	Mohawk & Aztec	800 Blk. So. Main
1025 Everett	941 Nixon	2000 So. 5th
2nd & Dillon	751 N. 6th	

WATER DEPARTMENT MONTHLY REPORT
JANUARY 1981

MAIN LINE WORK:

Airport: Lay sewer pipe for W.P.C. 11,720' of 8" pipe, 720' of 12" pipe.

During the month of January 234,994,000 gallons of water was produced from the system, or 7,580,451 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	88,146,000	283.5 lbs.
Well # 2	48,035,000	138.0 lbs.
Well #27	17,648,000	56.0 lbs.
Well #28	10,006,000	31.0 lbs.
Well #32	58,783,000	190.5 lbs.
Cree Well	10,979,000	000.0 lbs.
West Bench Booster	1,397,000	2.5 lbs.
	234,994,000	701.5 lbs.

This figure is 1,585,000 less than last January. Based on the population figure of 46,736 there was 162.2 gallons of water per person per day produced from the system.

Airport production was 2,858,000 gallons of water using 9.5 lbs. of chlorine and 33 man hours.

6 MAIN LINE LEAKS were REPAIRED at the following locations:

150 & 156 N. Johnson	Nixon Road	301 E. Chaple
628 Richland	5th & Sublette	726 W. Whitman

2 NEW SERVICES were INSTALLED at the following locations:

746 So. 1st (3/4")	Airport (Field Archers) (3/4")

10 SERVICES were RENEWED at the following locations:

440 So. 10th (3/4")	442 So. 6th (3/4")	753 Hemlock (3/4")
1313 Jensen (3/4")	615 So. 10th (3/4")	631 So. 10th (3/4")
155 N. 18th (1")	540 N. Main (3/4")	730 N. 9th (3/4")
115 N. Main (3/4")		

6900

WATER DEPARTMENT MONTHLY REPORT
FEBRUARY 1981

MAIN LINE WORK:

Airport: Lay sewer pipe for W.P.C. 580' of 8"pipe, 540' of 12" pipe.

520 Yellowstone: Made 6" tap for fire line.

During the month of February 224,059,000 gallons of water was produced from the system, or 8,002,107 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	84,275,000	257.5 lbs.
Well # 2	45,159,000	135.0 lbs.
Well #16	1,897,000	6.0 lbs.
Well #27	17,384,000	54.5 lbs.
Well #28	9,135,000	27.0 lbs.
Well #32	54,832,000	171.0 lbs.
Cree Well	9,785,000	000.0 lbs.
West Bench Booster	1,592,000	5.0 lbs.
	224,059,000	656.0 lbs.

This figure is 6,830,000 less than last February. Based on the population figure of 46,736 there was 171.2 gallons of water per person per day produced from the system.

Airport production was 3,822,000 gallons of water using 12.5 lbs. of chlorine and 32 manhours.

2 MAIN LINE LEAKS were REPAIRED at the following locations:

400 Block South 1st | 900 Block East Maple

2 NEW SERVICES were INSTALLED at the following locations:

Philbin Rd.-New Malt Plant (1") | 707 N. Arthur (1")

8 SERVICES were RENEWED at the following locations:

746 Poole (3/4")	1240 Jensen (3/4")	1030 Fairbanks (3
1314 N. Hayes (3/4")	431 So. 6th (3/4")	798 Dogwood (3/4
539 N. Johnson (1")	529 N. Johnson (1")	

6901

WATER DEPARTMENT MONTHLY REPORT
MARCH 1981

MAIN LINE WORK:

Treatment Plant W.P.C- Lay sewer pipe: 1,670' of 8" sewer pipe, 1040' of 12" sewer pipe, 1,190' of 2" galvanized pipe. Installed: 1-8" 45^0 bend, 2-2" 90^0 bends, 1-16" nipple, 4-12" 45^0 bends, 1-8" 90^0 ell, 2-8" 90^0 bends.

West Whitman St.-Install new sewer line: 356' of 8" P.V.C.

427 N. 6th & 432 N. 5th-Reroute 6" fire hydrant line and 2" service. Pipe layed: 234' of 6", 6' of 4" P.V.C. Installed: 4" Mueller tapping valve, 1-4" tapping sleeve, 2-6" 90^0 bends, 1-4" x 6" reducer, 1-valve box.

36 Rutgers:Made 4" tap off main and ran 4" pipe to fire hydrant. Pipe layed: 20' of 4" Pacif States pipe, 4" Kennedy tapping valve, 1-4" Pacific States fire hydrant, 1-4" tapping sleeve 1-4" M.J. adapter, 1-valve box.

200 East Pine:-Made 6" tap for fire line.

505 Pershing-Made 6" tap for fire line.

Memorial Dr.:-Made 6" tap off 8" main for fire line.

During the month of March 245,506,000 gallons of water was produced from the system, or 7,919,548 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	92,509,000	306.0 lbs.
Well # 2	50,079,000	152.5 lbs.
Well #16	1,100,000	3.0 lbs.
Well #27	22,081,000	69.0 lbs.
Well #28	11,082,000	31.5 lbs.
Well #32	60,805,000	188.5 lbs..
Cree Well	7,460,000	000.0 lbs.
West Bench Booster	390,000	1.5 lbs.
	245,506,000	750.5 lbs.

This figure is 4,788,000 more than last March. Based on the population figure of 46,736 there was 169.45 gallons of water per person per day produced from the system.

6902

Airport production was 3,889,000 gallons of water using 12.5 lbs. of chlorine and 47 manhours.

7 MAIN LINE LEAKS were REPAIRED at the following locations

509 So. Johnson	So. Fairway	West Whitman
Gould & 1st.	Hurley & Quinn	1256 Jensen
956 Taney Lane		

3 NEW SERVICES were INSTALLED at the following locations:

888 W. Alameda (3/4")	150 N. 3rd (1")	400 Blk.N. 6th (2")

19 SERVICES were RENEWED at the following locations:

936 W. Bridger (3/4")	1081 Gray (3/4")	265 Roosevelt (1")
238 W. Clark (3/4")	1335 E. Center (1/2")	238 W. Clark (3/4")
602 So. 3rd (3/4")	404 So. Garfield (1")	957 Everett (3/4")
504 Northland (1/2")	514 Northland (1/2")	1024 Fairbanks (3/4
1055 N. Garfiled (1")	1435 Zener (3/4")	725 N. 10th (3/4")
1350 Pershing (3/4")	549 Euclid (3/4")	244 N. 12th (1/2")
406 So. 9th (1")		

7 SERVICES were REPAIRED at the following locations:

900 Wilson (1")	711 N. Harrison (3/4")	1049 Rocky Point (3
508 W. Carson (1/2")	1511 Monte Vista (1")	1035 Yellowstone (3.
426-428 E. Carter (3/4")		

FIRE HYDRANT M.& O.

800 So. 2nd-Repair leaky fire hydrant
389 So. Fairway-Repair leaky fire hydrant
City Area-Tighten and replace packing on fire hydrants

VALVE M.& O.

150 So. 4th-Repair leaky main line valve

METER M.& O.

9,608-Meters were read	248-Meters re-read	78-Meters changed
42-Meters installed	4-Meters removed	2-Meters frozen
61-Meters repaired	17-Test meters read	

WATER DEPARTMENT MONTHLY REPORT

APRIL 1981

MAIN LINE WORK:

Treatment Plant: Lay sewer pipe: 2,700' of 8" pipe, 2,680' of 12" pipe, 125' of 12" galavanized culvert pipe, 125' of 16" galavanized culvert pipe.

✓Country Club Estates: 2,154' of 6" pipe, 17' of 2" pipe layed. Installed: 5-6" Dresser butter fly valves, 3-6" Pacific States fire hydrants, 1-6" push in plug, 4-6" M.J. tees, 2-6" Pratt fire hydrant valves, 2-valves boxes, 1-4" solid sleeve, 6"x4" reducer, 5-6" repair bands.

380 Canyon: Made 6" tap for new subdivision: 1-6" valve, 1-6" Mueller tapping sleeve.

1070 Hiline: Made 4" tap for fire line

Fairgrounds: Made 6" tap. Installed 1-6" Kennedy tapping valve, 1-6" Mueller tapping sleeve.

Booth Rd.: Made 6" tap: Installed" 1-6" Mueller tapping valve, 1-6" Mueller tapping sleeve.

During the month of April 311,141,000 gallons of water was produced from the system, or 10,371,366 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CLORINE
Surface Supplies	73,610,000	253.5
Well # 2	44,637,000	146.5
Well #12	18,010,000	56.0
Well #16	43,040,000	134.0
Well #18	254,000	.5
Well #21	7,840,000	24.5
Well #22	7,745,000	23.5
Well #27	21,411,000	63.5
Well #28	13,140,000	39.0
Well #32	59,000,000	174.0
Cree Well	11,070,000	000.0
PIP Well	10,508,000	40.5
West Bench Booster	867,000	3.0
	311,141,000	958.5 LBS

This figure is 16,524,000 less than last April. Based on the population figure of 46,736 there was 221.91 gallons of water per person per day produced from the system.

Airport production was 3,128,000 gallons of water using 10.5 lbs. of chlorine and 32 manhours.

8 MAIN LINE LEAKS were REPAIRED at the following locations:

Alameda & Jefferson	1st & Gould	1500 Blk. So. 2nd
Fairway Dr.	763 Birch	1387 Jensen
Country Club Dr.	Country Club Estates	

5 NEW SERVICES were INSTALLED at the following locations:

954 E. Walnut (2")	845 N. Lincoln (3/4")	865 N. Lincoln (3/4")
1021 Booth (3/4")	So Bannock Highway (1") (Reorganized Church of Christ)	

14 SERVICES were RENEWED at the following locations:

341 So. Garfield (1")	1208 N. Garfield (1/2")	705 So. 4th (3/4")
700 So. 3rd (3/4")	403 E. Lewis (3/4")	931 Taney Lane (3/4")
420 Riverside (1/2")	636 E. Whitman (3/4")	551 So. 4th (3/4")
1448 Pershing (3/4")	724 N. 9th (3/4")	6000 Evergreen (1")
234 Sornsen (3/4")	516 N. 15th (1/2")	

16 SERVICES were REPAIRED at the following locations:

404 N. 4th (1/2")	4590 Bannock Highway (1")	2005 Diane (3/4")
966 Cahina (3/4")	119 So. 14th (1")	1225 Holman (1")
534 N. 5th (1/2")	1253 E. Lewis (1")	613 W. Pine (1/2")
1425 Sunset (1")	2685 Lois Lane (1")	1547 Golden Gate (3/4")
1451 Saratoga (3/4")	1155 N. Grant (3")	341 So. Garfield (1"-S.L.)
Blk.3 Lot 6 Mt. McGuire (3/4")		

FIRE HYDRANT M.& O.

City Area-Flush fire hydrants
1352 E. Bonneville-Repair leaky fire hydrant
Philbin Rd.-Set out and pick up fire hydrant meter daily.
City Area-Repair broken fire hydrants
Canyon & Plateau-Set out and pick up fire hydrant meter daily
10th & Whitman-Repair fire hydrant hit by car
Butte & Pinto-Set out and pick up fire hydrant meter daily

WATER DEPARTMENT MONTHLY REPORT

MAY 1981

MAIN LINE WORK:

Country Club Estates: 1,161' of 6" pipe layed. Installed: 4-6" Dresser butter fly valves, 4-6" tees, 1-6"x 4" compression coupling, 1-6"x 3" compression coupling, 1-6" Pacific States gate valve, 1-6" 45° fitting, 3-6" M.J. 22½° fitting, 1-6" M.J. fitting, 1-6" Pacific States fire hydrant valve, 1-6" Kennedy tapping valve, 2-6" Pacific States fire hydrant, 1-6" compression coupling, 1-6" solid sleeve, 1-6" Cross fitting, 1-6" Pratt fire hydrant valv 1-6"x 4" reducer.

Call Well: Install line from 12" main to well house. 6'of 12" pipe, 44'of 8" pipe. Installed: 8" transition coupling, 8" Mueller valve, 12" Mueller valve, 12"x 8" M.J. reducer. Started construction of pump house at the well.

During the month of May 312,761,000 gallons of water was produced from the system, or 10,089,064 gallons per day produced from the following sources

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	57,160,000	178.5 lbs.
Well #2	44,873,000	147.0 lbs.
Well #12	22,118,000	59.5 lbs.
Well #16	63,023,000	201.5 lbs.
Well #18	183,000	.5 lbs.
Well #21	7,747,000	31.5 lbs.
Well #22	8,718,000	28.0 lbs.
Well #27	19,086,000	58.0 lbs.
Well #28	13,471,000	40.0 lbs.
Well #32	60,757,000	184.0 lbs.
PIP Well	5,432,000	19.0 lbs.
Cree Well	10,193,000	000.0 lbs.
	312,761,000	947.5 lbs.

This figure is 26,814,000 less than last May. Based on the population figure of 46,736 there was 215.87 gallons of water per person per day produc from the system.

Airport production was 3,990,000 gallons of water using 12.5 lbs. of chlorine and 36 man hours.

2 MAIN LINE LEAKS were REPAIRED at the following locations:

236 No. 12th	300 Blk. W. Clark

22 NEW SERVICES were INSTALLED at the following locations:

Crystal Park Subdivision:	Lot 1 (1")	Lot 2 (1")
Lot 3 (1")	Lot 4 (1")	Lot 5 (1")
Lot 7 (1")	Lot 9 (1")	Lot 11 (1")
Lot 12 (1")	Lot 13 (1")	Lot 14 (1")
Lot 15 (1")	Lot 16 (1")	Lot 17 (1")
Lot 8 (1")	Lot 10 (1")	Lot 6(1/2 So.) 1")
Lot 6 (1/2 No.)(1")	875 Cahina (3/4")	170 Appaloosa (3/4")
792 Dogwood (3/4")	538 Pershing (1½")	

36 SERVICES were RENEWED at the following locations:

6025 Country Club Dr.(3/4")	6001 Country Club (3/4")	5976 Country Club (1"
5965 Country Club Dr.(3/4")	5901 Country Club (3/4")	835 Cahina (3/4")
5956 Country Club Dr.(3/4")	330 So. Garfield (1")	318 So. Garfield (1")
414 Northland (3/4")	335 N. Main (3/4")	6000 Evergreen (1")
236 N. 12th (3/4")	5888 Country Club(1")	5866 Country Club (3/
5901 Tee Dr. (1")	5933 Tee Dr. (1")	1070 Cahina (3/4")
1090 Cahina (3/4")	1050 Cahina (3/4")	940 Cahina (3/4")
1030 Cahina (3/4")	1085 Cahina (3/4")	751 Cypress (3/4")
1225 Cahina (1")	4941 Bannock Hi. (3/4")	Lt.25 Blk.3 Cahina(3/
Lt.24 Blk.3 Cahina (3/4")	966 Cahina (3/4")	Lt.2 Blk.1 Cahina (3/
Lt.3 Blk.1 Cahina (3/4")	Lt.1 Blk.1 Cahina (3/4")	Lt.1 Blk.2 Cahina (3/
946 W. Eldredge (1/2")	537 So. Grant (3/4")	804 E. Center (3/4")

WATER DEPARTMENT MONTHLY REPORT

JUNE 1981

MAIN LINE WORK:

√So.Harrison & E. Lovejoy-(Well yard project): Pipe layed: 1,862' of 14" ductil 24' of 12" cement pipe. Installed: 3-14" 45^{0} M.J. bends.

During the month of June 613,520,000 gallons of water was produced from the system, or 20,450,666 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	75,861,000	196.0 lbs.
Well #2	35,891,000	115.5 lbs.
Well #3	33,803,000	75.5 lbs.
Well #10	35,169,000	108.0 lbs.
Well #12	92,880,000	276.0 lbs.
Well #16	58,532,000	177.0 lbs.
Well #18	15,437,000	54.0 lbs.
Well #21	21,064,000	58.5 lbs.
Well #22	22,736,000	63.0 lbs.
Well #27	35,959,000	102.5 lbs.
Well #28	27,036,000	95.0 lbs.
Well #29	31,784,000	92.0 lbs.
Well #31	19,621,000	56.0 lbs.
Well #32	60,274,000	142.5 lbs.
PIP Well	30,982,000	96.0 lbs.
Cree Well	16,206,000	000.0 lbs.
West Bench Booster	285,000	1.0 lbs.
	613,520,000	1,708.5 lbs.

This figure is 20,581,000 more than last June. Based on the population figure of 46,736 there was 437.58 gallons of water per person per day produced from the system.

6908

Airport production was 3,853,000 gallons of water using 12 lbs. of chlorine and 36 man hours.

<u>11 MAIN LINE LEAKS</u> were <u>REPAIRED</u> at the following locations:

So. Harrison & W. Lovejoy	Pole Line & Cypress	2600 So. 2nd (2)
57 Greenwood	2500 So. 2nd	764 Jefferson
Jefferson & Alameda (2)	99 Greenwood	Garfield & Conne

<u>28 NEW SERVICES</u> were <u>INSTALLED</u> at the following locations:

42 Temple (3/4")	303 N.12th (1")	120 N. Arthur (2"
845 W. Center (1")	865 Samuel (3/4")	666 Aspen (3/4")
725 Aspen (3/4")	676 Aspen (3/4")	
Castlegate Subdivision		
Lot 1 (3/4")	Lot 20 (3/4")	Lot 2 (3/4")
Lot 4 (3/4")	Lot 5 (1")	Lot 18 (3/4")
Lot 19 (3/4")	Lot 6 (3/4")	Lot 7 (3/4")
Lot 16 (3/4")	Lot 17 (3/4")	Lot 15 (3/4")
Lot 13 (3/4")	Lot 14 (3/4")	Lot 12 (3/4")
Lot 11 (3/4")	Lot 10 (3/4")	Lot 9 (3/4")
Lot 8 (3/4")	Lot 3 (3/4")	

<u>15 SERVICES</u> were <u>RENEWED</u> at the following locations:

2661 Clearwater (3/4")	457 Park (3/4")	242 So. Johnson(3
250 So. Johnson (3/4")	806 Willard (3/4")	689 E. Alameda (3
940 Gray (3/4")	826 Jefferson (3/4")	889 E.Clark (3/4"
514 Willard (3/4")	1040 Gray (3/4")	1017 Gray (3/4")
116 Park (3/4")	2830 Pole Line (1")	203 W.Putnam (3/4

<u>16 SERVICES</u> were <u>REPAIRED</u> at the following locations:

1050 Cahina Way (3/4")	1070 Cahina Way (3/4")	525 N.Grant (1")
1744 Cheshire (3/4")	722 N.11th (1/2")	1648 Cascade (3/4
29 Stanford (3/4")	636 E.Clark (1/2")	746 Jefferson (1"
1126 E. Halliday (1/2")	1135 McKinley (1/2")	230 Willard (3/4"
206 Willard (3/4")	67 Greenwood (1")	720 So.8th (1")
1356 So.2nd (1/2")		

WATER DEPARTMENT MONTHLY REPORT
JULY 1981

MAIN LINE WORK:

✓1st & Halliday St. Well yard project: Lay 474' of steel casing, 539' of 12" ductile iron pipe. Installed: 2-12" Pratt butterfly valves, 2-12x45° angle bends, 2-14x12 reducers, 1-14" 45° bend.

Hiskey & Cassia: Made 3/4" sterilization tap

Ada & Pinto: Made 3/4" sterilization tap

Butte & Appaloosa: Made 3/4" sterilization tap

During the month of July 945,534,000 gallons of water was produced from the system, or 30,501,096 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	104,480,000	320.0 lbs.
Well # 2	36,444,000	113.0 lbs.
WEll # 3	72,648,000	159.5 lbs.
Well #10	92,090,000	256.5 lbs.
Well #12	107,793,000	285.5 lbs.
Well #16	59,547,000	168.5 lbs.
Well #18	33,739,000	110.0 lbs.
Well #21	37,777,000	97.0 lbs.
Well #22	31,312,000	78.0 lbs.
Well #27	54,365,000	156.5 lbs.
Well #28	51,804,000	145.5 lbs.
Well #29	61,134,000	154.5 lbs.
Well #31	57,033,000	160.0 lbs.
Well #32	62,685,000	168.0 lbs.
Well #33	18,800,000	63.0 lbs.
PIP Well	46,544,000	142.5 lbs.
CREE Well	16,418,000	000.0 lbs.
West Bench Booster	921,000	5.5 lbs.
	945,534,000	2,583.5 lbs.

6910

This figure is 118,517,000 more than last July. Based on the population figure of 46,736 there was 652.63 gallons of water per person per day produced from the system.

Airport production was 4,497,000 gallons of water using 14.5 lbs. of chlorine and 43 man hours.

6 MAIN LINE LEAKS were REPAIRED at the following locations:

100 Blk. So. Grant	3058 Pole Line	600 Blk. So.4th
Conner & Garfield	Alameda & Jefferson	711 N. 9th

56 NEW SERVICES were INSTALLED at the following locations:

715 Dogwood (3/4")	465 Highland (1")	645 Bitterroot (1")
Benchland Subdivision:	51-3/4"	1-1" 1-2"

21 SERVICES were RENEWED at the following locations:

356 Fairmont (3/4")	1049 McKinley (3/4")	140 Fullerway (3/4")
735 N.10th (3/4")	165 Wayne (3/4")	555 N.11th (1/2")
1010 E. Sublette (3/4")	1016 E. Sublette (3/4")	1026 E. Sublette (3/4"
534 N.5th (3/4")	540 N.5th (3/4")	179 Fairmont (3/4")
551 W. Pine (3/4")	911 N. Grant (2")	618 N. 13th (3/4")
441 Stansbury (3/4")	207 So. Lincoln (3/4")	944 W. Lander (3/4")
216 Thruston (3/4")	911 N. Grant (1½" F.L.)	1063 Gwen (3/4")

28 SERVICES were REPAIRED at the following locations:

1043 Patsy (3/4")	992 Cahoon (3/4")	1732 Pocatello Cr. (3/4"
742 Cypress (1")	1450 Saratoga (3/4")	1350 Saratoga (3/4")
754 So. Main (1/2")	427 N. 6th (1½")	1063 Gray (3/4")
1043 Patsy (3/4")	422 N. Garfield (3/4")	509 Poole (3/4")
140 Fullerway (3/4")	651 N. Arthur (1/2")	1540 Sunset (1")
901 Wilson (1½")	4799 Clearview (3/4")	2323 North Star (3/4")
4877 Navajo (1")	355 N. 3rd (3/4")	916 Gray (3/4")
639 So. 5th (1½")	901 Wilson (1½")	1866 Churchill Downs (3/
3631 Hillard (1/2")	Harrison & Halliday (1")	872 Bitterroot (3/4")
555 Jefferson (3/4")		

WATER DEPARTMENT MONTHLY REPORT

AUGUST 1981

MAIN LINE WORK:

(new)

1ST & Halliday: Well Yard Project. Pipe layed: 419' of 14" ductile, 22½' of 16" ductile, 9' of river pipe. Installed: 1-12" comp. sleeve, 1-12" orfice fitting, 2-14" Pratt butter valves, 2-14" solid sleeves, 1-16"x14" reducer, 2-16" solid sleeves, 1-16" Pratt butterfly valve, 2-3/4" corp stops. Made 2-3/4" taps.

Garrett Way & Moreland: Made 12"x4" tap. Pipe layed: 13' of 4" ductile, 4' of 3" ductile. Installed: 1-12"x4" kennedy tapping sleeve, 1-4" tapping valve, 1-4" coupling, 1-4"x3" reducer, 2-3" tees, 1-3" meter, 1-valve box.

(Replacement)

Willard St. Replace old main with new: Pipe layed: 1,288' of 6" ductile. Installed: 1-4" reducer, 1-4" 22½° bend, 2-6" Pacific States fire hydrants, 2-6" Dresser butterfly valves, 2-6" fire hydrant valves, 2-6" tees. Made 3/4" Chlorination tap.

During the month of August 877,918,000 gallons of water was produced from the system, or 28,319,935 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	86,625,000	272.5 lbs.
Well # 2	32,964,000	102.5 lbs.
Well # 3	73,697,000	171.5 lbs.
Well #10	87,499,000	231.5 lbs.
Well #12	105,400,000	283.5 lbs.
Well #16	48,583,000	146.0 lbs.
Well #18	25,666,000	89.0 lbs.
Well #21	40,615,000	108.0 lbs.
Well #22	31,777,000	89.0 lbs.
Well #27	50,850,000	142.5 lbs.
Well #28	46,833,000	132.0 lbs.
Well #29	52,094,000	139.5 lbs.
Well #31	49,551,000	148.5 lbs.
Well #32	62,782,000	178.0 lbs.
Well #33	23,377,000	75.0 lbs.

PIP Well	45,040,000	135.5 lbs.
Cree Well	14,029,000	000.0 lbs.
West Bench Booster	541,000	4.0 lbs.
	877,918,000	2,448.0 lbs.

This figure is 199,908,000 more than last August. Based on the population figure of 46,736 there was 605.96 gallons of water per person per day produced from the system.

Airport production was 6,098,000 gallons of water using 18.5 lbs.of chlorine and 31 man hours.

5 MAIN LINE LEAKS were REPAIRED at the following locations:

786 Dogwood
10th & Terry
182 Roosevelt
South Von Elm
1200 So. 2nd

3 NEW SERVICES were INSTALLED at the following locations:

Municipal Airport (2")
3813 Hawthorne (3/4")
1240 Cottage (3/4")

22 SERVICES were RENEWED at the following locations:

1040 E. Bonneville (3/4")
434 So. 10th (3/4")
1062 Fairbanks (3/4"
3534 Jason (3/4")
555 No. 12th (1")
852 No. 9th (3/4")
356 So. Hayes (3/4")
47 Riverside (3/4")
276 Park (3/4")
786 Dogwood (3/4")
420 So. 6th (3/4")
1006 No. Main (3/4"
520 No. 14th (1/2")
779 Dogwood (3/4")
547 Willard (3/4")
555 Willard (3/4")
539 Willard (3/4")
525 Willard (3/4")
169 Fairmont (3/4")
575 Willard (3/4")
593 Willard (3/4")
1283 Ridge (3/4")

22 SERVICES were REPAIRED at the following locations:

2255-57 Gail (3/4")
543 No. 7th (1/2")
635 E. Benton (1/2"
3457 Jason (3/4")
1755 Hampshire (3/4")
1450 Saratoga (3/4"
1055 Howard (3/4")
820 Hubbard (3/4")
909 Lavine (3/4")
1455 Chokecherry (1¼")
950 So. 1st (3/4")
817 Wingate (3/4")
950 Willard (1")
575 Willard (3/4")
583 Willard (3/4")
535 Willard (3/4")
547 Willard (1/2")
525 Willard (1/2")
142 No. 9th (3/4")
152 Fullerway (1/2")
669 Willard (1/2")
70 Princeton (1")

WATER DEPARTMENT MONTHLY REPORT
SEPTEMBER 1981

MAIN LINE WORK:

Cedar Street: Replace old main with new: Pipe layed: 215' of 8", 973' of 10", 54' of 6". Installed: 1-8" $22\frac{1}{2}^{\circ}$ bend, 6-10" Pratt butterfly valves, 1-8" Pratt butterfly valve, 2-valve boxes, 1-8"x 10" reducer, 3-6" solid sleeves, 4-10" tees, 1-45° bend, 2-10"x 6" tees, 2-10" solid sleeves, 1-6" Pratt M.J. valve, 1-6" coupling. Made 3/4" chlorination tap.

During the month of September 615,388,000 gallons of water was produced from the system, or 20,512,933 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	79,600,000	260.0 lbs..
Well # 2	27,532,000	86.0 lbs.
Well # 3	58,863,000	138.5 lbs.
WEll #10	50,666,000	131.0 lbs.
Well #12	77,700,000	216.0 lbs.
Well #16	31,999,000	98.5 lbs.
Well #18	18,310,000	234.5 lbs.
Well #21	31,200,000	85.5 lbs.
Well #22	25,233,000	80.0 lbs.
Well #27	37,996,000	99.5 lbs.
Well #28	23,728,000	75.0 lbs.
Well #29	22,952,000	48.5 lbs.
Well #31	6,887,000	24.0 lbs.
Well #32	60,209,000	181.0 lbs.
PIP Well	37,085,000	113.5 lbs.
CREE Well	14,945,000	000.0 lbs.
West Bench Booster	710,000	5.0 lbs.
	615,388,000	1,876.5 lbs.

This figure is 211,447,000 more than last September. Based on the population figure of 46,736 there was 438.91 gallons of water per person per day produced from the system.

Airport production was 3,874,000 gallons of water using 12 lbs. of chlorine and 30 man hou

WATER DEPARTMENT MONTHLY REPORT
OCTOBER 1981

MAIN LINE WORK:

(Replace)

East Cedar: Replace old main with new. 1,260' of 10" pipe layed. Installed: 8-10" butterfly valves, 4-10" tees, 1-10"x6" cross fitting, 10"x 10" cross fitting-1, 2-valve boxes. Made 2-3/4" sterilization taps.

([illegible])

McKinley Lift Station: Cut and kill fire hydrant line. Material used: 1-6" solid sleeve, 1-6" M.J. plug.

During the month of October 267,886,000 gallons of water was produced from the system, or 8,641,483 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	77,925,000	205.5 lbs.
Well # 2	45,722,000	149.0 lbs.
Well #16	21,504,000	68.5 lbs.
Well #18	944,000	4.0 lbs.
Well #21	7,000,000	19.0 lbs.
Well #22	1,041,000	2.0 lbs.
Well #27	2,474,000	7.5 lbs.
Well #28	13,740,000	42.0 lbs.
Well #32	59,416,000	173.0 lbs.
Well #33	196,000	000.0 lbs.
Cree Well	15,414,000	000.0 lbs.
PIP Well	22,510,000	73.5 lbs.
	267,886,000	745.0 lbs.

This figure is 71,478,000 less than last October. Based on the population figure of 46,736 there was 184.90 gallons of water per person per day produced from the system.

Airport production was 3,064,000 gallons of water using 9.5 lbs. of chlorine and 38 man hours.

4 MAIN LINE LEAKS were REPAIRED at the following locations:

608 W. Clark
Gould Street
Park & Cedar
3671 Hawthorne

6915

WATER DEPTARTMENT MONTHLY REPORT
NOVEMBER 1981

MAIN LINE WORK: (Revised)

Cedar & Jeffreson: Tie in old main to new: Pipe layed: 5' of 10". Installed: 1-12x10 reducer, 1-10" solid sleeve.

During the month of November 219,683,000 gallons of water was produced from the system, or 7,322,767 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	67,950,000	230.5 lbs.
Well # 2	43,843,000	141.0 lbs.
WEll #16	3,710,000	11.5 lbs.
Well #18	605,000	3.0 lbs.
Well #28	9,935,000	230.5 lbs.
Well #32	58,666,000	162.5 lbs.
PIP Well	18,785,000	238.5 lbs.
Cree Well	15,626,000	000.0 lbs.
West Bench Booster	563,000	2.0 lbs.
	219,683,000	1,019.5 lbs.

This figure is 13,222,000 less than last November. Based on the population figure of 46,736 there was 156.68 gallons of water per person per day produced from the system.

Airport production was 3,742,000 gallons of water using 12.0 lbs. of chlorine and 30 man hours.

5 MAIN LINE LEAKS were REPAIRED at the following locations:

980 Nixon	2370 So. 2nd	1929 So. Fairway (2)
1777 E. Clark	92 Greenwood	

21 SERVICES were RENEWED at the following locations:

730 E. Cedar (3/4")	715 E. Cedar (3/4")	762 E. Cedar (3/4")
765 E. Cedar (3/4")	703 E. Cedar (3/4")	815 E. Cedar (3/4")
710 E. Cedar (3/4")	855 E. Cedar (1")	958 No. 8th (3/4")
697 Wayne (3/4")	745 So. 4th (3/4")	546 No. 15th (3/4")
928 No. Grant (3/4")	310 So. 2nd (3/4")	325 No. 7th (3/4")
1207 McKinley (3/4")	734 Grace (3/4")	696 Washington (3/4")
694 ½ Washington (3/4")	239 So. Johnson (3/4")	3567 Hawthorne (3/4")

WATER DEPARTMENT MONTHLY REPORT

DECEMBER 1981

MAIN LINE WORK:

430 Willard: Made 4" tap on 12" main for fire line.

Cedar & Willard (Well House): Cut out old valve and steel pipe. Pipe Layed: 32' of 10".

West End Glacier: Extend main line: Pipe layed: 280' of 8". Installed: 1-6" Pratt butte fly valve, 1-8"x 6" reducer, 1-8"x 8" tee, 2-valve boxes, 1-8" Pratt butterfly valve, 1-90° bend, 1-10" plug.

During the month of December 222,938,000 gallons of water was produced from the system or 7,191,548 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	77,840,000	258.5 lbs.
Well # 2	45,447,000	140.5 lbs.
Well #18	196,000	000.5 lbs.
Well #27	10,915,000	034.5 lbs.
Well #28	10,710,000	034.0 lbs.
Well #32	60,159,000	174.0 lbs.
PIP Well	939,000	004.0 lbs.
Cree Well	16,174,000	000.0 lbs.
West Bench Booster	558,000	002.0 lbs.
	222,938,000	648.0 lbs.

This figure is 13,641,000 less than last December. Based on the population figure of 46,736 there was 153.88 gallons of water per person per day produced from the system.

Airport production was 2,902,000 gallons of water using 8.5 lbs. of chlorine and 32 man hours.

8 MAIN LINE LEAKS were REPAIRED at the following locations:

1003 Diablo	1436 So. 2nd	185 Valleyview
907 Howard	2160 Ardella	Main & Bonneville
2548 So. 2nd	2360 So. 2nd	

6917

WATER DEPARTMENT MONTHLY REPORT
JANUARY 1982

During the month of January 233,402,000 gallons of water was produced from the system, or 7,539,096 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	83,035,000	238.5 lbs.
Well #27	16,272,000	49.5 lbs.
Well #28	10,887,000	34.0 lbs.
Well #32	60,557,000	183.5 lbs.
Cree Well	16,459,000	000.0 lbs.
West Bench Booster	873,000	000.0 lbs.
	233,402,000	505.5 lbs.

This figure is 1,592,000 less than last January. Based on the population figure of 46,736 there was 161.31 gallons of water per person per day produced from the system.

Airport production was 3,558,000 gallons of water using 0.0 lbs. of chlorine and 31 man hours.

6 MAIN LINE LEAKS were REPAIRED at the following locations:

1424 So. 2nd	600 E. Sublette	2360 So. 2nd
4785 Clearview	917 Meadowbrook	200 E. Gould

1 SERVICE RENEWED at the following location:

626 E. Lewis (3/4")

6 SERVICES were REPAIRED at the following locations:

3579 Pole Line (3/4")	403 E. Lewis (3/4")	780 Bryan (3/4")
762 Bryan (1")	774 Dogwood (3/4")	27 Columbia (1")

FIRE HYDRANT M.& O.

7th & Center-Repair broken fire hydrant
2068 Bench Rd.-Repair broken fire hydrant
9th & Young-Repair broken fire hydrant
1552 Jensen-Unthaw frozen fire hydrant
2082 Bench Rd.-Repair fire hydrant hit by car
Lincoln & Sublette-Repair leaky fire hydrant
Airport-Unthaw frozen fire hydrant

WATER DEPARTMENT MONTHLY REPORT
FEBRUARY 1982

MAIN LINE WORK:

3625 Vaughn: Made 4" tap for fire line.
Hospital Rd. & Birdie Dr.: Made 3/4" tap.

During the month of February 221,006,000 gallons of water was produced from the system, or 7,893,071 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	83,045,000	264.0 lbs.
Well # 2	41,217,000	121.0 lbs.
Well #18	1,207,000	4.0 lbs.
Well #27	15,181,000	47.0 lbs.
Well #28	9,564,000	29.0 lbs.
Well #32	55,201,000	164.0 lbs.
Cree Well	14,634,000	000.0 lbs.
West Bench Booster	957,000	10.5 lbs.
	221,006,000	639.5 lbs.

This figure is 3,053,000 less than last February. Based on the popluation figure of 46,736 there was 168.89 gallons of water per person per day produced from the system.

Airport production was 2,944,000 gallons of water using 9.5 lbs. of chlorine and 28 man hours.

2 MAIN LINE LEAKS were REPAIRED at the following locations:
Johnny Creek and Juniper Dr. 3rd and Dunn

1 NEW SERVICE was INSTALLED at the following location:
3625 Vaughn (2")

7 SERVICES were RENEWED at the following locations:

1844 So. 2nd (3/4")	1206 E. Poplar (3/4")	432 Wayne (3/4")
753 So. Main (3/4")	340 So. 6th (3/4")	352 So. 6th (3/4")
1333 No. Main (1")		

WATER DEPARTMENT MONTHLY REPORT

MARCH 1982

During the month of March 236,153,000 gallons of water was produced from the system, or 7,617,838 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	92,665,000	291.5 lbs.
Well # 2	45,342,000	128.5 lbs.
Well #18	135,000	1.5 lbs.
Well #27	17,690,000	54.0 lbs.
Well #28	2,544,000	8.0 lbs.
Well #32	60,670,000	180.5 lbs.
Cree Well	16,362,000	000.0 lbs.
West Bench Booster	745,000	2.0 lbs.
	236,153,000	666.0 lbs.

This figure is 9,353,000 less than last March. Based on the population figure of 46,736 there was 163 gallons of water per person per day produced from the system.

Airport production was 2,887,000 gallons of water using 9.5 lbs. of chlorine and 33 man hours.

7 MAIN LINE LEAKS were REPAIRED at the following locations:

702 So. 1st	1510 ElRancho	1600 Blk. E. Fremont-2
1140 So. 2nd	521 Crescent	655 So. Grant

7 NEW SERVICES were INSTALLED at the following locations:

1070 Yellowstone (3/4")	524 W. Halliday (1")	4330 Stockman (3/4")
4340 Stockman (1")	4360 Stockman (3/4")	4300 Stockman (1")
4370 Stockman (3/4")		

11 SERVICES were RENEWED at the following locations:

1736 N. Main (3/4")	1742 N. Main (3/4")	917 Everett (3/4")
444 Fredregill (3/4")	1634 So. 2nd (3/4")	515 So. Johnson (3/4")
316 So. 9th (3/4")	311 So. 11th (3/4")	521 Crescent (3/4")
809 Berryman (3/4")	308 Stansbury (3/4")	

WATER DEPARTMENT MONTHLY REPORT

APRIL 1982

MAIN LINE WORK:

Johnny Creek & Bannock Highway-Install new sewer pipe. 248' of 8", 60' of 4" cement pipe, 20' of 6" ductile iron pipe. Made 6" tap.

Cedar & Washington-Tie old main into new. Pipe layed: 16' of 12", 8' of 10", 79' of 6", 18' of 4". Installed: 1-12" Dresser butterfly valve, 1-10"x 12" reducer, 1-10" solid sleeve, 1-12" coupling, 3-6" Dresser butterfly valves, 3-6" solid sleeves, 2-6"x 4" reducer 1-4" Dresser butterfly valves, 2-4" solid sleeves, 2-10"x 6" reducers, 2-6" couplings, 1-valve box. The above work also includes Wayne St., Park Ave. and Randolph St.

During the month of April 270,470,000 gallons of water was produced from the system, or 9,015,000 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	101,057,000	307.0 lbs.
Well # 2	44,282,000	126.5 lbs.
Well #16	7,569,000	22.0 lbs.
Well #18	2,168,000	8.5 lbs.
Well #22	8,000,000	27.5 lbs.
Well #27	20,940,000	63.0 lbs.
Well #28	3,208,000	8.0 lbs.
Well #29	7,080,000	21.0 lbs.
Well #32	59,033,000	160.5 lbs.
Cree Well	16,144,000	000.0 lbs.
West Bench Booster	989,000	4.0 lbs.
	270,470,000	748.0 lbs.

This figure is 40,671,000 less than last April. Based on the population figure of 46,736 there was 192.9 gallons of water per person per day produced from the system.

Airport production was 2,927,000 gallons of water using 9 lbs. of chlorine and 31 man hours.

4 MAIN LINE LEAKS REPAIRED at the following locations:

182 Roosevelt　　So. Grant & Idaho St.　　1600 Blk. E. Fremont

Gould St.

WATER DEPARTMENT MONTHLY REPORT

MAY 1982

MAIN LINE WORK

Cedar & Park-(Capital Improvement Project) Pipe layed: 18' of 6". Installed 1-6" Dresser butterfly valve, 6"x 4" reducer, 1-6" solid sleeve.

Bench Rd., Rainer, Baldy & Glacier-(Capital Improvement Project) Pipe layed: 1,284' of 8". 28' of 6". Installed:1-8" Kennedy tapping valve, 2-8" couplings, 1-18"x 8" tapping sleeve, 3-8" Dresser butterfly valves, 1-45° fitting, 1-8"x 6" reducer, 2-8"x 6" tees, 1-8" solid sleeve, 1-6" 22½° bend, 3-valve boxes. Made 8" tap on 18" main, bolted on pressure regulat and by-pass. Made 3/4" chlorination tap.

Tech Farm Rd. & Golf Dr.-(Capital Improvement Project) Pipe layed: 1,710' of 6". Installed 4-6" Dresser butterfly valves, 1-6" tapping valve, 3-6" Pacific States fire hydrants, 5-6" tees, 1-6" 45° bend, 1-6" Pacific States fire hydrant valve, 1-6" 90° bend, 2-valve boxes. Made 3/4" sterilization tap.

During the month of May 401,655,000 gallons of water was produced from the system, or 12,956,613 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	96,136,000	294.0 lbs.
Well # 2	44,000,000	115.5 lbs.
Well # 3	9,030,000	30.0 lbs.
Well #12	11,172,000	32.5 lbs.
Well #16	31,850,000	82.5 lbs.
Well #18	10,820,000	38.0 lbs.
Well #21	19,467,000	47.0 lbs.
Well #22	27,529,000	64.0 lbs.
Well #27	31,568,000	102.5 lbs.
Well #28	19,216,000	54.0 lbs.
Well #29	8,361,000	23.5 lbs.
Well #32	61,004,000	164.5 lbs
PIP Well	14,327,000	54.5 lbs.
Cree Well	17,175,000	000.0 lbs.
	401,655,000	1,102.5 lbs.

6922

This figure is 62,080,000 more than last May. Based on the population figure of 46,736 there was 277.2 gallons of water per person per day produced from the system.

Airport production was 5,139,000 gallons of water using 15 lbs. chlorine and 68 man hours.

6 MAIN LINE LEAKS were REPAIRED at the following locations:

417 So. Arthur	530 No. Arthur	Pine & Jefferson
Bench Road	2414 So. 2nd	Gould & Harrison

2 NEW SERVICES were INSTALLED at the following locations:

3817 Hawthorne Rd. (3/4")	725 Wilson (3/4")

11 SERVICES were RENEWED at the following locations:

637 W. Day (1")	1118 No. 8th (3/4")	419 E. Chaple (3/4")
544 No. Arthur (3/4")	1264 Yellowstone (3/4")	1105 No. Hayes (3/4")
191 So. 16th (1")	851 So. 5th (1")	1126 E. Clark (3/4")
1116 E. Clark (3/4")	358 No. 13th (3/4")	

27 SERVICES were REPAIRED at the following locations:

1218 E. Center (3/4")	1228 E. Center (3/4")	500 Blk. So. 2nd (1")
506 So. 6th (1/2")	530 No. Arthur (1")	30 Duke (1")
353 W. Terry (3/4")	138 Maplewood (1/2")	1115 & 1113 E. Clark (3/4"
521 E. Dunn (1/2")	1381 Bench Rd. (2")	2276 Tonya (3/4")
1826 E. Bonneville (1¼")	738 No. 8th (1/2")	535 No. Arthur (3/4")
1255 No. Hayes (1/2")	719 No. Harrison (3/4")	1035 Yellowstone (3/4")
630 No. 5th (3/4")	945 E. Lander (3/4")	930 Gray (3/4")
631 So. 7th (1")	930 No. 9th (3/4")	135 So.17th (1/2")
Von Elm (Golf Course)(2")	734 Cypress (1")	3535 Pole Line (1/2")

FIRE HYDRANT M.& O.

WPC Treatment Plant-Repair broken fire hydrant
Center & Woodhill-Repair broken fire hydrant
Butte & Bench-Set out and pick up fire hydrant meter daily
Mattwood & Main-Set out and pick up fire hydrant meter daily
19th & Center-Set out and pick up fire hydrant meter daily

WATER DEPARTMENT MONTHLY REPORT

JUNE 1982

MAIN LINE WORK

Wayne Street- Capital Improvement Project: Lay new main line: Pipe layed: 1,336' of 6" D.I. pipe. Installed: 1-6" Pacific States fire hydrant, 1-6" fire hydrant valve, 1-6" tee, 1-6" plug, 1-6" Dresser butterfly valve, 1-6" solid sleeve, 1-valve box.

During the month of June 659,836,000 gallons of water was produced from the system, or 21,994,533 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	97,212,000	276.5 lbs.
Well # 2	30,604,000	99.5 lbs.
Well # 3	50,857,000	145.0 lbs.
Well #10	38,647,000	112.5 lbs.
Well #12	75,689,000	206.0 lbs.
Well #16	26,924,000	73.0 lbs.
Well #18	23,788,000	79.5 lbs.
Well #21	35,781,000	73.5 lbs.
Well #22	33,344,000	72.5 lbs.
Well #27	33,422,000	100.5 lbs.
Well #28	31,017,000	97.5 lbs.
Well #29	37,656,000	93.0 lbs.
Well #31	16,658,000	49.5 lbs.
Well #32	60,066,000	166.0 lbs.
Well #33	9,068,000	31.0 lbs.
PIP Well	41,815,000	123.0 lbs.
Cree Well	16,564,000	000.0 lbs.
West Bench Booster	724,000	4.0 lbs.
	659,836,000	1,802.5 lbs.

This figure is 46,316,000 more than last June. Based on the population figure of 46,736 there was 470.6 gallons of water per person per day produced from the system.

Airport production was 3,055,000 gallons of water using 9.5 lbs. of chlorine and 30 man hours.

WATER DEPARTMENT MONTHLY REPORT

JULY 1982

MAIN LINE WORK

100-500 Blocks Wayne. Capital Improvement Project: Lay new main. Pipe layed: 1,778' of 6" ductile iron. Installed: 5-6" butterfly valves, 1-8"x 6" cross fitting, 7-valve boxes, 2-6" fire hydrant valves, 2-6" Pacific States fire hydrants, 4-6" tees, 2-6" solid sleeves, 1-6"x 4" reducer. Made 2-3/4" chlorination taps.

South 5th (County Shop): Lay new main. Pipe layed: 1,786' of 6" ductile iron pipe. Installed: 1-6" Kennedy tapping valve, 1-6" Mueller tapping sleeve, 2-6" Pratt butterfly valves, 2-6" tees, 2-valve boxes, 1-6" fire hydrant valve, 1-6" Pacific States fire hydrant, 1-6"x 3" tee. Made 3/4" chlorination tap.

2nd & Gould: Replace old main with new. Pipe layed: 50' of 6" ductile iron. Installed: 1-6" solid sleeve.

During the month of July 684,783,000 gallons of water was produced from the system, or 22,089,000 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	89,478,000	255.5 lbs.
Well # 2	27,319,000	86.5 lbs.
Well # 3	75,260,000	190.0 lbs.
Well #10	58,862,000	182.5 lbs.
Well #12	71,863,000	198.5 lbs.
Well #16	32,903,000	95.5 lbs.
Well #18	10,425,000	36.5 lbs.
Well #21	33,672,000	79.5 lbs.
Well #22	33,669,000	79.0 lbs.
Well #27	27,931,000	89.5 lbs.
Well #28	24,414,000	76.0 lbs.
Well #29	30,844,000	73.5 lbs.
Well #31	39,767,000	97.5 lbs.
Well #32	61,621,000	178.0 lbs.
Well #33	10,487,000	32.5 lbs.
PIP Well	39,674,000	117.5 lbs.
Cree Well	16,594,000	000.0 lbs.
	684,783,000	1,868.0 lbs.

This figure is 260,751,000 less than last July. Based on the population figure of 46,736 there was 472.6 gallons of water per person per day produced from the system.

Airport production was 3,636,000 gallons of water using 11 lbs. of chlorine and 32 man hours.

8 MAIN LINE LEAKS were REPAIRED at the following locations:

2645 So. 2nd	308 N. 9th	Main & Gould
872 Northgate	Gould & Main	3134 So. 5th
1202 E. Terry	Cedar Lake Rd.	

5 NEW SERVICES were INSTALLED at the following locations:

799 Wilson (3/4")	3305 Golden (1")	826 E. Center (3/4")
So. 5th (County shop)(2")	600 Blk. W. Day (circulating line)(1")	

7 SERVICES were RENEWED at the following locations:

959 Brennan (3/4")	4285 Tech Farm Rd. (1")	856 N. Harrison (3/4")
647 W. Day (3/4")	423 Parkway (3/4")	980 Jones Dr. (3/4")
325 So. 5th (3/4")		

39 SERVICES RENEWED & HOOKED TO NEW MAIN at the following locations:

157 Wayne (3/4")	173 Wayne (3/4")	183 Wayne (3/4")
193 Wayne (3/4")	432 Wayne (3/4")	431 Wayne (3/4")
465 Wayne (3/4")	411 Wayne (3/4")	470 Wayne (3/4")
553 Pine (3/4")	475 Wayne (3/4")	471 Wayne (3/4")
456 Wayne (3/4")	492 Wayne (3/4")	490 Wayne (3/4")
445 Wayne (3/4")	441 Wayne (3/4")	459 Wayne (3/4")
421 Wayne (3/4")	450 Wayne (3/4")	382 Wayne (3/4")
422 Wayne (3/4")	442 Wayne (3/4")	273 Park (3/4")
416 Wayne (3/4")	369 Wayne (3/4")	374 Wayne (3/4")
396 Wayne (3/4")	404 Wayne (3/4")	375 Wayne (3/4")
367 Wayne (3/4")	340 Wayne (3/4")	333 Wayne (3/4")
366 Wayne (3/4")	365 Wayne (3/4")	320 Wayne (3/4")
354 Wayne (3/4")	352 Wayne (3/4")	330 Wayne (3/4")

WATER DEPARTMENT MONTHLY REPORT
AUGUST 1982

MAIN LINE WORK:

Wayne Ave. Tie in old main lines to new from Wayne to Alameda: Pipe layed: 8' of 4" ductile iron, 104' of 6" ductile iron, 64' of 8" ductile iron. Installed: 1-6" Dresser butterfly valve, 2-6" solid sleeves, 1-6"x 4" M.J. reducer, 1-4" comp. coupling, 1-4" solid sleeve, 2-8" butterfly valves, 2-8" comp. couplings, 1-6" Pacific States fire hydrant, 1-6" fire hydrant valve, 1-6" tee, 4-valve boxes.

Johnny Creek & Shale: Install fire hydrant. Made 12"x 6" tap on main. Pipe layed: 8' of ductile iron. Installed: 1-6" tapping valve, 1-6" Pacific States fire hydrant, 1-12"x 6" tapping sleeve, 1-valve box.

775 Hospital Way: Pipe layed: 12' of 4" ductile iron pipe. Installed 2-3" valves, 2-3" tees. Made 4" tap.

During the month of August 676,445,000 gallons of water was produced from the system, or 21,820,806 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	104,487,000	322.0 lbs.
Well # 2	28,909,000	89.5 lbs.
Well # 3	71,204,000	183.5 lbs.
Well #10	18,847,000	43.0 lbs.
Well #12	67,029,000	185.0 lbs.
Well #16	54,945,000	143.5 lbs.
Well #18	19,127,000	63.5 lbs.
Well #21	43,284,000	88.0 lbs.
Well #22	34,148,000	96.0 lbs.
Well #27	38,188,000	113.5 lbs.
Well #28	26,653,000	79.0 lbs.
Well #29	37,495,000	95.0 lbs.
Well #31	9,316,000	28.5 lbs.
Well #32	62,777,000	190.0 lbs.
Well #33	3,353,000	10.5 lbs.
PIP Well	37,164,000	105.0 lbs.

Cree Well	17,341,000	000.0 lbs.
West Bench Booster	2,178,000	10.0 lbs.
	676,445,000	1,845.5 lbs.

This figure is 201,473,000 less than last August. Based on the population figure of 46,736 there was 466.9 gallons of water per person per day produced from the system.

Airport production was 4,235,000 gallons of water using 14 lbs. of chlorine and 31 man hours.

6 MAIN LINE LEAKS were REPAIRED at the following locations:

Poplar & Willard	245 E. Gould	1118 No. 8th
2504 So. 2nd	Harrison & Lovejoy	2460 So. 2nd

5 NEW SERVICES were INSTALLED at the following locations:

620 So. 8th (1")	5500 So. 5th (1")	5488 So. 5th (1")
134 Warren (3/4")	775 Hospital Way (3")	

23 SERVICES were RENEWED at the following locations:

742 Cypress (3/4")	301 Wayne (3/4" S.L.)	726 E. Hayden (3/4")
1301 So. 5th (3/4")	1624 No. Arthur (3/4")	139 Fullerway (3/4")
218 So. 8th (3/4")	1355 No. Harrison (3/4")	1055 Howard (3/4")
1268 Ridge (3/4")	520 No. 14th (3/4")	508 W. Halliday (3/4")
860 No. Grant (3/4")	1137 E. Lander (3/4")	257 No. 11th (3/4")
1555 No. Main (3/4")	510 Washington (3/4")	1247 So. 3rd (3/4")
862 Randolph (3/4")	428 Filmore (3/4")	820 Hubbard (3/4")
556-548 So. Main (3/4")	1236 E. Whitman (3/4")	

15 SERVICES were RENEWED AND HOOKED TO NEW MAIN at the following locations:

314 Wayne (3/4")	343 Wayne (3/4")	345 Wayne (3/4")
503 Wayne (3/4")	533 Wayne (3/4")	565 Wayne (3/4")
330½ Wayne (3/4")	555 Wayne (1")	547 Wayne (1")
525 Wayne (3/4")	511 Wayne (3/4")	575 Wayne (3/4")
591 Wayne (3/4")	543 Wayne (3/4")	301 Wayne (3/4")

15 SERVICES were REPAIRED at the following locations:

227 So. 9th (1/2")	431 So. 6th (3/4")	354 Wayne (3/4")
935 E. Whitman (3/4")	945 E. Whitman (3/4")	223 No. 15th (3/4")
3275 E. Center (3/4")	1116 So. 2nd (3/4")	Gould & 3rd (3/4") 6928
1271 Ridge (1/2")	1250 E. Clark (3/4")	353 E. Elm (3/4")
1247 So. 3rd (1/2")	646 No. Grant (1/2")	160 Fullerway (1/2")

WATER DEPARTMENT MONTHLY REPORT
SEPTEMBER 1982

MAIN LINE WORK:

Park Street: Capital improvement project: Pipe layed: 2,708' of 6" ductile iron. Installed 3-6" fire hydrant valves, 3-6" Pacific States fire hydrants, 1-6" 90° bend, 5-6" butterfly valves, 1-8"x 6" cross fittings, 1-6"x 6" cross fitting, 2-6" tees, 1-6" solid sleeve, 9-valve boxes. Made 3/4" chlorination tap.

1591 Yellowstone: Install 4" fire line.)

During the month of September 365,463,000 gallons of water was produced from the system, or 12,182,100 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface supplies	92,740,000	272.0 lbs.
Well # 2	45,335,000	134.0 lbs.
Well #12	33,462,000	91.5 lbs.
Well #16	20,740,000	58.5 lbs.
Well #18	4,651,000	15.5 lbs.
Well #21	16,188,000	43.0 lbs.
Well #22	15,390,000	38.5 lbs.
Well #28	13,256,000	37.5 lbs.
Well #29	3,450,000	7.0 lbs.
Well #32	59,688,000	177.0 lbs.
CREE Well	16,683,000	000.0 lbs.
PIP Well	27,273,000	83.0 lbs.
West Bench Booster	1,489,000	7.5 lbs.
	365,463,000	1,006.5 lbs.

This figure is 249,925,000 less than last September. Based on the population figure of 46,736 there was 260.7 gallons of water per person per day produced from the system.

Airport production was 2,660,000 gallons of water using 8.5 lbs. of chlorine and 34 manhours.

WATER DEPARTMENT MONTHLY REPORT
OCTOBER 1982

MAIN LINE WORK:

950 Berryman: Made 4" tap for fire line.
Eldredge St. (NOP Park): Install 8" gate valve and 8" solid sleeve for Parks Department.

During the month of October 240,921,000 gallons of water was produced from the system, or 7,771,645 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	102,982,000	270.5 lbs.
Well # 2	45,220,000	156.5 lbs.
Well #21	229,000	000.0 lbs.
Well #27	9,817,000	32.0 lbs.
Well #32	61,456,000	167.0 lbs.
PIP Well	2,949,000	8.5 lbs.
Cree Well	16,882,000	000.0 lbs.
West Bench Booster	1,386,000	6.0 lbs.
	240,921,000	640.5 lbs.

This figure is 26,965,000 less than last October. Based on the population figure of 46,736 there was 166.3 gallons of water per person per day produced from the system.

Airport production was 2,349,000 gallons of water using 8 lbs. of chlorine and 32 man hours.

3 MAIN LINE LEAKS were REPAIRED at the following locations:

700 W. Alameda
1600 So. 2nd
700 Blk. So. 1st

4 NEW SERVICES were INSTALLED at the following locations:

1591 Yellowstone (3/4")
3660 Highway 30 West (1")
950 Berryman (1")
Blk. 12 Lot 15&16 Fairview Subdivision (3/4")

13 SERVICES were RENEWED at the following locations:

1335 So. 4th (3/4")
1459 Ridge (3/4")
1035 E. Whitman (3/4")
403 So. 10th (3/4")
405 N. 13th (3/4")
548 W. Greeley (3/4")
919 N. 10th (3/4")
920 E. Lovejoy (3/4")
308 Stansbury (3/4") 6890
134 Fullerway (3/4")
109 Roosevelt (3/4")
243 So. 6th (3/4")
806 N. Harrison (3/4")

WATER DEPARTMENT MONTHLY REPORT
NOVEMBER 1982

MAIN LINE WORK:

Maple & Park, Walnut & Park-Capital improvement project: tie in new main with old main: Pipe Layed: 72' of 8" D.I., 40' of 6" D.I. Installed: 4-8" Dresser butterfly valves, 1-6" Dresser butterfly valve, 2-8" comp. coupling, 2-8" solid sleeves, 5-valve boxes, 1-6" solid sleeve.

During the month of November 219,416,000 gallons of water was produced from the system, or 8,030,700 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	90,840,000	267.0 lbs.
Well #2	45,121,000	156.0 lbs.
Well #18	3,372,000	11.5 lbs.
Well #27	61,613,000	168.0 lbs.
Well #32	2,039,000	7.5 lbs.
Cree Well	16,431,000	000.0 lbs.
	219,416,000	610.0 lbs.

This figure is 267,000 less than last November. Based on the population figure of 46,736 there was 171.8 gallons of water per person per day produced from the system.

Airport production was 1,808,000 gallons of water using 6 lbs. of chlorine and 42 man hours.

2 MAIN LINE LEAKS were REPAIRED at the following locations:

1st and Putnam   756 Wayne

1 NEW SERVICE INSTALLED at the following location:

Samuel Street extension (1")

7 SERVICES were RENEWED at the following locations:

455 Hyde (3/4")	1009 E. Wyeth (3/4")	906 N. 11th (3/4")
523 So. Johnson (3/4")	248 So. 11th (3/4")	129 Wilson (3/4")
619 Park (3/4")		

WATER DEPARTMENT MONTHLY REPORT
DECEMBER 1982

During the month of December 221,001,000 gallons of water was produced from the system, or 7,129,064 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	85,815,000	251.5 lbs.
Well # 2	46,290,000	163.5 lbs.
Well #27	9,407,000	20.5 lbs.
Well #32	62,044,000	175.0 lbs.
Cree Well	16,831,000	000.0 lbs.
West Bench Booster	614,000	2.5 lbs.
	221,001,000	613.0 lbs.

This figure is 1,937,000 less than last December. Based on the population figure of 46,736 there was 152.5 gallons of water per person per day produced from the system.

Airport production was 1,753,000 gallons of water using 5.5 lbs. of chlorine and 41 man hours.

8 MAIN LINE LEAKS were REPAIRED at the following locations:

ElRancho & Hiline	532 Roosevelt	1326 So. 2nd
2nd & Fredregill	Yellowstone Plaza (alley)	2370 So. 2nd
18th & Center	Arthur & Lander	

3 SERVICES were RENEWED at the following locations:

744 N. 13th (3/4")	388 McCormick (3/4")	715 Balsam (3/4")

4 SERVICES were REPAIRED at the following locations:

234 So. 2nd (3/4")	995 Sage (1")	3246 So. 5th (1")
3877 Horseshoe Circle (3/4")		

FIRE HYDRANT M.& O.

6th & Dunn-Replace packing on fire hydrant
8th & Clark-Repair fire hydrant
7th & Bridger-Repair fire hydrant
7th & Young-Repair fire hydrant
2nd & Carter-Replace packing on fire hydrant

WATER DEPARTMENT MONTHLY REPORT
JANUARY 1983

MAIN LINE WORK:

1600 Yellowstone: Extend main line. Pipe layed: 92' of 8" ductile iron, 2' of 6" ductile iron. Installed: 1-8" Dresser butterfly valve, 1-8" solid sleeve, 1-8"x 6" tee, 1-8" push in plug, 1-valve box.

Ross Park: Made 4" tap for Parks Department. Pipe layed 18' of 4" ductile iron. Installed. 1-10" tapping sleeve, 1-4" tapping valve, 1-valve box.

During the month of January 227,469,000 gallons of water was produced from the system, or 7,337,709 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	92,644,000	270.0 lbs.
Well #2	46,281,000	146.5 lbs.
Well #21	312,000	000.0 lbs.
Well #27	7,374,000	22.0 lbs.
Well #32	63,356,000	176.5 lbs.
Cree Well	16,974,000	000.0 lbs.
West Bench Booster	528,000	2.5 lbs.
	227,469,000	617.5 lbs.

This figure is 5,933,000 less than last January. Based on the population figure of 46,736 there was 157 gallons of water per person per day produced from the system.

Airport production was 2,321,000 gallons of water using 7.5 lbs. of chlorine and 31 man hours.

5 MAIN LINE LEAKS WERE REPAIRED at the following locations:

216 So. 11th	Hubbard & Myrtle	4th & Lander
Birch & Ash	118 Taft	

7 SERVICES WERE RENEWED at the following locations:

520 N. 14th (3/4")	916-926 E. Bonneville (3/4")	1-45 E. Fremont (1")
613 Randolph (3/4")	1002 Willow Lane (3/4")	438 Crescent (3/4")
552 N. Main (1")		

WATER DEPARTMENT MONTHLY REPORT
FEBRUARY 1983

During the month of February 196,601,000 gallons of water was produced from the system, or 7,021,464 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	77,170,000	237.0 lbs.
Well # 2	41,738,000	132.0 lbs.
Well #27	8,891,000	30.5 lbs.
Well #32	53,464,000	154.0 lbs.
Cree Well	15,338,000	000.0 lbs.
	196,601,000	553.5 lbs.

This figure is 24,405,000 less than last February. Based on the population figure of 46,736 there was 150.2 gallons of water per person per day produced from the system.

Airport production was 1,748,000 gallons of water using 5.5 lbs. of chlorine and 36 man hours.

6 MAIN LINE LEAKS were REPAIRED at the following locations:

Iris & Syringa | 156 N. 9th | 9th & Clark
356 So. Hayes | 400 Blk. E. Bonneville | 1st & Lewis

1 NEW SERVICE was INSTALLED at the following location:

5030 So. 5th (1½")

4 SERVICES were RENEWED at the following locations:

524 McKinley (3/4") | 721 So. 4th (3/4") | 1306 So. 2nd (3/4")
1103 N. Garfield (3/4")

7 SERVICES were REPAIRED at the following locations:

1066 Rocky Point (3/4") | 3514 Jason (1/2") | 834 Lott (1/2")
404 N. 9th (1/2") | 1144 So. 4th (1¼") | 4400 Blk. Opal (1")
4414 Opal (3/4")

FIRE HYDRANT M.& O.

781 Yellowstone-Raise fire hydrant to grade

VALVE M.& O.

5th & Bridger-Repair leaky valve

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WATER DEPARTMENT MONTHLY REPORT
MARCH 1983

During the month of March 226,831,000 gallons of water was produced from the system, or 7,317,129 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	91,400,000	264.5 lbs.
Well # 2	46,101,000	151.0 lbs.
Well #27	8,228,000	28.5 lbs.
Well #32	63,213,000	177.5 lbs.
Cree Well	16,680,000	000.0 lbs.
West Bench Booster	1,209,000	5.0 lbs.
	226,831,000	626.5 lbs.

This figure is 9,322,000 less than last March. Based on the population figure of 46,736 there was 156.6 gallons of water per person per day produced from the system.

Airport production was 1,712,000 gallons of water using 7.5 lbs. of chlorine and 31 man hours.

5 MAIN LINE LEAKS were REPAIRED at the following locations:

2370 So. 2nd	300 Blk. E. Bonneville	982 Willow Lane
334 So. 1st	Pine & Jefferson	

3 NEW SERVICES were INSTALLED at the following locations:

3575 Johnny Creek (1")	4140 Stockman (1")	777 Hospital Way (2")

10 SERVICES were RENEWED at the following locations:

1063 McKinley (3/4")	722 Cypress (3/4")	1283 Jensen (3/4")
722 N. Harrison (3/4")	797 Ebony (3/4")	255 So. 3rd (3/4")
207 So. Lincoln (3/4")	305 So. 6th (3/4")	315 So. 6th (3/4")
516 W. Eldredge (3/4")		

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WATER DEPARTMENT MONTHLY REPORT
APRIL 1983

MAIN LINE WORK:

656 So. 2nd-Made 4" tap for fire line.
2015 So. Grant-Install new fire hydrant. Pipe layed: 14' of 6" D.I. Installed: 2-6" Pacific States fire hydrants, 2-8" x 6" tapping sleeves, 2-6" tapping valves, 2-valve boxes.
Bannock Highway & Hawkweed-Install new fire hydrant. Pipe layed: 22' of 6" D.I. Installed: 1-6" Pacific States fire hydrant, 1-6" tapping valve, 1-12"x 6" tapping sleeve, 1-valve box.
End of City Creek-Made 8" tap on 12" main. Pipe layed: 38' of 8" D.I. Installed: 1-12"x 8" Kennedy tapping sleeve, 1-8" Mueller tapping sleeve, 2-8" Kennedy tapping valve, 1-8" M.J. 45° bend, 1-valve box.
South Main & Sue Rd.-Install new fire hydrant. Pipe layed: 7' of 6" D.I. Installed 1-6" tee, 1-6" solid sleeve, 1-6" Pacific States fire hydrant, 1-6" fire hydrant valve.
4545 Bannock Highway-Install new fire hydrant. Pipe layed: 9' of 6" D.I. Installed: 1-8"x 6" Kennedy tapping sleeve, 1-6" Kennedy tapping valve, 1-6" Pacific States fire hydrant, 1-18" extension barrell, 1-2' extension barrell and shaft, 1-valve box.
5688 Bannock Highway-Install new fire hydrant. Pipe layed: 11' of 6" D.I. Installed: 1-10" Kennedy tapping sleeve, 1-6" tapping valve, 1-6" Pacific States fire hydrant, 1- valve box.
6th & Dunn-Install pipe for ditch water. Pipe layed: 306' of 4" C.I. Installed: 1-4" flange coupling adapter.
West Clark Street-Capital improvement project. Extend the main line. Pipe layed: 1,224' of 12" D.I. Installed: 1-12" Dresser butterfly valve, 2-12" 90° bends, 1-valve box.

During the month of April 234,664,000 gallons of water was produced from the system, or 7,822,133 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies:	95,696,000	274.0 lbs.
Well # 2	44,681,000	146.0 bls.
Well #16	2,660,000	6.5 lbs.
Well #18	69,000	.5 lbs.
Well #21	4,251,000	14.0 lbs.
Well #27	11,136,000	41.0 lbs.
Well #32	58,976,000	183.0 lbs.
Cree Well	16,480,000	000.0 lbs.
West Bench Booster	715,000	2.5 lbs.
	234,664,000	667.5 lbs.

This figure is 35,806,000 less than last April. Based on the population figure of 46,736 there was 167.4 gallons of water per person per day produced from the system.

Airport production was 1,841,000 gallons of water using 4.5 lbs. of chlorine and 30 man hours.

8 MAIN LINE LEAKS were REPAIRED at the following locations:

1300 Blk. N. Main	442 Randolph	700 Blk. W. Whitman
Carson Street	Moreland & Dogwood	King & Harrison
600 E. Dunn	Reservoir Road	

4 NEW SERVICES were INSTALLED at the following locations:

1646-48 Kinghorn (3/4")	5888 Evergreen (1")	W. Eldredge N.O.P. Park (2")
797 Hospital Way (3")		

10 SERVICES were RENEWED at the following locations:

5820 Turf (1")	1110 E. Pine (3/4")	830 Jefferson (3/4")
1040 Everett (3/4")	121 N. 12th (3/4")	127 N. 12th (3/4")
2501 So. 5th (3/4")	244-246 So. Hayes (3/4")	131 N. 10th (3/4")
334 Franklin (3/4")		

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WATER AT YOUR SERVICE

WATER DEPARTMENT MONTHLY REPORT

MAY 1983

MAIN LINE WORK:

Alameda Road: Install new main. Pipe layed: 90' of 6" ductile iron. Installed 1-6" plug.

During the month of May 346,405,000 gallons of water was produced from the system, or 11,174,355 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	102,904,000	286.5 lbs.
Well # 2	44,947,000	146.5 lbs.
Well #12	25,064,000	69.0 lbs.
Well #16	16,758,000	39.5 lbs.
Well #18	9,232,000	27.0 lbs.
Well #21	15,182,000	50.0 lbs.
Well #22	10,270,000	28.0 lbs.
Well #27	17,437,000	60.5 lbs.
Well #28	8,870,000	25.5 lbs.
Well #29	13,568,000	31.0 lbs.
Well #32	62,578,000	169.5 lbs.
Cree Well	17,638,000	000.0 lbs.
West Bench Booster	564,000	000.5 lbs.
	346,405,000	933.5 lbs.

This figure is 55,250,000 less than last May. Based on the population figure of 46,736 there was 239.1 gallons of water per person per day produced from the system.

Airport production was 2,350,000 gallons of water using 9 lbs of chlorine and 43 man hours.

10 MAIN LINE LEAKS were REPAIRED at the following locations:

So. 2nd & Fredregill	2607 So. 2nd	720 So. 19th
Pole Line & Alameda	1300 So. 2nd	1458 So. 2nd
1436 So. 2nd	510 So. 2nd	1655 So. 5th
So. 2nd (Ross Park)		

6938

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WATER AT YOUR SERVICE

WATER DEPARTMENT MONTHLY REPORT
JUNE 1983

MAIN LINE WORK:

Alameda Road: Installed new main. Pipe layed: 662' of 6" ductile iron. Installed: 3-6' Dresser butterfly valves, 1-6" tee, 2-6" Kennedy tapping valves, 1-6" tapping sleeve, 2-(solid sleeves, 3-valve boxes, 1-6" 11½° bend, 1-6" 22½° bend, 1-6" 90° bend, 1-8" x 6" tapping sleeve, 1-6" plug. Made 2" chlorination tap.

Washington Street: Capital improvement project. Pipe layed: 627' of 6" ductile iron, 5' of 4" ductile iron. Installed: 2-6" Dresser butterfly valves, 1-6" fire hydrant valve, 1-6" Pacific States fire hydrant, 1-6" tee, 4-valve boxes, 1-4" Dresser valve, 1-4" tee, 1-6" 90° bend, 6"x 4" reducer.

During the month of June 553,154,000 gallons of water was produced from the system, or 18,438,467 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	100,735,000	271.0 lbs.
Well # 2	35,903,000	117.0 lbs.
Well # 3	46,607,000	123.5 lbs.
Well #10	1,581,000	5.0 lbs.
Well #12	53,084,000	151.0 lbs.
Well #16	43,819,000	108.5 lbs.
Well #18	17,983,000	60.5 lbs.
Well #21	17,799,000	60.5 lbs.
Well #22	32,392,000	94.0 lbs.
Well #27	37,115,000	106.0 lbs.
Well #28	21,165,000	68.0 lbs.
Well #29	45,367,000	128.0 lbs.
Well #32	62,661,000	177.0 lbs.
Well #33	11,903,000	23.5 lbs.
PIP Well	7,953,000	21.5 lbs.

	GALLONS PRODUCED	LBS. OF CHLORINE
Cree Well	17,087,000	000.0 lbs.
	553,154,000	1,515.0 lbs.

This figure is 106,682,000 less than last June. Based on the population figure of 46,736 there was 394.5 gallons of water per person per day produced from the system.

Airport production was 2,976,000 gallons of water using 4.5 lbs. of chlorine and 32 man hours.

5 MAIN LINE LEAKS were REPAIRED at the following locations:

235 Hewlett	725 W. Bonneville	415 W. Gould
255 Hyde		

1 NEW SERVICE INSTALLED at the following location:

549 Stansbury (1")

11 SERVICES were RENEWED at the following locations:

638 So. Arthur (3/4")	3201 Pole Line (1")	658 W. Sherman (3/4")
1257 Walnut (3/4")	845 Washington (3/4")	1018 N. Main (3/4")
308 N. 9th (3/4")	1020 E. Lander (3/4")	208 So. 13th (3/4")
320 N. Grant (3/4")	956 N. Garfield (3/4")	

23 SERVICES were REPAIRED at the following locations:

710 Hemlock (3/4")	1045 N. Harrison (1/2")	114 So. 17th (3/4")
1128 N. Grant (3/4")	162 So. 15th (1")	819 N. 12th (1/2")
925 So. 4th (2")	156 Toponce (1")	317 So. 3rd (1/2")
647 Swisher (3/4")	Opal & Broadway (2-1")	2265 Hiskey (3/4")
4944 Mohawk (2")	636 E. Hayden (1/2")	647 Swisher (3/4")
1800 Garrett Way (3/4")	1065 Patsy (3/4")	4580 Stockman (1")
1020 E. Lander (3/4")	950 N. Grant (3/4")	956 N. Grant (3/4")
3187 Pole Line (1½")	6201 Old Ranch Road (1")	

17 SERVICES were RENEWED & HOOKED TO NEW MAIN at the following locations:

174 Washington (3/4")	186 Washington (3/4")	196 Washington (3/4")
195 Washington (3/4")	193 Washington (3/4")	189 Washington (3/4")
181 Washington (3/4")	166 Washington (3/4")	168 Washington (3/4")
157 Washington (3/4")	145 Washington (3/4")	128 Washington (3/4")
130 Washington (3/4")	136 Washington (3/4")	148 Washington (3/4")
137 Washington (3/4")	135 Washington (3/4")	

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WATER DEPARTMENT MONTHLY REPORT
JULY 1983

MAIN LINE WORK:

Country Club Drive: Replace main line. Pipe layed: 330' of 6" ductile iron. Installed: 1-6" solid sleeve, 1-transition coupling.

200 & 300 Block Washington: Replace main line. Capital Improvement Project: Pipe layed: 1,361' of 6" and 54' of 8" ductile iron. Installed: 1-4" tapping valve, 1-4" Mueller tapping sleeve, 1-4" 90° bend, 1-4"x 6" reducer, 1-6" Kennedy tapping valve, 1- 10"x 6" tapping sleeve, 1-6" 90° bend, 2-6" Dresser butterfly valves, 2-8" Dresser butterfly valv 1-6" Pacific States fire hydrant, 1-8"x 6" cross fitting, 1-8"x 6" tee, 1-10"x 8" reducer 1-10" solid sleeve, 1-8" coupling, 1-6" fire hydrant valve, 4-valve boxes.

315 W. Center: Made 4" tap on 8" main for fire line.

Dunn & South 5th: Replace section of main line. Pipe layed: 6' of 4" ductile iron. Installed: 2-4"x 12" solid sleeves, 4-4" rings, 4-gaskets.

During the month of July 708,656,000 gallons of water was produced from the system, or 22,859,871 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	99,440,000	294.0 lbs.
Well # 2	36,584,000	113.5 lbs.
Well # 3	72,377,000	190.0 lbs.
Well #10	42,472,000	122.0 lbs.
Well #12	68,713,000	189.5 lbs.
Well #16	47,758,000	109.0 lbs.
Well #18	19,517,000	65.0 lbs.
Well #21	23,566,000	68.0 lbs.
Well #22	34,419,000	100.0 lbs.
Well #27	45,385,000	139.0 lbs.

	GALLONS PRODUCED	LBS. OF CHLORINE
Well #28	24,394,000	71.0 lbs.
Well #29	66,167,000	175.0 lbs.
Well #31	30,872,000	81.5 lbs.
Well #32	64,232,000	190.5 lbs.
Well #33	7,999,000	26.50 lbs.
PIP Well	6,741,000	17.5 lbs.
Cree Well	17,269,000	000.0 lbs.
West Bench Booster	751,000	5.5 lbs.
	708.656,000	1,957.5 lbs.

This figure is 23,873,000 more than last July. Based on the population figure of 46,736 there was 489.1 gallons of water per person per day produced from the system.

Airport production was 5,714,000 gallons of water using 9.5 lbs. of chlorine and 35 man hours.

3 MAIN LINE LEAKS were REPAIRED at the following locations:

1900 Blk. So. 2nd	2000 Blk. So. 2nd	526 Randolph

1 NEW SERVICE was INSTALLED at the following location:

4320 Stockman (3/4")

16 SERVICES were RENEWED at the following locations:

1302 So. 4th (3/4")	805 Cahina (3/4")	255 Franklin (3/4")
120 So. 12th (3/4")	604 N. 12th (3/4")	1324 E. Hayden (3/4")
1442 So. 3rd (3/4")	1056 E. Lander (3/4")	1038 E. Lander (3/4")
317 W. Carson (3/4")	315 W. Center (1")	705 N. 11th (1")
728 Dogwood (3/4")	386 Pershing (3/4")	150 Roosevelt (3/4")
436 So. Hayes (3/4")		

27 SERVICES were REPAIRED at the following locations:

1007 E. Fremont (1/2")	111 N. 2nd (1")	734 Hubbard (3/4")
406 So. 7th (1")	746 Cherry (3/4")	727 E. Sherman (2")
949 Fairbanks (1/2")	722 Cherry (3/4")	1229 Zener (1/2")
438 Crescent (3/4")	851 So. 5th (1")	536 W. Whitman (1/2")
240 N. Garfield (2")	734 Hubbard (3/4")	240 No. 13th (1/2")
323 No. Main (1/2")	438 McCormick (3/4")	1326 So. 2nd (3/4")
1030 E. Sublette (1")	1080 Howard (3/4")	5928 Hilo (3/4")
331 N. Johnson (1/2")	1010 Cahina (3/4")	623 So. 9th (1/2")
1821 E. Clark (1")	3106 So. 5th (1")	956 Fairbanks (3/4")

City of Pocatello • Water Department

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WATER DEPARTMENT MONTHLY REPORT
AUGUST 1983

MAIN LINE WORK:

400, 500 & 600 Blocks Washington: Capital improvement project. Pipe layed: 1,798' of 6" ductile iron. Installed: 1-4" Dresser butterfly valve, 1-4" tee, 1-4" 90° bend, 1-6"x 4" reducer, 1- 6" Kennedy tapping valve, 1-6" tapping sleeve, 1-6" Pacific States fire hydrant, 1-6" fire hydrant valve, 1-6" tee, 1-6" Dresser butterfly valve, 1-valve b

During the month of August 630,764,000 gallons of water was produced from the syste or 20,347,226 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	96,482,000	314.5 lbs.
Well # 2	38,857,000	126.0 lbs.
Well # 3	57,162,000	154.5 lbs.
Well #10	18,758,000	51.5 lbs.
Well #12	66,697,000	199.5 lbs.
Well #16	46,293,000	131.0 lbs.
Well #18	59,980,000	181.5 lbs.
Well #21	24,362,000	73.5 lbs.
Well #22	33,749,000	94.0 lbs.
Well #27	38,647,000	103.0 lbs.
Well #28	23,018,000	68.0 lbs.
Well #29	51,757,000	141.0 lbs.
Well #31	32,923,000	97.5 lbs.
Well #32	14,442,000	43.5 lbs.
Well #33	4,444,000	14.0 lbs.
PIP Well	5,655,000	15.5 lbs.
Cree Well	16,993,000	000.0 lbs.
West Bench Booster	545,000	3.0 lbs.
	630,764,000	1,811.5 lbs.

[illegible] figure is 45,681,000 less than last August. Based on the population figure [illegible]6,736 there was 435.4 gallons of water per person per day produced from the system.

[illegible] Airport production was 5,241,000 gallons of water using 13.5 lbs. of chlorine and [illegible]8 man hours.

3 MAIN LINE LEAKS were REPAIRED at the following locations:

Mohawk & Mohawk Lane	Elm & Sorenson	172 So. 15th

9 NEW SERVICES were INSTALLED at the following locations:

1989 So. Grant (1")	5925 Evergreen (3/4")	1180 Willard (3/4")
840 W. Cedar (1")	518 E. Poplar (3/4")	470 E. Poplar (3/4")
Poplar & Washington (3/4")	511 E. Poplar (3/4")	586 Washington (3/4")

11 SERVICES were RENEWED at the following locations:

166-68 Randolph (3/4")	907 Garfield (3/4")	526 W. Sherman (3/4")
918 E. Center (1")	772 Bryan (3/4")	503 So. Lincoln (3/4")
507 N. Lincoln (3/4")	935 W. Young (3/4")	3520 Hawthorne (3/4")
1154 So. 4th (1")	404 So. 11th (3/4")	

33 SERVICES were RENEWED AND HOOKED TO THE NEW MAIN at the following locations:

453 E. Elm (3/4")	409 Washington (3/4")	440 Washington (3/4")
420 Washington (3/4")	410 Washington (3/4")	400 Washington (3/4")
485 Washington (3/4")	495 Washington (3/4")	498 Washington (3/4")
486 Washington (3/4")	480 Washington (3/4")	429 Washington (2-1")
685 Washington (3/4")	692 Washington (3/4")	469 Cedar (3/4")
675 Washington (3/4")	686 Washington (3/4")	682 Washington (3/4")
655 Washington (3/4")	661 Washington (3/4")	644 Washington (3/4")
645 Washington (3/4")	635 Washington (3/4")	506 E. Poplar (3/4")
620 Washington (3/4")	569 Washington (3/4")	595 Washington (3/4")
575 Washington (3/4")	559 Washington (3/4")	578 Washington (3/4")
552 Washington (3/4")	562 Washington (3/4")	

5 SERVICES were HOOKED TO THE NEW MAIN at the following locations:

488 Washington	455 Washington	630 Washington
636 Washington	585 Washington	

13 SERVICES were REPAIRED at the following locations:

1375 Ridge (3/4")	848 Bitterroot (3/4")	841 So. 9th (1/2")
1065 So. Main (3/4")	1455 E. Center (1/2")	1031 Fairbanks (3/4")
144 N. 13th (3/4")	1388 Ridge (1/2")	449 W. Benton (1/2")

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WATER AT YOUR SERVICE

WATER DEPARTMENT MONTHLY REPORT
SEPTEMBER 1983

MAIN LINE WORK:

Washington Street: Capital improvement project. Pipe layed: 49' of 6" ductile iron. Installed: 1-6" tapping valve, 1-6" solid sleeve.

400 Block Walnut: Capital improvement project. Pipe layed: 207' of 6" ductile iron, 54' of 8" ductile iron. Installed: 1-8" solid sleeve.

700 & 800 Blocks of Jefferson: Capital improvement project. Pipe layed: 1,231' of 6" ductile iron. Installed: 6-6" Dresser butterfly valves, 2-6" Pacific States fire hydra 2-6" fire hydrant valves, 3-6" tees, 1-10"x 6" reducer, 6-Valve boxes.

During the month of September 508,470,000 gallons of water was produced from the system, or 16,949,000 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	91,671,000	263.0 lbs.
Well # 2	33,603,000	110.5 lbs.
Well # 3	47,968,000	132.5 lbs.
Well #12	51,245,000	121.5 lbs.
Well #16	50,615,000	148.5 lbs.
Well #18	69,108,000	203.5 lbs.
Well #21	23,549,000	67.5 lbs.
Well #22	33,112,000	92.5 lbs.
Well #27	31,424,000	84.0 lbs.
Well #28	18,845,000	68.0 lbs.
Well #29	28,884,000	73.5 lbs.
PIP Well	10,331,000	25.0 lbs.
Cree Well	16,899,000	000.0 lbs.
West Bench Booster	1,216,000	7.5 lbs.
	508,470,000	1,397.5 lbs.

City of Pocatello • Water Department

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WATER DEPARTMENT MONTHLY REPORT

OCTOBER 1983

MAIN LINE WORK:

Jefferson Street: Capital improvement project. Pipe layed: 262' of 6" ductile iron. Installed: 2-6" solid sleeves, 3-6" Dresser butterfly valves, 1-6" tee, 1-6" coupling, 3-valve boxes.

City Creek & Skyline Dr.: Capital improvement project. Pipe layed: 2,646' of 12" ductile iron. Installed: 3-12" Pratt butterfly valves, 2-12" solid sleeves, 1-12" 22½° bend, 1-6" Pacific States fire hydrant, 1-6" fire hydrant valve, 1-12" 45° bend, 3-valve boxes, 1-12"x 6" cross with 6" plug. Made 2" chlorination tap.

During the month of October 253,095,000 gallons of water was produced from the system, or 8,164,355 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	81,195,000	326.5 lbs.
Well # 2	46,811,000	153.0 lbs.
Well #16	21,872,000	63.5 lbs.
Well #18	6,266,000	21.0 lbs.
Well #21	12,595,000	31.0 lbs.
Well #22	2,093,000	6.5 lbs.
Well #27	59,487,000	189.0 lbs.
Well #28	1,218,000	4.0 lbs.
Cree Well	20,400,000	000.0 lbs.
West Bench Booster	1,158,000	8.5 lbs.
	253,095,000	803.o lbs.

This figure is 12,174,000 more than last October. Based on the population figure of 46,736 there was 174.7 gallons of water per person per day produced from the system.

Airport production was 2,722,000 gallons of water using 7.5 lbs. of chlorine and 31 man hours.

City of Pocatello • Water Department

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WATER DEPARTMENT MONTHLY REPORT

NOVEMBER 1983

MAIN LINE WORK:

City Creek & Skyline Drive interconnect. Capital improvement project. Pipe layed: 138' of 12" ductile iron. Installed: 1-90° bend, 1-12" coupling.

During the month of November 222,409,000 gallons of water was produced from the system, or 7,413,633 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface supplies	78,215,000	236.5 lbs.
Well # 2	45,312,000	149.0 lbs.
Well #16	9,065,000	36.5 lbs.
Well #18	1,417,000	4.0 lbs.
Well #21	1,288,000	3.5 lbs.
Well #27	13,277,000	45.0 lbs.
Well #32	53,009,000	149.5 lbs.
West Bench Booster	4,430,000	15.0 lbs.
	222,409,000	639.0 lbs.

This figure is 2,993,000 more than last November. Based on the population figure of 46,736 there was 158.6 gallons of water per person per day produced from the system.

Airport production was 1,747,000 gallons of water using 5 lbs. of chlorine and 31 man hours.

5 MAIN LINE LEAKS were REPAIRED at the following locations:

800 E. Walnut	Park & Cedar	1st & Putnman
767 Birch	Fredregill & So. 2nd	

3 NEW SERVICES were INSTALLED at the following locations:

1150 N. 8th (3/4")   Fremont & Johnson (2")(Parks Department)

Blk 1 Lot 16 & 17 Tech Farm Road (3/4")

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WATER AT YOUR SERVICE

WATER DEPARTMENT MONTHLY REPORT

DECEMBER 1983

During the month of December 229,270,000 gallons of water was produced from the system, or 7,395,807 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	92,528,000	280.5 lbs.
Well # 2	46,768,000	146.5 lbs.
Well #18	1,379,000	5.0 lb.s
Well #21	142,000	000.0 lbs.
Well #27	36,570,000	119.5 lbs.
Well #32	31,169,000	91.5 lbs.
Cree Well	16,416,000	000.0 lbs.
West Bench Booster	4,298,000	17.0 lbs.
	229,270,000	660.0 lbs.

This figure is 8,269,000 more than last December. Based on the population figure of 46,736 there was 158.2 gallons of water per person per day produced from the system.

Airport production was 1,970,000 gallons of water using 8 lbs. of chlorine and 31 man hours.

2 MAIN LINE LEAKS were REPAIRED at the following locations:

769 Myrtle | 475 Yellowstone

1 SERVICE was RENEWED at the following location:

1016 Gray (3/4")

4 SERVICES were REPAIRED at the following locations:

1227 Ridge (1/2") | 907 Belmont (1/2") | 117 So. 6th (1")

1000 Pocatello Creek (1")

6948

City of Pocatello • Water Department

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WATER DEPARTMENT MONTHLY REPORT

JANUARY 1984

During the month of January 240,890,000 gallons of water was produced from the system, or 7,770,645 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	97,652,000	294.0 lbs.
Well # 2	46,872,000	153.0 lbs.
Well #18	1,111,000	3.5 lbs.
Well #21	747,000	2.0 lbs.
Well #27	9,647,000	23.5 lbs.
Well #32	62,888,000	190.5 lbs.
Cree Well	17,179,000	000.0 lbs.
West Bench Booster	4,794,000	17.5 lbs.
	240,890,000	684.0 lbs.

This figure is 13,421,000 more than last January. Based on the population figure of 46,736 there was 166.3 gallons of water per person per day produced from the system.

Airport production was 3,013,000 gallons of water using 8.5 lbs. of chlorine and 97 man hours.

7 MAIN LINE LEAKS were REPAIRED at the following locations:

2360 So. 2nd	160 So. 17th	1305 Paramount
2nd & Fredregill	800 Blk. So. 2nd	658 So. 1st
806 So. 4th		

NO NEW SERVICES were INSTALLED.

4 SERVICES were RENEWED at the following locations:

334 N. Main (3/4")	1325 Paramount (1")	1452 So. 3rd (3/4")
746 Bryan (3/4")		

6 SERVICES were REPAIRED at the following locations:

616 W. Cedar (3/4")	209 E. Lewis (2")	186 Washington (3/4")
125 N. Garfield (1½")	436 Fairmont (1/2")	1040 E. Hayden (1/2")

6949

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WATER DEPARTMENT MONTHLY REPORT

FEBRUARY 1984

During the month of February 219,405,000 gallons of water was produced from the system, or 7,565,690 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	90,465,000	271.5 lbs.
Well # 2	43,384,000	142.0 lbs.
Well #21	391,000	1.5 lbs.
Well #27	1,984,000	6.5 lbs.
Well #32	62,772,000	184.0 lbs.
Tree Well	15,981,000	000.0 lbs.
West Bench Booster	4,428,000	18.0 lbs.
	219,405,000	623.5 lbs.

This figure is 22,804,000 more than last February. Based on the population figure of 46,736 there was 161.9 gallons of water per person per day produced from the system.

Airport production was 2,706,000 gallons of water using 7.5 lbs. of chlorine and 72 man hours.

6 MAIN LINE LEAKS were REPAIRED at the following locations:

314 W. Clark	1238 N. Main	Pine & Hyde
2nd & Fredregill	111 Princeton	1528 So. 4th

2 NEW SERVICES were INSTALLED at the following locations:

535 E. Bonneville (1") 1st Ave. & C Street (Airport) (2")

4 SERVICES were RENEWED at the following locations:

420 E. Halliday (3/4")	1240 Zener (3/4")	1545 So. 3rd (3/4")
1322 Willard (3/4")		

6 SERVICES were REPAIRED at the following locations:

513 N. 12th (1/2")	1333 N. Main (1")	518 Riverside (1")
638 So. 9th (1/2")	866 W. Cedar ($1\frac{1}{2}$")	722 Lou ($1\frac{1}{2}$")

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WATER DEPARTMENT MONTHLY REPORT

MARCH 1984

During the month of March 232,129,000 gallons of water was produced from the system, or 7,488,032 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	95,685,000	299.0 lbs.
Well # 2	46,621,000	144.0 lbs.
Well #27	4,931,000	17.0 lbs.
Well #32	63,100,000	192.0 lbs.
Cree Well	17,023,000	000.0 lbs.
West Bench Booster	4,769,000	18.0 lbs.
	232,129,000	670.0 lbs.

This figure is 5,298,000 more than last March. Based on the population figure of 46,736 there was 160.2 gallons of water per person per day produced from the system.

Airport production was 3,090,000 gallons of water using 8.0 lbs. of chlorine and 101 man hours.

4 MAIN LINE LEAKS were REPAIRED at the following locations:

2nd & Dillon	602 So. 1st	1238 N. Main
1st & Gould		

2 NEW SERVICES were INSTALLED at the following locations:

930 Berryman (3/4")	31-33 Plateau (1")

4 SERVICES were RENEWED at the following locations:

275 Hyde (3/4")	950 Park (3/4")	419 E. Dunn (3/4")
746 Ebony (3/4")		

11 SERVICES were REPAIRED at the following locations:

626 W. Carson (3/4")	544 So. 6th (3/4")	2777 Margo (1")
1227 So. 4th (1")	764 Birch (1/2")	2203 Garrett Way (1")
2646 Castle Peak Way (3/4")	1948 Anita (1")	255 So. Garfield (1½")
114 Stanford (1")	2104 N. Main (3/4")	

6951

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WATER DEPARTMENT MONTHLY REPORT
APRIL 1984

MAIN LINE WORK

SOUTH SECOND: Irrigation project. Pipe layed: 208' of 4" galv., 3197' of 4" P.V.C. Installed: 17-4" 90° bend, 17-4" tees, 17-4" irrigation valves, 3-4" m.j. tees, 1-2½" cast wheel valve, 1-4" 90° m.j. bend, 1-4" 45° bend, rings and gaskets.

During the month of April 244,029,000 gallons of water was produced from the system, or 8,134,300 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	89,415,000	272.0 lbs.
Well # 2	45,226,000	146.5 lbs.
Well # 16	5,231,000	21.0 lbs.
Well # 21	4,818,000	13.0 lbs.
Well # 22	13,687,000	42.0 lbs.
Well # 27	361,000	1.0 lb.
Well # 32	64,746,000	200.5 lbs.
Cree Well	16,568,000	000.0 lbs.
West Bench Booster	3,977,000	15.0 lbs.
	244,029,000	711.0 lbs.

This figure is 9,365,000 more than last April. Based on the population figure of 46,736 there was 174.0 gallons of water per person per day produced from the system.

Airport production was 2,724,000 gallons of water using 7.5 lbs. of chlorine and 48 man hours.

6952

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WATER DEPARTMENT MONTHLY REPORT
MAY 1984

MAIN LINE WORK

6th & Dunn: Irrigation project. Pipe layed: 360' of 4" ductile. Installed 1' of 3/4" copper, 3-45° bend, 1-4" tapping saddle, 1-3/4" corp. stop, 1-3/4" curb stop.

1000 Block West Fremont: Pipe layed: 108' of 4" cast iron. Installed: 1-4" Pratt butterfly valve, 1-4" tapping saddle, 1-4" ground out solid sleeve, 1-4" solid sleeve.

300 Block Walnut Street: Capital improvement project. Pipe layed: 292' of 8" ductile. Installed: 2-8" solid sleeves, chlorination tap. Flush chlorine through service lines and fire hydrant.

4122 Yellowstone: Made 2-6" taps on 6" main for fire line. (April)

During the month of May 382,794,000 gallons of water was produced from the system, or 12,348,193 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	92,365,000	291.5 lbs.
Well # 2	46,975,000	150.5 lbs.
Well # 3	7,131,000	9.5 lbs.
Well #10	1,587,000	9.0 lbs.
Well #12	23,101,000	50.0 lbs.
Well #16	34,152,000	107.5 lbs.
Well #18	6,634,000	22.5 lbs.
Well #21	17,489,000	36.0 lbs.
Well #22	25,589,000	71.0 lbs.
Well #27	20,179,000	43.0 lbs.
Well #28	5,643,000	18.0 lbs.

	GALLONS PRODUCED	LBS. OF CHLORINE
Well #29	5,363,000	12.5 lbs.
Well #32	68,086,000	218.0 lbs.
Cree Well	17,951,000	000.0 lbs.
West Bench Booster	9,142,000	31.0 lbs.
Pip Well	1,407,000	3.0 lbs.
	382,794,000	1,073.0 lbs.

This figure is 36,389,000 more than last May. Based on the population figure of 46,736 there was 264.2 gallons of water per person per day produced from the system.

Airport production was 3,241,000 gallons of water using 9.0 lbs. of chlorine and 35 man hours.

5 MAIN LINE LEAKS were REPAIRED at the following locations:

1500 Block So. 2nd
200 Block So. 3rd
1545 So. 2nd
525 Franklin
So. 2nd - 88' No. of Fredregill

5 NEW SERVICES were INSTALLED at the following locations:

1240 Wilson (3/4")
4242 Tech Farm Road (3/4")
333 So. Third (1½")
1002 Samuel (2-1")

8 SERVICES were RENEWED at the following locations:

716 Dogwood (3/4")
532 So. Johnson (3/4")
361 Parkway (3/4")
834 Lott (3/4")
705 So. Harrison (3/4")
1036-37 E. Center (3/4")
138 McKinley (3/4")
1018 Meadowbrook (3/4")

3 SERVICES were RENEWED AND HOOKED TO THE NEW MAIN at the following locations:

320 Walnut (3/4")
394½ Warren (3/4")
398 Warren (3/4")

24 SERVICES were REPAIRED at the following locations:

1515 E. Terry (2")
505 No. Grant (1/2")
1048 Dolbeer (3/4")
2161 Horizon (3/4")
125 So. 13th (1/2")
834 Lott (1/2")
223 No. 12th (1/2")
354 So. 7th (1/2")
492 Franklin (1/2")
3560 Hawthorne (1/2")
31 Harvard (1")
1885 Jean (3/4")
2256 Douglas (3/4")
1135 So. 4th (1/2")
1035 E. Center (3/4")
767 W. Cedar (1/2")
766 Myrtle (3/4")
3830 Nora (1/2") Rep. twice
560 So. Arthur (1")
921 Bryan (1/2")
728 No. Harrison (1/2")
747 So. 3rd (3/4")
Blk 1 lot 8 Cedar Lake Sub. (1")

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water AT YOUR SERVICE

WATER DEPARTMENT MONTHLY REPORT

JUNE 1984

MAIN LINE WORK

Pine Street - Jefferson to Hyde: Capital improvement project. Pipe layed: 1670' of 6" ductile iron. Installed: 14-Valve boxes, 11-6" Pratt butterfly valves, 1-6" Dresser butterfly valve, 1-6" tapping valve, 1-6" fire hydrant valve, 1-6" fire hydrant, 8-6" tees, 2-6" 90° bend, 1-6" tapping sleeve, 1-6" cross, 1-6" push in plug, 1-6" solid sleeve, 1-6x4 reducer, 1-steel to cast coupling, chlorination tap. Flush chlorine through new main and service lines.

During the month of June 542,362,000 gallons of water was produced from the system, or 18,078,733 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface supplies & Well #30	78,682,000	245.5 lbs.
Well # 2	25,631,000	81.0 lbs.
Well # 3	69,749,000	160.0 lbs.
Well #10	11,008,000	31.0 lbs.
Well #12	67,665,000	177.0 lbs.
Well #16	39,023,000	126.5 lbs.
Well #18	14,636,000	51.0 lbs.
Well #21	25,383,000	46.0 lbs.
Well #22	29,840,000	87.0 lbs.
Well #27	30,391,000	100.0 lbs.
Well #28	8,392,000	24.0 lbs.
Well #29	34,211,000	102.5 lbs.
Well #32	65,532,000	201.0 lbs.
Well #33	2,680,000	4.5 lbs.
PIP Well	8,361,000	19.5 lbs.
Cree Well	17,303,000	000.0 lbs.
West Bench Booster	13,875,000	53.0 lbs.
	542,362,000	1,509.5 lbs.

6955

This figure is 10,792,000 less than last June. Based on the population figure of 46,736 there was 386.8 gallons of water per person per day produced from the system.

Airport production was 5,037,000 gallons of water using 18.0 lbs. of chlorine and 71 man hours.

8 MAIN LINE LEAKS were REPAIRED at the following locations:

431 Jefferson	124 Valleyview	1007 E. Sublette
1053 E. Pine	Walnut & Filmore	1200 Blk. So. 2nd
35 Westello	1452 So. 3rd	

13 SERVICES were RENEWED at the following locations:

740 Dogwood (3/4")	410 Crescent (3/4")	945 Brennan (3/4")
907 Gray (3/4")	802 W. Fremont (3/4")	820 W. Fremont (3/4")
830 W. Fremont (3/4")	1135 McKinley (3/4")	1001 Meadowbrook (3/4")
123 No. Hayes (3/4")	185 Randolph (3/4")	240 Filmore (3/4")
1207 So. 3rd (3/4")		

6 SERVICES were RENEWED AND HOOKED TO THE NEW MAIN at the following locations:

919 E. Pine (3/4")	957 E. Pine (3/4")	1019 E. Pine (3/4")
1150 E. Pine (3/4")	494 Fairmont (3/4")	500 Filmore (3/4")

4 SERVICES were CONNECTED TO NEW MAIN at the following locations:

967 E. Pine (3/4")	1053 E. Pine (3/4")	500 Filmore (1" summer line)
1164 E. Pine (3/4")		

29 SERVICES were REPAIRED at the following locations:

746 E. Center (1")	907 Everett (3/4")	1016 Sagewood (1½")
921 Bryan (1/2")	720 Ebony (1/2")	205 So. 3rd (3/4")
4230 Stockman (1")	331 No. 13th (1/2")	235 So. 18th (1")
120 So. Main (2")	605 So. 11th (3/4")	1137 E. Halliday (3/4")
971 Gray (1/2")	755 So. 4th (3/4")	316 E. Humbolt (1/2")
920 Centennial Circle (3/4")	405 Northland (1/2")	Well #2-Ross Park (1")
1452 So. 3rd (3/4")	1535 Troy Lane (3/4")	452 E. Cedar (3/4")
1216 No. Arthur (3/4")	219 E. Sutter (3/4")	927 Cahoon (3/4")
3977 Hawthorne (1¼")	1226 No. Arthur (3/4")	306 E. Humbolt (3/4")
921 So. 4th (2")	1510 Bench Road (2")	

FIRE HYDRANT M. & O.

Johnson & Wyeth - Replace gate gasket

17th & Bonneville - Replace gate gasket and bonnet

6956

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WATER DEPARTMENT MONTHLY REPORT

JULY 1984

MAIN LINE WORK

Pine Street - Jefferson to Hyde: Capital improvement project. Pipe layed: 68' of 6" ductile iron, 14' of 4" ductile iron. Installed: 2-6" gate valves, 1-4" Dresser butterfly valve, 3-valve boxes, 2-6" tees, 3-6" 90° bends, 1-4" 90° bend, 3-4x6" reducer, 3-4" coupling adapters, 3-4" steel to cast couplings.

Walnut Street - Warren to Jefferson: Capital improvement project. Pipe layed: 1127' of 8" ductile iron. Installed: 6-8" solid sleeves, 3-8" Dresser butterfly valves, 3-valve boxes, 1-8x6" cross, 1-8" solid sleeve plug, 1-8" m.j. plug, chlorination tap. Flush chlorine through new main and service lines.

Randolph Avenue - Oak to Cedar: Capital improvement project. Pipe layed: 864' of 6" ductile iron. Installed: 1-6" tapping valve, 1-6" gate valve, 2-valve boxes, 1-6" tapping sleeve.

During the month of July 765,850,000 gallons of water was produced from the system, or 24,704,838 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface supplies & Well #30	74,543,000	710.0 lbs.
Well # 2	39,115,000	122.5 lbs.
Well # 3	67,673,000	160.0 lbs.
Well #10	33,711,000	118.5 lbs.
Well #12	86,867,000	249.0 lbs.
Well #16	68,320,000	201.5 lbs.
Well #18	20,780,000	76.0 lbs.
Well #21	28,114,000	70.5 lbs.
Well #22	34,870,000	111.0 lbs.
Well #27	42,891,000	136.0 lbs.

	GALLONS PRODUCED	LBS. OF CHLORINE
Well #28	26,428,000	81.5 lbs.
Well #29	75,063,000	211.0 lbs.
Well #31	40,088,000	115.0 lbs.
Well #32	67,566,000	186.0 lbs.
Well #33	14,377,000	35.0 lbs.
PIP Well	5,370,000	13.0 lbs.
Cree Well	16,980,000	0.0 lbs.
West Bench Booster	23,094,000	65.0 lbs.
	765,850,000	2,661.5 lbs.

This figure is 57,194,000 more than last July. Based on the population figure of 46,736 there were 528.6 gallons of water per person per day produced from the system.

Airport production was 4,781,000 gallons of water using 12.5 lbs of chlorine and 39 man hours.

9 MAIN LINE LEAKS were REPAIRED at the following locations:

458 W. Custer	1000 Block No. Garfield	1238 No. Main
700 Block No. Arthur	Arlington & Johnny Creek	968 Northgate
600 Block Wayne	1055 Gray	Stanford & Harvard

5 NEW SERVICES were INSTALLED at the following locations:

1626 No. Harrison (3/4")	733 E. Sublette (3/4")	1002 Samuel (1")
930 Broadway (3/4")	966 Meadowbrook (3/4")	Walnut & Jefferson [illegible] 3/4"

8 SERVICES were RENEWED at the following locations:

170 Fullerway (3/4")	932 Berryman (3/4")	941 Wayne (3/4")
833 Eldredge (3/4")	935 Wayne (3/4")	231 So. Hayes (3/4")
1315 Ridge (3/4")	526 No. 15th (3/4")	

22 SERVICES were RENEWED AND HOOKED TO THE NEW MAIN at the following locations:

559 E. Walnut (3/4")	1115 E. Pine (3/4")	1252 E. Pine (3/4")
1153 E. Pine (3/4")	493 Hyde (3/4")	398 Park (3/4")
108 Randolph (3/4")	100 Randolph (3/4")	111 Randolph (3/4")
108½ Randolph (3/4")	120 Randolph (3/4")	125 Randolph (3/4")
141 Randolph (3/4")	152 Randolph (3/4")	155 Randolph (3/4")
156-158 Randolph (3/4")	176 Randolph (3/4")	204 Randolph (3/4")
198 Randolph (3/4")	209 Randolph (3/4)	221 Randolph (3/4")
221 Randolph (3/4")		

6958

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WATER DEPARTMENT MONTHLY REPORT

AUGUST 1984

MAIN LINE WORK

Randolph Avenue - Oak to Cedar: Capital improvement project. Pipe layed: 1842' of 6" ductile iron. Installed: 7-6" gate valves, 2-6" fire hydrant valves, 9-valve boxes, 2-6x6" tees, 1-6" cross, 2-6" solid sleeve, 2-fire hydrants, 1-6" steel coup. made into a plug.

During the month of August 528,171,000 gallons of water was produced from the system, or 17,037,774 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface supplies	86,935,000	817.0 lbs.
Well #2	30,391,000	95.0 lbs.
Well #3	66,950,000	188.0 lbs.
Well #10	321,000	1.0 lb.
Well #12	36,100,000	98.5 lbs.
Well #16	60,549,000	177.0 lbs.
Well #18	10,522,000	32.5 lbs.
Well #21	30,347,000	86.5 lbs.
Well #22	33,987,000	79.5 lbs.
Well #27	29,357,000	92.5 lbs.
Well #28	11,943,000	44.0 lbs.
Well #29	25,708,000	71.5 lbs.
Well #31	2,678,000	5.5 lbs.
Well #32	67,050,000	201.5 lbs.
PIP Well	3,480,000	9.0 lbs.
Cree Well	17,799,000	0.0 lbs.
West Bench Booster	14,054,000	48.5 lbs.
	528,171,000	2,047.5 lbs.

6959

This figure is 102,593,000 less than last August. Based on the population figure of 46,736 there were 364.6 gallons of water per person per day produced from the system.

Airport production was 4,791,000 gallons of water using 9.5 lbs. of chlorine and 41 man hours.

4 MAIN LINE LEAKS were REPAIRED at the following locations:

958 E. Poplar	Pine & Hyde	Thurston & Maple
1428 E. Lewis		

13 SERVICES were RENEWED at the following locaitons:

110 Wilson (3/4")	274 Sorenson (3/4")	712 No. Harrison (3/4")
504 W. Eldredge (3/4")	135 Jackson (3/4")	917 Fairbanks (3/4")
444 So. 7th (1")	1200 No. Harrison (3/4")	1220 No. Harrison (3/4")
255 No. 14th (3/4")	137 Roosevelt (3/4")	821-23-25 Randolph (3/4")
727 E. Lewis		

40 SERVICES were RENEWED AND HOOKED TO THE NEW MAIN at the following locatio

235 Randolph (3/4")	245 Randolph (3/4")	255 Randolph (3/4")
256 Randolph (3/4")	257 Randolph (3/4")	262 Randolph (3/4")
270 Randolph (3/4")	281 Randolph (3/4")	284 Randolph (3/4")
285 Randolph (3/4")	315 Randolph (3/4")	322 Randolph (3/4")
334 Randolph (3/4")	335 Randolph (3/4")	342 Randolph (3/4")
345 Randolph (3/4")	346 Randolph (3/4")	355 Randolph (3/4")
360 Randolph (3/4")	366 Randolph (3/4")	367 Randolph (3/4")
370 Randolph (1")	384 Randolph (3/4")	389 Randolph (3/4")
393 Randolph (3/4")	397 Randolph (3/4")	398 Randolph (3/4")
401 Randolph (3/4")	427 Randolph (3/4")	435 Randolph (3/4")
442 Randolph (3/4")	446 Randolph (3/4")	452 Randolph (3/4")
456 Randolph (3/4")	466 Randolph (3/4")	469 Randolph (3/4")
471 Randolph (3/4")	480 Randolph (3/4")	489 Randolph (3/4")
810 Walnut (3/4")		

16 SERVICES were CONNECTED TO THE NEW MAIN at the following locations:

238 Randolph (3/4")	246 Randolph (3/4")	261 Randolph (3/4")
306 Randolph (3/4")	310 Randolph (3/4")	321 Randolph (3/4")
333 Randolph (3/4")	351 Randolph (3/4")	407 Randolph (3/4")
415 Randolph (3/4")	418 Randolph (3/4")	431 Randolph (3/4") 6960
437 Randolph (3/4")	452 Randolph (3/4")	477 Randolph (3/4")
830 Maple (3/4")		

City of Pocatello • Water Department

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WATER DEPARTMENT MONTHLY REPORT

SEPTEMBER 1984

MAIN LINE WORK

Randolph Avenue - Oak to Cedar: Capital improvement project. Pipe layed: 1336' of 6" ductile iron, 10' of 4" cast iron. Installed: 2-valve boxes, 2-6" fire hydrant valves, 2-6" fire hydrants, 2-6" tees, 1-6x4" tee, 1-6" solid sleeve, 1-4" solid sleeve. Made the required chlorination taps and flushed chlorine through the new main and service lines.

2nd & Benton - Made 6" tap on 8" main for fire line.

3rd & Benton - Made 4" tap on 6" main for fire line.

During the month of September 431,848,000 gallons of water was produced from the system, or 14,394,933 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	93,545,000	1104.0 lbs.
Well #2	42,610,000	139.5 lbs.
Well #3	12,900,000	38.0 lbs.
Well #12	27,160,000	75.0 lbs.
Well #16	38,704,000	109.5 lbs.
Well #18	13,358,000	44.5 lbs.
Well #21	26,189,000	75.5 lbs.
Well #22	24,808,000	63.0 lbs.
Well #27	23,847,000	71.0 lbs.
Well #28	20,466,000	74.0 lbs.
Well #29	16,505,000	45.0 lbs.
Well #32	64,553,000	202.5 lbs.
PIP Well	142,000	.5 lbs.
Cree Well	17,164,000	0.0 lbs.
West Bench Booster	9,897,000	31.5 lbs.
	431,848,000	2,073.5 lbs.

6961

This figure is 76,622,000 less than last September. Based on the population figure of 46,736 there were 308.0 gallons of water per person per day produced from the system.

Airport production was 3,651,000 gallons of water using 7.5 lbs. of chlorine and 34 man hours.

4 MAIN LINE LEAKS were REPAIRED at the following locations:

500 Block Franklin	400 Block Filmore	966 Taney Lane (2)
1132 So. 4th		

3 NEW SERVICES were INSTALLED at the following locations:

1090 E. Cedar (1½")	1094 E. Cedar (1½")	320 E. Benton (3/4")

7 SERVICES were RENEWED at the following locations:

545 Roosevelt (3/4")	246 No. 8th (3/4")	803 E. Clark (1")
535 W. Pine (3/4")	888 Jones (3/4")	262 Roosevelt (3/4")
1132 So. 4th (3/4")		

19 SERVICES were RENEWED AND HOOKED TO THE NEW MAIN at the following locations:

210 Randolph (3/4")	506 Randolph (3/4")	510 Randolph (3/4")
526 Randolph (3/4")	540 Randolph (3/4")	542 Randolph (3/4")
556 Randolph (3/4")	576 Randolph (3/4")	590 Randolph (3/4")
594 Randolph (3/4")	596 Randolph (3/4")	615 Randolph (3/4")
640 Randolph (3/4")	647 Randolph (3/4")	657 Randolph (3/4")
664 Randolph (3/4")	672 Randolph (3/4")	800 Poplar (3/4")
754 Poplar (3/4")		

5 SERVICES were CONNECTED TO THE NEW MAIN at the following locations:

556 Randolph (3/4")	615 Randolph (3/4")	685 Randolph (3/4")
688 Randolph (3/4")	695 Randolph (3/4")	

10 SERVICES were REPAIRED at the following locations:

1856 So. 3rd (3/4")	2757 Clearwater (3/4")	770 Myrtle (3/4")
231 No. 6th (1/2")	1555 No. Harrison (1/2")	1231-33 Holman (1")
332 No. 5th (1")	1705 No. Main (1/2")	535 Jefferson (3/4")
600 Blk. W. Day (1")		

FIRE HYDRANT M. & O.

2221 So. 5th - Repair broken fire hydrant

Garfield & Lander - Replace fire hydrant

Henderson & Kinghorn - Replace broken fire hydrant hit by a car

City of Pocatello • Water Department

P.O. Box 4169 • 902 E. Sherman • Pocatello, Idaho 83201 • (208) 232-4311

WATER DEPARTMENT MONTHLY REPORT

OCTOBER 1984

MAIN LINE WORK

700 & 800 Block of Randolph Avenue: Capital improvement project. Pipe layed: 1008' of 6" ductile iron. Installed: 1-6" fire hydrant valve, 2-6" gate valves, 3-valve boxes, 1-6" solid sleeve, 1-6" fire hydrant, 1-6" tee. The required chlorination taps were made and chlorine was flushed through the new main and service lines.

Crestview Park Subdivision: Made 2-3/4" chlorination taps and 2-6" taps on 8" main.

During the month of October 282,598,000 gallons of water was produced from the system, or 9,116,064 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface supplies	87,695,000	1071.5 lbs.
Well # 2	44,416,000	156.5 lbs.
Well #16	24,528,000	63.5 lbs.
Well #18	4,872,000	18.0 lbs.
Well #21	14,091,000	38.5 lbs.
Well #27	10,470,000	27.0 lbs.
Well #28	7,115,000	12.5 lbs.
Well #32	65,925,000	206.5 lbs.
Cree Well	14,028,000	0.0 lbs.
West Bench Booster	9,458,000	29.5 lbs.
	282,598,000	1623.5 lbs.

This figure is 29,503,000 more than last October. Based on the population figure of 46,736 there were 195.0 gallons of water per person per day produced from the system.

Airport production was 2,281,000 gallons of water using 4.5 lbs. of chlorine and 36 man hours.

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P.O. Box 4169 • 902 E. Sherman • Pocatello, Idaho 83201 • (208) 232-4311

WATER DEPARTMENT MONTHLY REPORT

NOVEMBER 1984

MAIN LINE WORK

700 & 800 Block of Randolph Avenue: Capital improvement project. Pipe layed: 276' of 6" ductile iron. Installed: 1-6" gate valve, 1-6" fire hydrant valve, 1-6" fire hydrant, 2-valve boxes, 1-6" tee. The required chlorination taps were made and chlorine was flushed through the new main and service lines.

During the month of November 214,121,000 gallons of water was produced from the system, or 7,137,367 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	92,426,000	1092.5 lbs.
Well #2	44,741,000	150.5 lbs.
Well #16	1,302,000	3.0 lbs.
Well #21	105,000	1.0 lbs.
Well #27	12,972,000	37.5 lbs.
Well #32	54,750,000	177.5 lbs.
Cree Well	3,055,000	0.0 lbs.
West Bench Booster	4,770,000	19.5 lbs.
	214,121,000	1481.5 lbs.

This figure is 8,288,000 less than last November. Based on the population figure of 46,736 there were 152.7 gallons of water per person per day produced from the system.

Airport production was 3,055,000 gallons of water using 4.5 lbs. of chlorine and 65 man hours.

7 MAIN LINE LEAKS were REPAIRED at the following locations:

651 W. Whitman	900 E. Poplar	1387 Jensen
974 Wayne (2)	7th & Clark	1230 College

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P.O. Box 4169 • 902 E. Sherman • Pocatello, Idaho 83201 • (208) 232-4311

WATER DEPARTMENT MONTHLY REPORT

DECEMBER 1984

During the month of December 214,680,000 gallons of water was produced from the system, or 6,925,161 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	87,008,000	936.5 lbs.
Well #2	46,617,000	154.0 lbs.
Well #18	55,561,000	200.0 lbs.
Well #27	8,941,000	26.0 lbs.
Cree Well	12,734,000	0.0 lbs.
West Bench Booster	3,819,000	10.0 lbs.
	214,680,000	1,326.5 lbs.

This figure is 14,590,000 less than last December. Based on the population figure of 46,736 there were 148.1 gallons of water per person per day produced from the system.

Airport production was 3,101,000 gallons of water using 6.0 lbs of chlorine and 31 man hours.

6 MAIN LINE LEAKS were REPAIRED at the following locations:

709 Dogwood	1100 Blk. E. Terry	2011 So. 2nd (2)
2200 So. 2nd	1039 Deon	

4 NEW SERVICES were INSTALLED at the following locations:

1256 Kinghorn (2")	2249 Cassia (3/4")	978 Nixon (3/4")
5880 Tee (3/4")		

1 SERVICE was RENEWED at the following location:

203 Roosevelt (3/4")

14 SERVICES were REPAIRED at the following locations:

East Hall I.S.U. (1½")	246 No. 18th (2")	416 E. Dillon (1/2")
1207 So. 2nd (2")	768 Dogwood (1/2")	515 So. 9th (1/2")
1039 Deon (3/4")	1283 Ridge (1/2"	240 McCormack (3/4")
260 McCormack (3/4")	270 McCormack (3/4")	280 McCormack (3/4")
350 McCormack (3/4")	Crestview Park 1st Lot 5 Blk 9 (3/4")	

6965

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WATER DEPARTMENT MONTHLY REPORT

JANUARY 1985

There were 2 new subdivisions taken into the system in January:

1. Crestview Park 1st Addition
   - 6" Pipe - 2,420'
   - 6" Fire Hydrants - 4
   - 6" Valves - 11

2. East Village 1st Addition
   - 8" Pipe - 36'
   - 6" Pipe - 2,860'
   - 8" Valves - 1
   - 6" Valves - 6
   - 6" Fire Hydrants - 2

During the month of January 229,569,000 gallons of water was produced from the system, or 7,405,452 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	108,316,000	1,090.5 lbs.
Well # 2	44,320,000	143.5 lbs.
Well #18	65,974,000	190.5 lbs.
Well #21	162,000	1.0 lbs.
Well #27	655,000	2.0 lbs.
Cree Well	4,244,000	0.0 lbs.
West Bench Booster	5,898,000	17.0 lbs.
	229,569,000	1,444.5 lbs.

This figure is 11,321,000 less than last January. Based on the population figure of 46,736 there were 158.5 gallons of water per person per day produced from the system.

Airport production was 2,929,000 gallons of water using 6.0 lbs. of chlorine and 38 man hours.

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WATER DEPARTMENT MONTHLY REPORT

FEBRUARY 1985

During the month of February 242,756,000 gallons of water was produced from the system, or 8,669,857 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	114,550,000	810.5 lbs.
Well # 2	42,904,000	136.0 lbs.
Well #16	1,400,000	4.0 lbs.
Well #18	60,900,000	157.0 lbs.
Well #21	286,000	.5 lbs.
Well #27	4,588,000	13.5 lbs.
Cree Well	13,594,000	0.0 lbs.
West Bench Booster	4,534,000	13.0 lbs.
	242,756,000	1,140.5 lbs.

This figure is 23,351,000 more than last February. Based on the population figure of 46,736 there were 185.51 gallons of water per person per day produced from the systen

Airport production was 3,063,000 gallons of water using 6.0 lbs. of chlorine and 37 manhours.

10 MAIN LINE LEAKS were REPAIRED at the following locations:

500 Wilson	10th & Halliday	800 Block No. Main
608 So. 10th	535 Jefferson	834 No. Hayes
3100 So. 5th	122 McKinley	Whitman & 2nd
1625 Ruby		

NO NEW SERVICES WERE INSTALLED

2 SERVICES were RENEWED at the following locations:

146 Randolph (3/4")   125 Roosevelt (3/4")

City of Pocatello • Water Department

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WATER DEPARTMENT MONTHLY REPORT

MARCH 1985

During the month of March 259,006,000 gallons of water was produced from the system, or 8,355,032 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	115,565,000	830.0 lbs.
Well # 2	47,050,000	148.5 lbs.
Well #18	73,305,000	176.0 lbs.
Well #27	4,016,000	11.0 lbs.
Cree Well	12,916,000	33.0 lbs.
West Bench Booster	6,154,000	17.0 lbs.
	259,006,000	1,215.5 lbs.

This figure is 26,877,000 more than last March. Based on the population figure of 46,736 there were 178.7 gallons of water per person per day produced from the system

Airport production was 2,591,000 gallons of water using 6.0 lbs. of chlorine and 43 man hours.

5 MAIN LINE LEAKS were REPAIRED at the following locations:

3106 So. 5th	954 W. Clark	Poplar & Jefferson
1666 Kraft Road	5th Avenue & Swisher	

NO NEW SERVICES WERE INSTALLED

6 SERVICES were RENEWED at the following locations:

336-40 E. Whitman (3/4")	1037 E. Lander (3/4")	701 So. 1st (3/4")
385 Los Altos (3/4")	349 Franklin (3/4")	718 No. 10th (3/4")

City of Pocatello • Water Department

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WATER DEPARTMENT MONTHLY REPORT

APRIL 1985

MAIN LINE WORK

2000 Blk. So. 4th & So. 5th: Irrigation project. Installed: 2-4" valves, 1-4" Y fitting, 1-4" 45 ° bend.

2225 So. Bannock Highway: Pipe layed: 18' of 6" ductile iron. Installed: 1-6" fire hydrant, 1-6" tapping sleeve, 1-6" tapping valve, 1-valve box. Made 6" tap on 12" main.

During the month of April 326,044,000 gallons of water was produced from the system, or 10,868,133 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Well # 2	45,246,000	144.0 lbs.
Well #12	10,205,000	23.0 lbs.
Well #16	25,614,000	63.5 lbs.
Well #18	72,892,000	233.0 lbs.
Well #21	11,627,000	30.0 lbs.
Well #22	15,228,000	39.5 lbs.
Well #27	15,168,000	36.0 lbs.
Well #28	1,561,000	6.0 lbs.
Well #29	1,302,000	4.5 lbs.
Well #30	99,110,000	248.5 lbs.
PIP Well	4,524,000	8.5 lbs.
Cree Well	16,016,000	37.0 lbs.
West Bench Booster	7,551,000	19.5 lbs.
	326,044,000	893.0 lbs.

This figure is 82,015,000 more than last April. Based on the population figure of 46,736 there were 232.5 gallons of water per person per day produced from the system.

Airport production was 2,258,000 gallons of water using 4.5 lbs. of chlorine and 30 man hours.

6969

City of Pocatello • Water Department

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WATER DEPARTMENT MONTHLY REPORT

MAY 1985

MAIN LINE WORK:

Highland Tank: Pipe layed:162' of 18" ductile iron, 194' of 14" ductile iron. Installed 1-18" Tee; 1-18" solid sleeve, 3-18" dresser valves, 3-valve boxes, 1-14" gate valve, top half of 1-valve box, 2-14" 45° bends, 1-14" flange coupling adaptor, 6'-threaded 3/4".

Country Club & Turf Drive: Pipe layed: 859' of 6" ductile iron. Installed: 3-6" tapping valves, 3-6" tapping sleeves, 3-valve boxes, 3-6" solid sleeves, 1-chlorination tap, 1-6" fire hydrant, 1-fire hydrant valve, 1-valve box, 1-6" tee, 2-6" M.J. 45° bends, 38'-6" P.V.C., 2-6" M.J. plugs.

700-800 Block Washington Avenue: Pipe layed: 486' of 10" ductile iron.

During the month of May 470,617,000 gallons of water was produced from the system, or 15,181,193 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Well # 2	47,238,000	225.5 lbs.
Well # 10	1,069,000	3.5 lbs.
Well # 12	45,324,000	112.0 lbs.
Well # 16	37,296,000	95.0 lbs.
Well # 18	75,708,000	183.5 lbs.
Well # 21	16,293,000	55.5 lbs.
Well # 22	27,103,000	78.5 lbs.
Well # 27	26,722,000	53.0 lbs.
Well # 28	27,832,000	95.5 lbs.
Well # 29	26,092,000	70.5 lbs.
Well # 30	104,961,000	
Well # 31	3,204,000	10.5 lbs.
PIP Well	14,952,000	32.5 lbs.
Cree Well	16,823,000	78.0 lbs.
	470,617,000	1,021.0 lbs.

6970

This figure is 84,111,000 more than last May. Based on the population figure of 46,736 there were 324.8 gallons of water per person per day produced from the system.

Airport production was 3,548,000 gallons of water using 7.0 lbs. of chlorine and 31 man hours.

8 MAIN LINE LEAKS were REPAIRED at the following locations:

331 No. Johnson	900 Block E. Poplar
1700 Block E. Clark	300 Block Parkway
645 Willow Lane	Poplar & Eastridge
537 W. Whitman	900 E. Young

3-1" taps for Parks Department at Manson Park.

8 NEW SERVICES were INSTALLED at the following locations:

Lot 3 Turner Tract (2")	[illegible] Road 2-1½"	3684 Hwy. 30 West (3/4")
1200 E. Cedar (3/4")		~~Non Elm (2")~~
343 No. 14th (3/4")		1442 Juniper Drive (1")
*333 No. 18th (meter and installation) (1½")		Lot 20-21 Blk 1 [illegible] – 1"
*269 Thurston (meter and installation) (3/4")		

* [illegible]

17 SERVICES were RENEWED at the following locations: * convert to [illegible]

331 No. Johnson (3/4")	839 W. Lander (3/4")	*732,744 Washington (3/4")
545,595 Euclid (3/4")	950 Meadowbrook (3/4")	*754,764 Washington (3/4")
1080 E. Oak (3/4")	5801 Country Club Dr. (3/4")	*777 Washington (3/4")
344 No. Grant (3/4")	114 Taft (3/4")	703,717 Wyldwood (3/4")
452 E. Cedar (3/4")	*726 Washington (3/4")	

20 SERVICES were REPAIRED at the following locations:

4431 So. 5th (3/4")	504 So. 19th (1")	305 N. Johnson (½")
432 No. 11th (½")	631 So. 7th (1")	1439 N. Garfield (½")
257 N. 8th (½")	1026 E. Center (3/4")	1445 N. Garfield (½")
1956 Horizon (3/4")	2264 Jacqueline (3/4")	2293 Hiskey (1")
345 So. 10th (3/4")	524 E. Dunn (3/4")	450 N. Main (3/4")
429 N. 10th (½")	306 So. Johnson (1")	1504 So. 3rd (½")
441 N. 10th (½")	306 N. Main (3/4")	

VALVE M. & O.

754 N. Arthur-Blow out valve box

City of Pocatello • Water Department

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WATER DEPARTMENT MONTHLY REPORT

JUNE 1985

MAIN LINE WORK:

Washington Street-Cedar to Alameda: Pipe Layed: 33' of 6" ductile iron, 792' of 10" ductile iron. Installed 2-6" fire hydrants, 2-6" fire hydrant valves, 2-10" solid sleeves, 2-12" to 10" M.J. reducers, 6-10" pacific states valves, 2-10" x 6" tee fittings, 1-10" x 10" tee fitting, 8-valve boxes. 1-chlorination tap.

700 Block Willard Avenue: Pipe layed: 649' of 6" ductile iron. Installed: 1-6" pacific states fire hydrant, 1-6" fire hydrant valve, 2-6" Mueller gate valves, 3-valve boxes, 1-6" x 6" tee. 1-chlorination tap.

During the month of June 782,384,000 gallons of water was produced from the system, or 26,079,466 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Well # 2	46,063,000	146.0 lbs.
Well # 3	54,000,000	159.0 lbs.
Well # 10	38,430,000	112.0 lbs.
Well # 12	92,145,000	239.0 lbs.
Well # 16	31,328,000	537.0 lbs.
Well # 18	72,459,000	179.0 lbs.
Well # 21	21,827,000	65.0 lbs.
Well # 22	30,668,000	87.0 lbs.
Well # 27	44,658,000	86½.0 lbs.
WEll # 28	31,720,000	223.0 lbs.
Well # 29	82,883,000	230.0 lbs.
Well # 31	70,464,000	157½.0 lbs.
Well # 33	10,960,000	31.0 lbs.
PIP Well	15,153,000	32.0 lbs.
Cree Well	13,048,000	28.0 lbs.
	726,157,000	2,312.0 lbs.

6972

This figure is 236,637,000 more than last June. Based on the population figure of 46,746 there were 558.0 gallons of water per person per day produced from the system.

Airport production was 6,168,000 gallons of water using 12.0 lbs of chlorine and 34 man hours.

4 MAIN LINE LEAKS were REPAIRED at the following locations:

64 Greenwood	900 Block E. Poplar
170 So. 9th	951 Wayne

7 NEW SERVICES were INSTALLED at the following locations:

120 N. Lincoln (3/4")	1309 N. Arthur (1½")	1265 Pershing (3/4")
2207 So. Grant (3/4")	Belmont & Stockman (3/4")	1275 Pershing (3/4")
1426 N. Hayes (1")	230 No. 10th (3/4")	

* transferred to new main

41 SERVICES were RENEWED at the following locations:

*779 Washington (3/4")	*840 Washington (3/4")	*755 Willard (3/4")
*816 Washington (3/4")	*845 Washington (3/4")	*787 Willard (3/4")
*813 Washington (3/4")	*854 Washington (3/4")	*759 Willard (3/4")
*819 Washington (3/4")	*861 Washington (3/4")	*794 Willard (3/4")
*826 Washington (3/4")	*864 Washington (3/4")	*761 Willard (3/4")
*770 Washington (3/4")	*867 Washington (3/4")	*773 Willard (3/4")
*790 Washington (3/4")	*Lot N. of 867 Washington (3/4")	*762 Willard (3/4")
*785 Washington (3/4")	1465 Sunset (1")	*778 Willard (3/4")
*803 Washington (3/4")	315 So. Lincoln (1")	*784 Willard (3/4")
*806 Washington (3/4")	133 Fullerway (3/4")	*797 Willard (3/4")
*828 Washington (3/4")	825 Filmore (3/4")	1031 So. 3rd (3/4")
*837 Washington (3/4")	*744 Willard (3/4")	228-30 N. 10th (1")
935 N. Harrison (3/4")	*741 Willard (3/4")	238-40 N. 10th (1")
444 N. Main (3/4")	*754 Willard (3/4")	

16 SERVICES were REPAIRED at the following locations:

735 Bitteroot (3/4")	1050 Sagewood (1½")	445 N. 12th (½")
632 So. Main (½")	1119 N. Main (1")	1285 Ridge (½")
1524 E. Lander (1")	4973 Cherokee (3/4")	1421 Cottage (3/4")
1825 N. Main (3/4")	1448 Bench Rd. (3/4")	311 Stansbury (½")
1358 So. 4th (3/4")	916 Jones (3/4")	965 Sagewood (1

6973

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WATER DEPARTMENT MONTHLY REPORT

JULY 1985

MAIN LINE WORK:

800 Block Willard: Pipe layed: 620' of 6" D.I.; 1-6" solid sleeve.

800 Block Washington; Pipe layed: 24' of 10" D.I., 1 10" B.F. valve, 1-valve box, 1-10" cast to 12" steel transition coupling.

900 Block E. Maple: 831" of 6" D.I., 8-P.S. gate valves, 2-6x6 crosses 1-6x6 Tee, 1-P.S. Fire Hydrant, 9-valve boxes, 1-6" solid sleeve, 1-4" 90° plain end to M.J., 1-4" flanged coupling.

Oak & Filmore: Pipe layed: 54' of 6" D.I., 1-6" P.S. gate valve, 1-valve box.

During the month of July 902,078,000 gallons of water was produced from the system, or 29,099,290 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Mink Creek	95,915,000	820.5 lbs.
Well #2	32,390,000	102.5 lbs.
Well #3	81,000,000	232.0 lbs.
Well #10	77,406,000	230.0 lbs.
Well #12	111,685,000	395.0 lbs.
Well #16	31,575,000	105.0 lbs.
Well #18	66,878,000	167.0 lbs.
Well #21	27,836,000	95.0 lbs.
Well #22	32,084,000	87.0 lbs.
Well #27	53,086,000	
Well #28	50,076,000	165.0 lbs.
Well #29	72,974,000	211.5 lbs.
Well #30	25,156,000	
Well #31	77,696,000	170.5 lbs.
Well #32	5,105,000	5.0 lbs.

6974

Well #33	30,852,000	80.5 lbs.
PIP Well	21,751,000	35.5 lbs.
Cree Well	8,613,000	25.0 lbs.
	902,078,000	2,938.0 lbs.

This figure is 136,228,000 more than last July. Based on the population figure of 46,736 there were 622.6 gallons of water per person per day produced from the system.

Airport production was 5,431,000 gallons of water using 11.0 lbs. of chlorine and 44 manhours.

<u>3 MAIN LINE LEAKS</u> were <u>REPAIRED</u> at the following locations:

Apache & Bannock Hwy	Maple & Fairmont
500 Blk. East Bonneville	

<u>9 NEW SERVICES</u> were <u>INSTALLED</u> at the following locations:

1280 Yellowstone (1") From existing 2 - 3/4" services	1257-59 Holman (3/4")	526 W. Sherman (3/4")
235 S. 20th (1")	390 Yellowstone (1")	570 Euclid (3/4") Renewed.
736 E. Poplar (3/4")	1900 Poc. Crk. Rd. (1-1/2")	
740 Hyde (3/4")	2200 E Terry (2" S.L.)	

* connect to new main

<u>42 SERVICES</u> were <u>RENEWED</u>* at the following locations:

1205-15-23 E. Cedar (3/4")	805 Willard (3/4")	824 Willard (3/4")
319 S. Johnson (3/4")	806 Willard (3/4")	829 Willard (3/4")
344 N. 11th (3/4")	816 Willard (3/4")	832 Willard (3/4")
140 N. 14th (3/4")	817 Willard (3/4")	837 Willard (3/4")
842 Willard (3/4")	858 Willard (3/4")	887 Willard (3/4")
849 Willard (3/4")	868 Willard (3/4")	1308 E. Center (1")
850 Willard (3/4")	871 Willard (3/4")	1054 Gray (3/4")
859 Willard (3/4")	878 Willard (3/4")	1225 N. Harrison (3/4")
1402 Ammon (3/4")	150 N. 14th (3/4")	295 Filmore (3/4")
956 E. Maple (3/4")	626 E. Eldredge (3/4")	586 Eldredge (3/4")
119 S. 14th (3/4")	115 Fullerway (3/4")	294 Filmore (3/4")
1054 E. Maple (3/4")	1020 E. Maple (3/4")	938 W. Wyeth (3/4")
295 Fairmont (3/4")	320 Jefferson (1")	3514 Jason (3/4")
1025 Gray (3/4")	1041 Howard (3/4")	835 N.11th (3/4")

<u>26 SERVICES</u> were <u>REPAIRED</u> at the following locations:

572 Moreland (3/4")	5776 Country Club (3/4")	308 Filmore (1/2")
3134 S. 5th (2")	1235 E. Benton (1/2")	1002 Willow (3/4")
1341 Jensen (3/4")	735 E. Halliday (3/4")	1040 Howard (3/4")

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WATER DEPARTMENT MONTHLY REPORT

AUGUST 1985

MAIN LINE WORK

Filmore - Oak to Pine: Captial improvement project. Pipe layed: 1,556' of 6" ductile iron. Installed: 3-6" gate valves, 2-6" fire hydrants, 2-6" fire hydrant valves, 5-valve boxes, 3-6" tees, 1-6" push-in plug, 1-6" solid sleeve. Made the required chlorination taps and flushed chlorine through the new main and service lines.

During the month of August 845,075,000 gallons of water was produced from the system, or 27,260,483 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	66,600,000	1,193.5 lbs.
Well #2	21,000,000	60.0 lbs.
Well #3	83,700,000	208.0 lbs.
Well #10	44,490,000	127.0 lbs.
Well #12	110,624,000	293.0 lbs.
Well #16	48,878,000	122.0 lbs.
Well #18	14,753,000	49.0 lbs.
Well #21	21,415,000	58.0 lbs.
Well #22	32,627,000	107.0 lbs.
Well #27	48,629,000	146.5 lbs.
Well #28	43,735,000	145.0 lbs.
Well #29	99,192,000	214.0 lbs.
Well #31	69,801,000	158.5 lbs.
Well #32	57,647,000	158.0 lbs.
Well #33	32,436,000	86.0 lbs.
PIP Well	13,223,000	23.0 lbs.
Cree Well	7,051,000	21.5 lbs.
West Bench Booster	29,274,000	71.0 lbs.
	845,075,000	3,241.0 lbs.

6976

This figure is 316,358,000 more than last August. Based on the population figure of 46,736 there were 583.3 gallons of water per person per day produced from the system.

Airport production was 8,240,000 gallons of water using 16.5 lbs. of chlorine a[illegible] 31 man hours.

5 MAIN LINE LEAKS were REPAIRED at the following locations:

1140 So. 2nd	Madison Avenue	2000 So. 2nd (2)
Transmisson line above A.M.I.		

15 NEW SERVICES were INSTALLED at the following locations:

108 Filmore (3/4")	1301 Kinghorn (1")	520 Willard (3/4")
1655 So. 2nd (1")	1667 So. 2nd (1")	1683 So. 2nd (1")
1701 So. 2nd (1")	1741 So. 2nd (1")	1771 So. 2nd (1")
1789 So. 2nd (1")	1805 So. 2nd (1")	3940 Stockman (3/4")
1910 Pocatello Creek (1½")	1920 Pocatello Creek (1½")	1930 Pocatello Creek (1½")

14 SERVICES were RENEWED at the following locations:

545 No. 14th (3/4")	1049 Howard (3/4")	1013-19 E. Center (3/4")
1048 Gray (3/4")	941 Gray (3/4")	464 Warren (3/4")
653 No. 11th (3/4")	643 W. Eldredge (3/4")	625 W. Young (3/4")
1040 No. Grant (3/4")	1050 No. Grant (3/4")	1355 No. Hayes (3/4")
72 Greenwood (3/4")	632 E. Bonneville (3/4")	

32 SERVICES were RENEWED AND CONNECTED TO THE NEW MAIN at the following locations:

117 Filmore (3/4")	128 Filmore (3/4")	962 E. Oak (3/4")
127 Filmore (3/4")	137 Filmore (3/4")	1075 E. Elm (3/4")
151 Filmore (3/4")	204 Filmore (3/4")	205 Filmore (3/4")
170 Filmore (3/4")	160 Filmore (3/4")	147 Filmore (3/4")
182 Filmore (3/4")	169 Filmore (3/4")	217 Filmore (3/4")
225 Filmore (3/4")	220 Filmore (3/4")	250 Filmore (3/4")
255 Filmore (3/4")	245 Filmore (3/4")	236 Filmore (3/4")
275 Filmore (3/4")	265 Filmore (3/4")	262 Filmore (3/4")
274 Filmore (3/4")	969 Elm (3/4")	325 Filmore (3/4")
322 Filmore (3/4")	330 Filmore (3/4")	331 Filmore (3/4")
342 Filmore (3/4")	341 Filmore (3/4")	

4 SERVICES were CONNECTED TO THE NEW MAIN at the following locations:

1010 Spruce (3/4")	177 Filmore (3/4")	1015 Elm (3/4")
240 Filmore (3/4")		

City of Pocatello • Water Department

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WATER DEPARTMENT MONTHLY REPORT

SEPTEMBER 1985

MAIN LINE WORK

Filmore - Oak to Pine Street: Capital improvement project. Pipe layed: 1000' of 6" ductile iron. Installed: 1-6" gate valve, 2-6" fire hydrant valves, 3-valve boxes, 2-6" fire hydrants, 2-6" tees. Made the required chlorination taps and flushed chlorine through the new main and service lines.

Intersection at McKinley & Cedar: Replace main line & valves. Pipe layed: 70' of 6" ductile iron, 5' of 4" cast iron. Installed: 2-6" gate valves, 1-6" fire hydrant valve, 1-6" fire hydrant, 1-4" gate valve, 4-valve boxes, 3-6"x4" m.j. reducer, 2-4" steel to cast coupling, 1-6" tee, 1-4" solid sleeve, 1-6" cross, 1-4" 45° bend, 1-4"x6" reducer, 1-6" steel to cast coupling.

1500 Block Yellowstone: Install fire hydrants. Pipe layed: 20' of 6" ductile iron. Installed: 1-8" gate valve, 1-6" gate valve, 2-6" fire hydrants, 3-valve boxes, 1-6" tapping sleeve, 1-8"x6" tapping sleeve, 1-8"x6" tee, 1-8" solid sleeve.

During the month of September 349,669,000 gallons of water was produced from the system, or 11,655,633 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	62,175,000	915.5 lbs.
Well #2	37,941,000	73.0 lbs.
Well #3	21,600,000	52.0 lbs.
Well #10	810,000	2.0 lbs.
Well #12	28,861,000	83.5 lbs.
Well #16	41,701,000	101.5 lbs.
Well #21	16,835,000	48.5 lbs.
Well #22	9,396,000	31.0 lbs.
Well #27	20,323,000	68.5 lbs.
Well #28	10,575,000	39.5 lbs.

	GALLONS PRODUCED	LBS. OF CHLORINE
Well #29	3,403,000	7.5 lbs.
Well #31	639,000	2.0 lbs.
Well #32	53,890,000	174.0 lbs.
Well #33	432,000	1.0 lbs.
PIP Well	8,035,000	17.5 lbs.
Cree Well	15,724,000	44.5 lbs.
West Bench Booster	17,329,000	49.5 lbs.
	349,669,000	1,711.0 lbs.

This figure is 82,179,000 less than last September. Based on the population figur of 46,736 there were 249.3 gallons of water per person per day produced from the system

Airport production was 3,515,000 gallons of water using 8.0 lbs. of chlorine and 42 man hours.

6 MAIN LINE LEAKS were REPAIRED at the following locations:

945 So. 1st	1000 Block So. 2nd	2370 So. 2nd
Colorado & Cedar	Fairmont & Maple	307 Fairmont

4 NEW SERVICES were INSTALLED at the following locations:

1110 Call Drive (1")	3385 Hawthorne (1")	2240 Pocatello Creek Road (1")
Pocatello Creek Professional Park (1½")		955 E. Walnut (3/4") (future use)

15 SERVICES were RENEWED at the following locations:

526 W. Cedar (3/4")	701 McKinley (1")	914 Berryman (3/4")
1045 No. Harrison (3/4")	1236 E. Clark (3/4")	1250 E. Clark (3/4")
357 Franklin (3/4")	960 Taney Lane (3/4")	726 No. 8th (3/4")
1623 E. Wyeth (3/4")	1234 E. Lewis (3/4")	1248 E. Lewis (3/4")
1224 Yellowstone (3/4")	1236 Yellowstone (3/4")	512 So. 9th (3/4")

21 SERVICES were RENEWED AND CONNECTED TO THE NEW MAIN at the following locations:

373 Filmore (3/4")	374 Filmore (3/4")	387 Filmore (3/4")
388 Filmore (3/4")	408 Filmore (3/4")	422 Filmore (3/4")
426 Filmore (3/4")	473 Filmore (3/4")	478 Filmore (3/4")
443 Filmore (3/4")	457 Filmore (3/4")	465 Filmore (3/4")
458 Filmore (3/4")	453 Filmore (3/4")	454 Filmore (3/4")
444 Filmore (3/4")	470 Filmore (3/4")	1019 E. Elm (3/4")
1020 E. Elm (3/4")	1080 E. Elm (3/4")	955 E. Walnut (3/4")

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WATER AT YOUR SERVICE

WATER DEPARTMENT MONTHLY REPORT

OCTOBER 1985

MAIN LINE WORK

1200 - 1500 Block Yellowstone: Install fire hydrants. Pipe layed: 64' of 6" ductile iron, 3' of 8" ductile iron. Installed: 1-8" gate valve, 3-6" tapping valves, 1-8"x6" tapping sleeve, 2-6" fire hydrants, 3-valve boxes, 1-8" solid sleeve.

I.S.U. Research Park: Pipe layed: 438' of 8" ductile iron, 57' of 6" ductile iron. Installed: 7-8" tapping valves, 14-6" gate valves, 7-6" fire hydrants, 28-valves boxes, 7-16"x8" tapping sleeves, 7-8"x6" crosses, 7-8"x6" reducers.

2500 South 5th: 4" tap and installation for summer line. Pipe layed: 16" of 4" cast iron

F.B.I. Center on Quinn Road: Made 1-4" tap on 12" main for service line, made 1-8" tap on 12" main for fire line.

876 Lott Road: Extend main line. Pipe layed: 97' of 6" ductile iron. Installed: 1-6" gate valve. Made required 3/4" chlorination tap. (Installed by developer)

During the month of October 259,565,000 gallons of water was produced from the system, or 8,373,064 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	63,704,000	916.0 lbs.
Well # 2	45,022,000	127.0 lbs.
Well #16	49,206,000	124.0 lbs.
Well #21	13,910,000	37.5 lbs.
Well #27	5,781,000	21.0 lbs.
Well #32	55,289,000	184.5 lbs.
PIP Well	3,883,000	7.5 lbs.
Cree Well	16,280,000	38.5 lbs.
West Bench Booster	6,490,000	14.0 lbs.
	259,565,000	1,470.0 lbs.

6980

This figure is 23,033,000 less than last October. Based on the population figure of 46,736 there were 179.2 gallons of water per person per day produced from the system.

Airport production was 2,254,000 gallons of water using 4.5 lbs. of chlorine and 31 man hours.

7 MAIN LINE LEAKS were REPAIRED at the following locations:

1403 El Rancho	957 Warren	2555 So. Bannock Hwy.
Harrison & Buell	1312 Ridge	1905 No. Harrison
1435 No. Main		

6 NEW SERVICES were INSTALLED at the following locations:

20 Trail Creek (1")	525 E. Terry (3/4")	160 Appaloosa (1")
120 Warren (3/4")	Pocatello Creek Office Park (1")	2555 So Bannock Hwy

9 SERVICES were RENEWED at the following locations:

305 W. Pine (3/4")	311 Stansbury (3/4")	251 E. Griffith (3/4")
344 So. 11th (1")	354 So. 11th (3/4")	91 Foothill (3/4")
443 Franklin (3/4")	435 No. 13th (3/4")	1235 E. Center (3/4")

3 SERVICES were RENEWED AND CONNECTED TO THE NEW MAIN at the following locations:

1019 E. Walnut (3/4")	1020 E. Walnut (3/4")	1030 E. Walnut (3/4")

18 SERVICES were REPAIRED at the following locations:

408 So. 4th (3/4")	456 So. 11th (1")	20 Purkey (1")
1436 So. 2nd (1")	231 Pershing (2")	Lot 5 Blk 2 E. Bench Sub. (3/4"
1553 E. Fremont (1/2")	1552 E. Fremont (3/4")	1538 E. Fremont (3/4")
441 No. 7th (3/4")	215 W. Halliday (3/4")	430 So. 8th (1")
1537 E. Wyeth (3/4")	208 No. Grant (1/2")	4895 Bannock Hwy. (3/4")
2240 So. Fairway (1")	2373 Horizon (1")	558 No. 6th (3/4")

FIRE HYDRANT M. & O.

1236 & 1460 Yellowstone - Raise fire hydrant to grade
Pine & Filmore - Raise fire hydrant to grade
W.P.C. treatment plant - Replace gate assembly
Barton & American Road - Set out and pick up fire hydrant meter daily
Arthur & Clark - Replace fire hydrant
City Area - Flush fire hydrants
I.S.U. Research Park - Flush fire hydrants

City of Pocatello • Water Department

P.O. Box 4169 • 902 E. Sherman • Pocatello, Idaho 83201 • (208) 232-4311

WATER AT YOUR SERVICE

WATER DEPARTMENT MONTHLY REPORT

NOVEMBER 1985

During the month of November 214,640,000 gallons of water was produced from the system, or 7,154,000 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	64,463,000	908.0 lbs.
Well # 2	44,443,000	123.5 lbs.
Well #16	29,146,000	74.0 lbs.
Well #21	4,122,000	16.0 lbs.
Well #32	52,984,000	183.0 lbs.
Cree Well	15,617,000	36.5 lbs.
West Bench Booster	3,865,000	10.0 lbs.
	214,640,000	1,351.0 lbs.

This figure is 519,000 more than last November. Based on the population figure of 46,736 there were 153.1 gallons of water per person per day produced from the system.

Airport production was 3,050,000 gallons of water using 6.0 lbs. of chlorine and 30 man hours.

4 MAIN LINE LEAKS were REPAIRED at the following locations:

958 E. Poplar | 2nd & Dillon | 1228 So. 2nd
850 Nixon

6 NEW SERVICES were INSTALLED at the following locations: 2000 So. 5th S.L. 3"

340-44 W. Cedar (1") | 876 Lott Road (1") | North Street & Hayes (2")
300 Blk No. Grant-Memorial Park (2") SL Quinn & Poleline-F.B.I. Computer Center (4")

7 SERVICES were RENEWED at the following locations:

710 Balsam (3/4") | 136 No. 15th (3/4") | 1410 Ridge (3/4")
211 So. Lincoln (3/4") | 654 So. Main (3/4") | 1119 No. Main (1")
343 So. 4th (3/4")

6982

City of Pocatello • Water Department

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WATER AT YOUR SERVICE

WATER DEPARTMENT MONTHLY REPORT

DECEMBER 1985

During the month of December 235,699,000 gallons of water was produced from the system, or 7,603,193 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	99,328,000	776.5 lbs.
Well # 2	46,410,000	126.0 lbs.
Well #16	12,005,000	29.0 lbs.
Well #32	56,519,000	187.5 lbs.
Cree Well	16,441,000	39.0 lbs.
West Bench Booster	4,996,000	16.0 lbs.
	235,699,000	1,174.0 lbs.

This figure is 21,019,000 more than last December. Based on the population figure of 46,736 there were 162.7 gallons of water per person per day produced from the system

Airport production was 2,467,000 gallons of water using 6.0 lbs. of chlorine and 72 man hours.

1 MAIN LINE LEAK was REPAIRED at: 15th & Oak

1 NEW SERVICE was INSTALLED at: 965 Berryman (1")

1 SERVICE was RENEWED at: 211 Roosevelt (3/4")

16 SERVICES were REPAIRED at the following locations:

524 W. Gould (1/2")	214 No. Lincoln (1/2")	226 No. Lincoln (1/2")
450 W. Whitman (1½")	1100 Booth (1½")	650 No. 7th (4")
1017 No. Arthur (3/4")	433-37 Fredregill (2")	839 So. Main (1/2")
759 So. 8th (8")	1355 So. 4th (3/4")	1000 E. Terry (4")
346 Pierce (1/2")	745 No. Grant (1/2")	140 Oakwood (3/4")
1579 Saratoga (3/4")		

6983

City of Pocatello • Water Department

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WATER DEPARTMENT MONTHLY REPORT

JANUARY 1986

During the month of January 249,006,000 gallons of water was produced from the system, or 8,032,451 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	116,352,000	890.5 Lbs.
Well #2	46,446,000	135.0 Lbs.
Well #21	482,000	2.0 Lbs.
Well #27	6,961,000	19.0 Lbs.
Well #32	49,319,000	171.5 Lbs.
PIP Well	8,713,000	15.5 Lbs.
Cree Well	16,382,000	38.5 Lbs.
West Bench Booster	4,351,000	12.5 Lbs.
	249,006,000	1,274.5 Lbs.

This figure is 19,437,000 more than last January. Based on the population figure of 46,736 there were 171.9 gallons of water per person per day produced from the system.

Airport production was 4,363,000 gallons of water using 18.5 lbs. of chlorine and 35 man hours.

7 MAIN LINE LEAKS were REPAIRED at the following locations:

141 No. 6th	1024 Patsy	Municipal Airport
1526 So. 3rd	1400 E. Lewis	825 E. Bonneville

Alley between Oakland & Hoffman

6984

WATER DEPARTMENT MONTHLY REPORT

FEBRUARY 1986

During the month of February 212,020,000 gallons of water was produced from the system, or 7,572,142 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	87,518,000	766.5 Lbs.
Well #2	41,711,000	121.5 Lbs.
Well #16	6,271,000	14.0 Lbs.
Well #21	627,000	2.0 Lbs.
Well #27	7,792,000	20.0 Lbs.
Well #32	49,371,000	175.5 Lbs.
Cree Well	14,690,000	34.5 Lbs.
West Bench Booster	4,040,000	12.0 Lbs.
	212,020,000	1,146.0 Lbs.

This figure is 30,736,000 less than last February. Based on the population figure of 46,736 there were 162.0 gallons of water per person per day produced from the system.

Airport production was 4,497,000 gallons of water using 3.5 lbs. of chlorine and 42 man hours.

4 MAIN LINE LEAKS were REPAIRED at the following locations:

726 Balsam 3106 S. 5th S. 2nd 200'N of Fredregill
746 So. 1st

2 SERVICES were INSTALLED at the following locations:

1950 E. Clark (1-1" summer line, 1-1/2")

6985

WATER DEPARTMENT MONTHLY REPORT

MARCH 1986

MAIN LINE WORK

Bannock Highway & Gibson Jack - Pipe layed: 72' of 6" ductile iron. Installed: 1-12" tapping sleeve, 1-valve box, 1-6" push-on plug, 1-6" tapping valve.

Bannock Highway & Country Club - Pipe layed: 54' of 6" ductile iron. Installed: 1-6" tapping valve, 1-12" x 6" tapping sleeve, 1-valve box, 1-6" push-on plug.

Bannock Highway & Shoshoni Trail - Pipe layed: 54' of 6" ductile iron. Installed: 1-6" tapping valve, 1-10" x 6" tapping sleeve, 1-valve box.

Bannock Highway & Leo Lane - Pipe layed: 8' of 6" ductile iron. Installed:
1 - 8" x 6" tapping valve, 1-8" x 6" tapping sleeve, 1-valve box, 1-6" push-on plug.

Bannock Highway & Riverside Golf Course - Pipe layed: 60' of 10" ductile iron. Installed: 1-10" x 12" tapping valve, 1-valve box, 1-10" push-on plug.

Jefferson & Poplar - Pipe layed: 38' of 6" and 6' of 10" ductile iron. Installed: 1-6" solid sleeve, 1-6" x 4" reducer, 1-4" steel to cast coupling, 1-10" x 6" tee, 1-10" solid sleeve, 2- valve boxes, 1-gate valve, 1-butterfly valve.

Jefferson & Maple - Pipe layed: 37' of 6" ductile iron. Installed: 1-6" ground out solid sleeve, 2-6" solid sleeves, 1-6" cross, 1-valve box, 1-gate valve.

During the month of March 248,126,000 gallons of water was produced from the system, or 8,004,064 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Well #2	45,484,000	136.0 Lbs.
Well #16	56,254,000	140.0 Lbs.
Well #21	5,105,000	16.5 Lbs.
Well #27	6,488,000	15.0 Lbs.
Well #30	58,535,000	146.5 lbs.

Water Department Monthly Report (cont.)

Well #32	54,488,000	196.5 Lbs.
Cree Well	16,237,000	37.5 Lbs.
West Bench Booster	5,535,000	18.0 Lbs.
	248,126,000	706.0 Lbs.

This figure is 10,880,000 less than last March. Based on the popu figure of 46,736 there were 171.2 gallons of water per person per day pr from the system.

Airport production was 2,469,000 gallons of water using 2.5 lbs. of ch and 32 man hours.

5 MAIN LINE LEAKS were REPAIRED at the following locations:

2200 South 2nd	500 Blk So. Grant	Shane Dr. & Juniper Hil
500 Blk South Grant	732 W. Whitman	

21 NEW SERVICES were INSTALLED at the following locations:

5520 Bannock Hwy (3/4")	5544 Bannock Hwy (3/4")	5722 Bannock Hwy (3/4")
5788 Bannock Hwy (3/4")	5898 Bannock Hwy (3/4")	4590 Bannock Hwy (3/4")
4330 Bannock Hwy (3/4")	2041 So. Main (3/4")	2065 So. Main (3/4")
2121 So. Main (3/4")	2141 So. Main (3/4")	2151 So. Main (3/4")
2201 So. Main (3/4")	2215 So. Main (3/4")	865 Bitterroot (3/4")
3705 U.S. Hwy 30 W (1")	2403 So. Main (3/4")	2671 Bannock Hwy (3/4")
2711 Bannock Hwy (3/4")	2735 Bannock Hwy (3/4")	2755 Bannock Hwy (3/4")

10 SERVICES were RENEWED at the following locations:

256 So. 6th (3/4")	1635 So. 3rd (3/4")	627 No. 11th (3/4")
1634 Jensen (3/4")	1371-77 Willard (3/4")	751 W. Sublette (3/4")
755 W. Sublette (3/4")	344 McKinley (3/4")	556 So. 11th (1")
467 McKinley (3/4")		

19 SERVICES were REPAIRED at the following locations:

787 Bryan (1/2")	1040 Gray (3/4")	962 Gray (3/4")
916 Gray (3/4")	1578 Onyx (3/4")	867 Northgate (3/4")
1306 E. Lewis (1")	1349 Allen Rd. (1/2")	308 So. Main (3/4")
1710 E. Wyeth (1")	1850 No. Main (1")	845 No. Garfield (1/2")
979 Brennan (1/2")	706 No. 10th (3/4")	719 Myrtle (3/4")
519 So. 11th (1/2")	1006 No. Harrison (3/4")	Jefferson & Poplar (3/4
1445 No. 1st (1")		

WATER DEPARTMENT MONTHLY REPORT

APRIL 1986

MAIN LINE WORK

100 & 200 Block No. 9th, 100 Block So. 9th - Pipe layed: 1144' of 6" ductile iron. Installed: 1-12" x 6" tapping sleeve, 1-tapping valve, 6-valve boxes, 1-4" solid sleeve, 1-4" m.j. plug, 1-4" split sleeve, 3-6" gate valves, 2-6" fire hydrant valves, 2-6" tees, 2-6" fire hydrants, 1-6" solid sleeve, 1-6" x 4" reducer.

20th & Bonneville - Made 6" tap on 12" main. Made 3/4" chlorination tap.

During the month of April 239,878,000 gallons of water was produced from the system, or 7,995,933 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Well #2	44,814,000	131.0 Lbs.
Well #16	26,216,000	69.0 Lbs.
Well #21	3,776,000	13.0 Lbs.
Well #22	9,409,000	34.5 Lbs.
Well #27	5,721,000	15.5 Lbs.
Well #30	75,555,000	192.5 Lbs.
Well #32	53,399.000	190.5 Lbs.
Cree Well	16,313,000	35.5 Lbs.
West Bench Booster	4,675,000	15.5 Lbs.
	239,878,000	706.0 Lbs.

This figure is 86,166,000 less than last April. Based on the population figure of 46,736 there were 171.1 gallons of water per person per day produced from the system.

Airport production was 1,471,000 gallons of water using 2.5 lbs. of chlorine and 39 man hours.

WATER DEPARTMENT MONTHLY REPORT

MAY 1986

MAIN LINE WORK

300 Block Packard - Construct new main line. Pipe layed: 140' of 6" ductile iron, 2' of 4" cast iron. Installed: 1-6" gate valve, 1-4" steel to cast coupling, 1-valve box, 3/4" chlorination tap.

1000 Block Spruce Street - Capital improvement project. Pipe layed: 108' of 6" ductile iron.

1570 Yellowstone to Flandro - Capital improvement project (construct new main line). Pipe layed: 594' of 8" ductile iron, 79' of 6" ductile iron. Installed: 2-6" fire hydrants valves, 2-6" fire hydrants, 2-8" x 6" tees, 2-valve boxes, 1-8" solid sleeve.

Surrey Ridge 2nd Addition - Made 6" tap on 6" main. Install 2-3/4" chlorination taps.

305 West Quinn - Made 2-10" taps on 10" and 18" main.

During the month of May 424,916,000 gallons of water was produced from the system, or 13,706,968 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Well #2	42,566,000	122.0 Lbs.
Well #3	12,500,000	28.5 Lbs.
Well #10	1,211,000	3.0 Lbs.
Well #12	11,481,000	20.5 Lbs.
Well #16	69,716,000	188.5 Lbs.
Well #18	17,201,000	18.5 Lbs.
Well #21	11,513,000	38.5 Lbs.
Well #22	31,703,000	119.5 Lbs.
Well #27	31,950,000	103.5 Lbs.
Well #28	17,045,000	33.0 Lbs.
Well #29	22,130,000	54.0 Lbs.
Well #30	60,336,000	132.5 Lbs.
Well #32	55,443,000	201.5 Lbs.
Well #33	7,235,000	22.5 Lbs.
PIP Well	6,102,000	12.0 Lbs.
Cree Well	15,183,000	32.0 Lbs.
West Bench Booster	11,571,000	34.5 Lbs.
	424,916,000	1,164.5 Lbs.

This figure is 45,701,000 less than last May. Based on the population figure of 46,736 there were 293.3 gallons of water per person per day produced from the system.

Airport production was 1,779,000 gallons of water using 3.5 lbs. of chlorine and 42 man hours.

5 MAIN LINE LEAKS were REPAIRED at the following locations:

308 North 9th	E. Terry & Memorial	1458 So. 2nd
500 Block Fairmont	Settling Basin #3 (2" & 10" lines)

9 NEW SERVICES were INSTALLED at the following locations:

1614 So. Fairway (1")	1616 So. Fairway (1")	5505 Shoshone (3/4")
2700 So. 5th (2" S.L.)	1630 No. Hayes (3/4")	ISU Research Park (2" S.L.)
Revised Benchland Block 4 Lots Q & P (3/4")	1023 Spruce (3/4")

27 SERVICES were RENEWED at the following locations:

837 Berryman (3/4")	244 So. 6th (3/4")	252 No. 7th (3/4")
705 Northland (3/4")	839 So. Main (3/4")	405 Richland (3/4")
235 No. Johnson (3/4")	1357 Santa Anita (3/4")	1365 Santa Anita (3/4")
216 So. 11th (3/4")	1364 Santa Anita (3/4")	1349 Santa Anita (3/4")
638-40 No. 9th (3/4")	963 Santa Anita (3/4")	1333 Santa Anita (3/4")
436 No. Main (3/4")	1341 Santa Anita (3/4")	1289 Santa Anita (3/4")
1297 Santa Anita (3/4")	1281 Santa Anita (3/4")	151 Pearl (3/4")
189 Pearl (3/4")	247 Pearl (3/4")	163 Pearl (3/4")
232 Pearl (3/4")	250 Pearl (3/4")	605 No. Arthur (3/4")

WATER DEPARTMENT MONTHLY REPORT

JUNE 1986

MAIN LINE WORK

100 & 200 Block Fairmont Street - Capital improvement project. Pipe layed: 1225' of 6" ductile iron, Installed: 1-6" fire hydrant valve, 4-6" gate valves, 1-6" fire hydrant, 2-6" tees, 2-6" 90 bend, 1-4" 45 bend, 2-4" steel to cast couplings, 5-valve boxes, 1-6" solid sleeve, 1-3/4" chlorination tap.

710 West Quinn - Made 6" tap on 12" main for new fire hydrant. Pipe layed: 21' of 6" ductile iron. Installed: 1-6" tapping valve, 1-6" fire hydrant valve, 1-6" fire hydrant, 1-6" x 12" tapping sleeve, 2-valve boxes.

675 Yellowstone - Made 6" tap on 6" main for private fire line. Made 6" tap on 6" main to install new fire hydrant. Materials used (supplied by contractor): 1-6" fire hydrant, 1-6" gate valve, 1-valve box, 1-6" tee, 2-6" steel to cast couplings.

During the month of June 797,754,000 gallons of water was produced from the system, or 26,591,800 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well 30	64,804,000	315.0 Lbs.
Well #2	15,484,000	46.5 Lbs.
Well #3	66,921,000	165.0 Lbs.
Well #10	46,275,000	137.0 Lbs.
Well #12	101,212,000	256.5 Lbs.
Well #15	3,915,000	13.5 Lbs.
Well #16	63,892,000	181.0 Lbs.
Well #18	30,767,000	61.5 Lbs.
Well #21	26,831,000	95.5 Lbs.
Well #22	32,561,000	126.0 Lbs.
Well #27	46,599,000	137.5 Lbs.
Well #28	41,187,000	89.5 Lbs.
Well #29	80,943,000	192.0 Lbs.
Well #31	41,580,000	98.5 Lbs.
Well #32	54,570,000	197.5 Lbs.
Well #33	21,988,000	61.5 Lbs.
PIP Well	22,513,000	42.5 Lbs.
Cree Well	11,091,000	23.0 Lbs.
West Bench Booster	24,631,000	71.5 Lbs.
	797,754,000	2,301.0 Lbs.

This figure is 71,597,000 more than last June. Based on the population figure of 46,736 there were 569.0 gallons of water per person per day produced from the system.

Airport production was 3,736,000 gallons of water using 5.5 lbs. of chlorine and 37 man hours.

15 MAIN LINE LEAKS were REPAIRED at the following locations:

2460 S. 2nd	Yellowstone & McKinley	Spruce & Fairmont
600 B West Whitman	1000 Block E. Halliday	400 Block Jefferson
300 B So. 6th	600 Block So. 5th	Mink Creek
Transmission Line		
1755 Von Elm	500 Block Richland	2300 Block Poleline
1935 So. 2nd	900 Block E. Young	460 Crescent

34 NEW SERVICES were INSTALLED at the following locations:

449 McKinley (3/4") 1023 Spruce (3/4") 1063 Spruce (3/4")
1069 Spruce (3/4") 526 S. Grant (1") 145 S. Main (3/4")
2237 S. 2nd (2/3") 2239 S. 2nd (3/4") 1300 Blk. S. 6th (3/4")
Park behind 1100 Pocatello Creek (2" summer line)
Christiansen Subd. - Blk. 1 Lots 1 & 2, Blk. 2 Lots 1 & 2 (3/4")
Surrey Ridge 2nd Add. - Blk. 1 Lots 1-19, Blk. 2 Lots 1 & 2 (3/4")

12 SERVICES were RENEWED at the following locations:

3546 Hawthorne (3/4")	906 E. Halliday (3/4")	733 Ebony (3/4")
960 W. Clark (3/4")	201 Wilson (3/4")	1312 Zener (3/4")
450 N. 12th (3/4")	325 S. 6th (3/4")	337 S. 6th (3/4")
727 Ebony (3/4")	735 E. Halliday (3/4")	324 Franklin (3/4")

24 SERVICES were RENEWED AND CONNECTED TO THE NEW MAIN:

1023 Spruce (3/4")	1063 Spruce (3/4")	1066 Spruce (3/4")
1069 Spruce (3/4")	1110 Spruce (3/4")	1066 E. Elm (3/4")
250 Fairmont (3/4")	156 Fairmont (3/4")	163 Fairmont (3/4")
172 Fairmont (3/4")	182 Fairmont (3/4")	169 Fairmont (3/4")
194 Fairmont (3/4")	220 Fairmont (3/4")	239 Fairmont (3/4")
265 Fairmont (3/4")	229 Fairmont (3/4")	275 Fairmont (3/4")
255 Fairmont (3/4")	262 Fairmont (3/4")	274 Fairmont (3/4")

6 SERVICES were CONNECTED TO THE NEW MAIN at the following locations:

1110 E. Elm (1") 156 Fairmont (3/4") 163 Fairmont

WATER DEPARTMENT MONTHLY REPORT

JULY 1986

MAIN LINE WORK

300 & 400 Block Fairmont Street - Capital improvement project. Pipe layed: 1325' of 6" ductile iron, Installed: 1-6" fire hydrant valve, 1-6" gate valve, 1-6" fire hydrant, 1-6" tee, 1-4" steel coupling with plug welded on one side, 2-valve boxes, 1-6" solid sleeve.

Quinn Street Overpass - Relocating main line. Pipe layed: 800' of 18" ductile iron, 150' of 12" ductile iron, and 40' of 6" ductile iron. Installed: 4-18" gate valves, 2-12" gate valves, 1-10" gate valve, 2-10" tapping valves, 2-6" gate valve, 1-18" x 10" tapping sleeve, 1-10" x 10" tapping sleeve, 2-18" x 6" tee, 1-18" tee, 1-18" x 12" P.E. x S.E.B. reducer, 2-18" 45' bends, 1-10" 90' bend, 2-12" 90' bends, 1-6" 90' bend, 1-6" fire hydrant, 3-18" solid sleeves, 1-12" solid sleeve, 1-10" solid sleeve, 1-6" solid sleeve, 1-3/4" corp. stop, 11-valve boxes. Materials and labor were furnished by the contractor.

Bannock Highway - Street Department overlay project. Pipe layed: 26' of 12" ductile iron. Installed: 1-12" gate valve, 1-valve box, 1-12" tapping sleeve.

During the month of July 818,027,000 gallons of water was produced from the system, or 26,387,968 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well 30	69,470,000	1067.0 Lbs.
Well #2	24,965,000	71.5 Lbs.
Well #3	75,528,000	193.5 Lbs.
Well #10	65,872,000	185.5 Lbs.
Well #12	90,114,000	227.5 Lbs.
Well #16	43,513,000	96.0 Lbs.
Well #18	30,335,000	66.0 Lbs.
Well #21	26,542,000	93.0 Lbs.
Well #22	33,431,000	114.0 Lbs.
Well #27	38,516,000	120.5 Lbs.
Well #28	43,609,000	102.5 Lbs.
Well #29	73,092,000	178.5 Lbs.
Well #31	57,459,000	131.5 Lbs.
Well #32	56,327,000	207.0 Lbs.
Well #33	17,696,000	44.0 Lbs.
PIP Well	27,838,000	54.5 Lbs.
Cree Well	15,926,000	34.5 Lbs.
West Bench Booster	27,404,000	73.0 Lbs.
	818,027,000	3,060.0 Lbs.

This figure is 84,051,000 less than last July. Based on the population figure of 46,736 there were 564.6 gallons of water per

WATER DEPARTMENT MONTHLY REPORT

AUGUST 1986

MAIN LINE WORK

200 & 300 Block Franklin Street - Capital improvement project. Pipe layed: 1488' of 6" ductile iron, 2' of 4" ductile iron. Installed: 1-6" fire hydrant valve, 3-6" gate valves, 1-6" fire hydrant, 2-6" tees, 1-4" steel to cast coupling, 4-valve boxes, 1-6" solid sleeve, 3-90' bends, 1-4" steel repair band, 1-6" plain end to 4" m.j. reducer, made the required chlorination taps.

During the month of August 833,196,000 gallons of water was produced from the system, or 26,877,290 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	64,919,000	1040.0 Lbs.
Well #2	30,460,000	86.5 Lbs.
Well #3	78,334,000	216.0 Lbs.
Well #10	65,093,000	170.5 Lbs.
Well #12	108,201,000	286.0 Lbs.
Well #16	51,346,000	150.0 Lbs.
Well #18	30,642,000	76.5 Lbs.
Well #21	32,312,000	114.5 Lbs.
Well #22	33,732,000	111.0 Lbs.
Well #27	40,038,000	124.0 Lbs.
Well #28	25,034,000	65.0 Lbs.
Well #29	71,891,000	183.0 Lbs.
Well #31	53,617,000	125.5 Lbs.
Well #32	56,194,000	204.0 Lbs.
Well #33	11,684,000	31.5 Lbs.
PIP Well	37,689,000	78.0 Lbs.
Cree Well	15,235,000	32.5 Lbs.
West Bench Booster	26,775,000	66.0 Lbs.
	833,196,000	3,160.5 Lbs.

This figure is 11,879,000 less than last August. Based on the population figure of 46,736 there were 575.1 gallons of water per person per day produced from the system.

Airport production was 5,555,000 gallons of water using 9.0 lbs. of chlorine and 34 man hours.

3 MAIN LINE LEAKS were REPAIRED at the following locations:

5th & Dillon | 958 East Poplar | 350 So. 10th

WATER DEPARTMENT MONTHLY REPORT

SEPTEMBER 1986

MAIN LINE WORK

300 & 400 Block Franklin Street - Capital improvement project. Pipe layed: 1335' of 6" ductile iron, 2' of 4" ductile iron. Installed: 2-6" fire hydrant valves, 2-6" gate valves, 2-6" fire hydrants, 3-6" tees, 4-valve boxes, 1-6" solid sleeve, made the required chlorination taps.

During the month of September 379,715,000 gallons of water was produced from the system, or 12,657,167 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	68,216,000	1056.5 Lbs.
Well #2	38,832,000	111.5 Lbs.
Well #3	18,713,000	48.0 Lbs.
Well #12	14,954,000	44.0 Lbs.
Well #16	46,373,000	118.0 Lbs.
Well #18	7,319,000	13.5 Lbs.
Well #21	15,012,000	49.5 Lbs.
Well #22	9,680,000	32.0 Lbs.
Well #27	22,334,000	60.5 Lbs.
Well #28	15,386,000	40.0 Lbs.
Well #29	13,667,000	35.5 Lbs.
Well #32	54,723,000	183.5 Lbs.
PIP Well	22,429,000	42.5 Lbs.
Cree Well	15,969,000	35.5 Lbs.
West Bench Booster	16,108,000	44.0 Lbs.
	379,715,000	1,914.5 Lbs.

This figure is 30,046,000 more than last September. Based on the population figure of 46,736 there were 270.8 gallons of water per person per day produced from the system.

Airport production was 2,651,000 gallons of water using 4.0 lbs. of chlorine and 31 man hours.

2 MAIN LINE LEAKS were REPAIRED at the following locations:
500 Block Euclid I.S.U. Garrison Hall

5 NEW SERVICES were INSTALLED at the following locations:
North end of Appaloosa - Benchland 1st (2")
West 1/2 Lot 7 Block 5 - South Park Subdivision (1")
955 E. Walnut (3/4") 1080 E. Walnut (3/4") 1160 E. Walnut (3/4")

23 SERVICES were RENEWED at the following locations:
605 N. 6th (3/4") 1229 N. Hayes (3/4") 135 S. 17th (3/4")
1633 N. Harrison (3/4") 1239 N. Hayes (3/4") 653 E. Center (1")
1553 Jensen (3/4") 1004 No. Grant (3/4") 411 W. Elm (3/4")

WATER DEPARTMENT MONTHLY REPORT

OCTOBER 1986

MAIN LINE WORK

1400 Block No. 2nd - Extend main line for fire hydrant. Pipe layed: 301' of 6" ductile iron. Installed: 1-10" x 6" tapping tee, 1-6" tapping valve, 1-6" 90° bend, 1-6" fire hydrant valve, 1-6" fire hydrant, 2-valve boxes.

Spaulding Booster Station - Install valves on 18" line that serves Highland tank. Pipe layed: 6' of 18" ductile iron. Installed: 2-18" butterfly valves, 2-18" solid sleeves, 2-valve boxes.

1330 Pocatello Creek Road - Made 4" tap for fire line.

During the month of October 247,857,000 gallons of water was produced from the system; or 7,995,387 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	71,101,000	1022.0 Lbs.
Well #2	38,832,000	127.5 Lbs.
Well #16	46,373,000	73.0 Lbs.
Well #21	15,012,000	33.0 Lbs.
Well #27	22,334,000	60.5 Lbs.
Well #32	54,723,000	195.5 Lbs.
Cree Well	15,969,000	37.5 Lbs.
West Bench Booster	16,108,000	18.0 Lbs.
	247,857,000	1,519.0 Lbs.

This figure is 11,708,000 less than last October. Based on the population figure of 46,736 there were 171.0 gallons of water per person per day produced from the system.

Airport production was 2,143,000 gallons of water using 3.0 lbs. of chlorine and 39 man hours.

8 MAIN LINE LEAKS were REPAIRED at the following locations:

1166 Fern	2140 Ardella	Maple & Wilson
128 Cottonwood	978 Nixon	1220 So. 4th
4440 Stockman	Buell & Harrison	

23 NEW SERVICES were INSTALLED at the following locations:
4440 Stockman (3/4")   1330 Bench Road (1-2", 1-1" summer line)
Aztec Subdivision - Lots 1, 2, 3, 4 and 5 (3/4")
Benchland 1st - Blk. 6 Lots 12 and 13 - Blk. 7 Lots 1, 2, 3 and 4
Block 9 Lots 1, 2, 3, 4, 5, 6, 7 and 8 - Blk. 10 Lot 1 (3/4")

10 SERVICES were RENEWED at the following locations:

706 No. 8th (3/4")	1111 Wilson (3/4")	624 So. 10th (3/4")
128 Cottonwood (3/4")	1081 McKinley (3/4")	702 W. Wyeth (1")

WATER DEPARTMENT MONTHLY REPORT

NOVEMBER 1986

MAIN LINE WORK

Benchland 1st Addition - Subdivision taken into the system. Pipe layed: 1100' of 8" ductile, 465' of 6" ductile iron. Installed: 6-8" valves, 4-6" valves, 3-6" fire hydrants. (Materials and labor were furnished by the contractor.)

9th & Carter - Move fire hydrant 6' back of curb. Pipe layed: 6' of 6" ductile iron. Installed: 1-4"x6" reducer, 1-valve box, 1-6" fire hydrant valve.

1350 Baldy - Grace Lutheran Church - Main line extension. Pipe layed: 495' of 8" ductile iron, 50' of 6" ductile iron. Installed: 1-8" gate valve, 2-6" fire hydrants, 2-6" fire hydrant valves, 2-8"x6" tees, 1-8" tee, 1-8" 90' bend, 2-8" plugs. (Materials and labor were furnished by the contractor.)

During the month of November 221,960,000 gallons of water was produced from the system, or 7,398,667 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	82,864,000	1001.0 Lbs.
Well #2	44,547,000	128.0 Lbs.
Well #16	3,183,000	9.5 Lbs.
Well #18	1,151,000	3.0
Well #21	2,090,000	5.5 Lbs.
Well #27	13,969,000	27.0 Lbs.
Well #32	53,858,000	182.5 Lbs.
Cree Well	16,135,000	36.5 Lbs.
West Bench Booster	4,163,000	13.0 Lbs.
	221,960,000	1,406.0 Lbs.

This figure is 7,320,000 more than last November. Based on the population figure of 46,736 there were 158.3 gallons of water per person per day produced from the system.

Airport production was 1,855,000 gallons of water using 2.5 lbs. of chlorine and 30 man hours.

3 MAIN LINE LEAKS were REPAIRED at the following locations:
Alameda & Yellowstone 712 Park Lane 100 Blk Taft & Roosevelt

2 NEW SERVICES were INSTALLED at the following locations:
1350 Baldy (2") 1509 Yellowstone (3/4")

11 SERVICES were RENEWED at the following locations:
201 Taft (3/4") 204 Roosevelt (3/4") 964 Eldredge (3/4")
1041 Meadowbrook (3/4") 223 W. Sublette (3/4") 411 W. Maple (3/4")
126 No. 15th (3/4") 1243 Zener (3/4") 435 Pershing (3/4")
130 No. Johnson (3/4") 140 No. Johnson (3/4")

WATER DEPARTMENT MONTHLY REPORT

DECEMBER 1986

During the month of December 218,550,000 gallons of water was produced from the system, or 7,050,000 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies	74,198,000	939.0 Lbs.
Well #2	45,178,000	135.0 Lbs.
Well #16	7,055,000	21.0 Lbs.
Well #21	902,000	2.5 Lbs.
Well #27	13,299,000	29.5 Lbs.
Well #32	55,485,000	186.0 Lbs.
Cree Well	17,765,000	36.0 Lbs.
West Bench Booster	4,668,000	15.0 Lbs.
	218,550,000	1,364.0 Lbs.

This figure is 17,149,000 less than last December. Based on the population figure of 46,736 there were 150.8 gallons of water per person per day produced from the system.

Airport production was 1,782,000 gallons of water using 2.5 lbs. of chlorine and 34 man hours.

4 MAIN LINE LEAKS were REPAIRED at the following locations:
1436 So. 2nd 2200 So. 2nd 2nd & Fredregill
Upper Ross Park

4 NEW SERVICES were INSTALLED at the following locations:
4020 So. 5th (3/4") 2270 So. Grant (3/4")
Olympus Heights 1st Add. - Block 2 Lots 1 & 2 (3/4")

12 SERVICES were RENEWED at the following locations:
1007 Fremont (3/4") 1021 E. Fremont (3/4") 524 W. Gould (3/4")
1705 No. Arthur (3/4") 1240 No. Arthur (3/4") 1246 No. Arthur
1331 So. 3rd (3/4") 324 So. 8th (3/4") 210 So. Johnson (3/4")
212 W. Terry (3/4") 1281 Zener (3/4") 218 So. Johnson (3/4")

18 SERVICES were REPAIRED at the following locations:
1309 No. Arthur (1") 426 W. Carson (3/4") 750 Samuel (3/4")
14 Cornell (1") 119 Princeton (1") 460 So. Lincoln (1/2")
4895 Bannock Hwy. (3/4") 1034 No. Main (1") 1050 No. Main (1/2")
1826 E. Bonneville (3/4")

FIRE HYDRANT M. & O. Set Out & Pick Up Fire Hydrant Meter Daily at the following locations:
1591 Yellowstone Butte & Hiskey

Pump Out Fire Hydrant at the following locations:
5th & Lawton Willard & Alameda

Repair Broken Fire Hydrant at the following locations:
3rd & Lawton Donrich & Golf 2278 Diana
1887 Lupine Willard & Alameda Lincoln & Benton

WATER DEPARTMENT MONTHLY REPORT

JANUARY 1987

During the month of January 233,056,000 gallons of water was produced from the system, or 7,517,935 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	83,482,000	552.0 Lbs.
Well #2	46,434,000	142.0 Lbs.
Well #16	4,127,000	10.0 Lbs.
Well #21	986,000	2.5 Lbs.
Well #27	19,320,000	40.5 Lbs.
Well #32	55,787,000	194.0 Lbs.
Cree Well	18,089,000	36.5 Lbs.
West Bench Booster	4,831,000	15.5 Lbs.
	233,056,000	993.0 Lbs.

This figure is 15,950,000 less than last January. Based on the population figure of 46,736 there were 160.9 gallons of water per person per day produced from the system.

Airport production was 2,585,000 gallons of water using 5.5 lbs. of chlorine and 97 man hours.

6 MAIN LINE LEAKS were REPAIRED at the following locations:

Hayes & Carson	Kim & Johnny Creek	2528 So. 2nd
Wingate & Turaco	1735 Ardella	Poleline & Nixon

NO NEW SERVICES WERE INSTALLED

3 SERVICES were RENEWED at the following locations:

475 Hyde (3/4")	755 No. Arthur (3/4")	926 No. 10th (3/4")

28 SERVICES were REPAIRED at the following locations:

937 Highland (3/4")
938 Highland (3/4")
892 Wingate (3/4")
1358 So. 4th (3/4")
1729 E. Terry (3/4")
1646 Saratoga (3/4")
362 No. Main (3/4")
302 W. Center (3/4")
979 Jessie (3/4")
982 Jessie (3/4")

WATER DEPARTMENT MONTHLY REPORT

FEBRUARY 1987

During the month of February 209,581,000 gallons of water was produced from the system, or 7,485,035 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies &		
Well #30	74,016,000	755.0 Lbs.
Well #2	41,811,000	120.0 Lbs.
Well #16	1,241,000	4.0 Lbs.
Well #21	230,000	.5 Lbs.
Well #27	19,741,000	40.0 Lbs.
Well #32	502397,000	168.5 Lbs.
Cree Well	163079,000	32.0 Lbs.
West Bench Booster	5,996,000	18.0 Lbs.
	209,581,000	1,138.0 Lbs.

This figure is 2,439,000 less than last February. Based on the population figure of 46,736 there were 160.2 gallons of water per person per day produced from the system.

Airport production was 2,012,000 gallons of water using 3.5 lbs. of chlorine and 33 man hours.

3 MAIN LINE LEAKS were REPAIRED at the following locations:
Sorenson & Elm   1400 Blk. No. Hayes   511 Filmore

1 NEW SERVICE WAS INSTALLED at the following location:
2369 Rulon (1" fire line)

5 SERVICES were RENEWED at the following locations:
1113 E. Clark (3/4")   1115 E. Clark (3/4")   394 Pershing (3/4")
523 So. 8th (3/4")   733 So. Main (3/4")

3 SERVICES were RENEWED and CONNECTED TO NEW MAIN at the following locations:
215 W. Connor (1")   1546 N. Harrison (3/4")   1639 N. Harrison (3/4")

26 SERVICES were REPAIRED at the following locations:
618 So. Arthur (3/4")
778 Birch (3/4")
915 Brennan (3/4")
1016 Cahoon (3/4")
1035 Cahoon (3/4")
1027 Deon (3/4")
1644 So. Fairway (3/4")
2409 So Fairway (1")
2474 So. Fairway (1")
2542 So. Fairway (1")

WATER DEPARTMENT MONTHLY REPORT

MARCH 1987

MAIN LINE WORK
1700, 1800 & 1900 Blocks No. Harrison - Capital improvement replacement project. Pipe layed: 855' of 6" ductile iron. Installed: 3-6" fire hydrants, 3-6" fire hydrant valve, 4-6" gate valves, 1-6" tees, 1-6" 90' bend, 4-valve boxes, 1-6" plug, 1-4" plug.

500 & 600 Block Roosevelt - Capital improvement replacement project. Pipe layed: 1270' of 6" ductile iron. Installed: 2-6" gate valve, 2-6" fire hydrant, 2-6" fire hydrant valve, 3-6" tees.

During the month of March 236,027,000 gallons of water was produced from the system, or 7,613,774 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORI[NE]
Surface Supplies-Well #30	81,290,000	513.0 Lbs.
Well #2	46,530,000	135.0 Lbs.
Well #18	6,910,000	11.0 Lbs.
Well #21	1,648,000	3.5 Lbs.
Well #27	22,573,000	46.5 Lbs.
Well #32	52,167,000	171.0 Lbs.
Cree Well	17,944,000	35.5 Lbs.
West Bench Booster	6,965,000	21.0 Lbs.
	236,027,000	936.5 Lbs.

This figure is 12,100,270 less than last March. Based on the population figure of 46,736 there were 162.9 gallons of water per person per day produced from the system.

Airport production was 1,930,000 gallons of water using 4.0 lbs. of chlorine and 32 man hours.

5 MAIN LINE LEAKS were REPAIRED at the following locations:
Carson & Hayes 3/12 Main & Benton 3/20 1st & Benton 3/3
2nd & Dillon 3/6 3rd & Benton 3/14

14 NEW SERVICES WERE INSTALLED at the following locations for future use:
1059 W. Quinn (3/4")3/26
1109 W. Quinn (3/4")3/25
1125 W. Quinn (3/4")3/25
1313 W. Quinn (3/4")3/24

WATER DEPARTMENT MONTHLY REPORT

APRIL 1987

MAIN LINE WORK

500 & 600 Blocks Roosevelt - Capital improvement project. Pipe layed: 79' of 6" ductile iron. Installed: 1-6" fire hydrants, 1-6" fire hydrant valve, 1-6" gate valves, 1-6" tees, 2-valve boxes, 1-6" x 4" reducer, 1-6" solid sleeve, 1-4" solid sleeve, made the necessary chlorination taps.

East Chapel - 100 thru 400 Blocks - Capital improvement project. Pipe layed: 1532' of 6" ductile iron. Installed: 6-6" gate valve, 2-6" fire hydrants, 2-6" fire hydrant valve, 6-valve boxes, 4-6" tees, 1-6" cast to steel coupling, 1-6" plug, 1-4" plug, 1-6" x 4" reducer, 1-4" solid sleeve.

2660 So. Fairway - Made 12" tap on 14" main line for sprinkler system to Golf Course. Pipe Layed: 27' of 12" ductile iron. Installed: 1-12" gate valve, 2-12" check valves, 1-14" steel x 12" cast coupling, 2-12" x 10" flanged reducers, 3-flanged coupling adapters, 1-10" meter and strainer.

During the month of April 462,542,000 gallons of water was produced from the system, or 15,418,067 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies-Well #30	74,640,000	236.5 Lbs.
Well # 2	37,972,000	108.5 Lbs.
Well # 3	21,639,000	42.5 Lbs.
Well #10	4,639,000	12.5 Lbs.
Well #12	31,080,000	64.5 Lbs.
Well #16	31,829,000	80.5 Lbs.
Well #18	53,795,000	142.0 Lbs.
Well #21	16,823,000	33.0 Lbs.
Well #22	24,303,000	65.5 Lbs.
Well #27	31,371,000	68.0 Lbs.
Well #28	16,720,000	41.0 Lbs.
Well #29	24,650,000	75.5 Lbs.
Well #32	51,155,000	161.5 Lbs.
Well #33	5,030,000	13.5 Lbs.
PIP Well	9,244,000	16.0 Lbs.
Cree Well	14,706,000	27.5 Lbs.
West Bench Booster	12,835,000	40.5 Lbs.
	462,542,000	1,229.0 Lbs.

This figure is 222,664,000 more than last April. Based on the population figure of 46,736 there were 329.9 gallons of water per person per day produced from the system.

Airport production was 2,533,000 gallons of water using 4.5 lbs. of chlorine and 30 man hours.

WATER DEPARTMENT MONTHLY REPORT

MAY 1987

MAIN LINE WORK

100 thru 400 Blocks East Chapel - Capital improvement project. Pipe layed: 92' of 6" ductile iron. Installed: 1-6" fire hydrant, 1-6" fire hydrant valve, 2-6" gate valves, 1-6" tapping valve, 1-6" tapping saddle, 2-6" tees, 6-valve boxes, 3-6" solid sleeves.

Pershing - McCormack to Chapel - Capital improvement project. Pipe layed: 384' of 6" ductile iron. Installed: 1-6" gate valve, 1-6" fire hydrant, 1-6" fire hydrant valve, 1-6" tapping valve, 1-6" tapping saddle, 1-6" solid sleeve, 3-valve boxes, 1-6" m.j. plug.

500 Block Filmore - Capital improvement project. Pipe layed: 634' of 6" ductile iron. Installed: 2-6" gate valves, 2-6" fire hydrants, 2-6" fire hydrant valves, 2-6" tees, 4-valve boxes, made the necessary chlorination taps.

1538 Olympus Pointe - Made 6" tap for fire hydrant for contractor. Materials were supplied by the contractor.

During the month of May 476,589,000 gallons of water was produced from the system, or 15,373,839 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies-Well #30	66,195,000	441.0 Lbs.
Well #2	14,345,000	42.5 Lbs.
Well #3	69,905,000	154.0 Lbs.
Well #10	12,360,000	24.5 Lbs.
Well #12	40,912,000	99.5 Lbs.
Well #16	20,559,000	57.0 Lbs.
Well #18	55,830,000	158.5 Lbs.
Well #21	55,830,000	19.0 Lbs.
Well #22	26,518,000	71.0 Lbs.
Well #27	16,333,000	38.0 Lbs.
Well #28	13,091,000	31.0 Lbs.
Well #29	27,844,000	79.5 Lbs.
Well #32	56,562,000	189.0 Lbs.
Well #33	2,539,000	6.0 Lbs.
PIP Well	16,883,000	31.0 Lbs.
Cree Well	15,428,000	30.0 Lbs.
West Bench Booster	13,154,000	36.5 Lbs.
	476,589,000	1,508.0 Lbs

This figure is 51,673,000 more than last May. Based on the population figure of 46,736 there were 329.0 gallons of water per person per day produced from the system.

Airport production was 4,518,000 gallons of water using 6.5 lbs. of chlorine and 38 man hours.

WATER DEPARTMENT MONTHLY REPORT
JUNE 1987

MAIN LINE WORK

500 Block Fairmont - Capital improvement project. Pipe layed: 596' of 6" ductile iron. Installed: 2-6" gate valves, 2-valve boxes.

500 Block Euclid - Capital improvement project. Pipe layed: 620' of 6" ductile iron. Installed: 1-6" gate valve, 1-6" fire hydrant, 1-6" fire hydrant valve, 1-6" tees, 2-valve boxes, made the necessary chlorination taps.

500 Block Franklin - Capital improvement project. Pipe layed: 40' of 6" ductile iron.

12th & Bonneville - Street Department overlay project. Pipe layed: 110' of 6" ductile iron. Installed: 1-6" gate valve, 1-valve box, 1-4" solid sleeve, 2-6" x 4" reducers.

During the month of June 715,907,000 gallons of water was produced from the system, or 23,863,567 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORI[NE]
Surface Supplies-Well #30	73,880,000	923.0 Lbs.
Well #2	17,882,000	52.0 Lbs.
Well #3	73,142,000	156.0 Lbs.
Well #10	55,704,000	116.0 Lbs.
Well #12	82,924,000	205.5 Lbs.
Well #16	24,707,000	67.5 Lbs.
Well #18	68,653,000	165.5 Lbs.
Well #21	17,378,000	36.0 Lbs.
Well #22	29,638,000	83.0 Lbs.
Well #27	29,326,000	74.0 Lbs.
Well #28	25,982,000	68.0 Lbs.
Well #29	67,262,000	179.5 Lbs.
Well #31	16,990,000	53.5 Lbs.
Well #32	56,300,000	175.5 Lbs.
Well #33	10,100,000	29.0 Lbs.
PIP Well	30,293,000	55.5 Lbs.
Cree Well	11,796,000	25.0 Lbs.
West Bench Booster	23,950,000	62.5 Lbs.
	715,907,000	2,533.0 Lbs.

This figure is 81,847,000 less than last June. Based on the population figure of 46,736 there were 510.6 gallons of water per person per day produced from the system.

Airport production was 5,995,000 gallons of water using 7.5 lbs. of chlorine and 39 man hours. There were 2,259,000 more gallons produced than last June.

WATER DEPARTMENT MONTHLY REPORT
JULY 1987

MAIN LINE WORK

500 Block Franklin - Capital improvement project. Pipe layed: 528' of 6" ductile iron. Installed: 1-6" fire hydrant, 1-6" fire hydrant valve, 1-6" gate valve, 1-6" tee, 2-valve boxes. Made the necessary chlorination taps.

Shores & Stockman Road - Install new valve. Pipe layed: 35' of 4" cast iron. Installed: 1-4" gate valve, 1-4" flanged valve, 2-4" flanged coupling adaptor, 1-4" 90' bend fitting, 1-4" steel to cast coupling, 1-6" x 4" tapping sleeve, 1-valve box.

Oak & Yellowstone - Made 4" tap on 6" main for Parks Department beautification project. Installed: 1-6" tapping sleeve, 1-4" gate valve (supplied by Parks).

Jefferson & Oak - Install new gate valve. Pipe layed: 4' of 6" ductile iron. Installed: 1-6" gate valve, 1-6" 90' bend, 1-valve box.

900, 1000 & 1100 Blocks Poplar - Capital improvement project. Pipe layed: 980' of 6" ductile iron. Installed: 1-6" fire hydrant, 1-6" fire hydrant valve, 6-6" gate valves, 1-6" tee, 6-valve boxes. Made the necessary chlorination taps.

Butte & Satterfield - Made 6" tap on 18" main for contractor. Installed: 1-18" x 6" tapping sleeve, 1-6" gate valve (materials supplied by contractor).

During the month of July 652,591,000 gallons of water was produced from the system, or 21,051,322 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies-		
Well #30	61,579,000	753.0 Lbs.
Well # 2	17,102,000	49.0 Lbs.
Well # 3	74,344,000	162.0 Lbs.
Well #10	42,442,000	101.0 Lbs.
Well #12	82,146,000	207.0 Lbs.
Well #16	23,379,000	78.0 Lbs.
Well #18	74,261,000	169.0 Lbs.
Well #21	19,594,000	44.0 Lbs.
Well #22	31,874,000	80.0 Lbs.
Well #27	13,379,000	37.0 Lbs.
Well #28	21,441,000	58.0 Lbs.
Well #29	35,510,000	95.0 Lbs.
Well #31	37,806,000	109.0 Lbs.
Well #32	56,850,000	174.0 Lbs.
Well #33	16,863,000	44.0 Lbs.
PIP Well	16,322,000	31.0 Lbs.
Cree Well	6,987,000	15.0 Lbs.
West Bench Booster	20,212,000	47.0 Lbs.
	652,591,000	2,253.0 Lbs.

This figure is 165,436,000 less than last July. Based on the population figure of 46,736 there were 450.4 gallons of water per person per day produced from the system.

Airport production was 6,361,000 gallons of water using 9.0 lbs. of chlorine and 31 man hours. There were 1,952,000 gallons more produced than last July.

<u>9 MAIN LINE LEAKS</u> were <u>REPAIRED</u> at the following locations:
700 Block Filmore 7/18 Harrison & King 7/7 1016 E. Oak 7/1,8,14
Oak & Jefferson 7/18 Poplar & Filmore 7/13 2555 So. 2nd 7/17
830 No. 9th 7/22

15 NEW SERVICES WERE INSTALLED at the following locations:
Greenfield Heights 2nd Addition Block 1 Lots 1 & 2 (3/4") 7/1
Greenfield Heights 2nd Addition Block 2 Lots 2 & 3 (3/4") 7/1
322 & 328 Fredregill (2,1-1/2") 7/29
1016 E. Oak (3/4") 7/20 for future use
1060 E. Oak (3/4") 7/20 for future use
1080 E. Oak (3/4") 7/21 for future use
1110 E. Oak (3/4") 7/21 for future use
1120 E. Oak (3/4") 7/22 for future use
1146 E. Oak (3/4") 7/22 for future use
1176 E. Oak (3/4") 7/23 for future use
1186 E. Oak (3/4") 7/23 for future use
1190 E. Oak (3/4") 7/23 for future use

WATER DEPARTMENT MONTHLY REPORT
AUGUST 1987

MAIN LINE WORK
900, 1000 & 1100 Block Poplar - Capital improvement project. Pipe layed: 48' of 6" ductile iron. Installed: 1-6" plug, 1-6" x 4" reducer, 1-6" solid sleeve, 1-4" cast coupling, 1-4" solid sleeve.
100 - 400 Blocks Hyde - Capital improvement project. Pipe layed: 1320' of 6" ductile iron. Installed: 3-6" gate valves, 1-6" tapping tee, 1-6" tapping valve, 1-6" fire hydrant, 1-6" 90° ell, 1-6" 90° bend, 4-valve boxes, 1-6"x6"x4" tee, 2-6" tees, 3-6" solid sleeves, 1-4" solid sleeve, 1-4" cast coupling plug, 1-6" m.j. plug.
Cheyenne & Chinook - Made 6" tap on 6" main for Parks Department. Pipe layed: 46' of 6" ductile iron. Installed: 1-6" tapping valve, 1-6" tapping tee, 1-valve box, 1-6" push in plug.
Ridgeway Court & Eastridge - Connect 6" main to supply area with water. Pipe layed: 7' of 6" ductile iron. Installed: 2-6" tees, 3-6" solid sleeves, 1-6" gate valve.

During the month of August 761,976,000 gallons of water was produced from the system, or 24,579,871 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies-Well #30	61,106,000	732.0 Lbs.
Well #2	16,928,000	49.5 Lbs.
Well #3	76,584,000	164.5 Lbs.
Well #10	49,243,000	123.0 Lbs.
Well #12	102,698,000	263.0 Lbs.
Well #16	31,429,000	103.0 Lbs.
Well #18	71,504,000	157.0 Lbs.
Well #21	15,443,000	36.5 Lbs.
Well #22	31,712,000	91.0 Lbs.
Well #27	17,060,000	47.5 Lbs.
Well #28	32,783,000	86.0 Lbs.
Well #29	68,076,000	203.0 Lbs.
Well #31	64,155,000	61.5 Lbs.
Well #32	57,222,000	177.0 Lbs.
Well #33	19,956,000	52.5 Lbs.
PIP Well	16,596,000	35.5 Lbs.
Cree Well	5,811,000	13.0 Lbs.
West Bench Booster	23,670,000	57.5 Lbs.
	761,976,000	2,453.0 Lbs.

This figure is 71,220,000 less than last August. Based on the population figure of 46,736 there were 525.9 gallons of water per person per day produced from the system.

Airport production was 7,016,000 gallons of water using 14.0 lbs. of chlorine and 31 man hours. There were 1,461,000 gallons more produced than last August.

WATER DEPARTMENT MONTHLY REPORT
SEPTEMBER 1987

MAIN LINE WORK
Bonneville & Garfield - Replace main line in intersection. Pipe layed: 135' of 6" ductile iron. Installed: 1-6" gate valve, 1-valve box, 1-6" x 4" reducer, 1-6" solid sleeve.
100 - 400 Blocks Hyde - Capital improvement project. Pipe layed: 1476' of 6" ductile iron. Installed: 4-6" gate valves, 2-6" fire hydrants, 2-6" fire hydrant valves, 3-6" tees, 5-valve boxes, 2-6" 90° bends, 1-45° bend.
2345 E. Terry - Contractor supplied materials and made 6" tap on main for fire line.

During the month of September 634,665,000 gallons of water was produced from the system, or 21,155,500 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies-Well #30	58,420,000	587.5 Lbs.
Well # 2	18,167,000	46.5 Lbs.
Well # 3	71,364,000	172.0 Lbs.
Well #10	48,208,000	126.5 Lbs.
Well #12	99,109,000	263.5 Lbs.
Well #16	27,622,000	95.0 Lbs.
Well #18	46,610,000	121.0 Lbs.
Well #21	6,753,000	17.0 Lbs.
Well #22	28,948,000	91.0 Lbs.
Well #27	30,659,000	90.0 Lbs.
Well #28	20,496,000	58.5 Lbs.
Well #29	46,721,000	141.5 Lbs.
Well #31	1,382,000	6.0 Lbs.
Well #32	55,975,000	167.0 Lbs.
PIP Well	11,133,000	28.0 Lbs.
Cree Well	7,798,000	17.5 Lbs.
West Bench Booster	19,496,000	55.0 Lbs.
	634,665,000	2,157.5 Lbs.

This figure is 254,950,000 more than last September. Based on the population figure of 46,736 there were 452.7 gallons of water per person per day produced from the system.

Airport production was 5,319,000 gallons of water using 7.5 lbs. of chlorine and 33 man hours. There were 2,668,000 more gallons produced than last September.

4 MAIN LINE LEAKS were REPAIRED at the following locations:
500 W. Carter 9/14 1028 Deon 9/8 1616 So. 2nd 9/18
2100 So. 2nd 9/16

4 NEW SERVICES WERE INSTALLED at the following locations:
1651 Alvin Ricken Dr. (2") 9/17 Highland Golf Course (3/4") 9/22
2345 E. Terry (1") 9/23-Meter and installation completed by

FILE COPY

WATER DEPARTMENT MONTHLY REPORT

OCTOBER 1987

MAIN LINE WORK

Elm, Sorenson & Hewlett - Capital improvement project. Pipe layed: 1474' of 6" ductile iron. Installed: 5-6" fire hydrants, 5-6" fire hydrant valves, 7-6" gate valves, 4-6" tees, 2-6" 90 bends, 12-valve boxes, 1-6" x 4" reducer, 1-4" solid sleeve. Made the necessary chlorination taps.

accepted 10/20/87

Greenfield Heights - Lay 460' of 6" di Inst: 1-18"x6" tap sleeve, 1-6" tap valve 1-6" gate valve, 1-6" tee, 1-6" fh + vo 2-valve boxes

During the month of October 348,620,000 gallons of water was produced from the system, or 11,245,000 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies-Well #30	54,181,000	908.0 Lbs.
Well #2	30,897,000	81.0 Lbs.
Well #3	30,470,000	71.5 Lbs.
Well #10	16,322,000	46.0 Lbs.
Well #16	51,268,000	169.5 Lbs.
Well #18	15,001,000	41.5 Lbs.
Well #21	11,775,000	30.5 Lbs.
Well #22	11,533,000	36.0 Lbs.
Well #27	15,992,000	46.0 Lbs.
Well #28	7,692,000	22.0 Lbs.
Well #29	6,061,000	18.5 Lbs.
Well #32	56,891,000	183.0 Lbs.
Well #33	4,410,000	13.0 Lbs.
PIP Well	9,777,000	19.0 Lbs.
Cree Well	14,436,000	30.5 Lbs.
West Bench Booster	11,914,000	43.0 Lbs.
	348,620,000	1,759.0 Lbs.

This figure is 100,763,000 more than last October. Based on the population figure of 46,736 there were 240.6 gallons of water per person per day produced from the system.

7009

Airport production was 3,292,000 gallons of water using 4.5 lbs. of chlorine and 31 man hours. There were 1,149,000 gallons more produced than last October.

5 MAIN LINE LEAKS were REPAIRED at the following locations:

3641 Hawthorne 10/9	Mink Creek line 10/28	556 No. 10th 10/3
ISU-line from Putnam 10/5	1630 Shane 10/22	

5 NEW SERVICES WERE INSTALLED at the following locations:

1185 Call Dr (3/4") 10/27	5920 Tee Dr. (1") 10/2	East Bench Subdivision (2
6002 Evergreen (1") 10/29	West 1/2 Lot 9 Block 4	3/4") 10/13

14 SERVICES were RENEWED at the following locations:

970 Brennan (3/4") 10/15	720 No. Main (3/4") 10/20	1630 Shane (3/4") 10/23
1051 S. Grant (3/4")10/30	724 No. Main (3/4") 10/20	1665 Shane (3/4") 10/22
963 Gray (3/4") 10/21	1156 No. Main (3/4")10/19	1042 So. 4th (3/4") 10/16
906 Jones (3/4") 10/26	184 Melrose (3/4") 10/7	624 No. 10th (3/4") 10/14
934 E. Lewis (3/4") 10/15	628 Richland (3/4") 10/14	

37 SERVICES were RENEWED and CONNECTED TO NEW MAIN at the following locations:

1302 Ammon (3/4") 10/14	1302 Jane (3/4") 10/14	264 Sorenson (3/4") 10/7
1376 E. Elm (3/4") 10/13	1303 Jane (3/4") 10/14	265 Sorenson (3/4") 10/7
1456 E. Elm (3/4") 10/21	206 Sorenson (3/4") 10/5	274 Sorenson (3/4") 10/7 27
1544 Elm (3/4") 10/28	210 Sorenson (3/4") 10/5	Sorenson (3/4") 10/7
205 Hewlett (3/4") 10/16	215 Sorenson (3/4") 10/5	284 Sorenson (3/4") 10/7
225 Hewlett (3/4") 10/20	224 Sorenson (3/4") 10/5	295 Sorenson (3/4") 10/7
235 Hewlett (3/4") 10/16	234 Sorenson (3/4") 10/5	203 Thurston (3/4") 10/26
255 Hewlett (3/4") 10/19	235 Sorenson (3/4") 10/5	206 Thurston (3/4") 10/21
275 Hewlett (3/4") 10/19	244 Sorenson (3/4") 10/5	215 Thurston (3/4") 10/27
404 Hyde (3/4") 10/14	245 Sorenson (3/4") 10/5	216 Thurston (3/4") 10/26
457 Hyde (3/4") 10/14	254 Sorenson (3/4") 10/7	225 Thurston (3/4") 10/27
464 Hyde (3/4") 10/14	255 Sorenson (3/4") 10/5	235 Thurston (3/4") 10/28
496 Hyde (3/4") 10/14		

12 SERVICES were REPAIRED at the following locations:

969 Brennan (3/4") 10/15	2247 Butte (3/4") 10/5	830 E. Fremont (1/2") 10/8

7010

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WATER DEPARTMENT MONTHLY REPORT

NOVEMBER 1987

MAIN LINE WORK

Thurston, Maple, Sorenson & Elm Streets - Capital improvement project. Pipe layed: 1348' of 6" ductile iron. Installed: 2-6" fire hydrants, 2-6" fire hydrant valve, 4-6" gate valves, 4-6" tees, 1-6" 45° bend, 6-valve boxes, ~~1-45 bend~~, 2-6" solid sleeve. Made the necessary chlorination taps.

Indian Hills School - Install main line for soccer field. Pipe layed: 582' of 6" ductile iron. Installed: 1-6" gate valve, 1-6" tee, 1-6" m.j. plug, 1-valve box.

Well #34 NOP Park - Installed new 12" main from pump house to Eldredge. Pipe layed: 195' of 12" ductile iron. Installed: 1-12" gate valve, 1-12" steel to cast coupling, 1-valve box.

736 E. Custer - Installed valve on fire line. Installed: 1-6" x 12" solid sleeve, 1-6" coupling, 1-6" butterfly valve, 1-valve box.

During the month of November 205,583,000 gallons of water was produced from the system, or 6,852,766 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies-Well #30	57,526,000	755.0 Lbs.
Well #2	42,818,000	141.5 Lbs.
Well #16	12,832,000	43.5 Lbs.
Well #21	7,584,000	19.0 Lbs.
Well #27	9,234,000	29.5 Lbs.
Well #32	54,267,000	177.5 Lbs.
Cree Well	16,631,000	38.0 Lbs.
West Bench Booster	4,691,000	13.0 Lbs.
	205,583,000	1,217.0 Lbs.

This figure is 16,377,000 less than last November. Based on the population figure of 46,736 there were 146.6 gallons of water per person per day produced from the system.

C. 7011

Airport production was 1,375,000 gallons of water using 2.0 lbs. of chlorine and 38 man hours. There were 480,000 gallons less produced than last November.

4 MAIN LINE LEAKS were REPAIRED at the following locations:

5023 Cherokee 11/16	Riverside & Greenwood11/25	243 So. 8th 11/12
1055 Gray 11/10		

4 NEW SERVICES WERE INSTALLED at the following locations:

Pocatello Office Park Lot 3 (2-1") 11/9

2059 Pinto (3/4") 11/9 240 No. 10th (3/4") 11/3

11 SERVICES were RENEWED at the following locations:

525 E. Carter (3/4") 11/20	1145 E. Sherman(3/4")11/20	712 So. 4th (3/4") 11/20
1154 Eldredge (3/4") 11/13	746 McKinley (3/4") 11/27	243 So. 8th (3/4") 11/12
1720 E Fremont (3/4")11/19	750 McKinley (3/4") 11/27	332 So. 10th (3/4") 11/4
834 N Garfield (3/4")11/18	706 So. 4th (3/4") 11/20	

15 SERVICES were RENEWED and CONNECTED TO NEW MAIN at the following locations:

1420 E. Elm (3/4") 11/2	250 Thurston (3/4") 11/4	270 Thurston (3/4") 11/9
1407 E. Maple (3/4") 11/12	260 Thurston (3/4") 11/4	278 Thurston (3/4") 11/10
1424 E. Maple (3/4") 11/13	261 Thurston (3/4") 11/4	288 Thurston (3/4") 11/9
240 Thurston (3/4") 11/2	265 Thurston (3/4") 11/4	296 Thurston (3/4") 11/12
249 Thurston (3/4") 11/4	269 Thurston (3/4") 11/9	297 Thurston (3/4") 11/4

15 SERVICES were REPAIRED at the following locations:

4009 Amber (3/4") 11/20	1310 Jensen (1/2") 11/13	1353 So. 2nd (3/4") 11/3
37 Cottonwood (1/2") 11/17	828 Northgate (3/4") 11/20	231 So. 4th (3/4") 11/25
736 E. Custer (2") 11/25	47 Riverside (3/4") 11/25	658 No. 6th (1/2") 11/4
530 W. Day (1/2") 11/24	51 Riverside (3/4") 11/25	543 No. 15th (3/4") 11/19
2215 Garrett Way (1")11/17	94 Yale (1") 11/17	160 So. 17th (1") 11/16

1 SERVICE was REPAIRED and CONNECTED TO THE NEW MAIN at the following location:

220 Thurston (3/4") 11/15

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WATER DEPARTMENT MONTHLY REPORT

DECEMBER 1987

MAIN LINE WORK

NOP Park - Capital improvement project. Pipe layed: 1134' of 12" ductile iron.

During the month of December 212,178,000 gallons of water were produced from the system, or 6,844,452 gallons per day produced from the following sources.

Surface Supplies & Well #30	GALLONS PRODUCED	LBS. OF CHLORINE
Well #2	65,213,000	677.0 Lbs.
Well #18	45,879,000	148.5 Lbs.
Well #21	1,811,000	3.0 Lbs.
Well #27	9,838,000	25.0 Lbs.
Well #32	11,395,000	26.0 Lbs.
Cree Well	55,776,000	172.5 Lbs.
West Bench Booster	17,375,000	40.0 Lbs.
	4,891,000	13.5 Lbs.
	212,178,000	1,105.5 Lbs.

This figure is 6,372,000 less than last December. Based on the population figure of 46,736 there were 146.4 gallons of water per person per day produced from the system.

Airport production was 1,932,000 gallons of water using 3.5 lbs. of chlorine and 31 man hours. There were 150,000 gallons more produced than last December.

7 MAIN LINE LEAKS were REPAIRED at the following locations:

1044 E. Cedar 12/11	University & Terry 12/26	Wyldwood & Park 12/4
Gibson Jack Ck Main 12/2	3518 Valley Rd. 12/3	2626 So. 2nd 12/2
Reservoir Yard (2) 12/11		

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WATER DEPARTMENT MONTHLY REPORT
JANUARY 1988

During the month of January 243,792,000 gallons of water was produced from the system, or 7,864,259 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	54,197,000	731.0 Lbs.
Well #2	46,391,000	140.5 Lbs.
Well #18	431,000	3.5 Lbs.
Well #21	9,667,000	24.0 Lbs.
Well #27	19,005,000	32.0 Lbs.
Well #32	58,959,000	174.0 Lbs.
Cree Well	17,607,000	40.0 Lbs.
West Bench Booster	5,939,000	19.5 Lbs.
	243,792,000	1,164.5 Lbs.

This figure is 10,736,000 more than last January. Based on the population figure of 46,736 there were 168.3 gallons of water per person per day produced from the system.

Airport production was 3,199,000 gallons of water using 5.0 lbs. of chlorine and 34 man hours. There were 614,000 gallons more produced than last January.

1 MAIN LINE LEAK was REPAIRED at the following location:
1524 E. Lander 1/15

1 SERVICE was RENEWED at the following location:
219 Roosevelt (1") 1/13

5 SERVICES were REPAIRED at the following locations:
1345 Barton Road (2") 1/18 155 S. 2nd (1/2") 1/26 4921 S. 5th (3/4") 1/12
950 Highland (3/4") 1/6 850 No. 5th (1") 1/20

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WATER DEPARTMENT MONTHLY REPORT
FEBRUARY 1988

MAIN LINE WORK

500 Block Cree - Install fire hydrant. Pipe layed: 31' of 4" cast iron. Installed: 1-4" fire hydrant, 1-4" fire hydrant valve, 1-4" tee, 1-valve box, 1-4" plug, 1-4" flange adapter, 1-4" solid sleeve.

South Grant - From Idaho to Grandview - Capital improvement project. Pipe layed: 936' of 8" ductile iron, and 19' of 6" ductile iron. Installed: 1-8" gate valve, 2-6" fire hydrants, ~~2-6" fire hydrants,~~ 2-6" fire hydrant valves, 2-8" x 6" tees, 1-8" tapping valve, 1-16" x 8" tapping tee.

During the month of February 218,525,000 gallons of water was produced from the system, or 7,535,345 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	80,290,000	775.5 Lbs.
Well #2	42,708,000	113.5 Lbs.
Well #16	1,704,000	6.0 Lbs.
Well #21	9,667,000	21.0 Lbs.
Well #27	9,588,000	20.5 Lbs.
Well #32	53,467,000	162.5 Lbs.
Cree Well	16,058,000	36.0 Lbs.
West Bench Booster	5,043,000	16.5 Lbs.
	218,525,000	1,151.5 Lbs.

This figure is 8,944,000 more than last February. Based on the population figure of 46,736 there were 161.3 gallons of water per person per day produced from the system.

Airport production was 2,287,000 gallons of water using 4.0 lbs. of chlorine and 36 man hours. There were 275,000 gallons more produced than last February.

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WATER DEPARTMENT MONTHLY REPORT

MARCH 1988

MAIN LINE WORK

South Grant - From Idaho Street to Grandview - Capital improvement project. Pipe layed: 1804' of 8" and 15' of 6" ductile iron. Installed: 1-6" fire hydrant, 1-6" fire hydrant valve, 1-8" gate valve, 1-8" x 8" x 6" tee, 2-valve boxes, 1-8" solid sleeve, 1-3/4" corp. stop. Made the necessary chlorination taps.

600 Block Franklin Street - Capital improvement project. Pipe layed: 485' of 6" ductile iron. Installed: 1-6" fire hydrant, 1-6" fire hydrant valve, 2-6" gate valves, 1-6" tapping valve, 1-6" tapping tee, 2-6" tees, 4-valve boxes, 2-6" push in plugs (one tapped 2"). Made the necessary chlorination taps. Connected 2" copper main to 6" stub out servicing 1105, 1151 and 1132 E. Cedar.

1651 Alvin Ricken Drive - Made 8" tap on 16" main for fire line.

Buckskin Road - Install sewer line for Research Park. Pipe layed: 132' of 12" plastic sewer main supplied by I.S.U. (see hours worked on page 5).

1000 to 2700 Block South 2nd Avenue - Street Department Overlay Project. Pipe layed: 270' of 12", 12' of 6" ductile iron. Installed: 1-12" tapping valve, 1-12" tapping tee, 1-12" x 6" tee, 1-6" gate valve, 1-90 ell, 1-valve box.

During the month of March 217,579,000 gallons of water were produced from the system, or 7,018,678 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	76,830,000	712.0 Lbs.
Well #2	45,125,000	129.5 Lbs.
Well #16	1,049,000	3.0 Lbs.

Well #21	10,171,000	25.0 Lbs.
Well #27	7,898,000	19.5 Lbs.
Well #32	54,149,000	171.0 Lbs.
Cree Well	16,928,000	39.0 Lbs.
West Bench Booster	5,429,000	14.5 Lbs.
	217,579,000	1,113.5 Lbs.

This figure is 18,448,000 less than last March. Based on the population figure of 46,736 there were 150.2 gallons of water per person per day produced from the system.

Airport production was 1,520,000 gallons of water using 3.5 lbs. of chlorine and 31 man hours. There were 410,000 gallons less produced than last March.

1 MAIN LINE LEAKS was REPAIRED at the following location:
1301 Fore Road 3/1

2 NEW SERVICES WERE INSTALLED at the following locations:
1651 Alvin Ricken (3") 3/14 448 W. Custer (3/4") 3/21

38 SERVICES were RENEWED at the following locations:

835 E. Benton (3/4") 3/1	1056 N. Garfield (3/4")3/25	505 So. 8th (3/4") 3/3
923 E. Benton (3/4") 3/2	1080 Gray (3/4") 3/18	515 So. 8th (3/4") 3/7
836 E. Carter (3/4") 3/16	640 So. Hayes (3/4") 3/14	516 So. 8th (3/4") 3/4
856 E. Carter (3/4") 3/14	668 So. Hayes (3/4") 3/14	526 So. 8th (1") 3/8
438 W. Custer (3/4") 3/21	856 W. Lewis (1") 3/4	541 So. 8th (3/4") 3/9
458 W. Custer (3/4") 3/23	401 No. Lincoln (1") 3/25	622 So. 8th (1") 3/10
940 Delano (3/4") 3/10	405 No. Lincoln (3/4") 3/25	640 So. 8th (3/4") 3/11
941 Everett (3/4") 3/9	1920 No. Main (3/4") 3/15	648-50 So. 8th (3/4") 3/11
1005 N. Garfield (3/4")3/29	170 McKinley (3/4") 3/29	656 So. 8th (3/4") 3/11
1023 N. Garfield (3/4")3/30	1227 Ridge (3/4") 3/16	431 No. 9th (3/4") 3/28
1028 N. Garfield (3/4")3/22	122 Roosevelt (3/4") 3/22	838 No. 9th (3/4",1") 3/12
1042 N. Garfield (3/4")3/24	630 So. 4th (3/4") 3/9	155 No. 10th (3/4") 3/30
1055 No. Garfield (1") 3/28	504 So. 8th (3/4") 3/2	

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WATER DEPARTMENT MONTHLY REPORT

APRIL 1988

MAIN LINE WORK

1000 TO 2700 Block South 2nd Avenue - Street Department Overlay Project. Pipe layed: 2066' of 12" and 59' of 6" ductile iron, 10' of 4" cast iron. Installed: 4-6" fire hydrants, 4-6" fire hydrant valves, 2-12" gate valves, 1-12" tapping tee, 3-6" gate valves, 6-12" x 6" tees, 1-12" tapping valve, 1-12" 90 bend, 1-6" 22½ bend, 10-valve boxes, 2-6" x 4" reducers, 2-6" m.j. plug, 1-6" solid sleeve, 2-4" solid sleeves, 1-6" romac coupling, 1-4" romac coupling, 3-6" locking rings, 1-4" locking ring. The necessary chlorination taps were made.

Oak & Filmore - Connect 6" line on Filmore to 12" main on Oak. Pipe layed: 44' of 6" ductile iron. Installed: 1-6" tapping valve, 1-6" tapping saddle, 1-valve box, 1-6" cast-to-cast coupling.

During the month of April 369,755,000 gallons of water was produced from the system, or 12,325,167 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	71,403,000	185.0 Lbs.
Well #2	22,371,000	64.0 Lbs.
Well #3	39,692,000	105.5 Lbs.
Well #10	1,101,000	1.5 Lbs.
Well #16	45,867,000	148.0 Lbs.
Well #18	6,972,000	18.0 Lbs.
Well #21	9,568,000	23.5 Lbs.
Well #22	29,400,000	78.0 Lbs.
Well #27	19,495,000	46.0 Lbs.
Well #28	2,821,000	8.5 Lbs.
Well #29	34,101,000	62.0 Lbs.
Well #32	53,050,000	158.5 Lbs.

C 2018

PIP Well	8,110,000	18.0 Lbs.
Cree Well	16,325,000	36.0 Lbs.
West Bench Booster	9,479,000	25.0 Lbs.
	369,755,000	977.5 Lbs.

This figure is 92,787,000 more than last April. Based on the population figure of 46,736 there were 263.8 gallons of water per person per day produced from the system.

Airport production was 3,892,000 gallons of water using 7.5 lbs. of chlorine and 36 man hours. There were 1,359,000 gallons more produced than last April.

4 MAIN LINE LEAKS were REPAIRED at the following locations:

1225 College 4/12	1655 So. 2nd 4/7	2011 So. 2nd 4/26
500 Block So. 1st 4/20		

3 NEW SERVICES WERE INSTALLED at the following locations:

5100 Johnny Ck Rd (1") 4/29	617 Richland (3/4") 4/28	332 No. 5th (1½") 4/19

24 SERVICES were RENEWED at the following locations:

677 W. Cedar (3/4") 4/23	1236 N. Garfield (3/4")4/25	1055 McKinley (3/4") 4/1
914 Eldredge (3/4") 4/6	1239-41 N. Garfield(1")4/28	1388 Ridge (3/4") 4/1
1041 N. Garfield (3/4") 4/6	1246-48 N. Garfld(3/4")4/26	1137 E. Sublette (3/4")4/7
1125 N. Garfield (3/4")4/13	300 Blk No. Grant (1") 4/21	187 Taft (3/4") 4/28
1135 N. Garfield (3/4")4/20	941 No. Harrison (3/4")4/25	436 W. Young (3/4") 4/11
1140-42 N. Garfld(3/4")4/19	962 Jones (3/4") 4/13	318½ So. 6th (3/4") 4/13
1229 N. Garfield (3/4")4/21	340 No. Lincoln (3/4") 4/11	212 So. 12th (1") 4/5
1221-23 N. Garfld(3/4")4/22	949 McKinley (3/4") 4/7	726 No. 12th (3/4") 4/27

15 SERVICES were RENEWED and CONNECTED TO NEW MAIN at the following locations:

2351 So. 2nd (3/4") 4/12	2442 So. 2nd (3/4") 4/7	2528 So. 2nd (3/4") 4/5
2360 So. 2nd (3/4") 4/12	2445 So. 2nd (3/4") 4/7	2535 So. 2nd (3/4") 4/5
2370 So. 2nd (3/4") 4/11	2460 So. 2nd (1") 4/6	2607 So. 2nd (3/4") 4/1
2403 So. 2nd (3/4") 4/11	2469 So. 2nd (3/4") 4/7	2626 So. 2nd (3/4") 4/1
2414 So. 2nd (3/4") 4/11	2516 So. 2nd (3/4") 4/15	2647 So. 2nd (3/4") 4/1

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WATER DEPARTMENT MONTHLY REPORT

MAY 1988

MAIN LINE WORK

1000 to 2700 Block So. 2nd - Capital improvement project. Pipe layed: 2175' of 12", 16.5' of 10" and 105' of 6" ductile iron. Installed: 2-6" fire hydrants, 2-6" fire hydrant valves, 5-12" gate valves, 1-6" gate valve, 1-12" tee, 1-12" x 10" tee, 2-12" x 6" tees, 8-valve boxes, 1-12" x 6" reducer, 1-12" x 10" coupling, 1-10" solid sleeve, 1-6" locking ring. Made the required chlorination taps.

Franklin & Cedar - Capital improvement project. Pipe layed: 102' of 6" ductile iron. Installed: 1-6" gate valve, 1-valve box, 1-6" tee.

2140 Satterfield - Install fire hydrant. Installed: 1-6" tapping valve, 1-6" fire hydrant, 1-6" fire hydrant valve, 1-18" x 6" tapping sleeve.

During the month of May 554,830,000 gallons of water were produced from the system, or 17,897,742 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	81,688,000	213.0 Lbs.
Well # 2	17,156,000	51.5 Lbs.
Well # 3	69,040,000	175.0 Lbs.
Well #10	40,828,000	83.5 Lbs.
Well #12	41,403,000	92.0 Lbs.
Well #16	31,904,000	87.0 Lbs.
Well #18	13,012,000	47.5 Lbs.
Well #21	24,425,000	60.5 Lbs.
Well #22	30,698,000	78.0 Lbs.
Well #27	25,748,000	61.0 Lbs.
Well #28	17,809,000	30.0 Lbs.
Well #29	37,882,000	84.0 Lbs.

7020

	GALLONS PRODUCED	LBS. OF CHLORINE
Well #31	19,676,000	37.5 Lbs.
Well #32	54,374,000	175.5 Lbs.
Well #33	2,970,000	10.0 Lbs.
PIP Well	11,755,000	25.5 Lbs.
Cree Well	16,913,000	38.0 Lbs.
West Bench Booster	17,549,000	47.5 Lbs.
	554,830,000	1,397.0 Lbs.

This figure is 78,241,000 more than last May. Based on the population figure of 46,736 there were 383.0 gallons of water per person per day produced from the system.

Airport production was 3,884,000 gallons of water using 7.0 lbs. of chlorine and 31 man hours. There were 634,000 gallons less produced than last May.

6 MAIN LINE LEAKS were REPAIRED at the following locations:

800 Block E. Bridger 5/16	Mink Ck. by Frazier's 5/27	Quinn St. Overpass 5/26
677 W. Cedar 5/14	Poleline & Fir 5/5	2nd & Dunn 5/19

3 NEW SERVICES WERE INSTALLED at the following locations:

336 No. Buchanan (1") 5/23	516 W. Carson (3/4") 5/3	1260 1/2 Lilac (3/4") 5/12

33 SERVICES were RENEWED at the following locations:

1329 No. Arthur (3/4") 5/12	1342 No. Garfield(3/4")5/13	2601 Poleline (3/4") 5/5
922 Broadway (1") 5/9	1405 No. Garfield(3/4")5/19	2824 Poleline (3/4") 5/6
508 W. Carson (3/4") 5/18	1414 No. Garfield(3/4")5/17	2840 Poleline (3/4") 5/9
528 W. Carson (3/4") 5/3	1439 No. Garfield(3/4")5/24	2701 So. 2nd (2-1") 5/24
915-25 E. Center (3/4")5/19	1445 No. Garfield(3/4")5/24	543 So. 4th (3/4") 5/26
941 E. Center (3/4") 5/26	1450 No. Garfield(3/4")5/15	414 So. 5th (3/4") 5/25
1039 E. Clark (3/4") 5/27	1455 No. Garfield(3/4")5/23	466 So. 5th (1") 5/10
1308 No. Garfield (3/4")5/2	3528 Hawthorne (3/4") 5/19	106 So. 8th (3/4") 5/17
1316 No. Garfield (3/4")5/2	341 No. Lincoln (3/4") 5/6	541 So. 10th (3/4") 5/2
1319 No. Garfield (3/4")5/4	1042 No. Lincoln (3/4")5/13	307 No. 14th (3/4") 5/10
1329 No. Garfield(3/4")5/12	3817 Nora (1") 5/9	135 So. 14th (3/4") 5/24

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WATER DEPARTMENT MONTHLY REPORT
JUNE 1988

MAIN LINE WORK

1000 to 2700 Block South 2nd - Capital improvement project. Pipe layed: 1083' of 12", 882' of 6" and 2' of 4" ductile iron. Installed: 2-6" fire hydrants, 2-6" fire hydrant valves, 2-12" gate valves, 3-6" gate valves, 1-4" butterfly valve, 1-12" x 6" tee, 1-6" tee, 1-6" x 4" tee, 7-valve boxes, 1-6" locking ring, 1-8" x 6" reducer, 1-12" x 8" tee, 1-12" solid sleeve. The necessary chlorination taps were made.

Franklin Avenue - Poplar to Cedar - Capital improvement project. Pipe layed: 167' of 6" ductile iron, 4' of 4" cast iron. Installed: 1-6" gate valve, 2-6" solid sleeves, 1-4" solid sleeve, 1-6" x 4" reducer, 1-6" coupling, 1-valve box. The necessary chlorination taps were made.

During the month of June 871,641,000 gallons of water were produced from the system, or 29,054,700 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	93,684,000	744.0 Lbs.
Well #2	34,255,000	88.0 Lbs.
Well #3	72,279,000	185.0 Lbs.
Well #10	106,696,000	221.5 Lbs.
Well #12	83,821,000	182.0 Lbs.
Well #16	49,145,000	154.0 Lbs.
Well #18	15,406,000	45.0 Lbs.
Well #21	20,639,000	48.0 Lbs.
Well #22	28,956,000	57.5 Lbs.
Well #27	27,950,000	47.5 Lbs.
Well #28	34,551,000	87.0 Lbs.
Well #29	75,001,000	195.5 Lbs.
Well #31	98,027,000	273.5 Lbs.

7022

Well #32	53,739,000	178.5 Lbs.
Well #33	16,653,000	55.5 Lbs.
PIP Well	17,123,000	31.0 Lbs.
Cree Well	15,205,000	35.0 Lbs.
West Bench Booster	28,511,000	90.0 Lbs.
	871,641,000	2,718.5 Lbs.

This figure is 155,734,000 more than last June. Based on the population figure of 46,736 there were 621.7 gallons of water per person per day produced from the system.

Airport production was 5,284,000 gallons of water using 9.0 lbs. of chlorine and 30 man hours. There were 711,000 gallons less produced than last June.

<u>3 MAIN LINE LEAKS</u> were <u>REPAIRED</u> at the following locations:

1000 Blk Mink Ck Rd 6/17 Moreland & Cedar 6/11 Reservoir Yard 6/1

<u>4 NEW SERVICES WERE INSTALLED</u> at the following locations:

Poleline & Balsam (2-1") for Parks Department 6/15

427 No. 4th (1") 6/29 527 So. 12th (1") 6/21

<u>17 SERVICES</u> were <u>RENEWED</u> at the following locations:

744 Ash (3/4") 6/22	798 Ebony (3/4") 6/6	1112 Meadowbrook(3/4")6/11
627 W. Benton (3/4") 6/9	614 W. Eldredge (3/4") 6/24	415 Northland (3/4") 6/7
1021 E. Clark (3/4") 6/1	3-9 Hawthorne (1") 6/3	595 Packard (3/4") 6/14
207 Cottonwood (3/4") 6/28	908 E. Hayden (3/4") 6/24	970 Wayne (3/4") 6/28
208 Cottonwood (3/4") 6/6	924 E. Hayden (3/4") 6/24	803 No. 8th (3/4") 6/10
754 Dogwood (3/4") 6/27	753 McKinley (3/4") 6/27	

<u>45 SERVICES</u> were <u>RENEWED</u> and <u>CONNECTED TO NEW MAIN</u> at the following locations:

1200 E. Cedar (3/4") 6/7	1105 So. 2nd (3/4") 6/21	1338 So. 2nd (3/4") 6/1
707 Franklin (3/4") 6/8	1116 So. 2nd (3/4") 6/20	1342 So. 2nd (3/4") 6/1
306 E. Humbolt (3/4") 6/27	1120 So. 2nd (3/4") 6/20	1353 So. 2nd (1") 6/1
246 E. Lawton (3/4") 6/6	1136 So. 2nd (3/4") 6/20	1365 So. 2nd (3/4") 6/1
308 E. Lawton (3/4") 6/7	1140 So. 2nd (3/4") 6/20	1407 So. 2nd (3/4") 6/2
1538 So. 1st (1") 6/8	1327 So. 2nd (3/4") 6/1	1414 So. 2nd (1") 6/6
1560 So. 1st (1") 6/14	1331 So. 2nd (3/4") 6/1	1420 So. 2nd (3/4") 6/6

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WATER DEPARTMENT MONTHLY REPORT
JULY 1988

MAIN LINE WORK

100 to 2700 Block So. 2nd - Capital improvement project. Pipe layed: 126' of 6" ductile iron. Installed: 1-6" fire hydrants, 1-6" fire hydrant valve, 1-6" gate valves, 1-6" tapping valve, 1-6" solid sleeve, 1-6" x 10" tapping sleeve, 1-10" coupling, 1-6" tees, 2-valve boxes, 6-6" locking rings. The necessary chlorination taps were made.

NOP Park - Capital improvement project. Pipe layed: 310' of 12" and 26' of 6" ductile iron. Installed: 1-12" gate valve, 1-12" tapping valve, 1-12" tapping sleeve, 1-6" fire hydrant, 1-6" fire hydrant valve, 2-following glands and gaskets,
1 - 12" tee, 1-12" x 12" x 10" tee, 1-12" 45 bend, 3-valve boxes. The necessary chlorination taps were made.

6th & Benton - Capital improvement project. Pipe layed: 92' of 6" ductile iron. Installed: 2-6" gate valves, 2-6" x 4" romac coupling, 2-valve boxes. The necessary chlorination taps were made.

1600 to 1800 Block E. Bonneville - Street Department Overlay Project. Pipe layed: 750' of 6" ductile iron. Installed: 1-6" fire hydrant valve, 1-6" fire hydrant, 3-6" gate valves, 4-valve boxes, 3-6" tees, 1-6" locking ring. The necessary chlorination taps were made.

During the month of July 1,016,657,000 gallons of water was produced from the system, or 32,795,388 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	109,450,000	592.5 Lbs.
Well #2	24,171,000	32.0 Lbs.
Well #3	74,013,000	142.0 Lbs.

7024

Well #10	122,350,000	246.5 Lbs.
Well #12	109,612,000	273.0 Lbs.
Well #16	54,371,000	166.5 Lbs.
Well #18	34,391,000	103.0 Lbs.
Well #21	31,480,000	74.0 Lbs.
Well #22	31,345,000	55.5 Lbs.
Well #27	29,062,000	46.0 Lbs.
Well #28	50,286,000	116.0 Lbs.
Well #29	86,110,000	216.0 Lbs.
Well #31	114,437,000	291.5 Lbs.
Well #32	54,591,000	184.0 Lbs.
Well #33	22,422,000	73.5 Lbs.
Well #34	714,000	2.0 Lbs.
PIP Well	17,581,000	40.0 Lbs.
Cree Well	15,524,000	36.5 Lbs.
West Bench Booster	34,747,000	97.5 Lbs.
	1,016,657,000	2,788.0 Lbs.

This figure is 364,066,000 more than last July. Based on the population figure of 46,736 there were 701.8 gallons of water per person per day produced from the system.

Airport production was 7,371,000 gallons of water using 14.5 lbs. of chlorine and 31 man hours. There were 1,010,000 gallons more produced than last July..

6 MAIN LINE LEAKS were REPAIRED at the following locations:

736 E. Benton 7/8	400 Block Kurtwood 7/22	334 So. 1st 7/20
Broadway & Opal 7/21	Mink Creek & Elk Rd. 7/12	702 So. 1st 7/17

5 NEW SERVICES WERE INSTALLED at the following locations:

Appaloosa-Parks Well (2") 7/21 for Parks Department
Poleline & Cedar (1") 7/15 for Parks Department
Yellowstone & Oak (2") 7/20 for Parks Department
5th & Sublette (2") 7/28 for Parks Department
Lot 5 Block 4 Olympus Hgts. (2") 7/18 s/c

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WATER DEPARTMENT MONTHLY REPORT
AUGUST 1988

MAIN LINE WORK

Hidden Village Project - Capital improvement project. Pipe layed: 2936' of 6" ductile iron. Installed: 2-6" fire hydrants, 2-6" fire hydrant valves, 14-6" gate valves, 6-6" tees, 2-6" 22-1/2 bend, 16-valve boxes, 3-6" plugs, 1-4" plug, 1-4" solid sleeve, 1-6" x 4" coupling, 1-6" cross, 1-6" locking ring, 1-4" locking ring.
The necessary chlorination taps were made.

Airport (Northwest Aviation) - Install 4" fire line. Pipe layed: 158' of 4" ductile iron. Installed: 1-4" tapping valve, 1-6" x 4" tapping saddle, 1-4" 90 bend.

Bannock Nursing Home - Made 6" tap for fire line. Installed: 1-6" x 8" tapping sleeve, 1-6" tapping valve, 1-valve box.

During the month of August 929,150,000 gallons of water were produced from the system, or 29,972,581 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	98,533,000	817.0 Lbs.
Well #2	24,373,000	63.5 Lbs.
Well #3	69,412,000	150.5 Lbs.
Well #10	118,111,000	272.5 Lbs.
Well #12	107,560,000	275.5 Lbs.
Well #16	48,948,000	144.0 Lbs.
Well #18	42,200,000	133.0 Lbs.
Well #21	37,178,000	91.5 Lbs.
Well #22	32,448,000	69.5 Lbs.
Well #27	28,122,000	70.0 Lbs.
Well #28	24,616,000	54.5 Lbs.
Well #30	76,685,000	182.5 Lbs.
Well #31	91,279,000	234.5 Lbs.

7026

Well #32	53,930,000	180.5 Lbs.
Well #33	20,283,000	66.5 Lbs.
Cree Well	15,045,000	33.0 Lbs.
PIP Well	15,057,000	35.5 Lbs.
West Bench Booster	25,370,000	74.0 Lbs.
	929,150,000	2,948.0 Lbs.

This figure is 167,174,000 more than last August. Based on the population figure of 46,736 there were 641.4 gallons of water per person per day produced from the system.

Airport production was 5,750,000 gallons of water using 11.5 lbs. of chlorine and 35 man hours. There were 1,266,000 gallons less produced than last August.

3 MAIN LINE LEAKS were REPAIRED at the following locations:

418 Kurtwood 8/8 Park & Taney 8/24 950 Taney 8/23

6 NEW SERVICES WERE INSTALLED at the following locations:

Alameda & Park (2-1") 8/29 for Parks Department
Alameda & Randolph (1") 8/25 for Parks Department
Alameda & Washington (2-1") 8/29 for Parks Department
527 Memorial Drive (4") 8/30

22 SERVICES were RENEWED at the following locations:

840 E. Alameda (1") 8/24	224 Hawthorne (3/4") 8/23	588 McKinley (3/4") 8/22
840 E. Alameda (1-1/2")8/24	411 So. Hayes (3/4") 8/26	640 McKinley (3/4") 8/22
643 So. Arthur (3/4") 8/31	949 Howard (3/4") 8/18	567 W. Pine (3/4") 8/9,31
937 Belmont (3/4") 8/17	1310 Jensen (3/4") 8/25	545 Richland (3/4") 8/8
626 W. Carson (3/4") 8/2	546 No. Lincoln (3/4") 8/29	1298 Ridge (3/4") 8/15
504 E. Center (3/4") 8/11	1104 No. Main (3/4") 8/8	946 No. 10th (3/4") 8/19
508 E. Center (3/4") 8/11	1112 No. Main (3/4") 8/8	804 No. 11th (3/4") 8/10
948 Gray (3/4") 8/18		

22 SERVICES were RENEWED and CONNECTED TO NEW MAIN at the following locations:

925 Willow Lane (3/4") 8/1	415 Wyldwood (3/4") 8/1	452 Wyldwood (3/4") 8/1
404 Wyldwood (3/4") 8/1	423 Wyldwood (3/4") 8/1	457 Wyldwood (3/4") 8/1
407 Wyldwood (3/4") 8/1	429 Wyldwood (3/4") 8/1	462 Wyldwood (3/4") 8/1
408 Wyldwood (3/4") 8/1	442 Wyldwood (3/4") 8/1	467 Wyldwood (3/4") 8/1

FILE COPY

WATER DEPARTMENT MONTHLY REPORT
SEPTEMBER 1988

MAIN LINE WORK

Hidden Village Project - Capital improvement project. Pipe layed: 1716' of 6" ductile iron. Installed: 4-6" fire hydrants, 4-6" fire hydrant valve, 7-6" gate valves, 6-6" tees, 11-valve boxes, 1-6" plug, 2-6" solid sleeves, 1-6" romac coupling.

During the month of September 592,705,000 gallons of water was produced from the system, or 19,756,833 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	96,738,000	507.0 Lbs.
Well #2	19,840,000	52.0 Lbs.
Well #3	61,384,000	133.0 Lbs.
Well #10	84,209,000	222.0 Lbs.
Well #12	36,477,000	103.0 Lbs.
Well #16	47,226,000	133.5 Lbs.
Well #18	28,850,000	82.5 Lbs.
Well #21	30,650,000	82.5 Lbs.
Well #22	32,621,000	93.5 Lbs.
Well #27	24,000,000	70.0 Lbs.
Well #28	1,737,000	3.5 Lbs.
Well #29	8,533,000	21.0 Lbs.
Well #31	17,855,000	47.5 Lbs.
Well #32	49,032,000	168.5 Lbs.
Well #33	9,302,000	27.0 Lbs.
PIP Well	13,493,000	30.0 Lbs.
Cree Well	15,671,000	36.0 Lbs.
West Bench Booster	15,087,000	42.5 Lbs.
	592,705,000	1,855.0 Lbs.

7028

This figure is 41,960,000 less than last September. Based on the population figure of 46,736 there were 422.8 gallons of water per person per day produced from the system.

Airport production was 4,695,000 gallons of water using 9.5 lbs. of chlorine and 31 man hours. There were 624,000 gallons less produced than last September.

<u>5 MAIN LINE LEAKS</u> were <u>REPAIRED</u> at the following locations:

1002 E. Cedar 9/12	500 Block W. Connor 9/14	316 No. 9th 9/28
460 Crescent Drive 9/16	118 Taft 9/2	

<u>9 NEW SERVICES WERE INSTALLED</u> at the following locations:

835 W. Cedar (3/4") 9/22	4315 Tech Farm Rd(1")9/15	15th & Hayden (1") 9/16
Simplot Square (2") 9/13	1111 Wilson (3/4") 9/29	

Airport--Aviation Center (1") 9/30

<u>Parks Department Beautification Projects</u>:

Alameda & Deon (1") 9/8	Alameda & Jefferson (1")9/20	Pocatello Ck & Deon (1")9/6

<u>14 SERVICES</u> were <u>RENEWED</u> at the following locations:

1510 No. Arthur (1") 9/23	1648 Homer (3/4") 9/16	242 So. 7th (1") 9/1
1546 No. Arthur (3/4") 9/27	1235 E. Lewis (3/4") 9/20	316 No. 9th (3/4") 9/28
1554 No. Arthur (3/4") 9/27	327 No. Lincoln (3/4") 9/26	623 So. 9th (3/4") 9/13
907 Cahoon (3/4") 9/22	555 No. Lincoln (3/4") 9/21	753 No. 13th (3/4") 9/28
335 W. Connor (3/4") 9/27	3706 Philbin (3/4") 9/19	

<u>56 SERVICES</u> were <u>RENEWED</u> and <u>CONNECTED TO NEW MAIN</u> at the following locations:

1071 Cherry Lane (3/4")9/27	1109 Cherry Lane (3/4")9/26	931 Park (3/4") 9/8
1072 Cherry Lane (3/4")9/27	1112 Cherry Lane (3/4")9/20	934 Park (3/4") 9/8
1076 Cherry Lane (3/4")9/27	1125 Cherry Lane (3/4")9/21	935 Park (3/4") 9/8
1079 Cherry Lane (3/4")9/27	1135 Cherry Lane (3/4")9/21	938 Park (3/4") 9/8
1080 Cherry Lane (3/4")9/26	1209 Cherry Lane (3/4")9/21	939 Park (3/4") 9/8
1091 Cherry Lane (3/4")9/27	914 Park (3/4") 9/8	941 Park (3/4") 9/8
1097 Cherry Lane (3/4")9/21	924 Park (3/4") 9/8	942 Park (3/4") 9/8
1106 Cherry Lane (3/4")9/26	925 Park (3/4") 9/8	946 Park (3/4") 9/8
1108 Cherry Lane (3/4")9/21	930 Park (3/4") 9/8	947 Park (3/4") 9/8

City of Pocatello • Water Department

P.O. Box 4169 • 902 E. Sherman • Pocatello, Idaho 83201 • (208) 234-6174

WATER DEPARTMENT MONTHLY REPORT

OCTOBER 1988

MAIN LINE WORK

Hidden Village Project - Capital improvement project. Pipe layed: 1175' of 6" ductile iron. Installed: 3-6" fire hydrants, 3-6" fire hydrant valve, 2-6" gate valves, 3-6" tees, 5-valve boxes, 1-6" plug, -6" solid sleeves, 2-6" romac coupling, 1-6" 22½ bend. The necessary chlorination taps were made.

Great Western Malting - Extend main line. Pipe layed: 1184' of 8", 10' of 6" ductile iron and 17' of 2" copper pipe. Installed: 1-6" fire hydrant, 1-6" fire hydrant valve, 1-8" gate valve, 1-8" x 8" x 6" tee, 2-valve boxes, 1-8" x 4" tee, 1-2" corporation stop, 2-2" riser stops, 1-2" meter, 3-2" 90° bends, 1-4" x 2" reducer and 1-meter box with lid. The necessary chlorination taps were made.

Juniper Mountain Subdivision - Made 6" tap for contractor. Installed: 1-6" tapping valve and sleeve (materials were furnished by contractor).

During the month of October 444,858,000 gallons of water were produced from the system, or 14,350,258 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	101,759,000	935.0 Lbs.
Well #2	24,406,000	62.5 Lbs.
Well #3	39,197,000	82.5 Lbs.
Well #16	75,626,000	218.0 Lbs.
Well #18	26,100,000	78.0 Lbs.
Well #21	23,495,000	68.5 Lbs.
Well #22	33,034,000	109.0 Lbs.
Well #27	25,957,000	77.0 Lbs.
Well #28	1,242,000	3.5 Lbs.
Well #32	54,281,000	180.0 Lbs.
PIP Well	14,270,000	31.0 Lbs.

7030

Cree Well	17,135,000	35.0 Lbs.
West Bench Booster	8,356,000	37.5 Lbs.
	444,858,000	1,917.5 Lbs.

This figure is 96,238,000 more than last October. Based on the population figure of 46,736 there were 307.1 gallons of water per person per day produced from the system.

Airport production was 4,205,000 gallons of water using 8.0 lbs. of chlorine and 31 man hours. There were 913,000 gallons less produced than last October.

1 MAIN LINE LEAKS was REPAIRED at the following location:
3942 Hawthorne - Contractor broke our main line requiring replacement of 9' of 10" cast iron, 1-10" romac coupler, 1-10" butterfly valve and 1-valve box.

7 ~~6~~ NEW SERVICES WERE INSTALLED at the following locations:

5880 Country Club (1") 10/18	949 Fairbanks (3/4") 10/11	5685 Turf (3/4") 10/13
Alameda & Meadowbrook (2-1"): 2/26		Domsea (2") 10/27
Greenfield Heights 3rd - Lot 5 Block V (3/4") 10/14		

24 SERVICES were RENEWED at the following locations:

1105 N. Arthur (3/4") 10/11	1003 N. Harrison(3/4")10/27	615 So. 6th (3/4") 10/21
1706 Bench Road (1") 10/19	3540 Hawthorne (3/4") 10/28	419 No. 9th (3/4") 10/27
787 Bryan (3/4") 10/17	1323 E. Lander (3/4") 10/17	547 So. 9th (3/4") 10/24
1056 E. Center (1") 10/21	648 McKinley (3/4") 10/3	307 No. 10th (3/4") 10/19
535 Crescent (3/4") 10/21	802 McKinley (1") 10/7	137 No. 12th (3/4") 10/6
222-28 W. Custer(3/4")10/27	606 Richland (1") 10/25	145 No. 12th (3/4") 10/6
907 W. Eldredge (3/4")10/31	309 No. 6th (3/4") 10/14	344 So. 12th (1") 10/4
1351 E. Fremont (3/4")10/24	605 So. 6th (3/4") 10/21	451 No. 13th (3/4") 10/20

25 SERVICES were RENEWED and CONNECTED TO NEW MAIN at the following locations:

903 Wayne (3/4") 10/11	926 Wayne (3/4") 10/11	937 Wayne (3/4") 10/11
904 Wayne (3/4") 10/11	930 Wayne (3/4") 10/11	938 Wayne (3/4") 10/11
921 Wayne (3/4") 10/11	931 Wayne (3/4") 10/11	939 Wayne (3/4") 10/11
922 Wayne (3/4") 10/11	934 Wayne (3/4") 10/11	941 Wayne (3/4") 10/11
925 Wayne (3/4") 10/11	935 Wayne (3/4") 10/11	942 Wayne (3/4") 10/11

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WATER DEPARTMENT MONTHLY REPORT

NOVEMBER 1988

MAIN LINE WORK

Old Airport - Tank Farm Road - Install irrigation water main line for Water Pollution Control. Pipe layed: 1740' of 8" p.v.c. pipe.

During the month of November 248,768,000 gallons of water was produced from the system, or 8,292,267 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	97,265,000	813.0 Lbs.
Well #2	40,375,000	94.5 Lbs.
Well #16	12,603,000	32.0 Lbs.
Well #18	170,000	.5 Lbs.
Well #21	7,637,000	20.5 Lbs.
Well #22	7,145,000	23.5 Lbs.
Well #27	9,721,000	31.0 Lbs.
Well #28	185,000	0.0 Lbs.
Well #32	54,459,000	167.0 Lbs.
Cree Well	15,921,000	33.5 Lbs.
West Bench Booster	3,287,000	14.5 Lbs.
	248,768,000	1,230.5 Lbs.

This figure is 43,185,000 more than last November. Based on the population figure of 46,736 there were 177.5 gallons of water per person per day produced from the system.

Airport production was 1,630,000 gallons of water using 3.5 lbs. of chlorine and 30 man hours. There were 255,000 gallons more produced than last November.

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WATER DEPARTMENT MONTHLY REPORT

DECEMBER 1988

MAIN LINE WORK

Harrison & Gibson - Capital improvement project. Pipe layed: 96.5' of 6" ductile iron. Installed: 1-valve box and 1-6" romac coupling.

Domsea Project - Extend main line on Kraft Road. Pipe layed: 480' of 8" ductile iron. Installed: 2-8" gate valves, 2-8" romac couplings, 1-8" tee, 1-8" 90 ell, 2-valve boxes.

NOP Park Well #34 - Install dry well overflow line. Pipe layed: 10' of 36" galvanized culvert pipe, 80' of 10" and 31' of 6" ductile iron. Installed: 1-6" steel x 6" cast iron romac coupling.

Great Western Malting - Made 6" tap on 6" main line for service. Installed: 1-6" tapping valve, 1-6" tapping tee

During the month of December 250,736,000 gallons of water was produced from the system, or 8,088,258 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	119,150,000	858.0 Lbs.
Well #2	45,098,000	78.0 Lbs.
Well #21	3,294,000	10.0 Lbs.
Well #27	4,785,000	12.0 Lbs.
Well #32	57,918,000	175.0 Lbs.
Cree Well	16,486,000	33.5 Lbs.
West Bench Booster	4,005,000	15.0 Lbs.
	250,736,000	1,181.5 Lbs.

This figure is 38,558,000 more than last December. Based on the population figure of 46,736 there were 173.1 gallons of water per person per day produced from the system.

Airport production was 2,380,000 gallons of water using 5.0 lbs. of chlorine and 31 man hours. There were 448,000 gallons more produced than last December.

6 MAIN LINE LEAKS were REPAIRED at the following locations:

2869 Caribou 12/14	56 Harvard 12/12	1155 Yellowstone 12/1
500 Block El Rancho 12/2	181 Hoffman 12/19	1905 King-Plug line 12/8

2 NEW SERVICES WERE INSTALLED at the following locations:

1666 Kraft Road (6") 12/14

Kraft Road & Portneuf River (1) 12/22

7 SERVICES were RENEWED at the following locations:

626 W. Bonnvlle.(3/4")12/20	716 No. Main (3/4") 12/6	231 No. 6th (3/4") 12/16
725 W. Halliday (3/4") 12/1	1242 Ridge (3/4") 12/5	208 So. 8th (3/4") 12/29
1254 N. Harrison (3/4")12/5		

19 SERVICES were REPAIRED at the following locations:

1027 N. Arthur (1/2") 12/14	4585 Johnny Ck. (1½") 12/12	1005 Samuel-Opal (1") 12/15
5148 Bannock Hwy(3/4")12/20	941 McKinley (3/4") 12/13	1005 Samuel-Stckmn(1")12/15
980 Brennan (1/2") 12/13	188 Maplewood (3/4") 12/20	300 W. Sublette (1") 12/19
715 W. Cedar (3/4") 12/12	225 Oakwood (2") 12/7	480 Tewa (3/4") 12/7
817 Dahl (3/4") 12/7	2545 Poleline (3/4") 12/1	132 So. 13th (3/4") 12/13
1921 No. Harrison (1") 12/8	1005 Samuel-Blmnt(1")12/15	140 So. 13th (3/4") 12/13
199 Hawthorne (1/2") 12/9		

FIRE HYDRANT M. & O.

Pump Out Fire Hydrants

Garfield & Greeley 12/7	10th & Sublette 12/7	14th & Clark 12/1
Johnson & Wyeth 12/7		

Thaw Out Frozen Fire Hydrant

14th & Clark 12/1

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WATER DEPARTMENT MONTHLY REPORT
JANUARY 1989

During the month of January 258,900,000 gallons of water was produced from the system, or 8,351,613 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	125,221,000	753.0 Lbs.
Well #2	45,332,000	93.0 Lbs.
Well #21	289,000	0.0 Lbs.
Well #27	11,353,000	27.5 Lbs.
Well #32	57,835,000	161.5 Lbs.
Cree Well	15,654,000	31.5 Lbs.
West Bench Booster	3,216,000	13.0 Lbs.
	258,900,000	1,079.5 Lbs.

This figure is 15,108,000 more than last January. Based on the population figure of 46,736 there were 178.7 gallons of water per person per day produced from the system.

Airport production was 1,999,000 gallons of water using 4.0 lbs. of chlorine and 37 man hours. There were 1,200,000 gallons less produced than last January.

5 MAIN LINE LEAKS were REPAIRED at the following locations:

2850 Caribou 1/14 | Duke & 19th 1/25 | 148 Melrose 1/15
1032 Deon 1/12 | 3705 Flamingo 1/23

2 SERVICES were RENEWED at the following locations:

1507 Zener (3/4") 1/4 | 406 So. 8th (1") 1/26

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WATER DEPARTMENT MONTHLY REPORT
FEBRUARY 1989

During the month of February 252,891,000 gallons of water was produced from the system, or 9,031,822 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	122,460,000	726.0 Lbs.
Well #2	40,874,000	109.0 Lbs.
Well #16	5,578,000	16.0 Lbs.
Well #21	871,000	1.0 Lbs.
Well #27	12,730,000	53.0 Lbs.
Well #32	51,875,000	157.0 Lbs.
Cree Well	14,770,000	29.0 Lbs.
West Bench Booster	3,733,000	16.5 Lbs.
	252,891,000	1,107.5 Lbs.

This figure is 34,366,000 more than last February. Based on the population figure of 46,736 there were 193.3 gallons of water per person per day produced from the system.

Airport production was 2,036,000 gallons of water using 3.5 lbs. of chlorine and 32 man hours. There were 251,000 gallons less produced than last February.

8 MAIN LINE LEAKS were REPAIRED at the following locations:

500 Block No. Arthur 2/9	ISU--Life Science Bldg. 2/10	735 Willow Ave. 2/6
952 W. Center 2/11	651 Memorial Drive 2/16	1820 So. 4th 2/2
Hiline & Quinn 2/23	45 Stanford 2/7	

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WATER DEPARTMENT MONTHLY REPORT
MARCH 1989

MAIN LINE WORK

So. 2nd & Crescent Drive - Make 6" tap on 12" main line for future use. Pipe layed: 18'6" of 6" ductile iron. Installed: 1-6" tapping valve, 1-12" x 6" tapping sleeve, 1-valve box, 1-6" plug.

Hawthorne & Eldredge 18" Transmission Line - Capital improvement project. Pipe layed: 615.5' of 18" ductile iron.

Upper Level of Ross Park - Install new main line for new museum. Pipe layed: 64' of 6" ductile iron, 6' of 12". Installed: 2-12" steel to cast couplings, 1-12" x 6" cross, 1-6" gate valve, 1-6" fire hydrant, 1-6" fire hydrant valve, 2-valve boxes.

Upper Level of Ross Park - Install new sewer line to new museum. Pipe layed: 200' of 6" PVC pipe. Installed: 6-6" PVC 45 , 1-6" PVC Tee, 1-6" Clean-out and plug, 1-3' cone with 4' diameter base, 1-24" ring and cover.

End of So. 12th - Bannock Regional Medical Center - Install new valve and replace old tapping valve. Pipe layed: 2'4" of 14" cast iron. Installed: 1-4" tapping valve, 1-4" romac coupling, 1-4" butterfly valve, 1-4" solid sleeve, 2-valve boxes.

During the month of March 225,144,000 gallons of water was produced from the system, or 7,262,710 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	86,114,000	550.0 Lbs.
Well #2	44,094,000	104.0 Lbs.
Well #16	12,702,000	42.0 Lbs.
Well #18	3,749,000	6.5 Lbs.
Well #21	1,012,000	4.0 Lbs.
Well #27	5,600,000	21.5 Lbs.
Well #32	51,645,000	157.0 Lbs.
Cree Well	15,886,000	32.5 Lbs.
West Bench Booster	4,342,000	15.5 Lbs.
	225,144,000	933.0 Lbs.

This figure is 7,565,000 more than last March. Based on the population figure of 46,736 there were 155.4 gallons of water per person per day produced from the system.

Airport production was 1,765,000 gallons of water using 3.5 lbs. of chlorine and 35 man hours. There were 245,000 gallons more produced than last March.

5 MAIN LINE LEAKS were REPAIRED at the following locations:

800 Block E. Halliday 3/9	Opal & Samuel 3/6	3rd & Dunn 3/30
Moreland & Birch 3/24	600 W. Whitman 3/9	

2 NEW SERVICES WERE INSTALLED at the following locations:

Ross Park Museum (1") 3/20 100 So. 5th (1") 3/24

15 SERVICES were RENEWED at the following locations:

235-45 W. Carson (3/4") 3/22	305½ So. Johnson (3/4") 3/23	1001 Samuel #10 (1") 3/14
1024 Gray (3/4") 3/29	842 Linda (3/4") 3/16	625 No. 6th (3/4") 3/17
831 E. Halliday (3/4") 3/9	920 E. Lovejoy (3/4") 3/17	320 No. 9th (3/4") 3/28 545
833 E. Halliday (3/4") 3/9	3490 Poleline (3/4") 3/24	No. 13th (3/4") 3/21
305 So. Johnson (3/4") 3/23	1001 Samuel #6 (1") 3/14	556 No. 15th (3/4") 3/15

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WATER DEPARTMENT MONTHLY REPORT
APRIL 1989

MAIN LINE WORK

Hawthorne & Eldredge - Capital improvement project. Pipe layed: 1308' of 18", 35' of 12", 1' of 10", 9' of 8" and 143' of 6" ductile iron. Installed: 3-6" fire hydrants, 3-6" fire hydrant valves, 6-18" gate valves, 1-12" butterfly valve, 1-12" gate valve, 1-8" gate valve, 2-6" gate valves, 1-8" plug, 1-6" plug, 1-8" romac coupling, 1-6" romac coupling, 1-18" cross, 2-18" tees, 1-18" x 18" x 8" tee, 2-18" x 18" x 6" tees, 1-6" tee, 2-18" plain end x 12" m.j. reducers, 1-18" x 10" reducer, 1-18" x 8" reducer, 1-10" x 6" reducer, 1-8" x 6" reducer, 1-12" 90 bend, 1-6" 90 bend, 1-12" solid sleeve, 2-12" m.j. caps, 1-18" plug, 14-valve boxes. The necessary chlorination taps were made.

Ross Park Museum - Complete the installation of a new sewer line. Pipe layed: 1' of 6" sewer pipe. Installed: 1-6" AC x ABS bushing, 1-6" AC x PVC bushing, 1-6" AC caulder coupling, 2-6" S&D caps, 1-5' x 4' sewer cone, 1-3' x 5' sewer base, 1-24" sewer lid and ring.

During the month of April 334,468,000 gallons of water was produced from the system, or 11,149,000 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	83,591,000	150.5 Lbs.
Well #2	42,041,000	88.0 Lbs.
Well #16	44,640,000	121.0 Lbs.
Well #18	7,817,000	15.5 Lbs.
Well #21	15,865,000	38.5 Lbs.
Well #22	17,916,000	38.5 Lbs.
Well #27	21,443,000	79.5 Lbs.
Well #28	10,397,000	11.5 Lbs.
Well #29	468,000	1.5 Lbs.
Well #32	52,905,000	165.5 Lbs.

Well #33	3,122,000	9.0 Lbs.
Well #34	3,789,000	8.0 Lbs.
PIP Well	7,361,000	4.0 Lbs.
Cree Well	14,966,000	29.5 Lbs.
West Bench Booster	8,147,000	23.0 Lbs.
	334,468,000	783.5 Lbs.

This figure is 35,287,000 less than last April. Based on the population figure of 46,736 there were 238.6 gallons of water per person per day produced from the system.

Airport production was 4,026,000 gallons of water using 8.5 lbs. of chlorine and 34 man hours. There were 134,000 gallons more produced than last April.

3 MAIN LINE LEAKS were REPAIRED at the following locations:

Garfield & Clark 4/11	McKinley & Gould 4/25	4430 Stockman 4/20

4 NEW SERVICES WERE INSTALLED at the following locations:

1265 Aspen (3/4") 4/24	4430 Stockman (3/4") 4/20	5290 So. 5th (1") 4/27
911 No. Grant (3") 4/25		

12 SERVICES were RENEWED at the following locations:

780 Bryan (3/4") 4/24	1048 No. Hayes (3/4") 4/11	330 McKinley (3/4") 4/13
764 W. Cedar (3/4") 4/10	1030 E. Lewis (3/4") 4/6	508 Riverside (3/4") 4/12
1031 Everett (3/4") 4/27	9th & Lovejoy (3/4"s/1) 4/11	619 No. 6th (3/4") 4/13
957 Fairbanks (3/4") 4/18	1118 Malibu (3/4") 4/19	348 No. 10th (1") 4/28

15 SERVICES were RENEWED PRIOR TO CONNECTING TO NEW MAIN at the following locations:

3429 Poleline (1") 4/4	881 Eldredge (3/4") 4/11	965 Eldredge (3/4") 4/19
818 Eldredge (2-3/4") 4/5	888 Eldredge (3/4") 4/20	973 Eldredge (3/4") 4/18
851 Eldredge (3/4") 4/10	927 Eldredge (1") 4/13	985 Eldredge (3/4") 4/18
856 Eldredge (3/4") 4/6	943 Eldredge (3/4") 4/17	887 Lott Road (1") 4/7
867 Eldredge (3/4") 4/12	955 Eldredge (1") 4/17	

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WATER AT YOUR SERVICE

WATER DEPARTMENT MONTHLY REPORT

MAY 1989

MAIN LINE WORK

Hawthorne & Eldredge - Capital improvement project. Pipe layed: 2814' of 18", 20' of 12", 168' of 6" and 1' of 4" ductile iron. Installed: 3-6" fire hydrants, 3-6" fire hydrant valves, 8-18" gate valves, 2-6" gate valves, 1-6" tapping valve, 1-4" butterfly valve, 1-18" x 12" reducer, 1-18" x 8" reducer, 2-8" x 6" reducers, 1-6" x 4" reducer, 1-18" tee, 1-18" x 10" tee, 7-18" x 6" tees, 1-6" tee, 1-12" 22½ bend, 1-12" 11¼ bend, 14-valve boxes, 1-10" plug, 2-6" plugs, 1-12" solid sleeve, 1-6" solid sleeves.

911 No. Grant - Made 4" tap on 8" main line for fire line.

Elmore & Appaloosa - Made 3/4" chlorination tap for contractor.

Olympus Heights Subdivision - Made 3/4" chlorination tap for contractor.

During the month of May 536,013,000 gallons of water was produced from the system, or 17,290,742 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	87,880,000	182.0 Lbs.
Well #2	25,125,000	66.0 Lbs.
Well #3	63,564,000	176.0 Lbs.
Well #10	3,788,000	10.0 Lbs.
Well #12	32,892,000	90.0 Lbs.
Well #16	56,149,000	150.0 Lbs.
Well #18	19,909,000	55.0 Lbs.
Well #21	24,493,000	57.5 Lbs.
Well #22	31,056,000	84.5 Lbs.
Well #27	36,304,000	132.5 Lbs.

Well #28	14,300,000	23.5 Lbs.
Well #29	12,190,000	29.0 Lbs.
Well #32	58,165,000	169.5 Lbs.
Well #33	12,898,000	35.5 Lbs.
Well #34	22,125,000	52.0 Lbs.
PIP Well	11,155,000	14.0 Lbs.
Cree Well	8,666,000	17.0 Lbs.
West Bench Booster	15,354,000	38.0 Lbs.
	536,013,000	1,382.0 Lbs.

This figure is 18,817,000 less than last May. Based on the population figure of 46,736 there were 370.0 gallons of water per person per day produced from the system.

Airport production was 4,867,000 gallons of water using 9.5 lbs. of chlorine and 31 man hours. There were 983,000 gallons more produced than last May.

8 MAIN LINE LEAKS were REPAIRED at the following locations:

1399 Bench 5/5
500 Blk E. Bonneville 5/19
Conlin & Eldredge 5/26
Eldredge & Hawthorne 5/10
3519 Hawthorne 5/3
600 Block Whitman 5/24
700 Block So. 2nd 5/31
400 Block No. 15th 5/5

36 NEW SERVICES WERE INSTALLED at the following locations:

Benchland 2nd Addition:
Lot 14 Block 6 (3/4") 5/12
Lot 15 Block 6 (3/4") 5/12
Lot 16 Block 6 (3/4") 5/12
Lot 17 Block 6 (3/4") 5/12
Lot 18 Block 6 (3/4") 5/12
Lot 19 Block 6 (3/4") 5/12
Lot 20 Block 6 (3/4") 5/12
Lot 21 Block 6 (3/4") 5/12
Lot 12 Block 7 (3/4") 5/12
Lot 13 Block 7 (3/4") 5/12
Lot 14 Block 7 (3/4") 5/12
Lot 15 Block 7 (3/4") 5/12
Lot 16 Block 7 (3/4") 5/12
Lot 17 Block 7 (3/4") 5/12
Lot 18 Block 7 (3/4") 5/12
Lot 19 Block 7 (3/4") 5/12
Olympus Heights:
Lot 7 Block 4 (3/4") 5/31
Lot 8 Block 4 (3/4") 5/31
Lot 9 Block 4 (3/4") 5/31
Lot 3 Block 5 (3/4") 5/31
Lot 4 Block 5 (3/4") 5/31
Lot 5 Block 5 (3/4") 5/31
Lot 6 Block 5 (3/4") 5/31
Lot 7 Block 5 (3/4") 5/31
Lot 8 Block 5 (3/4") 5/31
Lot 9 Block 5 (3/4") 5/31
1235 Booth Road (3/4") 5/4
1239 Booth Road (3/4") 5/3
1245 Booth Road (3/4") 5/4
1249 Booth Road (3/4") 5/4
9336 Kimberly (1") 5/2
9361 Kimberly (3/4") 5/2
9364 Kimberly (1") 5/2
Pocatello Ck Road (1") 5/2
611 W. Quinn (2") 5/2
Well #3--Pocatello Drag Strip (2") 5/11

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WATER AT YOUR SERVICE

WATER DEPARTMENT MONTHLY REPORT
JUNE 1989

MAIN LINE WORK

Hawthorne & Eldredge - 18" Transmission Line - Capital improvement project. Pipe layed: 1847' of 18", 8' of 10" and 91' of 6" ductile iron. Installed: 3-6" fire hydrants, 3-6" fire hydrant valves, 3-18" gate valves, 2-6" gate valves, 4-18" x 6" tees, 1-6" tee, 3-18" 45 bends, 1-10" 11½ bend, 8-valve boxes, 1-18" plug, 1-6" plug, 1-18" solid sleeve, 1-10" solid sleeve, 2-6" solid sleeves, 1-6" coupling. The necessary chlorination taps were made.

Booth & Pocatello Creek - Extend 6" main line. Pipe layed: 90' of 6" ductile iron. Installed: 1-6" gate valve, 1-6" fire hydrant and valve, 2-valve boxes, 1-6" tee, 1-6" plug. The necessary chlorination taps were made.

During the month of June 757,470,000 gallons of water was produced from the system, or 25,249,000 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	72,666,000	254.5 Lbs.
Well #2	17,146,000	61.5 Lbs.
Well #3	71,492,000	172.0 Lbs.
Well #10	108,960,000	285.5 Lbs.
Well #12	72,816,000	188.5 Lbs.
Well #16	39,553,000	113.0 Lbs.
Well #18	26,545,000	80.0 Lbs.
Well #21	27,378,000	65.0 Lbs.
Well #22	32,813,000	78.5 Lbs.
Well #27	28,972,000	100.0 Lbs.
Well #28	26,814,000	78.0 Lbs.
Well #29	37,526,000	86.0 Lbs.
Well #31	28,921,000	66.0 Lbs.

Well #32	55,865,000	159.5 Lbs.
Well #33	13,972,000	51.5 Lbs.
Well #34	18,028,000	38.0 Lbs.
PIP Well	40,826,000	63.5 Lbs.
Cree Well	13,057,000	32.0 Lbs.
West Bench Booster	24,120,000	68.0 Lbs.
	757,470,000	2,041.0 Lbs.

This figure is 114,171,000 less than last June. Based on the population figure of 46,736 there were 540.3 gallons of water per person per day produced from the system.

Airport production was 5,009,000 gallons of water using 10.0 lbs. of chlorine and 32 man hours. There were 275,000 gallons less produced than last June.

2 MAIN LINE LEAKS were REPAIRED at the following locations:

NOP Park 6/15 Whitman St. Bridge 6/28

3 NEW SERVICES WERE INSTALLED at the following locations:

655 Golf Drive (1") 6/29 2320 Pocatello Ck (1") 6/22 2340 Pocatello Ck (1") 6/22

14 SERVICES were RENEWED at the following locations:

255 No. Arthur (1½") 6/7	1116 No. Main (3/4") 6/22	1405 So. 4th (3/4") 6/16
515 E. Center (3/4") 6/28	228 So. Main (3/4") 6/9	656 No. 9th (3/4") 6/12
747 No. Garfield (3/4") 6/6	1073 Meadowbrook (3/4") 6/30	528 So. 10th (3/4") 6/12
938-56 E. Hayden (3/4") 6/23	305 Riverside (3/4") 6/27	110 So. 16th (1") 6/6
1122 No. Hayes (3/4") 6/13	216-20 W. Young (1") 6/13	

3 SERVICES were RENEWED PRIOR TO CONNECTING TO NEW MAIN at the following locations:

927 Eldredge (1") 6/1 130 Hoffman (3/4") 6/1 160 Hoffman (3/4") 6/1

22 SERVICES were CONNECTED TO THE NEW MAIN at the following locations:

228 No. Arthur (3/4") 6/8	851 Eldredge (3/4") 6/6	881 Eldredge (3/4") 6/2
833 Eldredge (3/4") 6/6	856 Eldredge (3/4") 6/6	888 Eldredge (3/4") 6/2
845 Eldredge (3/4") 6/6	867 Eldredge (3/4") 6/5	902 Eldredge (3/4") 6/1

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WATER AT YOUR SERVICE

WATER DEPARTMENT MONTHLY REPORT
JULY 1989

MAIN LINE WORK

Hawthorne & Eldredge - Capital improvement project. Pipe layed: 8' of 6" ductile iron. Installed: 1-6" 45 bend, 1-6" plug, and 1-6" romac coupling. The necessary chlorination taps were made.

Hidden Village - Meadowbrook and Willow Lane - Capital improvement project. Pipe layed: 1085' of 6" ductile iron. Installed: 3-6" fire hydrants, 3-6" fire hydrant valve, 6-6" gate valves, 4-6" tees, 1-6" 45 bend, 7-valve boxes, 1-6" plug and 1-6" solid sleeves. The necessary chlorination taps were made.

New Post Office on Flandro Road - Made 6" tap on 8" main line for fire line. Installed: 1-6" x 8" tapping tee, 1-6" tapping valve, and 1-valve box.

During the month of July 991,574,000 gallons of water was produced from the system, or 31,986,259 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	99,269,000	1195.0 Lbs.
Well #2	18,072,000	63.5 Lbs.
Well #3	74,995,000	168.0 Lbs.
Well #10	111,829,000	274.5 Lbs.
Well #12	108,624,000	265.5 Lbs.
Well #16	46,613,000	131.0 Lbs.
Well #18	48,791,000	124.0 Lbs.
Well #21	37,301,000	68.0 Lbs.
Well #22	33,238,000	76.5 Lbs.
Well #27	30,271,000	98.5 Lbs.
Well #28	41,801,000	104.0 Lbs.
Well #29	77,978,000	136.5 Lbs.

Well #31	61,436,000	133.0 Lbs.
Well #32	57,844,000	150.0 Lbs.
Well #33	22,733,000	70.0 Lbs.
Well #34	2,770,000	6.0 Lbs.
PIP Well	74,249,000	119.5 Lbs.
Cree Well	13,894,000	44.5 Lbs.
West Bench Booster	8,511,000	112.0 Lbs.
	990,731,000	3,340.0 Lbs.

This figure is 25,926,000 less than last July. Based on the population figure of 46,736 there were 683.8 gallons of water per person per day produced from the system.

Airport production was 8,511,000 gallons of water using 16.0 lbs. of chlorine and 36 man hours. There were 1,140,000 gallons more produced than last July.

3 MAIN LINE LEAKS were REPAIRED at the following locations:

751 Ash 7/13	Mink Creek Line 7/12	138 So. 12th 7/29

2 NEW SERVICES were INSTALLED at the following locations:

2211 So. 2nd (3/4") 7/5	2233 So. 2nd (3/4") 7/5

14 SERVICES were RENEWED at the following locations:

619 No. Arthur (3/4") 7/5	948 No. Garfield (3/4") 7/18	1107 So. 4th (3/4") 7/14
620 No. Arthur (3/4") 7/24	759 Myrtle (3/4") 7/26	415 So. 5th (3/4") 7/27
751 Ash (3/4") 7/13	1190 Willard (3/4") 7/28	731 No. 11th (3/4") 7/3
772 Birch (3/4") 7/19	1554 E. Wyeth (3/4") 7/6	308 No. 14th (1") 7/24
340 W. Carson (3/4") 7/11	1134 Yellowstone (3/4") 7/14	

49 SERVICES were RENEWED PRIOR TO CONNECTING TO THE NEW MAIN:

1209 Chapel (3/4") 7/19	1111 Meadowbrook (3/4") 7/27	1149 Meadowbrook (3/4") 7/25
1037 Meadowbrook (3/4") 7/25	1119 Meadowbrook (3/4") 7/27	1152 Meadowbrook (3/4") 7/25
1065 Meadowbrook (3/4") 7/31	1120 Meadowbrook (3/4") 7/27	1157 Meadowbrook (3/4") 7/24
1074 Meadowbrook (3/4") 7/28	1129 Meadowbrook (3/4") 7/26	1162 Meadowbrook (3/4") 7/20
1103 Meadowbrook (3/4") 7/28	1130 Meadowbrook (3/4") 7/26	1169 Meadowbrook (3/4") 7/20
1104 Meadowbrook (3/4") 7/27	1140 Meadowbrook (3/4") 7/26	1172 Meadowbrook (3/4") 7/20

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AT YOUR SERVICE

WATER DEPARTMENT MONTHLY REPORT
AUGUST 1989

MAIN LINE WORK

Hidden Village - Meadowbrook & Willow Lane - Capital improvement project. Pipe layed: 1917' of 6" ductile iron. Installed: 2-6" fire hydrants, 2-6" fire hydrant valve, 1-6" tapping valve, 5-6" gate valves, 4-6" tees, 8-valve boxes, 1-6" plug, 1-6" solid sleeve, 1-6" coupling, 1-10" x 6" tapping sleeve, 1-11¼ bend, 1-6" 22½ bend, 2-4" couplings. The necessary chlorination taps were made.

1750 Flandro Drive - Made 6" tap on 12" main line for fire line. Installed: 6" tapping sleeve and 1-valve box (contractor supplied all materials).

Hawthorne & Quinn - Install storm drain. Pipe layed: 85' of corrugated steel.

1455 No. 4th - Install 2½" gate valve, 4" tee and 4" plug for Parks Department.

During the month of August 742,914,000 gallons of water was produced from the system, or 25,577,871 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	75,530,000	1,166.5 Lbs.
Well #2	14,278,000	46.0 Lbs.
Well #3	50,525,000	189.5 Lbs.
Well #10	78,153,000	218.0 Lbs.
Well #12	85,893,000	254.0 Lbs.
Well #16	33,577,000	96.0 Lbs.
Well #18	24,537,000	69.0 Lbs.
Well #21	32,039,000	74.5 Lbs.
Well #22	33,673,000	98.0 Lbs.
Well #27	16,577,000	64.5 Lbs.
Well #28	30,138,000	63.5 Lbs.

7047

Well #29	41,585,000	86.5 Lbs.
Well #31	53,781,000	136.0 Lbs.
Well #32	57,233,000	163.0 Lbs.
Well #33	9,789,000	30.0 Lbs.
Well #34	1,599,000	4.0 Lbs.
PIP Well	65,587,000	130.5 Lbs.
Cree Well	15,812,000	45.5 Lbs.
West Bench Booster	22,348,000	67.0 Lbs.
	742,914,000	3,002.0 Lbs.

This figure is 186,236,000 less than last August. Based on the population figure of 46,736 there were 547.3 gallons of water per person per day produced from the system.

Airport production was 7,844,000 gallons of water using 15.5 lbs. of chlorine and 31 man hours. There were 2,094,000 gallons more produced than last August.

10 MAIN LINE LEAKS were REPAIRED at the following locations:

336 W. Clark 8/4	Poleline & Eldredge 8/22	602 So. 1st 8/28
4141 Hawthorne 8/21	Spaulding Bstr Line (2) 8/25	10th & Bridger 8/30
949 Meadowbrook 8/3	Whitman & Johnson 8/3	348 No. 10th 8/10
700 Block Park Lane 8/2		

1 NEW SERVICE was INSTALLED at the following location:
1750 Flandro Drive (3") 8/9

20 SERVICES were RENEWED at the following locations:

235 W. Carson (3/4") 8/28	838 Linda (3/4") 8/11	238 W. Young (3/4") 8/18
245 W. Carson (3/4") 8/29	741 Richland (3/4") 8/29	336-40 E. Whitman (3/4")8/14
1148 E. Cedar (3/4") 8/4	126 Taft (3/4") 8/31	227 So. 9th (3/4") 8/16
238 W. Custer (3/4") 8/18	212 W. Terry (3/4") 8/18	616 So. 10th (3/4") 8/15
958 W. Custer (3/4") 8/23	216 W. Young (3/4") 8/9	555 No. 11th (3/4") 8/24
625 W. Day (3/4") 8/2	220 W. Young (3/4") 8/9	856 No. 11th (3/4") 8/21
1135 E. Hayden (3/4") 8/24	236 W. Young (3/4") 8/16	

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WATER DEPARTMENT MONTHLY REPORT

SEPTEMBER 1989

MAIN LINE WORK

Taft Street from Maple to Pine and Wilson from Pine to Poplar - Capital improvement project. Pipe layed: 1300' of 6" ductile iron. Installed: 2-6" fire hydrants, 2-6" fire hydrant valves, 2-6" gate valves, 1-6" tapping valve, 1-10" x 6" tapping sleeve, 2-6" tees, 5-valve boxes and 1-6" x 4" reducer. The necessary chlorination taps were made.

Hidden Village Project - Meadowbrook and Willow Lane - Capital improvement project. Pipe layed: 137' of 6" ductile iron. Installed: 1-6" fire hydrant, 1-6" fire hydrant valve, 1-6" gate valve, 2-6" tees, 2-valve boxes, 1-6" plug, 1-6" solid sleeve and 1-6" locking ring. The necessary chlorination taps were made.

Roosevelt from Maple to Pine and Cedar Street from McKinley to Yellowstone - Capital improvement project. Pipe layed: 207' of 6" ductile iron. Installed: 1-6" fire hydrant, 1-6" fire hydrant valve, 1-6" tapping valve, 1-6" tee, 2-valve boxes and 1-10" x 6" tapping sleeve. The necessary chlorination taps were made.

1087 Wilson - Relocate fire hydrant. Pipe layed: 10' of 6" ductile iron. Installed: 1-6" fire hydrant valve, 1-6" fire hydrant, 1-6" tapping sleeve, 1-6" tapping valve, and 2-valve boxes.

During September 560,745,000 gallons of water were produced from the system, or 18,691,500 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	88,776,000	1154.0 Lbs.
Well #2	19,731,000	67.5 Lbs.
Well #3	21,714,000	85.5 Lbs.
Well #10	18,412,000	45.0 Lbs.

Well #12	45,232,000	142.0 Lbs.
Well #16	61,173,000	167.5 Lbs.
Well #18	19,844,000	39.0 Lbs.
Well #21	26,752,000	64.5 Lbs.
Well #22	33,166,000	92.5 Lbs.
Well #27	20,298,000	74.0 Lbs.
Well #28	24,628,000	60.5 Lbs.
Well #29	12,324,000	27.5 Lbs.
Well #31	27,516,000	74.5 Lbs.
Well #32	56,813,000	205.0 Lbs.
Well #33	5,645,000	17.5 Lbs.
PIP Well	47,913,000	119.0 Lbs.
Cree Well	15,278,000	40.5 Lbs.
West Bench Booster	15,530,000	40.0 Lbs.
	560,745,000	2,516.0 Lbs.

This figure is 31,960,000 less than last September. Based on the population figure of 46,736 there were 399.9 gallons of water per person per day produced from the system.

Airport production was 8,392,000 gallons of water using 16.5 lbs. of chlorine and 30 man hours. There were 3,697,000 gallons more produced than last September.

8 MAIN LINE LEAKS were REPAIRED at the following locations:

Cedar & Richland 9/19	1235 No. Main 9/5	Tanager & Heron 9/28
500 Block W. Clark 9/5	Nez Perce & Shoshoni Trl9/25	806 So. 4th 9/12
1644 E. Fremont 9/11	Taft & Elm 9/11	

18 NEW SERVICES were INSTALLED at the following locations:

Benchland 3rd Addition:

Lot 7 Block 5 9/7	Lot 22 Block 6 9/8	Lot 25 Block 7 9/7
Lot 8 Block 5 9/7	Lot 20 Block 7 9/8	Lot 26 Block 7 9/7
Lot 9 Block 5 9/7	Lot 21 Block 7 9/8	Lot 27 Block 7 9/7
Lot 10 Block 5 9/7	Lot 22 Block 7 9/8	769 Fairway (1") 9/18
Lot 11 Block 5 9/8	Lot 23 Block 7 9/8	5150 Johnny Ck (3/4") 9/14
Lot 12 Block 5 9/8	Lot 24 Block 7 9/7	Main & Gould (1") 9/15

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WATER DEPARTMENT MONTHLY REPORT

OCTOBER 1989

MAIN LINE WORK

Roosevelt from Maple to Pine and Cedar from McKinley to Yellowstone - Capital improvement project. Pipe layed: 1342' of 6" ductile iron. Installed: 3-6" fire hydrants, 3-6" fire hydrant valves, 1-6" gate valve, 1-12" x 6" tapping saddle, 3-6" tees, and 6-valve boxes. The required chlorination taps were made.

Taft Street from Maple to Pine and Wilson from Pine to Poplar - Capital improvement project. Pipe layed: 618' of 6" ductile iron. Installed: 2-6" fire hydrants, 2-6" fire hydrant valves, 1-6" tee, 1-6" x 4" reducer, and 1-4" coupling. The required chlorination taps were made.

During the month of October 337,846,000 gallons of water was produced from the system, or 10,898,258 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	92,334,000	1,116.0 Lbs.
Well #2	30,589,000	107.0 Lbs.
Well #12	2,782,000	9.5 Lbs.
Well #16	65,563,000	180.5 Lbs.
Well #18	11,565,000	27.5 Lbs.
Well #21	14,970,000	38.5 Lbs.
Well #22	18,120,000	43.5 Lbs.
Well #27	8,313,000	30.5 Lbs.
Well #28	2,764,000	8.0 Lbs.
Well #32	57,302,000	168.0 Lbs.
PIP Well	7,887,000	20.0 Lbs.
Cree Well	16,723,000	45.5 Lbs.
West Bench Booster	8,934,000	26.0 Lbs.
	337,846,000	1,830.5 Lbs.

This figure is 107,012,000 less than last October. Based on the population figure of 46,736 there were 233.2 gallons of water per person per day produced from the system.

Airport production was 5,121,000 gallons of water using 9.0 lbs. of chlorine and 31 man hours. There were 916,000 gallons more produced than last October.

4 MAIN LINE LEAKS were REPAIRED at the following locations:

Fairway & Von Elm 10/31	345 Yellowstone 10/16	1st & Lewis 10/6
Main & Lovejoy 10/19		

7 NEW SERVICES were INSTALLED at the following locations:

175-81 Chase (3/4") 10/12	345-A Yellowstone (1") 10/17	345-C Yellowstone (1") 10/17
3975 Poleline (8") 10/13	345-B Yellowstone (1") 10/17	345-D Yellowstone (1") 10/17
333 Yellowstone (1") 10/17		

10 SERVICES were RENEWED at the following locations:

905 Brennan (3/4") 10/16	228 So. Hayes (3/4") 10/4	336 So. Lincoln (3/4") 10/4
935 W. Clark (3/4") 10/10	771 Hemlock (1") 10/3	340 So. Lincoln (3/4") 10/4
1055 Gray (3/4") 10/23	316 E. Lander (3/4") 10/2	418 No. 14th (3/4") 10/30
1325 No. Hayes (3/4") 10/27		

5 SERVICES were RENEWED PRIOR TO CONNECTING TO NEW MAIN at the following locations:

350 W. Maple (2") 10/12	509 Wilson (3/4") 10/24	611 Wilson (3/4") 10/24
350 W. Maple (1½") 10/12	509 Wilson (1½") 10/27	

25 SERVICES were CONNECTED TO THE NEW MAIN at the following locations:

350 Roosevelt (3/4") 10/5	401 Roosevelt (3/4") 10/5	445 Roosevelt (3/4") 10/2
351 Roosevelt (3/4") 10/5	406 Roosevelt (3/4") 10/12	470 Roosevelt (3/4") 10/2
364 Roosevelt (3/4") 10/5	414 Roosevelt (3/4") 10/12	471 Roosevelt (3/4") 10/2
365 Roosevelt (3/4") 10/5	417 Roosevelt (3/4") 10/5	479 Roosevelt (3/4") 10/2
375 Roosevelt (3/4") 10/5	421 Roosevelt (3/4") 10/3	480 Roosevelt (3/4") 10/2
378 Roosevelt (3/4") 10/5	429 Roosevelt (3/4") 10/3	535 Wilson (1½") 10/27
388 Roosevelt (3/4") 10/5	430 Roosevelt (3/4") 10/3	541 Wilson (1") 10/27
396 Roosevelt (3/4") 10/12	444 Roosevelt (3/4") 10/2	625 Wilson (3/4") 10/27
397 Roosevelt (3/4") 10/5		

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WATER DEPARTMENT MONTHLY REPORT
NOVEMBER 1989

MAIN LINE WORK

Roosevelt Street from Maple to Pine and Cedar Street from McKinley to Yellowstone - Capital improvement project. Pipe layed: 1394' of 6" ductile iron. Installed: 1-6" fire hydrant, 1-6" fire hydrant valve, 12-6" gate valves, 9-6" tees, 13-valve boxes, 2-6" plugs, 5-6" romac couplings, 1-22½ bend, 1-11¼ bend, and 2-6" x 4" steel romac reducers. The necessary chlorination taps were made.

During the month of November 229,506,000 gallons of water was produced from the system, or 7,650,200 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	100,055,000	1,026.0 Lbs.
Well #2	39,390,000	145.5 Lbs.
Well #16	6,566,000	15.0 Lbs.
Well #21	1,059,000	4.0 Lbs.
Well #27	6,310,000	25.5 Lbs.
Well #32	55,118,000	162.5 Lbs.
Cree Well	15,961,000	44.0 Lbs.
West Bench Booster	5,047,000	14.0 Lbs.
	229,506,000	1,436.5 Lbs.

This figure is 19,262,000 less than last November. Based on the population figure of 46,736 there were 163.7 gallons of water per person per day produced from the system.

Airport production was 1,409,000 gallons of water using 3.5 lbs. of chlorine and 32 man hours. There were 221,000 gallons less produced than last November.

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WATER DEPARTMENT MONTHLY REPORT

DECEMBER 1989

During the month of December 238,621,000 gallons of water were produced from the system, or 7,697,452 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30.	89,500,000	878.0 Lbs.
Well #2	42,931,000	141.0 Lbs.
Well #22	27,058,000	82.5 Lbs.
Well #27	1,075,000	4.5 Lbs.
Well #32	56,178,000	162.5 Lbs.
Cree Well	16,440,000	45.0 Lbs.
West Bench Booster	5,439,000	11.0 Lbs.
	238,621,000	1,324.5 Lbs.

This figure is 12,115,000 less than last December. Based on the population figure of 46,736 there were 164.7 gallons of water per person per day produced from the system.

Airport production was 1,681,000 gallons of water using 3.5 lbs. of chlorine and 33 man hours. Production was 699,000 gallons less than last December.

3 MAIN LINE LEAKS were REPAIRED at the following locations:
Johnny Creek & College 12/31 2nd & Putnam 12/11 4th & Putnam 12/14

1 NEW SERVICE was INSTALLED at the following location:
Airport Bldg #236 (2") 12/7

5 SERVICES were RENEWED at the following locations:
1333 N. Harrison(3/4")12/7 814 Wingate (3/4") 12/5 914 So. 4th (3/4") 12/14
1237 E. Sublette (3/4") 12/4 1118 E. Wyeth (3/4") 12/6

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WATER DEPARTMENT MONTHLY REPORT

JANUARY 1990

During the month of January 222,296,000 gallons of water were produced from the system, or 7,170,838 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	76,695,000	722.0 Lbs.
Well #2	44,217,000	142.5 Lbs.
Well #16	533,000	2.0 Lbs.
Well #22	24,102,000	75.0 Lbs.
Well #27	337,000	1.5 Lbs.
Well #28	442,000	1.0 Lbs.
Well #32	56,505,000	149.0 Lbs.
Cree Well	16,501,000	44.5 Lbs.
West Bench Booster	2,984,000	5.5 Lbs.
	222,296,000	1,143.0 Lbs.

This figure is 36,604,000 less than last January. Based on the population figure of 46,736, there were 153.4 gallons of water per person per day produced from the system.

Airport production was 1,405,000 gallons of water using 2.5 lbs. of chlorine and 31 man hours. There were 594,000 gallons less produced than last January.

3 MAIN LINE LEAKS were REPAIRED at the following locations:

300 Block W. Gould 1/24   700 Park Lane 1/5   3rd & Putnam 1/23

3 SERVICES were RENEWED at the following locations:

818 So. Arthur (3/4") 1/22   1341 No. Harrison (3/4")1/17   838 W. Sublette (3/4") 1/29

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WATER DEPARTMENT MONTHLY REPORT

FEBRUARY 1990

During the month of February 211,846,000 gallons of water were produced from the system, or 7,565,929 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	77,330,000	637.0 Lbs.
Well #2	40,325,000	122.5 Lbs.
Well #22	22,157,000	61.5 Lbs.
Well #32	51,023,000	151.0 Lbs.
Cree Well	14,889,000	40.5 Lbs.
West Bench Booster	6,122,000	15.5 Lbs.
	211,846,000	1,028.0 Lbs.

This figure is 41,045,000 less than last February. Based on the population figure of 46,736 there were 161.9 gallons of water per person per day produced from the system.

Airport production was 1,572,000 gallons of water using 3.0 lbs. of chlorine and 28 man hours. There were 464,000 gallons less produced than last February.

2 MAIN LINE LEAKS were REPAIRED at the following locations:
1134 Santa Anita 2/1 446 So. 4th 2/15

2 NEW SERVICES were INSTALLED at the following locations:
Airport - Bldg. 233 (3/4") 2/28 Lot 11 Block 3 Tolman Acres (1") 2/27

5 SERVICES were RENEWED at the following locations:
1054 Delano (3/4") 2/21 412 Parkway (1") 2/13 547 So. 11th (3/4") 2/5
3550 Hawthorne (3/4") 2/27

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WATER DEPARTMENT MONTHLY REPORT
MARCH 1990

MAIN LINE WORK

2360 So. Fairway - Kill 6" main line on Dahlia Street. Materials: 1-6" plug, gasket, nuts and bolts.

Ross Park Zoo--Upper Level - Install 6" gate valve for Parks Department. Pipe layed: 5'12" of 6" ductile iron. Installed: 1-6" gate valve, 1-6" tee, 2-12" steel sleeves, and 1-valve box.

Kraft Road from Domsea to North Main Extension - Capital improvement project. Pipe layed: 3666' of 12" and 77' of 6" ductile iron. Installed: 7-6" fire hydrants, 7-6" fire hydrant valves, 2-12" gate valves, 7-12"x12"x6" tees, 9-valve boxes, 1-12" solid sleeve, and 1-12" x 8" reducer. The necessary chlorination taps were made.

North Main Extension - Capital improvement project. Pipe layed: 143' of 18" ductile iron.

During the month of March 237,036,000 gallons of water were produced from the system, or 7,646,323 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	95,150,000	550.0 Lbs.
Well #2	43,675,000	110.5 Lbs.
Well #21	552,000	1.0 Lbs.
Well #22	27,036,000	85.5 Lbs.
Well #32	56,321,000	158.0 Lbs.
Cree Well	8,617,000	21.0 Lbs.
West Bench Booster	5,685,000	16.5 Lbs.
	237,036,000	942.5 Lbs.

This figure is 11,892,000 more than last March. Based on the population figure of 46,736 there were 163.6 gallons of water per person per day produced from the system.

Airport production was 2,920,000 gallons of water using 5.5 lbs. of chlorine and 31 man hours. There were 1,155,000 gallons more produced than last March.

6 MAIN LINE LEAKS were REPAIRED at the following locations:

4785 Clearview 3/9	1356 Jensen 3/5	300 Block Moreland 3/15
978 Hiline 3/4	950 No. Lincoln 3/2	Walnut & Pershing 3/1

4 NEW SERVICES were INSTALLED at the following locations:

2360 So. Fairway (3/4")3/1	Installed for future use:	1108 Wilson (3/4") 3/14
820 No. Harrison(3/4")3/20	912 Wilson (1") 3/14	

9 SERVICES were RENEWED at the following locations:

426 W. Carter (3/4") 3/26	326 No. Main 3/13	532 W. Pine (3/4") 3/29
3788 Hawthorne (1") 3/23	1441 Pershing (3/4") 3/30	1710 E. Wyeth (1") 3/28
3840 Hawthorne (3/4") 3/23	1442 Pershing (3/4") 3/30	423 So. 6th (1") 3/30

31 SERVICES were REPAIRED at the following locations:

Fairway 2nd Addition--Lot	3782 Hawthorne (1") 3/20	741 E. Putnam (3") 3/15
16 Blk 3 (3/4") 3/5	3939 Hawthorne (3/4") 3/7	100 Ranch Drive (1") 3/29
124 Canyon Drive (1") 3/23	1278 Lavine (3/4") 3/15	691 Rocky Point (3/4") 3/9
1754 E. Center (3/4") 3/28	257 No. Main (3/4") 3/12	1259 E. Terry (4") 3/20
917 W. Center (1/2") 3/6	1009 Meadowbrook(3/4")3/5	815 University (1") 3/13
1385 Chokecherry (1") 3/16	1010 Meadowbrook(3/4")3/5	502 No. 4th (3/4") 3/8
779 Ebony (1/2") 3/7	421 Memorial (3") 3/12	1010 So. 5th (4") 3/22
778 Fir (3/4") 3/22	660 Memorial (4") 3/21	3246 So. 5th (1") 3/27
445 E. Halliday (1/2")3/19	750 Memorial (4") 3/21	1005 No. 7th (1") 3/23
627 No. Harrison (1/2")3/6	751 Memorial (4") 3/12,19	1059 So. 8th (3") 3/22
3774 Hawthorne (1") 3/20	544 Packard (3/4") 3/15	

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WATER DEPARTMENT MONTHLY REPORT

APRIL 1990

MAIN LINE WORK

Kraft Road Project - Capital improvement project. Pipe layed: 98' of 12" ductile iron.

North Main Extension - Capital improvement project. Pipe layed: 3354' of 18" and 14' of 6" ductile iron. Installed: 2-6" fire hydrants, 2-6" fire hydrant valves, 5-18" gate valves, 1-18"x18"x12" tee, 2-18"x18"x6" tees, 1-18" 45o bend and accessories, and 7-valve boxes. The necessary chlorination taps were made.

During the month of April 325,507,000 gallons of water were produced from the system, or 10,850,233 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	57,990,000	132.0 Lbs.
Well #2	31,960,000	83.5 Lbs.
Well #3	20,817,000	57.0 Lbs.
Well #14 (Cree)	14,912,000	39.5 Lbs.
Well #16	63,099,000	162.0 Lbs.
Well #21	17,592,000	47.5 Lbs.
Well #22	29,810,000	110.0 Lbs.
Well #27	10,929,000	45.5 Lbs.
Well #32	54,350,000	162.0 Lbs.
Well #33	347,000	1.0 Lbs.
Well #34	16,228,000	38.5 Lbs.
West Bench Booster	7,473,000	24.5 Lbs.
	325,507,000	903.0 Lbs.

This figure is 8,961,000 less than last April. Based on the population figure of 46,736 there were 232.2 gallons of water per person per day produced from the system.

Airport production was 4,805,000 gallons of water using 9.0 lbs. of chlorine and 31 man hours. There were 779,000 gallons more produced than last April.

1 MAIN LINE LEAK was REPAIRED at the reservoir on 4/18 and 20

1 NEW SERVICE was INSTALLED at 2530 So. 4th (1½") 4/12

10 SERVICES were RENEWED at the following locations:

640 No. Arthur (3/4") 4/24	1226 Ridge (3/4") 4/4	7th & Wyeth (1") 4/16
640½ No. Arthur (3/4")4/24	337 Stansbury (3/4") 4/13	144 So. 8th (3/4") 4/27
746 Dogwood (3/4") 4/23	933 W. Wyeth (3/4") 4/19	355 So. 8th (1") 4/11
125 So. Lincoln (3/4")4/10		

18 SERVICES were RENEWED PRIOR TO CONNECTING TO NEW MAIN at the following locations:

236 W. Buell (3/4") 4/27	1736 No. Main (3/4") 4/24	1819 No. Main (1") 4/18
318 Gibson (3/4") 4/20	1740 No. Main (3/4") 4/24	1822 No. Main (3/4") 4/16
1704 No. Main (3/4") 4/24	1741 No. Main (3/4") 4/17	1850 No. Main (1") 4/16
1704 No. Main (1") 4/27	1745 No. Main (3/4") 4/17	1920 No. Main (3/4") 4/13
1711 No. Main (3/4") 4/24	1755 No. Main (3/4") 4/25	1938 No. Main (3/4") 4/12
1721 No. Main (3/4") 4/24	1803 No. Main (3/4") 4/19	2104 No. Main (2") 4/23

14 SERVICES were RENEWED/REPAIRED PRIOR TO STREET DEPARTMENT OVERLAY PROJECT:

495 Packard (3/4") 4/11	559 W. Pine (3/4") 4/3	646 W. Pine (3/4") 4/10
508 W. Pine (3/4") 4/2	562 W. Pine (3/4") 4/4	662 W. Pine (3/4") 4/13
527 W. Pine (3/4") 4/9	613 W. Pine (3/4") 4/17	663 W. Pine (3/4") 4/12
540 W. Pine (3/4") 4/2	625 W. Pine (3/4") 4/2	674½ W. Pine (3/4") 4/12
543 W. Pine (3/4") 4/4	634 W. Pine (3/4") 4/6	

18 SERVICES were REPAIRED at the following locations:

957 No. Arthur (3/4") 4/30	2250 Ivan (1") 4/23	94 Valleyview (1") 4/5
715 Balsam (1") 4/25	998 Mt. McGuire (3/4") 4/5	169 Willard (3/4") 4/3
970 Bryan (3/4") 4/30	825 Park (3/4") 4/23	756 So. 1st (1") 4/26
1561 El Rancho (3/4") 4/25	489 Randolph (3/4") 4/9	8th & Oak (2") 4/2
921 Highland (3/4") 4/30	257 Skyline (1") 4/5	509 So. 19th (1") 4/26
723 Hubbard (3/4") 4/24	1523 E. Terry (3/4") 4/23	754 So. 19th (1") 4/23

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AT YOUR SERVICE

WATER DEPARTMENT MONTHLY REPORT
MAY 1990

MAIN LINE WORK

North Main Extension - Capital improvement project. Pipe layed: 2591' of 18" and 48' of 6" ductile iron. Installed: 3-6" fire hydrants, 3-6" fire hydrant valves, 4-18" gate valves, 1-10" gate valve, 3-6" gate valves, 4-18"x18'x6" tees, 1-18"x10" cross, 1-18"x6" cross, 1-10" coupling, 6-valve boxes, and 2-4" plugs. The necessary chlorination taps were made.

During the month of May 470,880,000 gallons of water were produced from the system, or 15,189,677 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	63,990,000	157.0 Lbs.
Well #2	32,111,000	74.0 Lbs.
Well #3	61,723,000	248.0 Lbs.
Well #12	9,375,000	31.5 Lbs.
Well #14	14,730,000	43.0 Lbs.
Well #16	70,493,000	202.0 Lbs.
Well #18	2,700,000	8.5 Lbs.
Well #21	19,712,000	55.0 Lbs.
Well #22	29,476,000	110.0 Lbs.
Well #27	23,686,000	70.0 Lbs.
Well #28	2,435,000	6.5 Lbs.
Well #31	11,154,000	45.5 Lbs.
Well #32	56,574,000	167.5 Lbs.
Well #33	6,764,000	23.5 Lbs.
Well #34	53,789,000	108.5 Lbs.
West Bench Booster	12,168,000	41.0 Lbs.
	470,880,000	1,391.5 Lbs.

This figure is 65,133,000 less than last May. Based on the population figure of 46,736 there were 325.0 gallons of water per person per day produced from the system.

Airport production was 4,863,000 gallons of water using 9.0 lbs. of chlorine and 44 man hours. There were 4,000 gallons less produced than last May.

<u>5 MAIN LINE LEAKS</u> were <u>REPAIRED</u> at the following locations:

1330 Eldredge 5/18	406 Packard 5/9	4th & Crescent 5/22
781 Grace 5/29	1st & Gould 5/4	

<u>4 NEW SERVICES</u> were <u>INSTALLED</u> at the following locations:

1501 Baldy (2") 5/14	9390 Kimberly Lane (1") 5/16	Shale Drive (1") 5/15
2635 Castle Peak (3/4") 5/21		

<u>13 SERVICES</u> were <u>RENEWED</u> at the following locations:

517 So. Arthur (3/4") 5/1	781 Grace (3/4") 5/29	836 W. Lewis (3/4") 5/24
850 So. Arthur (3/4") 5/3	627 No. Grant (3/4") 5/21	231 No. 11th (3/4") 5/1
435 W. Benton (3/4") 5/3	633 No. Grant (3/4") 5/21	144 No. 13th (3/4") 5/23
443 W. Benton (3/4") 5/3	935 No. Hayes (3/4") 5/17	556 No. 15th (3/4") 5/18
1735 Beth (3/4") 5/9		

<u>17 SERVICES</u> were <u>RENEWED PRIOR TO CONNECTING TO NEW MAIN</u> at the following locations:

255 W. Buell (3/4") 5/2	320 W. Connor (3/4") 5/10	1823 No. Main (3/4") 5/9
305 W. Buell (3/4") 5/7	1556 No. Main (3/4") 5/15	1633 No. Main (3/4") 5/3
216 W. Connor (3/4") 5/14	1604 No. Main (3/4") 5/4	1645 No. Main (3/4") 5/3
224 W. Connor (3/4") 5/14	1615 No. Main (3/4") 5/9	1646 No. Main (3/4") 5/3
225 W. Connor (3/4") 5/16	1616 No. Main (3/4") 5/4	1705 No. Main (3/4") 5/1
236 W. Connor (3/4") 5/14	1618 No. Main (3/4") 5/3	

<u>17 SERVICES</u> were <u>CONNECTED TO THE NEW MAIN</u> at the following locations:

318 Gibson (3/4") 5/17	1741 No. Main (3/4") 5/23	1822 No. Main (3/4") 5/17
1704 No. Main (3/4") 5/29	1742 No. Main (3/4") 5/23	1850 No. Main (1") 5/16
1705 No. Main (3/4") 5/29	1745 No. Main (3/4") 5/23	1920 No. Main (3/4") 5/14
1711 No. Main (3/4") 5/23	1755 No. Main (3/4") 5/23	1938 No. Main (3/4") 5/14
1721 No. Main (3/4") 5/23	1803 No. Main (3/4") 5/17	2104 No. Main (2") 5/9
1736 No. Main (3/4") 5/23	1819 No. Main (1") 5/17	

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WATER DEPARTMENT MONTHLY REPORT

JUNE 1990

MAIN LINE WORK

NORTH MAIN EXTENSION - Capital improvement project. Pipe layed: 1325' of 18", 32' of 10", and 14' of 6" ductile iron. There was 220' of 18" ductile iron river crossing pipe used in this project. Installed: 1-6" fire hydrant, 1-6" fire hydrant valve, 1-18" gate valve, 1-10" gate valve, 1-6" gate valve, 1-10" tapping valve, 2-10" tapping sleeves, 4-18" solid sleeves, 1-10" solid sleeve, 5-valve boxes, 2-18" 90° bends, 1-10" 90° bend, 1-18"x18"x10" tee, 2-18"x18"x6" tees, and 1-18"x10" reducer. The necessary chlorination taps were made.

During the month of June 736,194,000 gallons of water were produced from the system, or 24,539,800 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	77,522,000	393.0 Lbs.
Well #2	37,164,000	67.5 Lbs.
Well #3	68,185,000	241.0 Lbs.
Well #10	33,553,000	74.0 Lbs.
Well #12	68,317,000	210.0 Lbs.
Well #14	14,847,000	41.0 Lbs.
Well #16	66,533,000	186.0 Lbs.
Well #21	32,128,000	82.5 Lbs.
Well #22	32,210,000	104.0 Lbs.
Well #26	31,762,000	65.0 Lbs.
Well #27	40,472,000	107.5 Lbs.
Well #28	18,897,000	47.0 Lbs.
Well #29	31,946,000	92.5 Lbs.
Well #31	21,889,000	53.0 Lbs.
Well #32	55,520,000	160.5 Lbs.
Well #33	17,849,000	58.0 Lbs.
Well #34	65,231,000	121.5 Lbs.
West Bench Booster	22,169,000	61.0 Lbs.
	736,194,000	2,178.0 Lbs.

7063

This figure is 21,276,000 less than last June. Based on the population figure of 46,736 there were 525.1 gallons of water per person per day produced from the system.

Airport production was 6,494,000 gallons of water using 13.0 lbs. of chlorine and 31 man hours. There were 1,484,000 gallons more produced than last June.

3 MAIN LINE LEAKS were REPAIRED at the following locations:

412 Parkway 6/6	143 So. 2nd 6/14	12th & Oak 6/18

3 NEW SERVICES were INSTALLED at the following locations:

675 Golf (1") 6/26	6233 Indian Tree (3/4") 6/19	8653 Kraft Road (3/4") 6/5

8 SERVICES were RENEWED at the following locations:

214 E. Center (1") 6/4	450 Riverside (3/4") 6/14	1828 So. 4th (1") 6/21
648 No. Garfield (3/4") 6/13	339 So. 3rd (3/4") 6/20	152 So. 19th (1") 6/27
138 Hoffman (3/4") 6/7	528-34 So. 5th (3/4") 6/22	

8 SERVICES were RENEWED PRIOR TO CONNECTING TO NEW MAIN at the following locations:

701 Wilson (1") 6/22	780 Wilson (3/4") 6/26	875 Wilson (3/4") 6/28
745 Wilson (3/4") 6/26	809 Wilson (3/4") 6/27	885 Wilson (3/4") 6/29
777 Wilson (3/4") 6/29	867 Wilson (3/4") 6/27	

17 SERVICES were CONNECTED TO THE NEW MAIN at the following locations:

255 W. Buell (3/4") 6/4	320 W. Connor (3/4") 6/6	1623 No. Main (3/4") 6/5
305 W. Buell (3/4") 6/4	1556 No. Main (3/4") 6/6	1633 No. Main (3/4") 6/4
216 W. Connor (3/4") 6/11	1604 No. Main (3/4") 6/5	1645 No. Main (3/4") 6/4
224 W. Connor (3/4") 6/7	1615 No. Main (3/4") 6/5	1729 No. Main (3/4") 6/25
225 W. Connor (3/4") 6/6	1616 No. Main (2-3/4") 6/4	2104 No. Main (3/4") 6/28
236 W. Connor (3/4") 6/7	1616 No. Main (1") 6/5	

21 SERVICES were REPAIRED at the following locations:

349 Appaloosa (3/4") 6/18	1222 Freeman Ln (2") 6/29	5170 Leonard (1") 6/11
540 Cochise (3/4") 6/25	648 No. Garfield (3/4") 6/13	150 No. Main (1") 6/28
787 Cypress (1") 6/5	635 W. Halliday (1/2") 6/14	1119 Meadowbrook (3/4") 6/16
730 Dahl (3/4") 6/5	5150 Leonard (1") 6/15	29 Purdue (1") 6/25

7064

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WATER AT YOUR SERVICE

WATER DEPARTMENT MONTHLY REPORT

JULY 1990

MAIN LINE WORK

900 Block E. Alameda - Capital improvement project. Pipe layed: 313' of 6" ductile iron. Installed: 1-6" fire hydrant, 1-6" fire hydrant valve, 1-6" tee, 1-6" 22½o bend, 1-6" solid sleeve, 1-valve box, 1-6" coupling and 1-6" plug. The necessary chlorination taps were made.

Kraft Road Project - Capital improvement project. Pipe layed: 371' of 6" ductile iron. Installed: 1-6" tapping valve, 1-12"x6" tapping sleeve, 1-valve box, and 1-6" plug. The necessary chlorination taps were made.

North Main Extension - Capital improvement project. Pipe layed: 364' of 6" ductile iron. Installed: 1-6" fire hydrant, 1-6" fire hydrant valve, 3-6" 90o bends, 1-6" tee, 2-valve boxes, 2-6"x4" romac couplings, 1-6" romac coupling, 1-4" plug, and 1-2" corp stop. The necessary chlorination taps were made.

Ross Park Zoo - Install main line for irrigation. Pipe layed: 724' of 6" ductile. Installed: 2-6" tees, 1-6" cross, and 1-6" plug. Materials provided by Parks Department.

Wilson Avenue from Cedar to Alameda - Capital improvement project. Pipe layed: 1331' of 6", and 3' of 4" ductile iron. Installed: 3-6" fire hydrants, 3-6" fire hydrant valves, 3-6" gate valves, 2-4" butterfly valves, 3-6" tees, 2-6"x4" tees, 2-6" romac couplings, and 8-valve boxes.

1437 Yellowstone - Made 4" tap for fire line. Installed: 1-4"x6" tapping tee and 1-4" tapping valve. Materials were provided by owner.

During the month of July 1,065,843,000 gallons of water were produced from the system, or 34,382,032 gallons per day. This exceeds the previous record of 1,016,657,000 gallons produced in July 1988.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	101,248,000	889.0 Lbs.
Well #2	48,444,000	93.0 Lbs.
Well #3	74,363,000	268.0 Lbs.
Well #10	110,270,000	281.0 Lbs.
Well #12	107,436,000	419.0 Lbs.
Well #14	16,005,000	44.5 Lbs.
Well #16	67,955,000	174.0 Lbs.
Well #21	44,159,000	103.5 Lbs.
Well #22	32,861,000	204.5 Lbs.
Well #26	37,783,000	96.5 Lbs.
Well #27	41,963,000	108.5 Lbs.
Well #28	33,394,000	83.0 Lbs.
Well #29	65,652,000	243.5 Lbs.
Well #31	60,978,000	150.0 Lbs.
Well #32	57,054,000	171.0 Lbs.
Well #33	36,374,000	115.5 Lbs.
Well #34	96,670,000	213.0 Lbs.
West Bench Booster	33,234,000	89.0 Lbs.
	1,065,843,000	3,746.5 Lbs.

This figure is 74,269,000 more than last July. Based on the population figure of 46,736 there were 735.7 gallons of water per person per day produced from the system.

Airport production was 7,006,000 gallons of water using 15.0 lbs. of chlorine and 33 man hours. There were 1,505,000 gallons less produced than last July.

4 MAIN LINE LEAKS were REPAIRED at the following locations:

906 No. Harrison 7/23 | Riverside & Willowwood 7/28 | 316 No. 9th 7/5
500 Block E. Poplar 7/31

33 NEW SERVICES were INSTALLED at the following locations:

5956 Bannock Hwy (1") 7/19 | 3872 Hawthorne Road (3/4") 7/18 | 1437 Yellowstone (1½") 7/25
3409 E. Center (1½") 7/10 | Kraft Rd (City Stock Pile) (1")7/16 | 322 No. 8th (1½") 7/10
1554 So. Grant (1") 7/25 | Ross Park Elk Pen (1") 7/23

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WATER DEPARTMENT MONTHLY REPORT

AUGUST 1990

MAIN LINE WORK

Replacement of steel mains on Packard, Richland, Wilson, McKinley, Maple and Poplar streets - Pipe layed: 2417' of 6" and 58' of 4" ductile iron. Installed: 4-6" fire hydrants, 4-6" fire hydrant valves, 6-6" gate valves, 1-6" tapping valve, 1-6" tapping sleeve, 5-6" tees, 1-6" coupling, 3-6" gasket kits, 11-valve boxes, 1-6" cross, 2-6" plugs, 1-4" plug, 1-4" stainless steel repair band, 1-4"x3" steel reducer, and 1-4"ci x 4" steel coupling.

Olympus Terrace (Calico Circle - south entrance) - Made 6" tap on 8" main line for new subdivision. Installed: 1-6" tapping tee and valve. Materials were supplied by the contractor.

Tanager & Poleline - Relocate fire hydrant. Pipe layed: 18' of 6" ductile iron. Installed: 1-6" fire hydrant, 1-6" gate valve and 1-valve box.

Wilson Avenue--lot south of 541 Yellowstone - Relocate fire hydrant. Pipe layed: 70' of 6" ductile iron. Installed: 1-90o bend.

During the month of August 798,756,000 gallons of water were produced from the system, or 55,842,000 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	56,882,000	802.0 Lbs.
Well #2	34,202,000	65.5 Lbs.
Well #3	55,352,000	275.0 Lbs.
Well #10	82,887,000	280.0 Lbs.
Well #12	65,678,000	204.0 Lbs.
Well #14	16,384,000	42.0 Lbs.
Well #16	66,016,000	188.0 Lbs.
Well #18	3,145,000	5.0 Lbs.
Well #21	41,936,000	92.5 Lbs.

Well #22	32,972,000	106.5 Lbs.
Well #26	24,076,000	61.5 Lbs.
Well #27	33,103,000	66.5 Lbs.
Well #28	20,234,000	52.0 Lbs.
Well #29	37,917,000	111.0 Lbs.
Well #31	50,957,000	127.0 Lbs.
Well #32	56,787,000	167.5 Lbs.
Well #33	25,690,000	81.5 Lbs.
Well #34	70,172,000	149.5 Lbs.
West Bench Booster	24,364,000	68.0 Lbs.
	798,756,000	2,865.0 Lbs.

This figure is 55,842,000 more than last August. Based on the population figure of 46,736 there were 551.3 gallons of water per person per day produced from the system.

Airport production was 7,259,000 gallons of water using 15.0 lbs. of chlorine and 31 man hours. This figure is 585,000 gallons less than last August.

7 MAIN LINE LEAKS were REPAIRED at the following locations:

707 No. Arthur 8/24
252 Walnut 8/14
11th & Bonneville 8/13
Cedar & Poole 8/30
7th & Lander 8/21
144 No. 11th 8/4
124 Valleyview 8/7

16 NEW SERVICES were INSTALLED at the following locations:

4865 Clearview (1") 8/15
5501 Nez Perce (3/4") 8/8
5870 Tee Drive (3/4") 8/20
1350 Juniper Drive (3/4") 8/9
672 W. Quinn (3/4") 8/2

Olympus Terrace:

Lot 1 Block 1 (3/4") 8/29
Lot 5 Block 1 (3/4") 8/29
Lot 9 Block 1 (3/4") 8/29
Lot 2 Block 1 (3/4") 8/29
Lot 6 Block 1 (3/4") 8/29
Lot 10 Block 1 (3/4") 8/29
Lot 3 Block 1 (3/4") 8/29
Lot 7 Block 1 (3/4") 8/29
Lot 11 Block 1 (3/4") 8/29
Lot 4 Block 1 (3/4") 8/29
Lot 8 Block 1 (3/4") 8/29

14 SERVICES were RENEWED at the following locations:

1135 E. Bonneville (3/4") 8/13
911 No. Main (3/4") 8/22
1121 So. 2nd (1") 8/1
1048 Everett (3/4") 8/30
1220 E. Whitman (3/4") 8/24
345 So. 9th (1") 8/3
1072 Fairbanks (3/4") 8/31
901 Wilson (1") 8/28
154 No. 10th (3/4") 8/29

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WATER DEPARTMENT MONTHLY REPORT

SEPTEMBER 1990

MAIN LINE WORK

Replacement of steel mains in the Alameda area - Capital improvement project on Packard, Richland, Wilson, McKinley, Maple and Poplar streets. Pipe layed: 2342' of 6" ductile iron. Installed: 5-6" fire hydrants, 5-6" fire hydrant valves, 5-6" gate valves, 2-6" tapping valves, 2-6" tapping sleeves, 6-6" tees, 12-valve boxes, 3-6" romac couplings, and 1-4" plug. The necessary chlorination taps were made.

Olympus Drive @ Cottontree Inn - Made 8" tap on 8" main line for contractor. Installed: 1-8" tapping tee, 1-8" tapping valve, and 1-valve box. (Materials were supplied by contractor.)

2271 E. Terry - Made 4" tap on 8" main line for fire line. Installed: 1-4" tapping valve, 1-8"x4" tapping tee, and 1-valve box. (Materials were supplied by contractor.)

3960 South 2nd - Well #28 - Made 6" tap on 6" main for fire line. Installed: 1-6" tapping tee, 1-6" tapping valve and 1-valve box. (Materials were supplied by owner.)

During the month of September 555,792,000 gallons of water were produced from the system, or 18,526,400 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	69,858,000	827.0 Lbs.
Well #2	9,653,000	36.5 Lbs.
Well #3	75,599,000	272.0 Lbs.
Well #10	36,956,000	127.0 Lbs.
Well #12	7,075,000	22.0 Lbs.
Well #14	15,395,000	42.5 Lbs.
Well #16	67,312,000	191.0 Lbs.
Well #18	2,467,000	8.0 Lbs.
Well #21	29,406,000	73.5 Lbs.

Well #22	32,196,000	118.0 Lbs.
Well #26	20,983,000	46.5 Lbs.
Well #27	26,168,000	66.5 Lbs.
Well #28	8,025,000	23.5 Lbs.
Well #29	10,501,000	29.5 Lbs.
Well #32	54,946,000	163.0 Lbs.
Well #33	21,022,000	70.5 Lbs.
Well #34	50,215,000	98.5 Lbs.
West Bench Booster	18,015,000	53.0 Lbs.
	555,792,000	2,268.5 Lbs.

This figure is 4,953,000 less than last September. Based on the population figure of 46,736 there were 396.4 gallons of water per person per day produced from the system.

Airport production was 6,747,000 gallons of water using 14.0 lbs. of chlorine and 30 man hours. There were 1,645,000 gallons less produced than last September.

<u>7 MAIN LINE LEAKS</u> were <u>REPAIRED</u> at the following locations:

Reservoir--75' west of east side of 5 million gallon tank 9/9
Reservoir--5 million gallon tank - Repair hole in the 10" steel main line 9/11
Reservoir--5 million gallon tank - Repair hole in the 8" steel main line 9/11
245 So. Grant 9/8 | 1000 Block No. 8th 9/17 | 135 So. 15th 9/19
602 So. 1st 9/8

<u>4 NEW SERVICES</u> were <u>INSTALLED</u> at the following locations:

Olympus Terrace: Lot 12 Block 1 (1") 9/26 Lot 13 Block 1 (1") 9/26
1501 Baldy (1½") 9/20
5401 So. 5th (1") 9/24

<u>8 SERVICES</u> were <u>RENEWED</u> at the following locations:

926 W. Clark (3/4") 9/26	142 Hawthorne (3/4") 9/13	830 No. 10th (3/4") 9/10
442 So. Garfield (3/4") 9/6	5 Ravine (3/4") 9/17	840 No. 10th (3/4") 9/10
454 So. Garfield (3/4") 9/4	224 So. 8th (3/4") 9/28	

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WATER DEPARTMENT MONTHLY REPORT

OCTOBER 1990

MAIN LINE WORK

Replacement of steel mains in the Alameda area - Capital improvement project on Packard, Richland, Wilson, McKinley, Maple and Poplar streets. Pipe layed: 3462' of 6" ductile iron. Installed: 6-6" fire hydrants, 6-6" fire hydrant valves, 9-6" gate valves, 1-4" butterfly valve, 1-6" tapping valve, 1-6" 90o bend, 10-6" tees, 1-6" x 10" tee, 16-valve boxes, 1-6" plug, 2-4" plugs, 1-6" solid sleeve, 1-4" solid sleeve, 2-6" romac couplings, and 2-6" x 4" reducers. The necassary chlorination taps were made.

During the month of October 326,846,000gallons of water were produced from the system, or 10,543,419 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	43,600,000	700.0 Lbs.
Well #2	32,659,000	109.5 Lbs.
Well #3	19,995,000	70.0 Lbs.
Well #14	17,107,000	44.5 Lbs.
Well #16	53,682,000	146.0 Lbs.
Well #18	1,846,000	6.0 Lbs.
Well #21	20,259,000	36.5 Lbs.
Well #22	31,747,000	118.0 Lbs.
Well #27	9,210,000	24.5 Lbs.
Well #28	1,664,000	4.5 Lbs.
Well #29	1,027,000	3.5 Lbs.
Well #32	55,812,000	175.5 Lbs.
Well #33	3,752,000	12.5 Lbs.
Well #34	24,765,000	60.5 Lbs.
West Bench Booster	9,721,000	25.0 Lbs.
	326,846,000	1,536.5 Lbs.

This figure is 11,000,000 less than last October. Based on the population figure of 46,736 there were 225.6 gallons of water per person per day produced from the system.

Airport production was 2,478,000 gallons of water using 5.0 lbs. of chlorine and 31½ man hours. There were 2,643,000 gallons less produced than last October.

1 MAIN LINE LEAKS was REPAIRED at 490 Moreland on 10/22

1 NEW SERVICE was INSTALLED at 5050 Johnny Creek (3/4") on 10/4

23 SERVICES were RENEWED at the following locations:

1557 No. Garfield (3/4") 10/18
542 So. Garfield (3/4") 10/23
241 No. Grant (3/4") 10/26
349-57 So. Grant (3/4") 10/29
600 Highland (1") 10/24
740 No. Johnson (3/4") 10/24
334 No. Main (3/4") 10/23
410 W. Maple (3/4") 10/29
128 Maplewood (3/4") 10/17
258 Maplewood (3/4") 10/3
941 McKinley (3/4") 10/3
1002 Samuel (1") 10/1
445 Willard (3/4") 10/12
455 Willard (3/4") 10/12
1271 Zener (3/4") 10/2
1009 So. 2nd (1") 10/25
616 So. 5th (3/4") 10/9
354 So. 7th (1") 10/10
429 No. 10th (3/4") 10/22
441 No. 10th (3/4") 10/22
509 No. 12th (3/4") 10/19
513 No. 12th (3/4") 10/19
331 No. 14th (3/4") 10/17

15 SERVICES were RENEWED PRIOR TO CONNECTING TO NEW MAIN at the following locations:

343 McKinley (3/4") 10/3
370 McKinley (3/4") 10/3
380 McKinley (3/4") 10/2
402 McKinley (3/4") 10/2
449 McKinley (3/4") 10/23
452 McKinley (3/4") 10/23
457 McKinley (3/4") 10/23
467 McKinley (3/4") 10/23
476 McKinley (3/4") 10/23
478 McKinley (3/4") 10/23
516 McKinley (3/4") 10/16
699 Poole (3/4") 10/4
277 Roosevelt (3/4") 10/31
429 Roosevelt (3/4") 10/3
273 Taft (1") 10/31

42 SERVICES were CONNECTED TO THE NEW MAIN at the following locations:

526 Cedar (3/4") 10/2
532 Cedar (3/4") 10/2
545 Cedar (3/4") 10/2
567 Cedar (3/4") 10/2
579 Cedar (3/4") 10/1
Lot N. of 343 McKinley(3/4")10/29
343 McKinley (3/4") 10/30
352 McKinley (3/4") 10/29
358 McKinley (3/4") 10/29
370 McKinley (3/4") 10/25
380 McKinley (3/4") 10/25
402 McKinley (3/4") 10/25
412 McKinley (3/4") 10/25
507 McKinley (3/4") 10/16
517 McKinley (3/4") 10/16
524 McKinley (3/4") 10/16
530 McKinley (3/4") 10/15
553 Mckinley (3/4") 10/12
565 McKinley (3/4") 10/12
566 McKinley (3/4") 10/15
578 McKinley (3/4") 10/12
579 McKinley (3/4") 10/12
588 McKinley (3/4") 10/12
598 McKinley (3/4") 10/19

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WATER DEPARTMENT MONTHLY REPORT

NOVEMBER 1990

MAIN LINE WORK

Replacement of steel mains in the Alameda area - Capital improvement project on Packard, Richland, Wilson, McKinley, Maple and Poplar streets. Pipe layed: 1532' of 6" ductile iron. Installed: 1-6" fire hydrant, 1-6' fire hydrant valve, 1-6"x8' reducer, 1-6"x4" reducer, 13-6" gate valves, 7-6" tees, 14-valve boxes, 3-6" plugs, 3-4" plugs, 3-6" romac couplings, 1-4" romac coupling, 1-3"x6" coupling, 1-8"steelx6"cicoupling, and 1-6" cross. The necessary chlorination taps were made.

4588 Bannock Highway (Cedarville Tracts Subdivision) - Made 2-6" taps on 8" main line for contractor. Installed: 2-6"x8" tapping saddles, and 2-6" tapping valves (materials supplied by contractor).

3875 Bannock Highway - Install 1" service for fire line. Pipe layed: 27' of 1" copper. Installed: 1-1" corporation stop, 1-1" riser stop, 1-1" tail piece.

During the month of November 214,728,000 gallons of water were produced from the system, or 7,157,600 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	64,949,000	711.0 Lbs.
Well #2	42,034,000	139.0 Lbs.
Well #14	16,728,000	49.0 Lbs.
Well #16	3,398,000	9.0 Lbs.
Well #21	2,194,000	12.5 Lbs.
Well #22	27,425,000	116.5 Lbs.
Well #32	52,970,000	170.0 Lbs.
West Bench Booster	5,030,000	14.0 Lbs.
	214,728,000	1,221.0 Lbs.

This figure is 14,778,000 less than last November. Based on the population figure of 46,736 there were 153.2 gallons of water per person per day produced from the system.

7073

Airport production was 1,635,000 gallons of water, using 4.0 lbs. of chlorine and 32 man hours. There were 226,000 gallons more produced than last November.

5 MAIN LINE LEAKS were REPAIRED at the following locations:

700 Block W. Clark 11/13	500 Block E. Lovejoy 11/27	19th & University 11/27
Elm & Taft 11/20	953 Wingate 11/24	

7 NEW SERVICES were INSTALLED at the following locations:

3000 Alvord (2") 11/5	965 Berryman-Unit A (1") 11/28	146 So. Main (1½") 11/6
3380 Bannock Hwy (1") 11/6	965 Berryman-Unit B (1") 11/28	4122 Yellowstone (1½"sl) 11/8
3875 Bannock Hwy (1") 11/20		

9 SERVICES were RENEWED at the following locations:

309-27 E. Center (1") 11/19	295 Yellowstone (3/4") 11/26	449 So. 10th (3/4") 11/1
535 W. Greeley (3/4") 11/27	630 So. 3rd (3/4") 11/15	745 No. 12th (3/4") 11/30
231 E. Griffith (3/4") 11/20	435 So. 10th (3/4") 11/1	749 No. 12th (3/4") 11/30

2 SERVICES were RENEWED PRIOR TO CONNECTING TO NEW MAIN at the following locations:

250 Maple (3/4") 11/1	278 Taft (3/4") 11/1

15 SERVICES were CONNECTED TO THE NEW MAIN at the following locations:

206 W. Maple (1½") 11/26	330 McKinley (3/4") 11/2	436 McKinley (3/4") 11/2
215 W. Maple (3/4") 11/28	344 McKinley (3/4") 11/2	277 Roosevelt (3/4") 11/8
250 W. Maple (3/4") 11/14	346 McKinley (3/4") 11/2	301 Roosevelt (3/4") 11/27
410 Maple (3/4") 11/7	366 McKinley (1") 11/2	273 Taft (1") 11/14
316 McKinley (3/4") 11/2	428 McKinley (3/4") 11/2	278 Taft (3/4") 11/14

19 SERVICES were REPAIRED at the following locations:

412 Fairway (1") 11/1	816 No. Lincoln (1/2") 11/6	171 Ravine (1") 11/9
1683 Glacier (3/4") 11/16	1134 No. Main (1/2") 11/9	375 Roosevelt (1") 11/9
840 No. Hayes (3/4") 11/30	206 W. Maple (1") 11/16	470 Roosevelt (3/4") 11/26
1625 Jade (3/4") 11/9	404 W. Maple (3/4") 11/16	24 Yale (3/4") 11/2
249-55 Jefferson (3/4") 11/9	82-88 Mountain Drive (1") 11/6	425 So. 7th (3/4") 11/27
453 Jefferson (3/4") 11/1	838 Nixon (1") 11/6	319 So. 8th (3/4") 11/21
2477 Jerome (3/4") 11/26		

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WATER DEPARTMENT MONTHLY REPORT

DECEMBER 1990

MAIN LINE WORK

Replacement of Steel Mains in the Alameda Area - Capital improvement project on Packard, Richland, Wilson, McKinley, Maple and Poplar streets. Pipe layed: 1684' of 6" ductile iron. Installed: 2-6" fire hydrants, 2-6" fire hydrant valves, 4-6" gate valves, 2-6" tees, 7-valve boxes, 2-6" romac couplings, 1-6"x4" romac coupling, 1-6" cross, 2-6"x4" reducers, 1-6"x3" reducer. The necessary chlorination taps were made.

During the month of December 246,504,000 gallons of water were produced from the system, or 7,951,742 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	95,131,000	685.0 Lbs.
Well #2	44,065,000	145.0 Lbs.
Well #14	17,240,000	48.5 Lbs.
Well #16	954,000	2.0 Lbs.
Well #22	29,451,000	120.5 Lbs.
Well #27	230,000	.5 Lbs.
Well #32	55,147,000	185.5 Lbs.
West Bench Booster	4,286,000	15.0 Lbs.
	246,504,000	1,202.0 Lbs.

This figure is 7,883,000 more than last December. Based on the population figure of 46,736 there were 170.1 gallons of water per person per day produced from the system.

Airport production was 2,128,000 gallons of water using 4.0 lbs. of chlorine and 35 man hours. There were 447,000 gallons more produced than last December.

1 MAIN LINE LEAK was REPAIRED at the following location:

4th & Humbolt 12/10

7075

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WATER DEPARTMENT MONTHLY REPORT

JANUARY 1991

MAIN LINE WORK

1722 Church Hill Downs - Install 1" service for fire line. Materials: 1-1" corp. stop, 1-1" riser stop, and 1-1" tail piece.

During the month of January 226,757,000 gallons of water were produced from the system, or 7,314,742 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & #30	63,180,000	767.0 Lbs.
Well #2	43,767,000	157.5 Lbs.
Well #14	17,262,000	47.0 Lbs.
Well #16	8,323,000	24.0 Lbs.
Well #22	32,888,000	126.0 Lbs.
Well #32	55,234,000	176.0 Lbs.
West Bench Booster	6,103,000	21.0 Lbs.
	226,757,000	1,318.5 Lbs.

This figure is 4,461,000 more than last January. Based on the population figure of 46,736 there were 156.6 gallons of water per person per day produced from the system.

Airport production was 2,578,000 gallons of water using 6.0 lbs. of chlorine and 32 man hours. There were 1,173,000 gallons more produced than last January.

7 MAIN LINE LEAKS were REPAIRED at the following locations:

Arlington Drive 1/29	1247 Hancock 1/26	901 Northgate 1/22
604 W. Clark 1/23	974 Imperial 1/8	1037 Patsy 1/5
1605 No. Garfield 1/8		

1 NEW SERVICE was INSTALLED at: 1722 Church Hill Downs (1") 1/29

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WATER AT YOUR SERVICE

WATER DEPARTMENT MONTHLY REPORT
FEBRUARY 1991

MAIN LINE WORK

Alameda & Yellowstone - Install new valve. Installed: 2-12"x8" couplings, 1-8" gate valve, 2-valve box bottoms and 1-valve box top and lid.

During the month of February 200,583,000 gallons of water were produced from the system, or 7,163,679 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	52,235,000	553.0 Lbs.
Well #2	39,691,000	118.5 Lbs.
Well #14	15,894,000	40.0 Lbs.
Well #16	10,132,000	29.0 Lbs.
Well #22	29,038,000	107.0 Lbs.
Well #27	420,000	1.0 Lbs.
Well #32	49,293,000	155.0 Lbs.
Well #34	404,000	0.0 Lbs.
West Bench Booster	3,476,000	10.0 Lbs.
	200,583,000	1,003.5 Lbs.

This figure is 11,263,000 less than last February. Based on the population figure of 46,736 there were 241.0 gallons of water per person per day produced from the system.

Airport production was 1,972,000 gallons of water using 4.0 lbs. of chlorine and 28 man hours. There were 400,000 gallons more produced than last February.

7077

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WATER AT YOUR SERVICE

WATER DEPARTMENT MONTHLY REPORT
MARCH 1991

MAIN LINE WORK

9th Street - From Oak to Terry - Capital improvement project. Pipe layed: 988' of 6" ductile iron. Installed: 1-6" fire hydrant, 1-6' fire hydrant valve, 4-6" gate valves, 1-6" tee, 4-valve boxes, 1-6" romac coupling, 1-4" m.j. cap, 1-4" locking ring and accessories. The necessary chlorination taps were made.

Replacement of Steel Mains in the Alameda Area on Elm, Maple, Taft & Wilson Streets - Capital improvement project. Pipe layed: 69' of 6" ductile iron. Installed: 1-6"x4" romac reducer, 1-6' locking ring, 1-6" gasket and 1-6" m.j. cap.

3875 Bannock Highway - Made 6" tap for fire hydrant installation. Pipe layed: 5' of 6" ductile iron. Installed: 1-6" fire hydrant, 1-6" fire hydrant valve, 1-6"x12" tapping sleeve, 1-6" tapping valve, and 2-valve boxes.

952 North Buchanan - Made 4" tap for fire hydrant installation. Pipe layed: 20' of 4" cast iron. Installed: 1-4' used fire hydrant, 1-4" fire hydrant valve, 1-valve box, and 1-4" tapping sleeve.

During the month of March 223,112,000 gallons of water were produced from the system, or 7,197,161 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	77,015,000	622.0 Lbs.
Well #2	42,980,000	141.5 Lbs.
Well #14	17,226,000	44.0 Lbs.
Well #16	14,500,000	41.0 Lbs.
Well #21	9,192,000	27.0 Lbs.
Well #22	2,352,000	10.5 Lbs.
Well #27	14,000	.5 Lbs.
Well #32	54,355,000	166.5 Lbs.
West Bench Booster	5,478,000	18.0 Lbs.
	223,112,000	1,080.0 Lbs.

7078

This figure is 13,924,000 less than last March. Based on the population figure of 46,736 there were 154.0 gallons of water per person per day produced from the system.

Airport production was 4,069,000 gallons of water using 9.0 lbs. of chlorine and 34 man hours. There were 1,149,000 gallons more produced than last March.

2 MAIN LINE LEAKS were REPAIRED at the following locations:

Alameda & Yellowstone 3/3	952 No. Buchanan 3/15

2 NEW SERVICES were INSTALLED at the following locations:

Center Street Underpass - Manson Park - (2-2" for Parks Dept.) 3/20

14 SERVICES were RENEWED at the following locations:

78 Cottonwood (3/4") 3/14	1002 Samuel (1") 3/12	1258 So. 3rd (3/4") 3/22
775 Ebony (3/4") 3/22	426 E. Sutter (3/4") 3/22	754 So. 4th (3/4") 3/25
257 No. Main (3/4") 3/11	687 Willard (3/4") 3/25	1630 So. 4th (3/4") 3/18
610 Pershing (3/4") 3/11	740 So. 2nd (3/4") 3/29	316 So. 5th (3/4") 3/27
121 Rosewood (1") 3/28	340 No. 3rd (3/4") 3/22	

27 SERVICES were RENEWED PRIOR TO CONNECTING TO NEW MAIN at the following locations:

958 E. Fremont (3/4") 3/20	320 No. 8th (3/4") 3/13	505 No. 9th (3/4") 3/19
935 E. Hayden (3/4") 3/25	340 No. 9th (3/4") 3/11	514-16 No. 9th (3/4") 3/21
1008 E. Hayden (3/4") 3/27	348 No. 9th (3/4") 3/13	515 No. 9th (3/4") 3/21
1028 E. Hayden (3/4") 3/26	404 No. 9th (3/4") 3/14	518 No. 9th (3/4") 3/22
1007 E. Sublette (3/4") 3/29	410 No. 9th (3/4") 3/14	540 No. 9th (3/4") 3/22
933 E. Wyeth (3/4") 3/18	423 No. 9th (3/4") 3/14	620 No. 9th (3/4") 3/27
936 E. Wyeth (3/4") 3/18	426 No. 9th (3/4") 3/14	642-44 No. 9th (3/4") 3/29
1018 E. Wyeth (3/4") 3/20	428 No. 9th (3/4") 3/13	719 No. 9th (3/4") 3/28
1026 E. Wyeth (3/4") 3/20	436 No. 9th (3/4") 3/15	722 No. 9th (3/4") 3/28

41 SERVICES were CONNECTED TO THE NEW MAIN at the following locations:

934-40 E. Fremont (3/4") 3/20	1009 E. Hayden (3/4") 3/28	1009 E. Wyeth (3/4") 3/21
958 E. Fremont (3/4") 3/20	1019 E. Hayden (3/4") 3/28	1018 E. Wyeth (3/4") 3/22
1007 E. Fremont (3/4") 3/19	1028 E. Hayden (3/4") 3/28	1021 E. Wyeth (3/4") 3/21
1021 E. Fremont (3/4") 3/19	933 E. Wyeth (3/4") 3/22	1026 E. Wyeth (3/4") 3/22
935 E. Hayden (3/4") 3/28	938 E. Wyeth (3/4") 3/22	316 No. 9th (3/4") 3/18
1008 E. Hayden (3/4") 3/28	1006 E. Wyeth (3/4") 3/27	320 No. 9th (3/4") 3/18

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AT YOUR SERVICE

WATER DEPARTMENT MONTHLY REPORT

APRIL 1991

MAIN LINE WORK

9th Street from Oak to Terry - Capital improvement project. Pipe layed: 1020' of 6" ductile iron. Installed: 5-6" gate valves, 5-valve boxes, 3-6" romac couplings, 2-6" crosses, 1-6" locking cap, and 3-6" locking rings. The necessary chlorination taps were made.

10th Street from Oak to Terry - Capital improvement project. Pipe layed: 199' of 12", and 617' of 6" ductile iron. Installed: 1-6" fire hydrant, 1-6" fire hydrant valve, 2-12" gate valves, 4-6" gate valves, 1-6" tees, 7-valve boxes, 1-4" plug, 1-12" romac coupling, 2-4" romac couplings, 1-12"x6" cross, and 1-12"x10" reducer. The necessary chlorination taps were made.

During the month of April 227,668,000 gallons of water were produced from the system, or 7,588,933 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	51,700,000	179.0 Lbs.
Well #2	41,472,000	146.5 Lbs.
Well #14	16,714,000	43.0 Lbs.
Well #16	27,599,000	80.0 Lbs.
Well #21	32,801,000	129.0 Lbs.
Well #22	1,342,000	3.5 Lbs.
Well #32	51,509,000	157.0 Lbs.
West Bench Booster	4,531,000	15.0 Lbs.
	227,668,000	753.0 Lbs.

This figure is 97,839,000 less than last April. Based on the population figure of 46,736 there were 162.4 gallons of water per person per day produced from the system.

L-7080

Airport production was 2,018,000 gallons of water using 4.0 lbs. of chlorine and 31½ man hours. There were 2,787,000 gallons less produced than last April.

5 MAIN LINE LEAKS were REPAIRED at the following locations:

1002 E. Cedar 4/17	465 Yellowstone 4/19	800 Block No. 9th 4/10
412 Parkway 4/11	8th & Clark 4/17	

4 NEW SERVICES were INSTALLED at the following locations:

1037-45 E. Fremont (3/4") 4/23	3900 Blk Johnny Creek (1") 4/12	5105 Leonard (1") 4/18
1116-26 E. Fremont (3/4" future use) 4/24		

19 SERVICES were RENEWED at the following locations:

440 So. Grant (3/4") 4/26	1326 Ridge (3/4") 4/24	1229 Zener (3/4") 4/19
1017 Howard (3/4") 4/29	835 W. Whitman (3/4") 4/30	1406 Zener (3/4") 4/16
1056 E. Lander (3/4") 4/11	836 W. Whitman (3/4") 4/25	643 So. 4th (3/4") 4/15
1537 No. Main (3/4") 4/22	846 W. Whitman (3/4") 4/25	2700 So. 5th (1") 4/22
1543 No. Main (3/4") 4/22	858 W. Whitman (3/4") 4/25	331 No. 13th (3/4") 4/29
706 E. Poplar (3/4") 4/25	1226 Zener (3/4") 4/19	321 No. 14th (3/4") 4/4
1206 Ridge (3/4") 4/23		

30 SERVICES were RENEWED PRIOR TO CONNECTING TO NEW MAIN at the following locations:

1045-55 E. Center (3/4") 4/22	827 No. 9th (3/4") 4/4	415 No. 10th (3/4") 4/25
1111 E. Center (3/4") 4/10	835 No. 9th (3/4") 4/3	420 No. 10th (3/4") 4/24
1037-45 E. Fremont (1") 4/23	206 So. 9th (3/4") 4/3	425 No. 10th (3/4") 4/25
1116-26 E. Fremont (3/4") 4/24	129 So. 10th (3/4") 4/9	428 No. 10th (3/4") 4/25
1056 E. Lewis (3/4") 4/9	146 So. 10th (3/4") 4/9	445 No. 10th (3/4") 4/29
1025 E. Sublette (3/4") 4/2	310 No. 10th (3/4") 4/16	454 No. 10th (3/4") 4/26
1035 E. Sublette (3/4") 4/2	316 No. 10th (3/4") 4/11	505 No. 10th (3/4") 4/30
635 No. 9th (3/4") 4/2	322 No. 10th (3/4") 4/17	506 No. 10th (3/4") 4/30
733 No. 9th (3/4") 4/1	345 No. 10th (3/4") 4/17	520 No. 10th (3/4") 4/30
821 No. 9th (3/4") 4/4	347 No. 10th (3/4") 4/18	542-44 No. 10th (1") 4/30

47 SERVICES were CONNECTED TO THE NEW MAIN at the following locations:

837 W. Benton (1/2") 4/22	938-46-56 E. Hayden (3/4") 4/8	1056 E. Lewis (3/4") 4/23
1111 E. Center (3/4") 4/22	1056 E. Lander (3/4") 4/29	1110 E. Lewis (3/4") 4/22

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WATER AT YOUR SERVICE

WATER DEPARTMENT MONTHLY REPORT

MAY 1991

MAIN LINE WORK

Pocatello Creek - Install new water main. Pipe layed: 4136' of 6" ductile iron. Installed: 4-6" gate valves, 4-valve boxes.

10th Street from Oak to Terry - Capital improvement project. Pipe layed: 875' of 6" ductile iron. Installed: 2-6" fire hydrants, 2-6" fire hydrant valves, 3-6" gate valves, 2-6" tees, 1-6"x10" full circle repair band, 4-valve boxes. The necessary chlorination taps were made.

3790 Johnny Creek Road - Install fire hydrant. Pipe layed: 6' of 6" ductile iron. Installed: 1-6" fire hydrant, 1-6" fire hydrant valve, 1-6" gate valve, 1-12"x6' tapping sleeve, 1-6" tapping valve, 2-valve boxes, and 2-locking follower glands.

Carlile Subdivision - Made 6" tap on 6" main for contractor. Installed: 1-6" tapping valve and sleeve (materials were provided by the contractor).

During the month of May 309,476,000gallons of water were produced from the system, or 9,983,097gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	58,327,000	142.0 Lbs.
Well #2	11,609,000	36.5 Lbs.
Well #3	24,590,000	84.0 Lbs.
Well #10	11,000	0.0 Lbs.
Well #12	1,300,000	4.0 Lbs.
Well #14	17,334,000	44.5 Lbs.
Well #16	41,907,000	118.0 Lbs.
Well #28	860,000	2.5 Lbs.
Well #29	32,015,000	125.5 Lbs.

Well #18	20,593,000	61.0 Lbs.
Well #21	8,883,000	23.5 Lbs.
Well #22	4,643,000	13.5 Lbs.
Well #27	2,328,000	9.0 Lbs.
Well #32	55,140,000	170.0 Lbs.
Well #33	3,684,000	16.5 Lbs.
Well #34	18,063,000	34.5 Lbs.
West Bench Booster	8,189,000	28.0 Lbs.
	309,476,000	913.0 Lbs.

This figure is 161,404,000 less than last May. Based on the population figure of 46,736 there were 213.6 gallons of water per person per day produced from the system.

Airport production was 1,940,000 gallons of water using 4.5 lbs. of chlorine and 33.5 man hours. There were 2,923,000 gallons less produced than last May.

2 MAIN LINE LEAKS were REPAIRED at the following locations:

8th & Sherman 5/3
10th & Center 5/1

26 NEW SERVICES were INSTALLED at the following locations:

3400 E. Center (1") 5/16
597 Wayne (3/4" future use) 5/2
641 Wayne (3/4" future use) 5/1
1041 E. Hayden (3/4" ftr use) 5/1
611 Wayne (3/4" future use) 5/1
100 Block No. 1st (2" sl) 5/22
540 E. Poplar (3/4" ftr use) 5/1

CRESTVIEW 2ND ADDITION:

Lot 2 Block 7 (1") 5/8
Lot 7 Block 7 (1") 5/7
Lot 2 Block 11 (1") 5/7
Lot 3 Block 7 (1") 5/8
Lot 8 Block 7 (1") 5/6
Lot 3 Block 11 (1") 5/7
Lot 4 Block 7 (1") 5/7
Lot 3 Block 8 (1") 5/8
Lot 4 Block 11 (1") 5/6
Lot 5 Block 7 (1") 5/7
Lot 1 Block 10 (1") 5/6
Lot 5 Block 11 (1") 5/6
Lot 6 Block 7 (1") 5/7
Lot 1 Block 11 (1") 5/8

CARLILE SUBDIVISION:

Lot 1 (1") 5/31
Lot 8 (1½") 5/31
Lot 10 (1") 5/31
Lot 2 (1") 5/31
Lot 9 (1") 5/31

11 SERVICES were RENEWED at the following locations:

807 Broadway (3/4") 5/2
1675 No. Garfield (3/4") 5/28
521 E. Halliday (3/4") 5/23
22 Colgate (1") 5/24
1677 No. Garfield (3/4") 5/28
625 W. Halliday (3/4") 5/29

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WATER AT YOUR SERVICE

WATER DEPARTMENT MONTHLY REPORT

JUNE 1991

MAIN LINE WORK

Pocatello Creek - Install new water main. Pipe layed: 2821' of 12", and 2157' of 6" ductile iron. Installed: 3-12" gate valves, 3-6" gate valves, 1-12" tapping valve, 1-12" 90o bend, 1-12" tee, 1-12" x 6" reducer, 7-valve boxes, 1-12" plug, 1-6" plug, 1-2" plug, 3-12" x 12" solid sleeves, 1-12" x 6" solid sleeve and 1-6" romac coupling. The necessary chlorination taps were made.

Alvin Ricken Drive (Veterans Hospital) - Made 10" tap on 16" main for contractor. Installed: 1-10" tapping valve, 1-10" x 16" tapping sleeve and 1-valve box. Materials were provided by the contractor.

During the month of June 622,421,000 gallons of water were produced from the system, or 20,747,367 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	60,343,000	143.0 Lbs.
Well #3	43,578,000	151.0 Lbs.
Well #10	28,182,000	100.0 Lbs.
Well #12	69,289,000	196.0 Lbs.
Well #14	15,809,000	43.5 Lbs.
Well #16	59,932,000	141.0 Lbs.
Well #18	13,367,000	63.0 Lbs.
Well #21	41,680,000	168.5 Lbs.
Well #22	14,864,000	42.5 Lbs.
Well #26	5,494,000	22.5 Lbs.
Well #27	31,739,000	83.5 Lbs.
Well #28	30,061,000	84.5 Lbs.
Well #29	51,084,000	151.0 Lbs.
Well #32	54,571,000	173.0 Lbs.

Well #33	27,647,000	94.0 Lbs.
Well #34	56,066,000	139.0 Lbs.
West Bench Booster	18,769,000	52.0 Lbs.
	522,421,000	1,848.0 Lbs.

This figure is 151,541,000 more than last June. Based on the population figure of 46,736 there were 443.9 gallons of water per person per day produced from the system.

Airport production was 5,572,000 gallons of water using 11.5 lbs. of chlorine and 30 man hours. There were 709,000 gallons more produced than last June.

2 MAIN LINE LEAKS were REPAIRED at the following locations:
Alameda & Yellowstone 6/7,13 669 W. Quinn 6/18

12 NEW SERVICES were INSTALLED at the following locations:
CARLILE SUBDIVISION:

Lot 3 (1") 6/3	Lot 5 (1") 6/3	Lot 7 (1") 6/3
Lot 4 (1") 6/3	Lot 6 (1") 6/3	

1025 E. Benton (3/4" future use) 6/17
938-44 E. Bonneville (3/4" future use) 6/5
935 E. Carter (3/4" future use) 6/20
710 W. Quinn (1½") 6/26
935-45 E. Whitman (3/4" future use) 6/11
1542 So. 2nd (3/4") 6/12
707 So. 9th (3/4" future use) 6/18

14 SERVICES were RENEWED at the following locations:

935 E. Center (3/4") 6/10	226 So. Johnson (3/4") 6/12	751 McKinley (3/4") 6/20
1450 E. Clark (3/4") 6/24	234 So. Johnson (3/4") 6/12	430 Riverside (1½" sl) 6/17
748 Cypress (3/4") 6/28	305 No. Johnson (3/4") 6/3	133 Taft (3/4") 6/20
1670 No. Garfield (3/4") 6/18	5125 Leonard (1") 6/6	234 So. 12th (1" sl) 6/19
1674 No. Garfield (3/4") 6/18	1234 No. Main (3/4") 6/25	

16 SERVICES were RENEWED PRIOR TO CONNECTING TO NEW MAIN at the following locations:

1021 E. Bonneville (3/4") 6/5	247 So. 9th (3/4") 6/3	326 So. 9th (3/4") 6/7
958 E. Carter (3/4") 6/19	306 So. 9th (3/4") 6/5	341 So. 9th (3/4") 6/7
1021 E. Whitman (3/4") 6/11	325 So. 9th (3/4") 6/6	356 So. 9th (3/4") 6/6

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WATER DEPARTMENT MONTHLY REPORT

JULY 1991

MAIN LINE WORK

X Shale & Field Drive - Capital improvement project. Pipe layed: 2630' of 12", 451' of 8" and 1126' of 6" ductile iron, 124' of 12" and 81' of 8" plastic pipe. Installed: 6-6" fire hydrants, 6-6" fire hydrant valves, 4-12" and 2-6" gate valves, 1-8" tapping valve, 1-12" x 8" tapping sleeve, 1-8" 90o and 1-8" 45o bend, 1-6" 22½o bend, 1-12" x 8" cross, 1-8" x 6" reducer, 3-12" x 6" tees, 3-6" tees, 12-valve boxes, 2-6" plugs, 1-8" transition coupling, 2-12" ductile iron caps and accessories.

X Pocatello Creek & Olympus Drive - Lower main line 3' for storm drain crossing. Pipe layed: 19' of 6" ductile iron. Installed: 4-6" 45o bends, 48-T bolts, and 8-6" follower glands w/locking rings.

X 10th Street from Oak to Terry - Capital improvement project. Installed: 1-4" plug.

During the month of July 840,502,000 gallons of water were produced from the system, or 27,112,968 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	61,690,000	442.0 Lbs.
Well #2	23,902,000	73.0 Lbs.
Well #3	47,486,000	155.0 Lbs.
Well #10	82,786,000	280.0 Lbs.
Well #12	107,224,000	335.0 Lbs.
Well #14	14,160,000	43.0 Lbs.
Well #16	63,595,000	186.0 Lbs.
Well #18	25,565,000	91.0 Lbs.
Well #21	43,498,000	127.0 Lbs.
Well #22	12,407,000	38.0 Lbs.
Well #26	15,724,000	78.0 Lbs.
Well #27	25,072,000	67.0 Lbs.

7086

Well #28	24,571,000	68.0 Lbs.
Well #29	58,153,000	177.0 Lbs.
Well #31	29,166,000	89.5 Lbs.
Well #32	56,269,000	187.0 Lbs.
Well #33	40,568,000	129.0 Lbs.
Well #34	79,692,000	202.0 Lbs.
West Bench Booster	30,774,000	84.0 Lbs.
	840,502,000	2,851.5 Lbs.

This figure is 225,341,000 less than last July. Based on the population figure of 46,736 there were 580.1 gallons of water per person per day produced from the system.

Airport production was 5,889,000 gallons of water using 11.0 lbs. of chlorine and 32 man hours. There were 1,117,000 gallons less produced than last July.

5 MAIN LINE LEAKS were REPAIRED at the following locations:

Garfield & Lander 7/12
Mink Creek & Charlotte 7/10
902 E. Sherman 7/25, 27
1064 Mink Creek 7/15

11 NEW SERVICES were INSTALLED at the following locations:

East Village 3rd/L13 (3/4") 7/9
East Village 3rd/L14 (3/4") 7/9
East Village 3rd/L15 (3/4") 7/9
East Village 3rd/L16 (3/4") 7/9
399 E. Gould (1") 7/25
965 Lott Road (3/4") 7/16
1957 Alvin Ricken (2" s/l) 7/23
1957 Alvin Ricken (3") 7/23
1237 Chokecherry (3/4") 7/22
Olympus & S. Fairway (2" s/l)7/18
5775 Turf (1") 7/19

17 SERVICES were RENEWED at the following locations:

743 Birch (3/4") 7/16
840 W. Clark (3/4") 7/17
2215 Garrett Way (1") 7/31
922 Gray (3/4") 7/25
1036 E. Halliday (3/4") 7/18
1123 E. Halliday (3/4") 7/8
1126 E. Halliday (3/4") 7/18
257 So. Hayes (3/4") 7/12
1106 No. Main (3/4") 7/9
441 So. Main (3/4") 7/3
412 Parkway (3/4") 7/26
423 Parkway (3/4") 7/26
1436 Ridge (3/4") 7/23
246 Taft (3/4") 7/5
1551 So. 5th (3/4") 7/18
732 No. 6th (3/4") 7/15
430 No. 7th (3/4") 7/2

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WATER DEPARTMENT MONTHLY REPORT

AUGUST 1991

MAIN LINE WORK

Northgate Addition - Lower 6" main line for storm sewer project. Pipe layed: 27' of 6" ductile iron. Installed: 8-6" - 45o bends and 16-6" follower glands w/locking rings.

1900 W. Quinn - Made 1/2" tap on 6" main line and set up recorder to check pressure fluctuation.
[illegible]

Shale & Field Drive - Capital Improvement project. Pipe layed: 31' of 8" ductile iron. Installed: 2-8" romac couplings, 1-utility vault with top and lid, and miscellaneous fittings to install a pressure reducing station with a 2" by-pass.

Yellowstone & Lou - Relocate fire hydrant for State Highway Department project. Pipe layed: 7.42' of 6" ductile iron. Installed: 1-6" coupling, and 1-6" accessory kit.

611 Wilson - Made 4" tap for fire line. Installed: 1-4" tapping tee, 1-4" tapping valve and accessories (contractor supplied materials).

8th Street - from Young to Sherman - Capital improvement project. Pipe layed: 747' of 12", 8' of 8", and 52' of 6" ductile iron. Installed: 1-6" fire hydrant, 1-6" fire hydrant valve, 1-12" tapping valve, 1-12" gate valve, 4-6" gate valves, 1-12" x 8" reducer, 2-8" solid sleeves, 1-12 45o bend, 5-12" x 6" tees, 7-valve boxes, 1-8" plug, 1-12" tapping sleeve and 3-6" x 4" romac couplings. The necessary chlorination taps were made.

9th Street - from Oak to Terry - Capital improvement project. Pipe layed: 909' of 6" ductile iron. Installed: 1-6" fire hydrant, 1-6" fire hydrant valve, 3-6" gate valves, 2-6" tees, 4-valve boxes, 1-4" plug, 1-6" coupling, and 1-6" x 4" coupling. The necessary chlorination taps were made.

10th Street - from Oak to Terry - Capital improvement project. Pipe layed: 981' of 6" ductile iron and 6' of 4" cast iron. Installed: 2-6" fire hydrants, 2-6" fire hydrant valves, 7-6" gate valves, 1-4" gate valve, 4-6" tees, 1-6" x 4" tee, 1-6" x 4" reducer, 10-valve boxes, 1-4" plug, 1-6" coupling, 1-6" x 4" coupling, 1-4" locking ring and accessories. The necessary chlorination taps were made.

During the month of August 784,553,000 gallons of water were produced from the system, or 25,308,161 gallons per day produced from the following sources.

	GALLONS	LBS. OF CHLORINE
Surface Supplies & Well #30	46,445,000	714.0 Lbs.
Well #2	24,880,000	81.0 Lbs.
Well #3	34,319,000	112.0 Lbs.
Well #10	72,754,000	236.0 Lbs.
Well #12	105,234,000	304.0 Lbs.
Well #14	13,956,000	42.5 Lbs.
Well #16	56,489,000	180.5 Lbs.
Well #18	33,088,000	106.0 Lbs.
Well #21	43,142,000	135.0 Lbs.
Well #22	11,730,000	33.5 Lbs.
Well #26	2,661,000	12.5 Lbs.
Well #27	21,720,000	49.0 Lbs.
Well #28	30,958,000	86.0 Lbs.
Well #29	51,657,000	159.5 Lbs.
Well #31	26,111,000	87.0 Lbs.
Well #32	55,705,000	176.5 Lbs.
Well #33	48,983,000	154.5 Lbs.
Well #34	77,764,000	183.0 Lbs.
West Bench Booster	26,956,000	86.0 Lbs.
	784,553,000	2,938.5 Lbs.

This figure is 14,203,000 less than last August. Based on the population figure of 45,810 there were 552.5 gallons of water per person per day produced from the system.

Airport production was 8,976,000 gallons of water using 25.0 lbs. of chlorine and 32 man hours. There were 1,717,000 gallons less produced than last August.

<u>3 MAIN LINE LEAKS</u> were <u>REPAIRED</u> at the following locations:

1740 Arlington (Mink Ck line) 8/8 4th & Bonneville 8/1 1000 Block No. 8th 8/17

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WATER AT YOUR SERVICE

WATER DEPARTMENT MONTHLY REPORT

SEPTEMBER 1991

MAIN LINE WORK

9th Street - From Oak to Terry - Capital improvement project. Pipe layed: 18' of 12" and 716' of 6" ductile iron. Installed: 1-12" gate valve, 5-6" gate valves, 6-valve boxes, 1-6" romac coupling and 1-6" cross.

10th Street - From Oak to Terry - Capital improvement project. Pipe layed: 262' of 12" and 1217' of 6" ductile iron. Installed: 1-6" fire hydrant, 1-6" fire hydrant valve, 1-12" gate valve, 3-6" gate valves, 1-12" x 6" tee, 1-6" tee, 4-valve boxes, 1-6" romac coupling and 1-12" x 6" cross.

During the month of September 468,855,000 gallons of water were produced from the system, or 15,628,500 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	46,394,000	648.0 Lbs.
Well #2	18,358,000	48.5 Lbs.
Well #3	27,781,000	97.5 Lbs.
Well #12	31,688,000	87.0 Lbs.
Well #14	8,805,000	27.0 Lbs.
Well #18	57,489,000	173.5 Lbs.
Well #18	13,553,000	42.0 Lbs.
Well #21	40,792,000	121.0 Lbs.
Well #22	6,309,000	19.0 Lbs.
Well #26	705,000	3.5 Lbs.
Well #27	22,477,000	65.0 Lbs.
Well #28	13,512,000	38.0 Lbs.
Well #29	43,010,000	136.5 Lbs.
Well #32	53,928,000	168.0 Lbs.
Well #33	36,784,000	116.5 Lbs.

Well #34	30,472,000	75.5 Lbs.
West Bench Booster	16,798,000	56.0 Lbs.
	468,855,000	1,922.5 Lbs.

This figure is 86,937,000 less than last September. Based on the population figure of 45,810 there were 341.2 gallons of water per person per day produced from the system.

Airport production was 4,465,000 gallons of water using 11.5 lbs. of chlorine and 32.5 man hours. There were 2,282,000 gallons less produced than last September.

2 MAIN LINE LEAKS were REPAIRED at the following locations:

Quinn & Yellowstone 9/17 | 1828 So. 4th 9/6

11 NEW SERVICES were INSTALLED at the following locations:

1133 Call Creek (1½") 9/18	3942 Hawthorne (3/4") 9/9	4th & Hayden (2"-Parks Dept)9/11
1666 City Creek (1") 9/16	1764 Hurley (3/4") 9/30	353 No. 4th (2") 9/18
4840 Clearview (1") 9/18	4051 Mountain Loop (1") 9/23	505 So. 10th (3/4" ftr use) 9/9
1185 Field Drive (1") 9/23	1109 E. Whitman(3/4" ftr use)9/18	

5 SERVICES were RENEWED at the following locations:

1055 No. Arthur (3/4") 9/26	4859 Mohawk (3/4") 9/13	1135 So. 5th (3/4") 9/27
4853 Mohawk (3/4") 9/13	1371 Zener (3/4") 9/24	

5 SERVICES were RENEWED PRIOR TO CONNECTING TO NEW MAIN at the following locations:

1135 E. Fremont (3/4") 9/4	1155 E. Fremont (3/4") 9/4	521 So. 10th (3/4") 9/4
1145 E. Fremont (3/4") 9/4	226 So. 10th (2") 9/26	

58 SERVICES were CONNECTED TO THE NEW MAIN at the following locations:

1037 E. Benton (1") 9/9	1108-10 E. Halliday (3/4") 9/5	156 So. 9th (3/4") 9/27
1048 E. Benton (3/4") 9/17	1012 E. Lewis (3/4") 9/27	206 So. 9th (3/4") 9/30
1109-15 E. Benton (3/4") 9/16	1014 E. Lewis (3/4") 9/26	215 So. 9th (1") 9/30
1125 E. Benton (3/4") 9/9	1030 E. Lewis (3/4") 9/26	216 So. 9th (3/4") 9/30
1035 E. Bonneville (3/4") 9/25	938 E. Lovejoy (3/4") 9/9	603 So. 9th (3/4") 9/3
1040 E. Bonneville (3/4") 9/24	1034 E. Whitman (3/4") 9/12	616 So. 9th (3/4") 9/3
935 E. Carter (3/4") 9/9	1035 E. Whitman (3/4") 9/18	623 So. 9th (3/4") 9/3
1007 Halliday (3/4") 9/3	1124 E. Whitman (3/4") 9/12	628 So. 9th (3/4") 9/9

City of Pocatello • Water Department

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WATER DEPARTMENT MONTHLY REPORT
OCTOBER 1991

MAIN LINE WORK

711 No. 6th - Made 4" tap on 6" main for fire line. Installed: 1-6" x 4" tapping saddle (materials were provided by contractor).

9th Street - From Oak to Terry - Capital improvement project. Pipe layed: 68' of 12" and 1265' of 6" ductile iron. Installed: 1-6" fire hydrant, 1-6" fire hydrant valve, 4-6" gate valves, 2-6" tees, 6-valve boxes, 1-6" plug, 1-12", 4-6" and 1-4" x 6" romac couplings.

10th Street - From Oak to Terry - Capital improvement project. Pipe layed: 1321' of 6" ductile iron. Installed: 1-6" fire hydrant, 1-6" fire hydrant valve, 6-6" gate valves, 1-6" tees, 7-valve boxes, 1-6" cross and 1-6" coupling.

During the month of October 346,439,000gallons of water were produced from the system, or 11,175,452 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	44,080,000	823.0 Lbs.
Well #2	18,886,000	55.5 Lbs.
Well #3	20,407,000	70.5 Lbs.
Well #14	17,884,000	43.0 Lbs.
Well #16	54,839,000	176.0 Lbs.
Well #18	1,281,000	4.0 Lbs.
Well #21	12,400,000	30.0 Lbs.
Well #22	21,497,000	70.5 Lbs.
Well #27	4,543,000	18.5 Lbs.
Well #28	4,546,000	12.0 Lbs.
Well #29	38,002,000	134.0 Lbs.
Well #32	55,010,000	178.0 Lbs.
Well #33	1,104,000	3.0 Lbs.

7092

Well #34	41,539,000	118.5 Lbs.
West Bench Booster	10,421,000	38.0 Lbs.
	346,439,000	1,774.5 Lbs.

This figure is 19,593,000 more than last October. Based on the population figure of 45,810 there were 244.0 gallons of water per person per day produced from the system.

Airport production was 3,957,000 gallons of water using 10.5 lbs. of chlorine and 36 man hours. There were 1,479,000 gallons more produced than last October.

2 MAIN LINE LEAKS were REPAIRED at the following locations:
2772 Bannock Highway 10/1 1247 Hancock Place 10/31

5 NEW SERVICES were INSTALLED at the following locations:
5964 Bannock Highway (1") 10/10 2656 No. Main (1") 10/3 West End of Rainier (1") 10/1
Lot 1 Block 1 Lone Pine Subdivision (1") 10/25
Lot 2 Block 1 Lone Pine Subdivision (1") 10/25

19 SERVICES were RENEWED at the following locations:

1439 No. Arthur (1") 10/22	930 Everett (3/4") 10/28	711 So. 3rd (3/4") 10/21
340 W. Buell (3/4") 10/4	931 Fairbanks (3/4") 10/28	1231 So. 3rd (1") 10/15
350 W. Buell (3/4") 10/4	515 E. Halliday (3/4") 10/30	449 So. 7th (1") 10/24
1015 Cahoon (3/4") 10/16	1128 No. Main (3/4") 10/9	239 No. 8th (3/4") 10/29
525 W. Center (1") 10/16	68 Maplewood (3/4") 10/29	618 No. 8th (3/4") 10/1
3519 Conlin (3/4") 10/25	1422 E. Wyeth (3/4") 10/31	508 No. 11th (3/4") 10/2
227 Cottonwood (3/4") 10/25		

8 SERVICES were RENEWED PRIOR TO CONNECTING TO NEW MAIN at the following locations:

1010 E. Bonneville (3/4") 10/1	451 So. 9th (3/4") 10/10	535 So. 9th (3/4") 10/10
1024 E. Bonneville (3/4") 10/18	505 So. 9th (3/4") 10/10	536 So. 9th (3/4") 10/10
413 So. 9th (1") 10/8	509 So. 9th (3/4") 10/10	

86 SERVICES were CONNECTED TO THE NEW MAIN at the following locations:

936 E. Benton (3/4") 10/11	944 E. Bonneville (3/4") 10/18	1055 E. Lewis (3/4") 10/4
1025 E. Benton (3/4") 10/11	1021 E. Bonneville (3/4") 10/2	1114 E. Sherman (3/4") 10/31
938 E. Bonneville (3/4") 10/2	1048 E. Lewis (3/4") 10/4	1041 E. Sublette (3/4") 10/25

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WATER DEPARTMENT MONTHLY REPORT

NOVEMBER 1991

MAIN LINE WORK

Alpine Acres Subdivision - Made 6" tap on 12" main line for fire hydrant installation. Installed: 1-6" fire hydrant, 1-12" x 6" tapping saddle and tapping valve, 1-6" gate valve, and 1-valve box. The contractor provided all materials.

1333 Bench Road - Made 6" tap on 6" main line for fire line installation. Installed: 1-6" tapping valve, 1-6" tapping sleeve, 1-6" romac coupling, and 1-valve box. The contractor provided all materials.

10th Street from Oak to Terry - Capital improvement project. Pipe layed: 334' of 6" ductile iron. Installed: 1-6" gate valve, 1-6" tee, 1-valve box, 1-4" plug, 1-6" and 1-4" romac coupling.

During the month of November 213,695,000 gallons of water were produced from the system, or 7,123,167 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well	44,715,000	730.0 Lbs.
#30	41,368,000	156.0 Lbs.
Well #2	15,887,000	51.0 Lbs.
Well #14	14,303,000	45.0 Lbs.
Well #16	38,765,000	134.0 Lbs.
Well #22	1,197,000	4.0 Lbs.
Well #27	52,106,000	180.0 Lbs.
Well #32	5,354,000	18.0 Lbs.
West Bench Booster	213,695,000	1,320.0 Lbs.

This figure is 1,033,000 less than last November. Based on the population figure of 45,810 there were 155.5 gallons of water per person per day produced from the system.

Airport production was 2,878,000 gallons of water using 8.0 lbs. of chlorine and 31 man hours. There were 1,243,000 gallons more produced than last November.

1 MAIN LINE LEAKS was REPAIRED at the following location: 1134 Cedar Hollow Road 11/15

8 NEW SERVICES were INSTALLED at the following locations:

204 W. Alameda (1") 11/4	8953 W. Gibson Jack (1") 117	1710 E. Wyeth (1½") 11/27
1333 Bench Road (3") 11/26	Olympus Drive (2" s/l) 11/5	358 No. 4th (2") 11/5
Lot 1 Block 1 Alpine Acres (1") 11/27		
Lot 2 Block 1 Alpine Acres (1") 11/27		
Lot 3 Block 1 Alpine Acres (1") 11/27		

7 SERVICES were RENEWED at the following locations:

753 W. Benton (1") 11/20	512 W. Carter (3/4") 11/25	1710½ E. Wyeth (1") 11/21
1732 Beth (3/4") 11/6	1025 Howard (3/4") 11/4	553 So. 8th (1") 11/19
937 E. Bridger (1") 11/27		

5 SERVICES were RENEWED and CONNECTED TO NEW MAIN at the following locations:

938 E. Bridger (3/4") 11/1	1040 E. Bridger (3/4") 11/6	931 No. 10th (3/4") 11/5
946 E. Bridger (3/4") 11/1	705 No. 10th (3/4") 11/6	

13 SERVICES were CONNECTED TO THE NEW MAIN at the following locations:

1010 E. Bridger (1") 11/6	645 No. 10th (3/4") 11/4	946 No. 10th (3/4") 11/1
1024 E. Bridger (1") 11/4	905 No. 10th (3/4") 11/5	948 No. 10th (3/4") 11/1
935 E. Carter (3/4") 11/6	926 No. 10th (3/4") 11/5	950 No. 10th (3/4") 11/1
1035 E. Sherman (3/4") 11/6	942 No. 10th (3/4") 11/1	955 No. 10th (3/4") 11/1
1030 E. Sublette (1") 11/5		

20 SERVICES were REPAIRED at the following locations:

1033 No. Arthur (1/2") 11/21	710 Balsam (3/4") 11/25	1119 E. Bonneville (3/4") 11/25
711 Ash (3/4") 11/26	720 W. Benton (3/4") 11/21	935 E. Carter (1") 11/18

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WATER AT YOUR SERVICE

WATER DEPARTMENT MONTHLY REPORT
DECEMBER 1991

During the month of December 229,881,000 gallons of water were produced from the system, or 7,415,516 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	63,035,000	866.0 Lbs.
Well #2	43,454,000	185.0 Lbs.
Well #14	17,747,000	105.0 Lbs.
Well #16	716,000	3.0 Lbs.
Well #22	41,256,000	154.0 Lbs.
Well #27	1,877,000	6.0 Lbs.
Well #32	54,916,000	203.5 Lbs.
West Bench Booster	4,755,000	19.0 Lbs.
	229,881,000	1,541.5 Lbs.

This figure is 16,623,000 less than last December. Based on the population figure of 45,810 there were 161.9 gallons of water per person per day produced from the system.

Airport production was 2,125,000 gallons of water using 5.0 lbs. of chlorine and 34 man hours. There were 3,000 gallons less produced than last December.

5 MAIN LINE LEAKS were REPAIRED at the following locations:

Mohawk & Aztec 12/27 | 4th & Bonneville 12/2 | 7th & Lander 12/13
251 Ravine 12/10 | 4th & Lawton 12/6

4 NEW SERVICES were INSTALLED at the following locations:

3410 Bannock Highway (1") 12/3 | 2120 So. Grant (3/4") 12/3 | Quail Ridge (2") 12/31
Quail Ridge (1" future use summer line) 12/31

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WATER DEPARTMENT MONTHLY REPORT

JANUARY 1992

During the month of January 237,957,000 gallons of water were produced from the system, or 7,676,000 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	68,060,000	730.0 Lbs.
Well #2	43,698,000	187.0 Lbs.
Well #14	17,296,000	58.5 Lbs.
Well #22	42,086,000	165.0 Lbs.
Well #27	5,612,000	18.5 Lbs.
Well #28	370,000	1.0 Lbs.
Well #32	55,007,000	201.0 Lbs.
West Bench Booster	5,828,000	26.5 Lbs.
	237,957,000	1,387.5 Lbs.

This figure is 11,200,000 more than last January. Based on the population figure of 45,810 there were 167.6 gallons of water per person per day produced from the system.

Airport production was 2,106,000 gallons of water using 7.0 lbs. of chlorine and 31 man hours. There were 472,000 gallons less produced than last January.

5 MAIN LINE LEAKS were REPAIRED at the following locations:

911 No. Grant 1/17	3736 Sandpiper 1/20	4420 Stockman 1/27
990 Nixon 1/18		

6 NEW SERVICES were INSTALLED at the following locations:

941 Belmont (3/4") 1/15	4420 Stockman (3/4") 1/27	4460 Stockman (3/4") 1/29
4410 Stockman (3/4") 1/27	4450 Stockman (3/4") 1/29	4500 Stockman (1") 1/29

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WATER AT YOUR SERVICE

WATER DEPARTMENT MONTHLY REPORT

FEBRUARY 1992

During the month of February 221,792,000gallons of water were produced from the system, or 7,648,000 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	63,160,000	641.0 Lbs.
Well #2	40,726,000	157.5 Lbs.
Well #14	16,617,000	55.0 Lbs.
Well #22	39,576,000	187.0 Lbs.
Well #27	4,620,000	13.5 Lbs.
Well #28	1,045,000	3.5 Lbs.
Well #32	51,248,000	176.5 Lbs.
West Bench Booster	4,800,000	21.0 Lbs.
	221,792,000	1,255.0 Lbs.

This figure is 21,209,000 more than last February. Based on the population figure of 45,810 there were 166.9 gallons of water per person per day produced from the system.

Airport production was 3,007,000 gallons of water using 7.5 lbs. of chlorine and 29 man hours. There were 1,035,000 gallons more produced than last February.

1 MAIN LINE LEAK was REPAIRED at 800 Block No. Arthur 2/14

3 NEW SERVICES were INSTALLED at the following locations:
1717 Church Hill Downs (3/4") 2/3 3500 Johnny Creek (1") 2/21
1135 E. Benton (3/4" future use) 2/28

14 SERVICES were RENEWED at the following locations:

829 No. Arthur (3/4") 2/14	1351 E. Elm (3/4") 2/28	910 Jessie (3/4") 2/18
843 No. Arthur (3/4") 2/14	839 No. Garfield (3/4") 2/24	918 Jessie (3/4") 2/18

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WATER DEPARTMENT MONTHLY REPORT

MARCH 1992

MAIN LINE WORK

1551 Baldy - Made 6" tap on 8" main line for contractor. Installed: 1-6" tapping valve and 1-6" x 8" tapping sleeve. Materials were supplied by the contractor.

Delphic Way - 300' West of Olympus Drive - Made 6" tap on 6" main line for contractor. Installed: 1-6" tapping sleeve and 1-6" tapping valve. Materials were supplied by the contractor.

11th Street - from Oak to Carter - Capital Improvement project. Pipe layed: 309' of 12" and 1861' of 6" ductile iron. Installed: 3-6" fire hydrants, 3-6" fire hydrant valves, 2-12" and 7-6" gate valves, 3-6" tees, 12-valve boxes, 1-6" romac coupling, 1-6" x 4" romac coupling, 1-4" romac coupling w/plug insert, and 1-12" x 6" cross.

During the month of March 262,603,000 gallons of water were produced from the system, or 8,471,065 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	41,540,000	189.0 Lbs.
Well #2	38,758,000	139.0 Lbs.
Well #14	17,433,000	64.5 Lbs.
Well #16	57,661,000	232.0 Lbs.
Well #22	40,319,000	177.0 Lbs.
Well #27	6,271,000	17.0 Lbs.
Well #29	225,000	.5 Lbs.
Well #32	54,468,000	176.5 Lbs.
West Bench Booster	5,929,000	27.5 Lbs.
	262,603,000	1,023.0 Lbs.

This figure is 39,491,000 more than last March. Based on the population figure of 45,810 there were 184.9 gallons of water per person per day produced from the system.

Airport production was 3,627,000 gallons of water using 9.5 lbs. of chlorine and 31 man hours. There were 442,000 gallons less produced than last March.

1 MAIN LINE LEAK was REPAIRED at the following location: 220 Block E. Bonneville 3/16

6 NEW SERVICES were INSTALLED at the following locations:

1551 Baldy (2") 3/17	1223 E. Center(3/4" future use)3/6	130 Fairway (3/4") 3/5
1135 E. Center(3/4" future use)3/6	1393 Cottage (1") 3/5	3550 Johnny Creek (1") 3/13

9 SERVICES were RENEWED at the following locations:

615 Cree (3/4") 3/18	81 Maplewood (3/4") 3/23	166 Roosevelt (3/4") 3/25
763 Cypress (3/4") 3/19	331 Myrl (3/4") 3/9	252 So. 7th (3/4") 3/6
1049 Everett (3/4") 3/6	577 Richland (3/4") 3/25	454 No. 8th (3/4") 3/20

69 SERVICES were RENEWED PRIOR TO CONNECTING TO NEW MAIN at the following locations:

1135-45 E. Center (3/4") 3/6	105 No. 11th (3/4") 3/11	432 No. 11th (3/4") 3/25
1139 E. Center (3/4") 3/6	109 No. 11th (3/4") 3/11	433 No. 11th (3/4") 3/25
1205-15-23 E. Center (3/4") 3/6	118 No. 11th (3/4") 3/11	524 No. 11th (3/4") 3/27
1218 E. Center (3/4") 3/11	128 No. 11th (3/4") 3/11	129 So. 11th (3/4") 3/6
1228 E. Center (3/4") 3/11	217 No. 11th (3/4") 3/13	139 So. 11th (3/4") 3/6
1206 E. Clark (3/4") 3/11	223 No. 11th (3/4") 3/13	142 So. 11th (3/4") 3/6
1216 E. Clark (3/4") 3/11	236 No. 11th (3/4") 3/13	147 So. 11th (3/4") 3/6
1225 E. Clark (3/4") 3/11	241 No. 11th (3/4") 3/13	159 So. 11th (3/4") 3/6
1226 E. Clark (3/4") 3/11	246 No. 11th (3/4") 3/13	234 So. 11th (3/4") 3/6
1221 E. Fremont (3/4") 3/19	256 No. 11th (3/4") 3/16	256 So. 11th (3/4") 3/6
1142 E. Lander (3/4") 3/17	304 No. 11th (3/4") 3/16	310 So. 11th (3/4") 3/26
1154 E. Lander (3/4") 3/17	314 No. 11th (3/4") 3/19	322 So. 11th (3/4") 3/6
1221 E. Lander (3/4") 3/16	317 No. 11th (3/4") 3/17	324 So. 11th (3/4") 3/6
1226 E. Lander (3/4") 3/16	329 No. 11th (3/4") 3/18	325 So. 11th (3/4") 3/6
1235 E. Lander (3/4") 3/16	341 No. 11th (3/4") 3/18	412 So. 11th (3/4") 3/6
1206 E. Lewis (3/4") 3/6	408 No. 11th (3/4") 3/19	419 So. 11th (3/4") 3/6
1140 E. Whitman (3/4") 3/6	416 No. 11th (3/4") 3/24	425 So. 11th (3/4") 3/6
1220 E. Whitman (3/4") 3/6	423 No. 11th (3/4") 3/24	441 So. 11th (3/4") 3/6
1225 E. Whitman (3/4") 3/6	424 No. 11th (3/4") 3/24	444 So. 11th (3/4") 3/6
1133 E. Wyeth (3/4") 3/27	428 No. 11th (3/4") 3/26	500 So. 11th (3/4") 3/6
1224 E. Wyeth (3/4") 3/27	429 No. 11th (3/4") 3/25	519 So. 11th (3/4") 3/6

7100

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WATER DEPARTMENT MONTHLY REPORT

APRIL 1992

MAIN LINE WORK

11th Street - from Oak to Carter - Capital improvement project. Pipe layed: 63' of 12" and 2308' of 6" ductile iron. Installed: 3-6" fire hydrants, 3-6" fire hydrant valves, 8-6" gate valves, 3-6" tees, 11-valve boxes, 1-6" cross, 1-10" m.j. cap, and 1-10" locking ring.

During the month of April 395,658,000 gallons of water were produced from the system, or 13,188,600 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	58,220,000	151.0 Lbs.
Well #2	37,469,000	128.5 Lbs.
Well #3	9,493,000	37.0 Lbs.
Well #12	5,561,000	20.0 Lbs.
Well #14	16,147,000	57.5 Lbs.
Well #16	71,957,000	249.0 Lbs.
Well #21	43,730,000	132.0 Lbs.
Well #22	36,570,000	136.0 Lbs.
Well #26	3,918,000	11.0 Lbs.
Well #27	22,420,000	64.5 Lbs.
Well #28	7,021,000	18.5 Lbs.
Well #29	1,654,000	5.0 Lbs.
Well #32	53,331,000	180.0 Lbs.
Well #33	11,265,000	22.5 Lbs.
Well #34	6,326,000	18.0 Lbs.
West Bench Booster	10,576,000	36.5 Lbs.
	395,658,000	1,267.0 Lbs.

This figure is 167,990,000 more than last April. Based on the population figure of 45,810 there were 287.9 gallons of water per person per day produced from the system.

Airport production was 5,136,000 gallons of water using 14.5 lbs. of chlorine and 30 man hours. There were 3,118,000 gallons more produced than last April.

8 MAIN LINE LEAKS were REPAIRED at the following locations:

654 So. Arthur 4/16	400 Block Kurtwood 4/16	456 No. 11th 4/22
800 Block E. Clark 4/29	827 No. 8th 4/30	507 No. 11th 4/23
1205 E. Fremont 4/23	136 So. 8th 4/29	

30 NEW SERVICES were INSTALLED at the following locations:

Olympus Heights Subdivision - 2nd Addition

Summer Line (2-3/4") 4/14	Lot 8 Block 1 (3/4") 4/10	Lot 6 Block 2 (3/4") 4/13
Lot 1 Block 1 (3/4") 4/8	Lot 9 Block 1 (3/4") 4/7	Lot 7 Block 2 (3/4") 4/13
Lot 2 Block 1 (3/4") 4/8	Lot 1 Block 2 (3/4") 4/8	Lot 8 Block 2 (3/4") 4/13
Lot 3 Block 1 (3/4") 4/9	Lot 2 Block 2 (3/4") 4/8	Lot 9 Block 2 (3/4") 4/7
Lot 4 Block 1 (3/4") 4/9	Lot 3 Block 2 (3/4") 4/8	Lot 10 Block 2 (3/4") 4/7
Lot 5 Block 1 (3/4") 4/10	Lot 4 Block 2 (3/4") 4/8	Lot 11 Block 2 (3/4") 4/7
Lot 6 Block 1 (3/4") 4/10	Lot 5 Block 2 (3/4") 4/13	Lot 12 Block 2 (3/4") 4/7
Lot 7 Block 1 (3/4") 4/10		

480 W. Carter (1½") 4/15	550 McKinley (3/4") 4/7	Ross Park--Pleasureland (2") 4/21
170 Highland (1") 4/8	1544 Pocatello Creek (1") 4/2	1650 So. 1st (1") 4/3
2706 No. Main (1") 4/28	8551 Pocatello Creek (1") 4/6	

14 SERVICES were RENEWED at the following locations:

654 So. Arthur (3/4") 4/17	323 No. Main (3/4") 4/21	1528 So. 4th (3/4") 4/20
1154 No. Garfield (3/4") 4/1	502 No. Main (3/4") 4/27	334 So. 5th (3/4") 4/9
806 No. Hayes (3/4") 4/3	718 So. Main (3/4") 4/23	340 So. 5th (3/4")
786 Highland (3/4") 4/14	452 Warren (3/4") 4/13	136 So. 8th (1") 4/30
351 E. Lawton (3/4") 4/6	1423 So. 4th (3/4") 4/27	

20 SERVICES were RENEWED PRIOR TO CONNECTING TO NEW MAIN at the following locations:

1207 E. Bridger (3/4") 4/29	1206 E. Hayden (3/4") 4/1	1237 E. Sherman (3/4") 4/8
1143 E. Clark (1") 4/7	1135 E. Sherman (3/4") 4/8	314 No. 11th (3/4") 4/13

Pocatello
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REPAIR SHOP

WATER DEPARTMENT MONTHLY REPORT

MAY 1992

MAIN LINE WORK

Quinn & Philbin - Install new main line. Pipe layed: 2018' of 12" ductile iron. Installed: 3-12" gate valves, 1-12" tee, and 3-valve boxes.

11th Street - from Oak to Carter - Capital improvement project. Pipe layed: 1370' of 6" ductile iron. Installed: 2-6" fire hydrants, 2-6" fire hydrant valves, 2-6" gate valves, 2-6" tees, 4-valve boxes, 1-6" plug, 4-6" romac couplings, 1-6" plug, and 2-4" romac plugs. The necessary chlorination taps were made.

Highland Village 1st Addition - Made two 3/4" chlorination taps on 8" main for contractor.

During the month of May 680,181,000 gallons of water were produced from the system, or 21,941,322 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	48,730,000	124.0 Lbs.
Well #2	32,287,000	108.0 Lbs.
Well #3	33,029,000	128.0 Lbs.
Well #10	11,544,000	29.0 Lbs.
Well #12	82,244,000	319.5 Lbs.
Well #14	9,858,000	35.0 Lbs.
Well #16	52,147,000	174.0 Lbs.
Well #18	43,191,000	134.5 Lbs.
Well #21	42,781,000	148.0 Lbs.
Well #22	27,683,000	114.0 Lbs.
Well #26	23,243,000	81.0 Lbs.
Well #27	27,981,000	85.0 Lbs.
Well #28	13,884,000	47.0 Lbs.
Well #29	51,786,000	165.0 Lbs.

7103

Well #31	7,018,000	19.0 Lbs.
Well #32	54,587,000	187.0 Lbs.
Well #33	53,853,000	104.5 Lbs.
Well #34	43,088,000	133.0 Lbs.
West Bench Booster	21,247,000	64.5 Lbs.
	680,181,000	2,_00.0 Lbs.

This figure is 370,705,000 more than last May. Based on the population figure of 45,810 there were 478.9 gallons of wate: ɔr person per day produced from the system.

Airport production was 8,309,000 gallons of water using 22.6 lbs. of chlorine and 35 man hours. There were 6,369,000 gallons more produced than last May.

5 MAIN LINE LEAKS were REPAIRED at the following locations:

316 Crescent 5/7
728 W. Whitman 5/14
9th & Center 5/4
300 Block W. Gould 5/20
1445 No. 1st 5/29

27 NEW SERVICES were INSTALLED at the following locations:

1551 Baldy (6-1") 5/14
1916 Hurley (3/4") 5/15
1401 Sunset (1") 5/11
1237 Cahina (1½") 5/22
240 E. Maple (1½") 5/13

Highland Village 1st Addition:

Lot 28 Block 1 (3/4") 5/27
Lot 36 Block 1 (3/4") 5/19
Lot 3 Block 2 (3/4") 5/27
Lot 29 Block 1 (3/4") 5/27
Lot 37 Block 1 (3/4") 5/28
Lot 1 Block 3 (3/4") 5/28
Lot 30 Block 1 (3/4") 5/27
Lot 38 Block 1 (3/4") 5/28
Lot 2 Block 3 (3/4") 5/27
Lot 31 Block 1 (3/4") 5/28
Lot 39 Block 1 (3/4") 5/28
Lot 3 Block 3 (3/4") 5/26
Lot 32 Block 1 (3/4") 5/28
Lot 42 Block 1 (3/4") 5/28
Lot 4 Block 3 (3/4") 5/26
Lot 33 Block 1 (3/4") 5/28
Lot 1 Block 2 (3/4") 5/27
Lot 1 Block 4 (3/4") 5/28
Lot 34 Block 1 (3/4") 5/28
Lot 2 Block 2 (3/4") 5/27
Lot 36 Block 1 (3/4") 5/19
Lot 35 Block 1 (3/4") 5/19

8 SERVICES were RENEWED at the following locations:

740 No. Arthur (3/4") 5/21
915 Berryman (3/4") 5/27
248 Myrl (3/4") 5/12
737 W. Benton (3/4") 5/8
803 So. Main (3/4") 5/19
Samuel & Opal (1") 5/12
745 W. Benton (3/4") 5/8
247 Myrl (3/4") 5/13

City of Pocatello • Water Department

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100 YEARS AT YOUR SERVICE

WATER DEPARTMENT MONTHLY REPORT

JUNE 1992

MAIN LINE WORK

Countryside Subdivision - Made chlorination tap for contractor.

Johnny Creek Road from Field Drive to Riverside Golf Course - Capital improvement project. Pipe layed: 2002' of 12" and 36' of 6" ductile iron. Installed: 1-12" gate valve, 1-6" gate valve, 3-12" 90o bends, 2-12" x 6" tees, 1-12" tee, 1-12" x 6" reducer, 2-valve boxes, and 1-6" plug.

Quail Hollow Subdivision - Made 6" tap on 6" main line for contractor. Installed: 1-6" tapping valve and sleeve. Materials were supplied by contractor. The necessary chlorination taps were made.

Quinn & Philbin Road - Install new main line. Pipe layed: 257' of 12" and 33' of 6" ductile iron. Installed: 1-6" fire hydrants, 1-6" fire hydrant valve, 1-12" gate valve, 2-6" gate valves, -6" 90o bend, 2-12" x 6" tees, 4-valve boxes, 1-12" plug, 1-6" adapter, 1-6" romac coupling. The necessary chlorination taps were made.

Women's Correctional Facility - Install new main line. Pipe layed: 989' of 12" and 40' of 6" ductile iron. Installed: 1-6" fire hydrant, 1-6" fire hydrant valve, 1-12" tapping valve, 1-12" gate valve, 2-6" gate valves, -6" 90o bend, 1-12" x 6" tees, 1-12" tapping sleeve, 1-12" romac coupling, 5-valve boxes, -12" plug, 1-6" adapter, -6" romac coupling, 1-6" meter and strainer, 1-5' corrugated vault, and 1-24" sidewalk lid. The necessary chlorination taps were made.

12th Street from Oak to Halliday Capital improvement project. Pipe layed: 183' of 6" ductile iron. Installed: 1-6" fire hydrant valve, 1-6" fire hydrant, 1-6" tee, 1-valve box and 1-6" cap and accessories.

629,963

During the month of June 629,281,000 gallons of water were produced from the system, or 20,976,033 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	30,259,000	92.0
Well #2	20,540,000	68.0
Well #3	28,629,000	111.0
Well #10	12,638,000	42.0
Well #12	78,992,000	305.0
Well #14	4,859,000	21.0
Well #16	33,078,000	119.0
Well #18	59,766,000	187.0
Well #21	42,531,000	161.0
Well #22	19,257,000	177.0
Well #26	8,472,000	27.5
Well #27	22,014,000	57.0
Well #28	19,674,000	80.0
Well #29	58,846,000	35.5
Well #31	9,431,000	179.0
Well #32	53,415,000	22.0
Well #33	66,801,000	186.0
Well #34	34,097,000	149.0
West Bench Booster	21,664,000	91.5
	624,963,000	2,178.5 Lbs.

This figure is 6,860,000 more than last June. Based on the population figure of 45,810 there were 457.9 gallons of water per person per day produced from the system.

Airport production was 6,318,000 gallons of water using 17.0 lbs. of chlorine and 30 man hours. There were 746,000 gallons more produced than last June.

9 MAIN LINE LEAKS were REPAIRED at the following locations:

1415 Bench Road 6/22	Hayes & Fremont 6/8	1524 Spaulding 6/12
City Reservoir 6/8	444 Michael 6/27	524 So. 6th 6/25
245 E. Gould 6/1	Poleline & Fir 6/4	10th & Clark 6/25

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100 YEARS AT YOUR SERVICE

WATER DEPARTMENT MONTHLY REPORT

JULY 1992

MAIN LINE WORK

Countryside Subdivision - Made 3/4" chlorination tap on 8" main for contractor.

12th Street from Oak to Halliday - Capital improvement project. Pipe layed: 308' of 12" and 2093' of 6" ductile iron. Installed: 4-6" fire hydrants, 4-6" fire hydrant valve, 2-12" gate valves, 11-6" gate valves, 1-6" x 12" cross, 4-6" tees, 17-valve boxes, 1-10" plug, 1-6" plug, 2-12" couplings, 1-10" coupling, 3-6" couplings, 1-6" x 4" coupling, 1-4" coupling, and 1-4" plug adapter.

During the month of July 802,970,000 gallons of water were produced from the system, or 25,902,258 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Well #2	18,815,000	59.5
Well #3	35,642,000	139.0
Well #10	73,716,000	272.0
Well #12	89,974,000	357.0
Well #14	9,234,000	45.0
Well #16	34,605,000	128.0
Well #18	63,741,000	220.0
Well #21	65,546,000	185.5
Well #22	18,597,000	85.0
Well #26	14,066,000	67.0
Well #27	22,653,000	59.0
Well #28	28,283,000	111.0
Well #29	67,157,000	205.0
Well #30	82,294,000	522.0

7107

Well #31	6,045,000	17.0
Well #32	54,506,000	195.0
Well #33	71,033,000	168.0
Well #34	47,063,000	130.0
	802,970,000	2,965.0 Lbs.

This figure is 37,532,000 less than last July. Based on the population figure of 45,810 there were 565.4 gallons of water per person per day produced from the system.

Airport production was 5,756,000 gallons of water using 15.5 lbs. of chlorine and 40 man hours. There were 133,000 gallons less produced than last July.

5 MAIN LINE LEAKS were REPAIRED at the following locations:

Arthur & Gould 7/14, 16
756 Ash 7/16
300 Block W. Gould 7/13, 15
Stoneridge Subdivision 7/6
702 So. 1st 7/29

22 NEW SERVICES were INSTALLED at the following locations:

756 Ash (1") 7/16
6375 Bannock Highway (1") 7/29
1665 Calico Place (1") 7/21
Church Hill cul-de-sac (3/4" s/l) 7/23
3210 Poleline (1½") 7/23
3945 Poleline (2" s/l) 7/9
Quail Hollow 5-13 (2") 7/7
Quail Hollow 5-13 (1" s/l) 7/7
702 So. 1st (1") 7/30

Stoneridge Estates Subdivision:

Lot 1 Block 1 (1") 7/17
Lot 2 Block 1 (1") 7/17
Lot 3 Block 1 (1") 7/17
Lot 4 Block 1 (1") 7/17
Lot 1 Block 2 (1") 7/17
Lot 2 Block 2 (1") 7/20
Lot 3 Block 2 (1") 7/20
Lot 4 Block 2 (1") 7/20
Lot 5 Block 2 (1") 7/20
Lot 6 Block 2 (1") 7/20
Lot 7 Block 2 (1") 7/20

Olympus Terrace Subdivision:

Lot 2 Block 2 (1") 7/21
Lot 3 Block 2 (1") 7/21

10 SERVICES were RENEWED at the following locations:

195 W. Chapel (3/4") 7/6
758 Dogwood (3/4") 7/24
152 Hawthorne (3/4") 7/10
1031 No. Lincoln (3/4") 7/13
411 E. Putnam (3/4") 7/17
945 E. Sherman (3/4") 7/27
955 E. Sherman (3/4") 7/27
254 Taft (3/4") 7/15
340 No. 7th (3/4") 7/2
340½ No. 7th (3/4") 7/2

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WATER 100 YEARS AT YOUR SERVICE

WATER DEPARTMENT MONTHLY REPORT

AUGUST 1992

MAIN LINE WORK

Johnny Creek Road from Field Drive to Riverside Golf Course - Capital improvement project. Pipe layed: 1044' of 12" ductile iron pipe.

12th Street from Oak to Halliday - Capital improvement project. Pipe layed: 2579' of 6" and 10' of 4" ductile iron. Installed: 3-6" fire hydrants, 3-6" fire hydrant valves, 11-6" gate valves, 1-4" tapping valve and sleeve, 1-4" 90° bend, 4-6" tees, 1-6" cross, 15-valve boxes, 1-6"x4" reducer, 1-6" solid sleeve, and 1-4" coupling.

During the month of August 888,413,000 gallons of water were produced from the system, or 28,658,484 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	58,514,000	634.0 Lbs.
Well #2	16,153,000	41.5 Lbs.
Well #3	42,286,000	147.0 Lbs.
Well #10	86,757,000	312.0 Lbs.
Well #12	96,103,000	490.0 Lbs.
Well #14	11,444,000	57.5 Lbs.
Well #16	27,459,000	98.0 Lbs.
Well #18	65,577,000	198.0 Lbs.
Well #21	57,529,000	201.5 Lbs.
Well #22	4,682,000	23.0 Lbs.
Well #26	10,708,000	57.0 Lbs.
Well #27	21,712,000	63.5 Lbs.
Well #28	37,393,000	162.5 Lbs.
Well #29	71,604,000	247.0 Lbs.
Well #31	54,184,000	153.5 Lbs.
Well #32	54,308,000	195.5 Lbs.

7109

Well #33	71,076,000	164.0 Lbs.
Well #34	70,355,000	179.0 Lbs.
West Bench Booster	30,569,000	49.0 Lbs.
	888,413,000	3,473.5 Lbs.

This figure is 103,860,000 gallons more than last August. Based on the population figure of 45,810 there were 625.6 gallons of water per person per day produced from the system.

Airport production was 8,979,000 gallons of water using 28.0 lbs. of chlorine and 60 man hours. There were 3,000 gallons more produced than last August.

4 MAIN LINE LEAKS were REPAIRED at the following locations:

1656 E. Bonneville 8/26
1st & Gould 8/17
215 No. 10th 8/28
965 W. Clark 8/11

36 NEW SERVICES were INSTALLED at the following locations:

Countryside Subdivision:

Summer line (1") 8/12
Lot 1 Block 1 (1") 8/11
Lot 2 Block 1 (1") 8/12
Lot 3 Block 1 (1") 8/12
Lot 4 Block 1 (1") 8/12
Lot 5 Block 1 (1") 8/12
Lot 6 Block 1 (1") 8/18
Lot 7 Block 1 (1") 8/18
Lot 6 Block 1 (1") 8/17
Lot 9 Block 1 (1") 8/17
Lot 10 Block 1 (1") 8/14
Lot 1 Block 2 (1") 8/13
Lot 2 Block 2 (1") 8/12
Lot 3 Block 2 (1") 8/12
Lot 4 Block 2 (1") 8/17
Lot 5 Block 2 (1") 8/17
Lot 6 Block 2 (1") 8/13
Lot 1 Block 3 (1") 8/14
Lot 2 Block 3 (1") 8/14
Lot 1 Block 4 (1") 8/13
Lot 2 Block 4 (1") 8/13
Lot 3 Block 4 (1") 8/14

Olympus Pointe:

Lot 10 (3/4") 8/25
Lot 11 (3/4") 8/25
Lot 12 (3/4") 8/28
Lot 13 (3/4") 8/25
Lot 14 (3/4") 8/28
Lot 15 (3/4") 8/28
Lot 16 (3/4") 8/28
Lot 17 (3/4") 8/28

2710 No. Main (1") 8/20
Quail Hollow 1 & 2 (1") 8/4
Quail Hollow 3 & 4 (1") 8/4
Quail Hollow 16 & 17 (1") 8/4
460 No. 3rd (3/4") 8/20
2005 So. 4th (2") 8/18

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100 YEARS AT YOUR SERVICE
Water

WATER DEPARTMENT MONTHLY REPORT

SEPTEMBER 1992

MAIN LINE WORK

1480 Barton Road - Made 4" tap for fire line. Installed: 1-4" tapping valve and 1-12" x 4" tapping sleeve. The contractor provided the necessary materials.

1300 & 1400 Blocks City Creek - Install fire hydrant. Pipe layed: 26' of 6" ductile iron. Installed: 2-6" fire hydrants, 2-6" fire hydrant valves, 2-6" tapping sleeves, 2-6" adapters and 2-valve boxes.

1000 Block W. Clark - Install fire hydrant. Pipe layed: 14' of 6" and 10' of 4" ductile iron. Installed: 1-6" fire hydrant, 1-6" fire hydrant valve, 1-4" tapping valve, 1-4" tapping sleeve, 1-6" x 4" coupling, and 1-valve box.

Crescent Drive - Install new main line. Pipe layed: 400' of 6" ductile iron. Installed: 1-6" tapping valve, 1-6" tapping sleeve, 1-6" transition coupling, 1-45º bend, and 1-valve box.

Great Western Malt Plant - Capital improvement project. Pipe layed: 308' of 6" ductile iron. Installed: 2-6" tapping valves, 1-8" x 6" tapping sleeve, 1-6" tapping sleeve, and 2-valve boxes. The necessary chlorination taps were made.

Greenfield Heights 4th Addition - Made 3/4" chlorination tap for contractor.

8100 Block Pocatello Creek Road - Made 4" tap on 6" main and installed 2" line for flushing off the main line. Pipe layed: 15' of 2" galvanized. Installed: 1-6" x 4" tapping valve and sleeve, 1-4" plug, 1-2" plug, 1-2" tee, 1-valve box, and 1-meter box and lid.

9000 Block Pocatello Creek Road - Install fire hydrant. Pipe layed: 5' of 6" ductile iron. Installed: 1-6" fire hydrant, 1-6" tapping valve, 1-12" x 6" tapping sleeve, 1-6" adapter and 1-valve box.

12th Street from Oak to Halliday - Capital improvement project. Pipe layed: 199' of 6" ductile iron. Installed: 2-6" solid sleeves and 1-6" x 4" solid sleeve. The necessary chlorination taps were made.

7111

During the month of September 578,254,000 gallons of water were produced from the system, or 19,275,133 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	71,389,000	941.0 Lbs.
Well #2	13,994,000	45.0 Lbs.
Well #3	18,761,000	79.0 Lbs.
Well #12	24,080,000	87.0 Lbs.
Well #14	6,154,000	30.0 Lbs.
Well #16	45,858,000	176.0 Lbs.
Well #18	49,808,000	143.0 Lbs.
Well #21	43,982,000	150.0 Lbs.
Well #26	8,786,000	47.0 Lbs.
Well #27	30,718,000	100.0 Lbs.
Well #28	52,392,000	164.0 Lbs.
Well #29	69,061,000	196.0 Lbs.
Well #32	52,704,000	179.0 Lbs.
Well #33	39,265,000	158.0 Lbs.
Well #34	33,201,000	91.0 Lbs.
West Bench Booster	18,101,000	58.0 Lbs.
	578,254,000	2,644.0 Lbs.

This figure is 109,399,000 gallons more than last September. Based on the population figure of 45,810 there were 420.8 gallons of water per person per day produced from the system.

Airport production was 6,466,000 gallons of water using 19.0 lbs. of chlorine and 31 man hours. There were 2,001,000 gallons more produced than last September.

<u>3 MAIN LINE LEAKS</u> were <u>REPAIRED</u> at the following locations:

316 Crescent 9/25 311 Skyline 9/26 900 Block E. Terry 9/4

<u>29 NEW SERVICES</u> were <u>INSTALLED</u> at the following locations:

1420 City Creek (1") 9/11
3956 Henderson (1") 9/2
Olympus Drive Summer Line (2") 9/28
Olympus Point Summer Line (1") 9/24

7112

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Water

WATER DEPARTMENT MONTHLY REPORT
OCTOBER 1992

MAIN LINE WORK

8th Street from Benton to Sherman - Capital improvement project. Pipe layed: 1469' of 12", 329' of 6" and 16' of 4" ductile iron. Installed: 1-6" fire hydrant, 1-6" fire hydrant valve, 4-12" gate valves, 1-6" gate valve, 1-4" gate valve, 2-12" x 6" tees, 1-12" x 4" tee, 6-valve boxes, 1-6" plug, 1-6" romac coupling, and 1-8" plug. The necessary chlorination taps were made.

During the month of October 358,580,000 gallons of water were produced from the system, or 11,567,097 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	60,193,000	706.0
Well #2	23,042,000	75.5
Well #3	4,070,000	19.0
Well #14	15,316,000	51.0
Well #16	51,693,000	214.5
Well #18	4,354,000	9.5
Well #21	53,571,000	171.0
Well #27	20,450,000	76.5
Well #28	14,489,000	38.5
Well #29	16,929,000	57.5
Well #32	54,061,000	129.0
Well #33	6,057,000	186.0
Well #34	22,094,000	26.0
West Bench Booster	12,261,000	37.5
	358,580,000	1,861.5 Lbs.

This figure is 12,141,000 gallons more than last October. Based on the population figure of 45,810 there were 252.5 gallons of water per person per day produced from the system.

Airport production was 3,668,000 gallons of water using 10.0 lbs. of chlorine and 31.5 man hours. There were 289,000 gallons less produced than last October.

7113

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WATER DEPARTMENT MONTHLY REPORT
NOVEMBER 1992

MAIN LINE WORK

8th Street from Sherman to Benton - Capital improvement project. Pipe layed: 98' of 12", 46' of 6", and 9' of 4" ductile iron. Installed: 1-6" fire hydrant, 1-6" fire hydrant valve, 1-12" gate valves, 1-6" tapping valve, 1-12" x 6" tapping sleeve, 1-12" x 6" tee, 3-valve boxes, 2-12" plugs, 1-6" and 1-4" romac coupling.

Johnny Creek Road from Field Drive to Riverside Golf Course - Capital improvement project. Pipe layed: 216' of 12" ductile iron. Installed: 2-12" 90° bends.

During the month of November 232,025,000 gallons of water were produced from the system, or 7,734,167 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	52,804,000	738.0
Well #2	39,778,000	183.5
Well #14	16,221,000	57.0
Well #16	25,234,000	103.5
Well #21	29,681,000	132.0
Well #27	11,171,000	42.5
Well #32	51,758,000	183.0
West Bench Booster	5,378,000	16.0
	232,025,000	1,455.5 Lbs.

This figure is 18,330,000 gallons less than last November. Based on the population figure of 45,810 there were 168.8 gallons of water per person per day produced from the system.

Airport production was 1,500,000 gallons of water using 5.0 lbs. of chlorine and 30.5 man hours. There were 1,378,000 gallons less produced than last November.

7114

WATER DEPARTMENT MONTHLY REPORT

DECEMBER 1992

MAIN LINE WORK

Johnny Creek Road - from Field Drive to Riverside Golf Course - Capital Improvement project. Pipe layed: 1604' of 12" ductile iron and 1380' of 12" ADS pipe. Installed: 2-12" gate valves, 1-12" transition coupling, 4-12" 45o bends, 1-12" tee, and 2-valve boxes.

During the month of December 253,606,000 gallons of water were produced from the system, or 8,180,839 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	52,804,000	656.0
Well #2	42,308,000	184.0
Well #14	15,636,000	51.0
Well #16	43,574,000	188.0
Well #27	40,804,000	159.0
Well #32	53,334,000	181.5
West Bench Booster	5,146,000	16.0
	253,606,000	1,435.5 Lbs.

This figure is 23,725,000 gallons more than last December. Based on the population figure of 45,810 there were 178.6 gallons of water per person per day produced from the system.

Airport production was 1,279,000 gallons of water using 3.0 lbs. of chlorine and 31 man hours. There were 846,000 gallons less produced than last December.

1 MAIN LINE LEAK was REPAIRED at the following location: 1600 Block No. 1st 12/4

7115

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WATER DEPARTMENT MONTHLY REPORT
JANUARY 1993

MAIN LINE WORK

Riverside Golf Course - Capital improvement project. Pipe layed: 80' of 12" ADS plastic pipe.

During the month of January 270,555,000 gallons of water were produced from the system, or 8,727,580 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	53,896,000	698.0
Well #2	41,199,000	184.0
Well #14	16,663,000	49.0
Well #16	44,692,000	160.0
Well #22	13,111,000	48.0
Well #27	41,705,000	164.0
Well #28	641,000	0.0
Well #29	138,000	0.0
Well #32	53,147,000	198.0
West Bench Booster	5,363,000	17.0
	270,555,000	1,518.0 Lbs.

This figure is 32,598,000 gallons more than last January. Based on the population figure of 45,810 there were 190.5 gallons of water per person per day produced from the system.

Airport production was 1,962,000 gallons of water using 5.0 lbs. of chlorine and 36 man hours. There were 144,000 gallons less produced than last January.

6 MAIN LINE LEAKS were REPAIRED at the following locations:

500 Eldredge 1/14	Garrett Way & Madison 1/30	1415 S. 5th 1/15
Fern Place 1/15, 19	100 No. Grant 1/29	

3 SERVICES were RENEWED at the following locations:

202 W. Day (3/4") 1/28	3617 Hawthorne Road (3/4") 1/4	946 W. Wyeth (3/4") 1/4

7116

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A MUNICIPAL CORPORATION OF IDAHO

WATER DEPARTMENT
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Pocatello, Idaho [illegible]

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WATER DEPARTMENT MONTHLY REPORT
FEBRUARY 1993

MAIN LINE WORK

Riverside Golf Course - Capital improvement project. Pipe layed: 5' of 6", 8' of 10" and 144.5' of 12" ductile iron. Installed: 1-10" double gate valve flange, 1-12" tee, 1-12" x 10" reducer, 1-12" x 6" reducer, 1-valve box, 1-12" coupling, 1-12" x 10" coupling, 1-10" coupling, and 1-6" coupling.

During the month of February 253,967,000 gallons of water were produced from the system, or 9,070,250 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Surface Supplies & Well #30	50,919,000	609.0
Well #2	39,914,000	182.0
Well #14	15,592,000	46.0
Well #16	24,330,000	67.0
Well #22	37,440,000	148.0
Well #27	32,068,000	124.0
Well #32	47,419,000	188.0
West Bench Booster	6,285,000	16.0
	253,967,000	1,380.0 Lbs.

This figure is 32,175,000 gallons more than last February. Based on the population figure of 45,810 there were 198.0 gallons of water per person per day produced from the system.

Airport production was 1,694,000 gallons of water using 5.0 lbs. of chlorine and 31 man hours. There were 1,313,000 gallons less produced than last February.

4 MAIN LINE LEAKS were REPAIRED at the following locations:

1300 Jensen 2/10	524-32 No. 7th 2/21	13th & Lander 2/7
1386 Zener 2/5		

7117

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WATER [illegible]MENT
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WATER DEPARTMENT MONTHLY REPORT

MARCH 1993

MAIN LINE WORK

Pocatello Airport - Extend main line. Pipe layed: 967' of 6" ductile iron. Installed: 2-6" fire hydrants, 2-6" fire hydrant valves, 2-6" gate valves, 3-6" tees, 4-valve boxes, and 1-6" plug.

137 So. 5th - Made 6" tap for fire line--contractor supplied all materials.

During the month of March 263,768,000 gallons of water were produced from the system, or 8,508,645 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Well #2	44,170,000	197.0
Well #14	17,289,000	50.0
Well #16	26,894,000	72.0
Well #22	41,505,000	165.0
Well #27	30,885,000	135.0
Well #30	52,366,000	158.0
Well #32	50,659,000	196.0
	263,768,000	1,222.0 Lbs.*

This figure is 1,165,000 gallons more than last March. Based on the population figure of 45,810 there were 185.7 gallons of water per person per day produced from the system.

Airport production was 1,995,000 gallons of water using 2.0 lbs. of chlorine and 36 man hours. There were 1,632,000 gallons less produced than last March.

8 NEW SERVICES were INSTALLED at the following locations:
Airport-North of Pocatello Speedway (BLM) (2") 3/30

**273 pounds of chlorine was used at other sources not listed*

7118

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WATER DEPARTMENT MONTHLY REPORT

APRIL 1993

MAIN LINE WORK

Johnny Creek Road - from Field Drive to Riverside Golf Course - Capital improvement project. Pipe layed: 118' of 12" ductile iron pipe. Installed: 2-12"x14" couplings, and 2-12" 90° bends.

During the month of April 263,844,000 gallons of water were produced from the system, or 8,794,800 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Well #2	42,887,000	195.0
Well #14	16,440,000	47.0
Well #16	36,937,000	94.0
Well #22	40,125,000	164.5
Well #27	25,600,000	104.0
Well #30	49,971,000	208.0
Well #32	51,884,000	208.0
	263,844,000	1,170.5 Lbs.*

This figure is 131,814,000 gallons less than last April. Based on the population figure of 45,810 there were 192.0 gallons of water per person per day produced from the system.

Airport production was 1,983,000 gallons of water using 2.5 lbs. of chlorine and 37 man hours. There were 3,153,000 gallons less produced than last April.

2 MAIN LINE LEAKS were REPAIRED at the following locations:

Riverside Golf Course 4/7	138 No. 7th 4/24

8 NEW SERVICES were INSTALLED at the following locations:

2086 Bench Road (1") 4/16	2088 Bench Road (1") 4/16	2575 Colorado (1") 4/8
2086 Bench Road (1" sl) 4/16	2090 Bench Road (1") 4/16	888 E. Pine (2") 4/16

**150 pounds of chlorine was used at other sources not listed*

7119

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WATER DEPARTMENT
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WATER DEPARTMENT MONTHLY REPORT
MAY 1993

MAIN LINE WORK

Bannock Highway from Donrich to Cheyenne - Capital improvement project. Pipe layed: 448' of 12" ductile iron.

Bannock Highway & Stoneycreek - Made two 6" taps on 12" main for new subdivision. Installed: 2-6" gate valves w/assemblies and 2-12" x 6" tapping tees.

Country Club & Bannock Highway - Capital improvement project. Pipe layed: 856' of 6" ductile iron. Installed: 1-6" fire hydrant, 1-6" fire hydrant valve, 1-6" 45° bend, 1-6" coupling, and 1-valve box.

Shoshoni Trail from Bannock Highway to Nez Perce - Capital improvement project. Pipe layed: 343' of 6" ductile iron. Installed: 2-6" 45° bend and 1-6" romac coupling.

During the month of May 428,842,000 gallons of water were produced from the system, or 13,833,613 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Well #2	37,934,000	152.5
Well #3	27,960,000	70.0
Well #12	738,000	1.0
Well #14	17,532,000	49.5
Well #16	50,889,000	110.0
Well #18	9,163,000	20.0
Well #21	22,778,000	64.5
Well #22	41,104,000	174.0
Well #26	4,728,000	20.0
Well #27	47,980,000	175.0
Well #28	1,684,000	1.0

7120

Well #29	*25,046,000*	*42.5*
Well #30	*69,470,000*	*253.5*
Well #32	*54,814,000*	*203.5*
Well #34	*17,022,000*	*45.5*
Feed Line	*0*	*117.0*
West Bench Booster	*0*	*22.0*
	428,842,000	*1,521.5 Lbs.*

This figure is 251,339,000 gallons less than last May. Based on the population figure of 45,810 there were 302.0 gallons of water per person per day produced from the system.

Airport production was 2,941,000 gallons of water using 7.5 lbs. of chlorine and 34 man hours. There were 5,368,000 gallons less produced than last May.

7 MAIN LINE LEAKS were REPAIRED at the following locations:

Colorado & Garrett Way 5/22	*4317 Opal #27 5/21*	*Riverside Golf Course 5/24, 27*
Mink Creek & Charlotte 5/12	*300 Block E. Putnam 5/23*	*650-58 So. 1st 5/18*

5 NEW SERVICES were INSTALLED at the following locations:

8767 Pocatello Creek (1") 5/19	*349 Skyline (1") 5/25*	*1500 Yellowstone (1½") 5/19*
8831 Pocatello Creek (1") 5/4	*1500 Yellowstone (1") 5/19*	

12 SERVICES were RENEWED at the following locations:

711 Ash (3/4") 5/13	*1531 No. Garfield (3/4") 5/11*	*5045 Mowhawk (3/4") 5/27*
757 Birch (3/4") 5/13	*1033 No. Harrison (3/4") 5/10*	*4317 Opal (1") 5/4*
728 Ebony (3/4") 5/6	*3907 Jason (3/4") 5/4*	*4317 Opal (1") 5/20*
1016 Fairbanks (3/4") 5/14	*4944 Mohawk (3/4") 5/27*	*1306 So. 1st (3/4") 5/24*

20 SERVICES were REPAIRED at the following locations:

1256 E. Center (3/4") 5/13	*1027 Red Hill (2") 5/12*	*926 E. Wyeth (3/4") 5/13*
309 Franklin (1" s/l) 5/18	*337 Richland (3/4") 5/25*	*250 No. 5th (1") 5/17*
2555 Garrett Way (1½") 5/25	*1340 Ridge (3/4") 5/26*	*428 No. 8th 5/20*
232 So. Lincoln (3/4") 5/3	*Shane between 4801 & 4865 (1") 5/5*	*433 No. 11th (3/4") 5/5*
240 So. Lincoln (3/4") 5/3	*440 University (1") 5/12*	*324 No. 14th (1") 5/3*
453 Packard (3/4") 5/18	*942 Willow Lane (3/4") 5/10*	*109 So. 17th (3/4") 5/17*
454 Packard (3/4") 5/18	*58 Willowwood (3/4") 5/17*	

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WATER DEPARTMENT MONTHLY REPORT
JUNE 1993

MAIN LINE WORK

Bannock Highway from Donrich to Cheyenne - Capital improvement project. Pipe layed: 2686' of 12", 4½' of 10", and 19' of 6" ductile iron. Installed: 4-12" gate valves, 1-10" tapping valve, 1-6" fire hydrant valve, 1-6" fire hydrant, 2-12" x 6" tees, 1-12" x 10" reducer, 1-6" plug, and 5-valve boxes.

Riverside Golf Course - Capital improvement project. Pipe layed: 2' of 6" ductile iron, and 20' of 4" cast iron. Installed: 2-6" gate valves, 2-12" x 6" reducers, 2-6" couplings, 1-6" pressure regulator, 3-4" couplings, 1-4" gate valve, 1-4" double check valve, 1-4" tee, 1-4" 90° bend, 2-4" adapters, and 1-4x8x6 concrete vault.

727 E. Sherman - Made 6" tap on main line for new service to City Hall.

3800 Stockman - Made 2-1" chlorination taps for contractor.

Stoneycreek Subdivision - Made 2-3/4" chlorination taps for contractor.

1111 N. 8th - Made 4" tap on 8" main for fire line. Pipe layed: 20' of 4" ductile iron. Installed: 1-8" x 4" tapping tee, 1-4" tapping valve, and 1-valve box. Materials were supplied by the contractor.

During the month of June 534,359,000 gallons of water were produced from the system, or 17,812,000 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Well #2	23,256,000	94.5
Well #3	47,997,000	149.0
Well #12	32,474,000	105.5
Well #14	12,550,000	36.0
Well #16	63,624,000	133.0
Well #18	21,374,000	63.0
Well #28	61,289,000	204.5
Well #29	40,459,000	181.0

7122

Well #21	*23,739,000*	*104.0*
Well #22	*33,457,000*	*109.5*
Well #26	*6,388,000*	*19.0*
Well #27	*22,354,000*	*51.5*
Well #30	*69,462,000*	*246.0*
Well #31	*2,844,000*	*8.0*
Well #32	*53,029,000*	*198.0*
Well #34	*20,063,000*	*56.0*
	534,359,000	*1,898.5 Lbs.*

This figure is 90,604,000 gallons less than last June. Based on the population figure of 45,810 there were 388.8 gallons of water per person per day produced from the system.

Airport production was 4,137,000 gallons of water using 11.0 lbs. of chlorine and 41 man hours. There were 2,181,000 gallons less produced than last June.

6 MAIN LINE LEAKS were REPAIRED at the following locations:

Carson & Main 6/15 — *1033 N. Harrison 6/7* — *Mink Creek Line 6/8*
Garfield & Fremont 6/15 — *1238 N. Main 6/29* — *425 W. Pine 6/22*

46 NEW SERVICES were INSTALLED at the following locations:

Luxor Subdivision:

Lot 2 Block 1 (3/4") 6/30
Lot 3 Block 1 (3/4") 6/30
Lot 4 Block 1 (3/4") 6/30
Lot 5 Block 1 (3/4") 6/30
Lot 6 Block 1 (3/4") 6/30
Lot 7 Block 1 (3/4") 6/30
Lot 8 Block 1 (3/4") 6/30
Lot 9 Block 1 (3/4") 6/30
Lot 10 Block 1 (3/4") 6/30
Lot 1 Block 2 (3/4") 6/30
Lot 2 Block 2 (3/4") 6/30
Lot 3 Block 2 (3/4") 6/30
Lot 4 Block 2 (3/4") 6/30
Lot 5 Block 2 (3/4") 6/30
Lot 6 Block 2 (3/4") 6/30
Summer Line (3/4") 6/30

Stoneycreek Subdivision:

Lot 1-C (2" summer line) 6/16
Lot 1 (1") 6/17
Lot 2 (1") 6/17
Lot 3 (1") 6/17
Lot 4 (1") 6/18
Lot 5 (1") 6/18
Lot 6 (1") 6/19
Lot 7 (1") 6/19
Lot 8 (1") 6/23
Lot 9 (1") 6/23
Lot 10 (1") 6/23
Lot 11 (1") 6/18
Lot 12 (1") 6/18
Lot 13 (1") 6/17
Lot 14 (1") 6/17
Lot 15 (1") 6/16

Pocatello
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WATER DEPARTMENT
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Pocatello, [illegible]

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WATER DEPARTMENT MONTHLY REPORT
JULY 1993

MAIN LINE WORK

Bannock Highway from Donrich to Cheyenne *- Capital improvement project. Pipe layed: 1092' of 12", 14' of 8", and 92' of 6" ductile iron. Installed: 1-6" fire hydrant, 1-6" fire hydrant valve, 3-12" gate valves, 1-12" cross, 2-12" x 8" reducers, 1-10" x 6" tapping saddle, 1-12" x 6" tee, 3-valve boxes, 1-6" plug, 2-8" romac couplings, and 4-6" romac couplings.*

275 McKinley *- Made 6" tap on 8" main line for contractor. Installed: 1-6" tapping valve and 1-6" x 8" tapping sleeve. The contractor supplied all the materials.*

South 5th Avenue from Shores to Bannock County Jail *- Capital improvement project. Pipe layed: 1078' of 14" and 16' of 6" ductile iron. Installed: 1-6" fire hydrant, 1-6" fire hydrant valve, 1-14" gate valve, 1-14" x 8" tee, 1-14" x 6" tee, and 2-valve boxes.*

During the month of July 705,765,000 gallons of water were produced from the system, or 22,766,613 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Well #2	25,611,000	104.5
Well #3	61,879,000	182.0
Well #10	22,832,000	105.0
Well #12	65,615,000	246.5
Well #14	15,933,000	53.0
Well #16	53,310,000	175.0
Well #18	19,477,000	60.0
Well #21	59,393,000	210.0
Well #22	41,668,000	174.0
Well #26	23,946,000	112.0
Well #27	38,115,000	140.5

7124

Well #28	*14,614,000*	*53.0*
Well #29	*86,105,000*	*252.0*
Well #30	*70,594,000*	*236.0*
Well #31	*8,005,000*	*22.0*
Well #32	*54,482,000*	*205.5*
Well #34	*44,186,000*	*124.5*
Feed Line	*0,000,000*	*80.0*
West Bench Booster	*0,000,000*	*39.0*
	705,765,000	*2,574.5 Lbs.*

This figure is 97,205,000 gallons less than last July. Based on the population figure of 45,810 there were 496.97 gallons of water per person per day produced from the system.

Airport production was 7,228,000 gallons of water using 20.0 lbs. of chlorine and 31 man hours. There were 1,472,000 gallons more produced than last July.

7 MAIN LINE LEAKS were REPAIRED at the following locations:

600 Block N. Arthur 7/22 | *200 Block W. Clark 7/16* | *1645 S. 5th 7/12*
Birdie & Cache Peak 7/22 | *McKinley & Eldredge 7/4* | *722 N. 7th 7/1*
Clark & Union Pacific Ave. 7/19

8 NEW SERVICES were INSTALLED at the following locations:

Mariah Meadows Subdivision:
2-2" services & 1-1" 7/21 | *1-2" service & 1-1" 7/22*

475 W. Halliday (1") 7/27 | *275 McKinley (1") 7/12* | *3682 Highway 30 W (3/4") 7/29*
3510 Johnny Creek (1") 7/1 | *201 Wilson (3/4") 7/14*

23 SERVICES were RENEWED at the following locations:

501 N. Arthur SL1 (3/4") 7/28 | *629 N. Arthur (3/4") 7/21* | *1235 N. Arthur (1") 7/7*
501 N. Arthur SL2 (1") 7/27 | *630 N. Arthur (3/4") 7/15* | *4957 Bannock Hwy (3/4") 7/15*
522 N. Arthur (3/4") 7/27 | *641 N. Arthur (3/4") 7/20* | *5225 Bannock Hwy (3/4") 7/15*
558 N. Arthur (3/4") 7/26 | *655 N. Arthur (3/4") 7/20* | *775 Cypress (3/4") 7/29*

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100 YEARS AT YOUR SERVICE

WATER DEPARTMENT MONTHLY REPORT
AUGUST 1993

MAIN LINE WORK

151 North 3rd - Made 6" fire line tap. Installed: 1-6" tapping sleeve, 1-6" tapping valve, and 1-valve box. Materials were supplied by contractor.

South 5th from Shores to Bannock County Jail (W-6 93) - Capital improvement project. Pipe layed: 573' of 14", and 59" of 6" ductile iron. Installed: 1-8" gate valve, 1-14" x 6" reducer, 1-valve box, 1-14" romac coupling and 1-6" romac coupling.

8th Street from Benton to Sherman Street (W1-92) - Capital improvement project. Pipe layed: 1,374' of 12", and 16' of 6" ductile iron. Installed: 2-6" fire hydrants, 2-6" fire hydrant valves, 6-12" gate valves, 1-12" x 10" tee, 3-12" x 6" tee, 1-6" plug, and 7-valve boxes.

During the month of August 598,829,000 gallons of water were produced from the system, or 19,317,000 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Well #2	19,598,000	76.5
Well #3	60,404,000	172.0
Well #10	43,268,000	174.0
Well #12	56,429,000	220.0
Well #14	15,503,000	61.0
Well #16	46,433,000	149.0
Well #18	14,245,000	20.0
Well #21	57,884,000	210.0
Well #22	41,620,000	161.0
Well #26	22,551,000	101.0
Well #27	25,818,000	108.0

7126

Well #28	8,338,000	31.0
Well #29	55,855,000	183.0
Well #31	61,226,000	200.0
Well #32	1,573,000	4.0
Well #33	53,993,000	210.0
Well #34	14,094,000	39.0
Feed Line	00,000,000	76.0
West Bench Booster	00,000,000	32.0
	598,829,000	2,227.5 Lbs.

This figure is 289,584,000 gallons less than last August. Based on the population figure of 45,810 there were 421.7 gallons of water per person per day produced from the system.

Airport production was 4,796,000 gallons of water using 13.0 lbs. of chlorine and 31 man hours. There were 4,183,000 gallons less produced than last August.

3 MAIN LINE LEAKS were REPAIRED at the following locations:

1027 Mink Creek 8/11,12
901 Northgate 8/17
606 S. 5th 8/21

17 NEW SERVICES were INSTALLED at the following locations:

Benchland 5th Addition:

Lot 24 Block 8 (3/4") 8/10
Lot 25 Block 8 (3/4") 8/10
Lot 26 Block 8 (3/4") 8/10
Lot 27 Block 8 (3/4") 8/10
Lot 28 Block 8 (3/4") 8/10
Lot 29 Block 8 (3/4") 8/10
Lot 30 Block 8 (3/4") 8/10
Lot 31 Block 8 (3/4") 8/10
Lot 32 Block 8 (3/4") 8/10
Lot 33 Block 8 (3/4") 8/10
Lot 34 Block 8 (3/4") 8/3
Lot 35 Block 8 (2-3/4") 8/3
Lot 15 Block 9 (3/4") 8/10
Lot 16 Block 9 (3/4") 8/10

1875 Cottage (1") 8/4
933 Lott (1") 8/26
953 Lott (1") 8/30
1315 Yellowstone (1") 8/26

12 SERVICES were RENEWED at the following locations:

219 Appaloosa (1") 8/9
1504 N. Garfield (3/4") 8/16
606 N. Grant (3/4") 8/16
1345 E. Hayden (3/4") 8/31
640 W. Hayden (3/4") 8/16
345 S. Johnson (3/4") 8/18
928 Jones (3/4") 8/5
1312 Ridge (3/4") 8/10
253 Taft (3/4") 8/9
1120 E. Walnut (3/4") 8/22
153 Wilson (3/4") 8/16
553-55 N. 13th (3/4") 8/31

1993

September – December

missing

CITY OF POCATELLO

EXHIBIT 112

Memorandum from Tom Dekker

Subcase Nos.

29-271
29-272
29-273
29-4222

Admitted 29-2112? 00
(Subcase No.)
EXHIBIT
Poc. 112
Date: 2/28/07

City of Pocatello • Water Department

P.O. Box 4169 • 902 E. Sherman • Pocatello, Idaho 83201 • (208) 232-4311

water
AT YOUR SERVICE

MEMO:

TO: Ivan Legler, City Attorney

FROM: Tom Dekker, Water Department

DATE: March 31, 1989

SUBJECT: Surface Supply from Mink Creek and Gibson Jack Creek

The following are the yearly totals for water production from surface supplies from 1964 thru 1988:

Year		Yearly Water Production from Surface Supply
1964	-	652,916,000 gallons × 3.069 = 2,004 AF × .004238 = 2.77 CFS
1965	-	829,118,000 gallons
1966	-	704,317,000 gallons
1967	-	615,451,000 gallons
1968	-	926,903,000 gallons
1969	-	1,020,695,000 gallons
1970	-	1,040,855,000 gallons
1971	-	885,364,000 gallons
1972	-	928,804,000 gallons
1973	-	995,785,000 gallons
1974	-	1,061,432,000 gallons
1975	-	1,026,211,000 gallons
1976	-	1,109,027,000 gallons
1977	-	925,740,000 gallons
1978	-	725,090,000 gallons

Year		Yearly Water Production from Surface Supply	
1979	-	648,823,000 gallons	x 3,069 = AF x .004238 = CFS
1980	-	1,005,340,000 gallons	
1981	-	965,981,000 gallons	
1982	-	1,119,492,000 gallons	3,434.2 AF 4.74 CFS
1983	-	1,100,080,000 gallons	
1984	-	1,068,416,000 gallons	
1985	-	790,616,000 gallons	
1986	-	557,175,000 gallons	
1987	-	488,197,000 gallons	
1988	-	444,397,000 gallons	= 1363 AF = 1.88 cfs

CITY OF POCATELLO

EXHIBIT 113

Report, City of Pocatello, Yearly Water Consumption from 1956 to Present (April 12, 1989)

Subcase Nos.

all 38

(Subcase No.)
EXHIBIT
Admitted Loc. 113
Date: 2/28/07

CITY OF POCATELLO
Yearly Water Consumption
from 1956 to Present

Date: 4-12-89

Year/Month	Groundwater	Surface	Total
F.Y. 1956	1,809,718,000	386,428,000	2,199,086,000
F.Y. 1957	1,685,195,000	474,618,000	2,240,771,000
F.Y. 1958	1,641,448,000	589,323,000	2,240,771,000
F.Y. 1959	1,937,359,000	504,622,000	2,441,981,000
F.Y. 1960	2,234,475,000	354,486,000	2,588,961,000
F.Y. 1961	2,484,094,000	235,408,000	2,719,502,000
F.Y. 1962	1,982,855,000	498,608,000	2,500,933,000
C.Y. 1963			
January			131,139,000
February			110,766,000
March			147,961,000
April			152,265,000
May			234,922,000
June			236,572,000
July			627,211,000
August			521,434,000
September			230,041,000
October			259,833,000
		Total (Apr. thru Oct.)	2,262,278,000
November			141,236,000
December			144,084,000
GRAND TOTALS			2,338,077,000
C.Y. 1964			
January			149,286,000
February			140,610,000
March			155,674,000
April			180,847,000
May			348,203,000
June			271,526,000
July			630,797,000
August			559,383,000
September			412,056,000
October			267,025,000
		Total (Apr. thru Oct.)	2,669,837,000
November			147,038,000
December			148,813,000
GRAND TOTALS	2,758,342,000	652,916,000	3,411,258,000

Year/Month	Groundwater	Surface	Total
C.Y. 1965			
January			159,511,000
February			146,898,000
March			165,608,000
April			175,048,000
May			313,549,000
June			460,207,000
July			535,218,000
August			459,681,000
September			288,052,000
October			232,875,000
		Total (Apr. thru Oct.)	2,464,630,000
November			162,482,000
December			153,847,000
GRAND TOTALS	2,423,857,000	829,118,000	3,252,975,000

Year/Month	Groundwater	Surface	Total
C.Y. 1966			
January			158,394,000
February			145,318,000
March			168,924,000
April			297,298,000
May			484,636,000
June			545,655,000
July			728,682,000
August			623,379,000
September			387,091,000
October			237,945,000
		Total (Apr. thru Oct.)	3,304,686,000
November			167,354,000
December			159,964,000
GRAND TOTALS	3,400,323,000	704,317,000	4,104,640,000

Year/Month	Groundwater	Surface	Total
C.Y. 1967			
January			167,905,000
February			150,518,000
March			172,149,000
April			198,952,000
May			329,226,000
June			285,197,000
July			642,042,000
August			678,101,000
September			457,636,000
October			210,825,000
		Total (Apr. thru Oct.)	2,801,979,000
November			167,895,000
December			169,834,000
GRAND TOTALS	3,014,646,000	615,451,000	3,630,097,000

Year/Month	Groundwater	Surface	Total
C.Y. 1968			
January			172,340,000
February			168,096,000
March			190,431,000
April			264,121,000
May			408,437,000
June			492,383,000
July			738,625,000
August			404,678,000
September			344,282,000
October			246,304,000
		Total (Apr. thru Oct.)	2,898,830,000
November			162,844,000
December			157,287,000
GRAND TOTALS	2,823,480,000	926,903,000	3,750,383,000

Year/Month	Groundwater	Surface	Total
C.Y. 1969			
January			166,934,000
February			149,239,000
March			180,400,000
April			307,486,000
May			636,523,000
June			438,714,000
July			737,683,000
August			698,679,000
September			489,646,000
October			222,427,000
		Total (Apr. thru Oct.)	3,531,158,000
November			158,890,000
December			167,055,000
GRAND TOTALS	3,332,981,000	1,020,695,000	4,353,676,000

Year/Month	Groundwater	Surface	Total
C.Y. 1970			
January			172,430,000
February			156,501,000
March			176,554,000
April			218,731,000
May			336,802,000
June			527,354,000
July			597,368,000
August			699,255,000
September			353,179,000
October			234,022,000
		Total (Apr. thru Oct.)	2,966,711,000
November			175,555,000
December			174,267,000
GRAND TOTALS	2,781,163,000	1,040,855,000	3,822,018,000

Year/Month	Groundwater	Surface	Total
C.Y. 1971			
January			184,078,000
February			163,608,000
March			190,377,000
April			232,723,000
May			386,482,000
June			523,413,000
July			764,688,000
August			715,268,000
September			321,516,000
October			225,966,000
		Total (Apr. thru Oct.)	3,170,056,000
November			191,608,000
December			196,636,000
GRAND TOTALS	3,210,999,000	885,364,000	4,096,363,000

Year/Month	Groundwater	Surface	Total
C.Y. 1972			
January			200,599,000
February			194,057,000
March			246,028,000
April			317,520,000
May			533,113,000
June			535,012,000
July			720,697,000
August			604,000,000
September			322,912,000
October			245,954,000
		Total (Apr. thru Oct.)	3,279,228,000
November			194,626,000
December			205,169,000
	3,390,883,000	928,804,000	4,319,687,000

Year/Month	Groundwater	Surface	Total
C.Y. 1973			
January			203,228,000
February			188,457,000
March			213,509,000
April			262,466,000
May			567,171,000
June			656,650,000
July			703,879,000
August			729,536,000
September			311,021,000
October			260,755,000
		Total (Apr. thru Oct.)	3,491,478,000
November			206,973,000
December			230,852,000
GRAND TOTALS	3,511,730,000	995,785,000	4,507,515,000

Year/Month	Groundwater	Surface	Total
C.Y. 1974			
January			209,842,000
February			189,729,000
March			213,681,000
April			274,426,000
May			502,232,000
June			732,101,000
July			805,780,000
August			690,290,000
September			531,418,000
October			305,894,000
		Total (Apr. thru Oct.)	3,842,141,000
November			209,734,000
December			214,791,000
GRAND TOTALS	3,818,486,000	1,061,432,000	4,879,918,000

Year/Month	Groundwater	Surface	Total
C.Y. 1975			
January			219,259,000
February			197,808,000
March			222,907,000
April			231,996,000
May			340,684,000
June			582,937,000
July			735,626,000
August			650,247,000
September			512,974,000
October			293,393,000
		Total (Apr. thru Oct.)	3,347,857,000
November			218,475,000
December			196,677,000
GRAND TOTALS	3,376,772,000	1,026,211,000	4,402,983,000

Year/Month	Groundwater	Surface	Total
C.Y. 1976			
January			214,695,000
February			204,155,000
March			212,587,000
April			240,824,000
May			460,386,000
June			603,167,000
July			824,689,000
August			553,808,000
September			473,984,000
October			281,120,000
		Total (Apr. thru Oct.)	3,437,978,000
November			240,562,000
December			226,717,000
GRAND TOTALS	3,427,659,000	1,109,027,000	4,536,686,000

Year/Month	Groundwater	Surface	Total
C.Y. 1977			
January			229,312,000
February			209,996,000
March			233,296,000
April			385,658,000
May			303,963,000
June			554,274,000
July			681,238,000
August			613,105,000
September			424,919,000
October		3,258 MGY = 10 AFY	271,812,000
		Total (Apr. thru Oct.)	3,234,969,000
November			204,646,000
December			209,025,000
GRAND TOTALS	3,395,504,000	925,740,000	4,321,244,000

Year/Month	Groundwater	Surface	Total
C.Y. 1978			
January			213,649,000
February			196,951,000
March			230,660,000
April			263,057,000
May			347,200,000
June			649,878,000
July			811,559,000
August			723,653,000
September			394,238,000
October			359,034,000
		Total (Apr. thru Oct.)	3,548,619,000
November			227,090,000
December			218,747,000
GRAND TOTALS	3,910,626,000	725,090,000	4,635,716,000

Year/Month	Groundwater	Surface	Total
C.Y. 1979			
January			242,333,000
February			232,468,000
March			252,010,000
April			304,689,000
May			602,726,000
June			730,314,000
July			882,992,000
August			620,091,000
September			619,967,000
October			398,390,000
		Total (Apr. thru Oct.)	4,159,169,000
November			237,914,000
December			250,252,000
GRAND TOTALS	4,725,323,000	648,823,000	5,374,146,000

Year/Month	Groundwater	Surface	Total
C.Y. 1980			
January			246,736,000
February			230,889,000
March			240,718,000
April			327,665,000
May			339,575,000
June			592,939,000
July			827,017,000
August			678,010,000
September			403,941,000
October			339,364,000
		Total (Apr. thru Oct.)	3,508,511,000
November			232,905,000
December			236,579,000
GRAND TOTALS	3,690,998,000	1,005,340,000	4,696,338,000

Year/Month	Groundwater	Surface	Total
C.Y. 1981			
January			234,994,000
February			224,059,000
March			245,506,000
April			311,141,000
May			312,761,000
June			613,520,000
July			945,534,000
August			877,625,000
September			615,388,000
October			267,886,000
		Total (Apr. thru Oct.)	3,943,855,000
November			219,683,000
December			222,938,000
GRAND TOTALS	4,125,347,000	965,981,000	5,091,328,000

Year/Month	Groundwater	Surface	Total
C.Y. 1982			
January			233,402,000
February			221,006,000
March			236,153,000
April			270,470,000
May			401,655,000
June			659,836,000
July			684,783,000
August			676,445,000
September			365,463,000
October			240,921,000
		Total (Apr. thru Oct.)	3,299,573,000
November			219,416,000
December			221,001,000
GRAND TOTALS	3,311,059,000	1,119,492,000	4,430,551,000

Year/Month	Groundwater	Surface	Total
C.Y. 1983			
January			227,469,000
February			196,601,000
March			226,831,000
April			234,664,000
May			346,405,000
June			553,154,000
July			708,656,000
August			630,764,000
September			508,470,000
October			253,095,000
		Total (Apr. thru Oct.)	3,235,208,000
November			222,409,000
December			229,270,000
GRAND TOTALS	3,234,708,000	1,100,080,000	4,334,788,000

Year/Month	Groundwater	Surface	Total
C.Y. 1984			
January			240,890,000
February			219,405,000
March			232,129,000
April			244,029,000
May			382,794,000
June			542,362,000
July			765,850,000
August			528,171,000
September			431,848,000
October			282,598,000
		Total (Apr. thru Oct.)	3,177,652,000
November			214,121,000
December			214,680,000
GRAND TOTALS	3,232,461,000	1,066,416,000	4,298,877,000

Year/Month	Groundwater	Surface	Total
C.Y. 1985			
January			229,569,000
February			242,756,000
March			259,006,000
April			326,044,000
May			470,617,000
June			726,157,000
July			902,078,000
August			845,075,000
September			349,669,000
October			259,565,000
		Total (Apr. thru Oct.)	3,879,205,000
November			214,640,000
December			235,699,000
GRAND TOTALS	4,270,259,000	790,616,000	5,060,875,000

Year/Month	Groundwater	Surface	Total
C.Y. 1986			
January			249,006,000
February			212,020,000
March			248,126,000
April			239,878,000
May			424,916,000
June			797,754,000
July			818,027,000
August			833,196,000
September			379,715,000
October			247,857,000
		Total (Apr. thru Oct.)	3,741,343,000
November			221,960,000
December			218,550,000
GRAND TOTALS	4,191,722,000	699,283,000	4,891,005,000

Year/Month	Groundwater	Surface	Total	
C.Y. 1987				
January			233,056,000	
February			209,581,000	
March			236,027,000	
April			462,542,000	
May			476,589,000	
June			715,907,000	
July			652,591,000	
August			761,976,000	
September			634,665,000	
October			348,620,000	
		Total (Apr. thru Oct.)	4,052,890,000	
November			205,583,000	
December			212,178,000	
GRAND TOTALS	4,668,799,000	402,502,000	5,071,301,000	
C.Y. 1988				
January			243,792,000	
February			218,525,000	
March			217,579,000	
April			369,755,000	
May			554,830,000	
June			871,641,000	
July			1,016,657,000	
August			929,150,000	
September			592,705,000	
October			444,858,000	
		Total (Apr. thru Oct.)	4,779,596,000	=14,667 AF/yr.
November			248,768,000	
December			250,736,000	
GRAND TOTALS	5,495,461,000	463,535,000	5,958,996,000	
	16,869	1422 AF	18,289 = ~~16,866~~ AFY	

(18,196)

Year/Month	Groundwater	Surface	Total
C.Y. 1989			
January			258,900,000
February			252,891,000
March			225,144,000

CITY OF POCATELLO

EXHIBIT 115

City of Pocatello Historical Water Level Data for City's wells

Subcase Nos.

all 38

ADMITTED

29-27 et al
(Subcase No.)
EXHIBIT
Doc. 115
Date: 3/1/07

WELL WATER LEVEL READINGS
Well #2
1989 - 2003

1970	Static	Run	1971	Static	Run	1972	Static	Run	1973	Static	Run	1974	Static	Run	1975	Static	Run	1976	Static	Run
1-Jan	33' .83"		1-Jan		45' .76"	1-Jan		39' .08"	1-Jan		38' .25"	1-Jan		39' .00"	1-Jan		40' .33"	1-Jan		38' .17"
1-Feb	34' .58"		1-Feb		45' .50"	2-Feb		38' .83"	1-Feb		39' .67"	1-Feb		42' .08"	2-Feb		40' .67"	1-Feb		39' .08"
1-Mar	35' .17"		1-Mar		45' .08"	1-Mar	36' .33"		1-Mar		39' .50"	1-Mar		42' .67"	1-Mar		41' .00"	1-Mar	31' .00"	
1-Apr		44' .50"	1-Apr		46' .33"	1-Apr	37' .00"		1-Apr		41' .83"	1-Apr		42' .33"	1-Apr	32' .67"		1-Apr		38' .58"
1-May		47' .50"	1-May	31' .50"		1-May		38' .00"	1-May		43' .75"	1-May	32' .75"		1-May		42' .08"	1-May		38' .00"
1-Jun		48' .17"	1-Jun		41' .17"	1-Jun		38' .00"	1-Jun	35' .08"		1-Jun		42' .17"	1-Jun		39' .83"	1-Jun		39' .33"
1-Jul		48' .50"	1-Jul		42' .67"	1-Jul		40' .75"	1-Jul	35' .17"		1-Jul		45' .00"	1-Jul		38' .50"	1-Jul		40' .50"
1-Sep		47' .17"	1-Aug		42' .17"	1-Aug		40' .50"	1-Aug		45' .92"	1-Aug		42' .33"	1-Aug		40' .50"	1-Aug		39' .92"
1-Oct		45' .83"	1-Sep		40' .08"	1-Sep		38' .25"	1-Sep		42' .67"	1-Sep	41' .67		1-Sep		38' .75"	1-Sep		39' .83"
1-Nov		45' .50"	1-Oct		40' .25"	1-Oct		36' .50"	1-Oct		40' .00"	1-Oct		42' .00"	1-Oct		37' .67"	1-Sep		38' .67"
1-Dec		45' .83"	1-Nov		39' .00"	1-Nov	36' .83"		1-Nov		40' .92"	1-Nov		38'.75"	1-Nov	29' .58"		1-Nov	37' .17"	
			1-Dec		38' .17"	1-Dec		36' .75"	1-Dec		42' .00"	1-Dec		40' .92"	1-Dec	29' .17"		1-Dec		38' .50"

7148

WELL WATER LEVEL READINGS
Well #2
1989 - 2003

1977	Static	Run	1978	Static	Run	1979	Static	Run	1980	Static	Run
1-Jan		39' .33"	1-Jan		44' .83"	1-Jan		48' .25"	1-Jan		48' .82"
2-Feb		40' .87"	1-Feb		45' .25"	2-Feb		47' .42"	2-Feb		47' .83"
1-Mar		41' .81"	1-Mar		47' .33"	1-Mar		47' .83"	1-Mar		46' .83"
1-Apr	34' .83"		1-Apr		46' .00"	1-Apr		48' .33"	1-Apr		46' .50"
15-Apr	34' .60"		1-May		47' .92"	1-May		59' .92"	1-May		48' .83"
1-May	35' .17"		1-Jun		49' .17"	1-Jun		51' .42"	1-Jun		46' .59"
15-May	34' .92"		1-Jul		48' .92"	1-Jul		53' .33"	1-Jul		48' .83"
1-Jun		45' .75"	1-Aug	43' .17"		1-Aug	46' .25"		1-Aug		48' .42"
15-Jun	43' .33"		1-Sep		47' .06"	1-Sep		52' .50"	1-Sep		48' .17"
1-Jul		37' .50"	1-Oct		46' .83"	1-Oct		50' .92"	1-Oct		43' .00"
13-Jul		44' .82"	1-Nov		47' .50"	1-Nov		45' .83"	1-Nov		42' .50"
1-Aug	39' .42"		1-Dec		44' .42"	1-Dec		44' .75"	1-Dec		42' .33"
15-Aug	37' .50"										
1-Sep		47' .00"									
15-Sep	38' .08"										
1-Oct		44' .42"									
1-Nov		44' .33"									
1-Dec		44' .33"									

1981	Static	Run	1982	Static	Run	1983	Static	Run	1984	Static	Run
1-Jan		43' .33"	1-Jan		44' .42"	1-Jan		39' .83"	1-Jan		37' .83"
1-Feb		43' .42"	1-Feb		45' .25"	2-Feb		40' .92"	1-Feb		38' .25"
1-Mar		44' .25"	1-Mar		45' .50"	1-Mar		40' .75"	1-Mar	39' .25"	
1-Apr		44' .75"	1-Apr		45' .33"	1-Apr		40' .92"	1-Apr		40' .42"
1-May		45' .00"	1-May		43' .25"	1-May		35' .25"	1-May		37' .67"
1-Jun		45' .17"	1-Jun		39' .75"	1-Jun		35' .25"	1-Jun	34' .33"	
1-Jul	41' .08"		1-Jul	33' .25"		1-Jul		39' .00"	1-Jul		40' .67"
1-Aug	41' 00"		1-Aug		42' .33"	1-Aug		38' .67"	1-Aug	37' .75"	
1-Sep	41' .25"		1-Sep		41' .08"	1-Sep		38' .50"	1-Sep		37' .58"
1-Oct		45' .08"	1-Oct		39' .42"	1-Oct		37' .50"	1-Oct		37' .67"
1-Nov		44' .33"	1-Nov		40' .47"	1-Nov		37' .75"	1-Nov		35' .08"
1-Dec		44' .42"	1-Dec		39' .42"	1-Dec		37' .67"	1-Dec		35' .08"

1985	Static	Run	1986	Static	Run	1987	Static	Run	1988	Static	Run
1-Jan		36' .25"	1-Jan		39' .25"	1-Jan		39' .50"	1-Jan		48' .42"
1-Feb		36' .67"	1-Feb		42' .00"	1-Feb		40' .83"	1-Feb		47' .25"
1-Mar		37' .00"	1-Mar		39' .25"	1-Mar		40' .42"	1-Mar		47' .25"
1-Apr		37' .67"	1-Apr		38' .50"	1-Apr		42' .25"	1-Apr		47' .25"
1-May		37' .50"	1-May		36' .42"	2-May	40' .25		1-May	41' .00"	
1-Jun		39' .00"	1-Jun		37' .00"	17-May	36' .25"		1-Jun	43' .42"	
1-Jul		40' .42"	1-Jul		39' .25"	21-May	40' .25"		2-Jul	43' .25"	
1-Aug		44' .25"	1-Aug		39' .25"	28-May		44' .17"	9-Jul		48' .00"
1-Sep		44' .83"	1-Sep	35' .25"		4-Jun		44' .09"	16-Jul	41' .42"	
1-Oct		44' .83	1-Oct		40' .25"	12-Jun		44' .25"	23-Jul	45' .75"	
1-Nov		40' .33"	1-Nov		40' .75"	19-Jun	37' .25"		1-Aug	48' .75"	
1-Dec		39' .25"	1-Dec		42' .08"	26-Jun		47' .25"	7-Aug	48' .00"	
						10-Jul		48' .25"	13-Aug	45' .25"	
						17-Jul	43' .87"		20-Aug	46' .25"	
						24-Jul	42' .83"		27-Aug	45' .83"	
						31-Jul	43' .75"		3-Sep	45' .25"	
						7-Aug		43' .00"	10-Sep	45' .42"	
						14-Aug		46' .92"	17-Sep	45' .25"	
						21-Aug	39' .50"		24-Sep	45' .25"	
						28-Aug		42' .25"	1-Oct	35' .33"	
						1-Sep	40' .87"		1-Nov	44' .50"	
						1-Oct	41' .25"		1-Dec		50' .42"
						1-Nov	43' .00"				
						1-Dec		48' .42"			

7149

WELL WATER LEVEL READINGS
Well #2
1989 - 2003

1989	Static	Run	1990	Static	Run	1991	Static	Run	1992	Static	Run	1993	Static	Run	1994	Static	Run	1995	Static	Run	1996	Static	Run	1997	Static	Run	1998	Static	Run	1999	Static	Run	2000	Static	Run	2001
3-Jan		49' 6"	2-Jan		47' 7"	3-Jan		48' 8"	2-Jan	50 7"		3-Jan		53' 0"	1-Jan	38' 10"		2-Jan		51' 10"	2-Mar		49' 1"	4-Jan		47' 5"	4-Jan		44' 0"	2-Jan		45' 7"	8-Jan		49' 6"	5-Jan
1-Feb		49' 1"	3-Feb		48' 0"	2-Feb		48' 9"	1-Feb		49' 8"	30-Jan		52' 3"	3-Feb	39' 3"		26-Jan		50' 5"	30-Mar		49' 2"	2-Feb		45' 9"	1-Feb		44' 1"	31-Jan		45' 2"	5-Feb		51' 10"	4-Feb
3-Mar		48' 11"	3-Mar		48' 5"	2-Mar		49' 3"	29-Feb		49' 11"	27-Feb		52' 10"	27-Feb		48' 3"	25-Feb		51' 0"	5-May		48' 10"	2-Mar		47' 3"	1-May		44' 3"	5-Mar		47' 7"	4-Mar		50' 4"	3-Mar
1-Apr		48' 5"	31-Mar		48' 5"	1-Apr		60' 3"	28-Mar		49' 9"	27-Mar		52' 2"	2-Apr		49' 5"	1-Apr		60' 6"	2-Jun		47' 1"	5-Apr	37' 5"		29-Mar		45' 9"	3-Apr		47' 10"	1-Apr		50' 3"	1-Apr
20-Apr		48' 7"	28-Apr		48' 5"	4-May		48' 10"	2-May		60 10"	1-May		50' 3"	30-Apr	41' 0"		29-Apr		49' 9"	30-Jun		47' 11"	4-May		45' 3"	3-May		47' 1"	2-May		47' 2"	30-Apr		52' 1"	5-May
8-May	40' 9"		2-Jun		49' 4"	1-Jun	42' 1"		9-May	43' 11"		29-May		49' 1"	26-May	42' 2"		3-Jun	41' 10"		4-Aug		48' 11"	1-Jun	35 0"		31-May	37' 1"		5-Jun		46' 10"	4-Jun		54' 9"	2-Jun
13-May	41' 1"	46' 11"	9-Jun	42' 3"		29-Jun	43' 1"		16-May	44' 2"		3-Jul	41' 6"		2-Jul	44' 3"		1-Jul		60' 8"	7-Sep		48' 3"	4-Jul		44' 6"	4-Jul		46' 4"	4-Jul	41' 3"		1-Jul	48' 0"		9-Jun
20-May	41' 6"		16-Jun	42' 4"		6-Jul	43' 10"		23-May		53' 1"	30-Jul		60' 9"	30-Jul	46' 0"		30-Jul	44' 3"		28-Sep		49' 9"	2-Aug	36' 8"		2-Aug		48' 3"	1-Aug		61' 1"	5-Aug	50' 2"		15-Jun
27-May	41' 7"		23-Jun	42' 9"		13-Jul	44' 6"		30-May		53' 4"	28-Aug	41' 3"		3-Sep	47' 7"		2-Sep		53' 11"	3-Nov		49' 4"	30-Aug	36' 5"		5-Sep	40' 11"		5-Sep	41' 7"		2-Sep	51' 3"		7-Jul
3-Jun	41' 8"		1-Jul	43' 7"		30-Jul		53' 11"	6-Jun		54' 4"	2-Oct	41' 1"		1-Oct	47' 7"		9-Oct	44' 7"		1-Dec		47' 9"	4-Oct		44' 10"	2-Oct		48' 7"	3-Oct		50' 7"	30-Sep	51' 4"		22-Jul
10-Jun	41' 10"		7-Jul	44' 1"		27-Jul	44' 10"		13-Jun	45' 8"		30-Oct		48' 4"	29-Oct		53' 10"	11-Nov		50' 8"				2-Nov		44' 8"	1-Nov		48' 10"	30-Oct		60' 9"	6-Nov	48' 8"		28-Jul
18-Jun	42' 1"		14-Jul	44' 8"		3-Aug	45' 3"		20-Jun	45' 7"		27-Nov		47' 10"	1-Dec		62' .5"	3-Dec	41' 3"					30-Nov		43' 9"	12-Dec		48' 10"	5-Dec		60' 0"	3-Dec		56' 3"	4-Aug
24-Jun	42' 6"		21-Jul	45' 2"		10-Aug	45' 6"		27-Jun		54' 7"							30-Dec		49' 10"																14-Aug
1-Jul	43' 1"		28-Jul	45' 6"		17-Aug		53' 9"	4-Jul	46' 0"																										25-Aug
8-Jul			4-Aug	45' 9"		24-Aug		63' 10"	11-Jul	46' 5"																										2-Sep
15-Jul	42' 0"	51' 8"	11-Aug	46' 1"		31-Aug	42' 11"		18-Jul		65' 2"																									8-Sep
22-Jul			18-Aug	46' 3"		5-Oct	45' 7"		25-Jul		65' 2"																									16-Sep
29-Jul		52' 3"	25-Aug	46' 2"		2-Nov		51' 9"	2-Aug		55' 10"																									7-Oct
5-Aug	44' 3"	52' 3"	1-Sep	46' 1"		30-Nov		50' 9"	8-Aug	48' 0"																										3-Nov
12-Aug	44' 3"		29-Sep	45' 6"					15-Aug		57' 1"																									2-Dec
19-Aug	43' 5"		3-Nov		51' 6"				22-Aug	48' 6"																										
26-Aug	43' 10"		1-Dec		50' 5"				29-Aug	48' 6"																										
2-Sep	44' 8"								8-Sep	48' 10"																										
9-Sep	43' 3"								12-Sep		57' 0"																									
30-Sep									19-Sep		57' 8"																									
4-Nov		49' 2"							26-Sep	49' 2"																										
2-Dec		48' 3"							3-Oct		57' 6"																									
									31-Oct		58' 5"																									
									28-Nov		54' 3"																									

7150

WELL WATER LEVEL READINGS
Well #2
1989 - 2003

Static	Run	2002	Static	Run	2003	Static	Run	2004	Static	Run	2005	Static	Run	2006	Static	Run
	58' 0"	6-Jan	48' 0"		1-Jan		56' 2"	1-Jan		60' 0"	7-Jan		68' 7"	10-Jan	44' 3"	
	55' 6"	1-Feb		65' 4"	2-Feb		55' 5"	6-Feb		58' 1"	4-Feb		58' 4"	10-Feb		61' 2"
47' 5"		1-Mar		53' 9"	4-Mar		55' 11"	3-Mar		58' 2"	2-Mar		57' 7"	8-Mar		51' 3"
47' 4"		1-Apr		54' 3"	3-Apr		45' 2"	1-Apr		58' 4"	5-Apr		56' 11"			
	49' 4"	1-May		49' 5"	1-May		58' 3"	5-May		68' 9"	5-May		54' 11"			
	58' 11"	2-Jun		65' 1"	2-Jun		61' 3"	17-May		58' 1"	8-Jun		54' 3"			
	59' 1"	12-Jun		55' 10"	9-Jun		58' 6"	24-May		57' 8"	6-Jul		54' 2"			
	60' 1"	19-Jun		56' 10"	16-Jun		59' 2"	1-Jun		57' 5"	3-Aug		55' 6"			
52' 2"		26-Jun	48' 1"		23-Jun		59' 7"	16-Jun		57' 4"	8-Sep		65' 8"			
52' 3"		3-Jul		58' 0"	7-Jul		60' 5"	22-Jun		58' 0"	5-Oct		57' 6"			
	59' 6"	10-Jul		58' 11"	14-Jul		62' 4"	30-Jun		58' 1"	2-Nov		55' 3"			
	60' 7"	17-Jul		58' 9"	21-Jul		62' 8"	8-Jul	51' 6"		6-Dec	45' 9"				
	46' 2"	24-Jul		59' 0"	28-Jul		63' 2"	15-Jul	52' 3"							
	60' 8"	7-Aug		58' 6"	4-Aug		63' 7"	20-Jul	52' 2"							
	59' 9"	6-Sep		58' 10"	11-Aug		68' 2"	28-Jul	52' 9"							
	61' 8"	10-Oct		56' 11"	18-Aug	55' 3"		3-Aug	53' 0"							
	59' 7"	1-Nov		57' 10"	25-Aug	55' 10"		12-Aug	53' 8"							
53' 4"		3-Dec		55' 7"	4-Sep	55' 6"		19-Aug	53' 5"							
51' 4"					9-Sep	54' 10"		26-Aug	53' 9"							
	57' 3"				15-Sep	54' 10"		16-Sep	54' 6"							
					29-Sep	54' 11"		5-Oct	54' 4"							
					6-Oct	54' 10"		3-Nov		61' 11"						
					15-Oct	54' 5"										
					3-Nov		62' 1"									
					1-Dec	52' 10"										

7151

WELL WATER LEVEL READINGS
Well #7

1970	Static	Run	1971	Static	Run	1972	Static	Run	1973	Static	Run	1974	Static	Run	1975	Static	Run	1976	Static	Run
1-Jan		31' .00"	1-Jan		32' .75"	1-Jan	20' 67"		1-Jan	20' .75"		1-Jan	23' .25"		1-Jan	21' .42"		1-Jan	19' .25"	
2-Feb		32' .08"	2-Feb		31' .67"	1-Feb	21' 83"		1-Feb	21' .75"		2-Feb	24' .00"		1-Feb	22' .75"		2-Feb	19' .67"	
1-Mar		33' .33"	1-Mar	27' .42"		1-Mar	23' .17"		1-Mar	21' .82"		1-Mar	26' .67"		1-Mar	24' .33"		1-Mar	20' .00"	
1-Apr	28' .33"		1-Apr	29' .60"		1-Apr	23' .42"		1-Apr	24' .42"		1-Apr	26' .67"		1-Apr	25' .92"		1-Apr	24' .60	
1-May	29' .33"		1-May	26' .33"		1-May	21' .33"		1-May	26' .08"		1-May	26' .33		1-May	25' .08"		1-May	23' .00"	
1-Jun	28' .67"		1-Jun	23' .00"		1-Jun	20' .67"		1-Jun	25' .00"		1-Jun	24' .92"		1-Jun	21' .50"		1-Jun	24' .25"	
1-Jul	27' .17"		1-Jul	21' .00"		1-Jul	21' .75"		1-Jul	25' .25"		1-Jul	24' .50"		1-Jul	20' .08"		1-Jul	22' .67"	
1-Sep	27' .42"		1-Aug	21' .50"		1-Aug	20' .83"		1-Aug	25' .00"		1-Aug	24' .42"		1-Aug	20' .08"		1-Aug	22' .08"	
1-Oct		31' .67"	1-Sep	21' .08"		1-Sep	20' .08"		1-Sep	23' .33"		1-Sep	23' .42"		1-Sep	20' .92"		1-Sep	21' .33"	
1-Nov		34' .08"	1-Oct	20' .25"		1-Oct	19' .17"		1-Oct	22' .83"		1-Oct	22' .50"		1-Oct	20' .17"		1-Oct	21' .17"	
1-Dec	27' .33"		1-Nov	20' .17"		1-Nov	19' .75"		1-Nov	21' .08"		1-Nov	21' .00"		1-Nov	18' .08"		1-Nov	20' .25"	
			1-Dec	20' .83"		1-Dec	19' .58"		1-Dec	22' .33"		1-Dec	21' .17"		1-Dec	18' .33"		1-Dec	20' .67"	

WELL WATER LEVEL READINGS
Well #7

1977	Static	Run	1978	Static	Run	1979	Static	Run	1980	Static	Run	1981	Static	Run	1982	Static	Run
1-Jan	21' .25"		1-Jan	27' .83"		1-Jan	29' .58"		1-Jan	30' .33"		1-Jan	26' .67"		1-Jan	25' .92"	
1-Feb	23' .42"		1-Feb	27' .67"		1-Feb	29' .58"		2-Feb	30' .00"		1-Feb	26' .75"		2-Feb	26' .17"	
1-Mar	25' .25"		1-Mar	29' .42"		1-Mar	28' .67"		1-Mar	29' .50"		1-Mar	27' .17"		1-Mar	26' .58"	
1-Apr	24' .67"		1-Apr	29' .50"		1-Apr	30' .58"		1-Apr	30' .08"		1-Apr	27' .67"		1-Apr	26' .00"	
16-Apr	25' .08"		1-May	30' .83"		1-May	31' .67"		1-May	29' .67"		1-May	26' .42"		1-May	24' .92"	
1-May	25' .33"		1-Jun	31' .00"		1-Jun	30' .00"		1-Jun	30' .08"		1-Jun	26' .83"		1-Jun	23' .50"	
15-May	25' .17"		1-Jul	31' .83"		1-Jul	31' .75"		1-Jul	29' .75"		1-Jul	29' .00"		1-Jul	24' .17"	
1-Jun	27' .58"		1-Aug	30' .00"		1-Aug	31' .00"		1-Aug	28' .58"		1-Aug	29' .83"		1-Aug	24' .42"	
15-Jun	26' .08"		1-Sep	29' .00"		1-Sep	31' .58"		1-Sep	26' .50"		1-Sep	30' .25"		1-Sep	23' .83"	
1-Jul	29' .00"		1-Oct	28' .42"		1-Oct	31' .00"		1-Oct	25' .75"		1-Oct	27' .67"		1-Oct	22' .67"	
13-Jul	28' .50"		1-Nov	28' .83"		1-Nov	29' .17"		1-Nov	24' .67"		1-Nov	26' .17"		1-Nov	21' .92"	
1-Aug	28' .83"		1-Dec	29' .33"		1-Dec	28' .33"		1-Dec	25' .08"		1-Dec	26' .00"		1-Dec	22' 00"	
15-Aug	29' .83"																
1-Sep	29' .00"																
15-Sep	30' .17"																
1-Oct	27' .67"																
1-Nov	28' .25"																
1-Dec	28' .67"																

1983	Static	Run	1984	Static	Run	1985	Static	Run	1986	Static	Run	1987	Static	Run	1988	Static	Run
1-Jan	22' .00"		1-Jan	20' .33"		1-Jan	17' .58"		1-Jan	21' .67"		1-Jan	20' .83"		1-Jan	26' .33"	
1-Feb	21' .83"		1-Feb	20' .67"		1-Feb	18' .75"		1-Feb	22' .17"		1-Feb	20' .42"		1-Feb	21' .33"	
1-Mar	21' .92"		1-Mar	21' .17"		1-Mar	19' .17"		1-Mar	20' .17"		1-Mar	21' .50"		1-Mar	26' .92"	
1-Apr	22' .00"		1-Apr	21' .33"		1-Apr	19' .33"		1-Apr	20' .17"		1-Apr	21' .17"		1-Apr	27' .17"	
1-May	21' .17"		1-May	19' .92"		1-May	19' .75"		1-May	20' .25"		2-May	18' .42"		1-May	27' .17"	
1-Jun	19' .00"		1-Jun	18' .67"		1-Jun	19' .33"		1-Jun	18' .58"		12-May	18' .83"		1-Jun	31' .42"	
1-Jul	20' .33"		1-Jul	19' .33"		1-Jul	22' .17"		1-Jul	20' .83"		21-May	19' .50"		2-Jul	31' .92"	
1-Aug	21' .42"		1-Aug	19' .75"		1-Aug	23' .50"		1-Aug	22' .17"		28-May	19' .50"		9-Jul	31' .75"	
1-Sep	21' .00"		1-Sep	19' .42"		1-Sep	22' .17"		1-Sep	22' .58"		4-Jun	19' .50"		16-Jul	32' .00"	
1-Oct	19' .17"		1-Oct	19' .00"		1-Oct	22' .17"		1-Oct	20' .75"		12-Jun	26' .08"		23-Jul	32' .42"	
1-Nov	18' .17"		1-Nov	18' .33"		1-Nov	21' .50"		1-Nov	20' .76"		19-Jun	25' .67"		1-Aug	32' .75"	
1-Dec	20' .33"		1-Dec	18' .33"		1-Dec	21' .83"		1-Dec	20' .67"		26-Jun	25' .17"		7-Aug	32' .83"	
												10-Jul	26' .67"		13-Aug	33' .00"	
												17-Jul	27' 08"		20-Aug	33' .08"	
												24-Jul	26' .67"		27-Aug	33' .00"	
												7-Aug	27' .17"		3-Sep	33' .17"	
												21-Aug	28' .17"		10-Sep	33' .08"	
												28-Aug	28' .17"		17-Sep	32' .92"	
												1-Sep	28' .33"		24-Sep	32' .42"	
												1-Oct	28' .25"		1-Oct	32' .42"	
												1-Nov	27' .17"		1-Nov	31' .33"	
												1-Dec	26' .33"		1-Dec	30' .33"	

7153

WELL WATER LEVEL READINGS
Well #7

1989	Static	Run	1990	Static	Run	1991	Static	Run	1992	Static	Run	1993	Static	Run	1994	Static	Run
3-Jan	29' 9"		2-Jan	27' 11"		3-Jan	29' 7"		3-Jan	29' 8"		27-Mar	29' 7"		2-Jan	Probe	
1-Feb	29' 1"		3-Feb	28' 0"		3-Feb	29' 4"		1-Feb	29' 6"		2-May	Probe		26-Feb	Probe	
3-Mar	28 9"		3-Mar	28' 2"		3-Mar	29' 0"		29-Feb	29' 3"		29-May	Probe		2-Apr	Probe	
1-Apr	27' 9"		1-Apr	28' 2"		1-Apr	29' 5"		28-Mar	29' 1"		3-Jul	Probe		30-Apr	28' 9"	
29-Apr	26' 10"		28-Apr	28' 8"		4-May	28' 6"		3-May	30' 0"		28-Aug	Probe		26-May	30' 1"	
7-May	28' 0"		2-Jun	29' 8"		1-Jun	28' 0"		10-May	30' 2"		2-Oct	Probe		2-Jul	31' 10"	
13-May	27' 10"		9-Jun	29' 10"		29-Jun	30' 9"		17-May	30' 3"		30-Oct	Probe		30-Jul	33' 4"	
20-May	26' 0"		16-Jun	29' 6"		6-Jul	31' 4"		24-May	30' 9"		27-Nov	27' 9"		3-Sep	34' 6"	
27-May	28' 6"		23-Jun	30' 3"		13-Jul	31' 10"		31-May	31' 2"					1-Oct	33' 8"	
3-Jun	28' 9"		1-Jul	31' 2"		20-Jul	32' 3"		8-Jun	32' 8"					29-Oct	32' 1"	
11-Jun	28' 11"		8-Jul	31' 11"		28-Jul	32' 4"		13-Jun	32' 5"					1-Dec	31' 9.5"	
17-Jun	29' 2"		14-Jul	32' 2"		3-Aug	32' 6"		20-Jun	32' 7"							
24-Jun	29' 9"		21-Jul	32' 7"		10-Aug	32' 11"		27-Jun	33' 1"							
2-Jul	30' 2"		28-Jul	32' 11"		16-Aug	33' 4"		4-Jul	32' 11"							
8-Jul	30' 10"		4-Aug	33' 2"		24-Aug	33' 4"		12-Jul	33' 4"							
16-Jul	31' 2"		11-Aug	33' 6"		31-Aug	33' 3"		19-Jul	33' 5"							
22-Jul	31' 1"		18-Aug	33' 6"		5-Oct	32' 2"		25-Jul	33' 8"							
29-Jul	31' 3"		25-Aug	33' 2"		2-Nov	31' 2"		1-Aug	34' 1"							
5-Aug	31' 4"		1-Sep	33' 0"		30-Nov	30' 4"		8-Aug	34' 4"							
12-Aug	31' 6"		29-Sep	32' 9"					15-Aug	34' 10"							
19-Aug	31' 2"		3-Nov	31' 6"					22-Aug	35' 4"							
26-Aug	31' 4"		1-Dec	30' 7"					29-Aug	35' 5"							
2-Sep	31' 5"								6-Sep	35' 9"							
9-Sep	31' 6"								12-Sep	35' 6"							
30-Sep	31' 1"								19-Sep	35' 8"							
4-Nov	29' 5"								26-Sep	39' 9"							
2-Dec	28' 7"								3-Oct	35' 8"							
									31-Oct	34' 10"							
									28-Nov	Test probe in place							

1995	Static	Run	1996	Static	Run	1997	Static	Run	1998	Static	Run	1999	Static	Run	2000	Static	Run
1-Jan	30' 6"		3-Mar	28' 7"		4-Jan	27' 0"		4-Jan	24' 9"		2-Jan	25' 10"				
28-Jan	30' 2"		30-Mar	28' 7"		2-Feb	26' 3"		1-Feb	25' 5"		31-Jan	25' 5"				
25-Feb	29' 8"		6-May	28' 1"		2-Mar	26' 3"		1-May	26' 0"		5-Mar	26' 10"				
1-Apr	29' 5"		2-Jun	26' 9"		5-Apr	26' 1"		29-Mar	26' 0"		3-Apr	26' 6"				
29-Apr	29' 2"		30-Jun	26' 0"		4-May	25' 4"		3-May	26' 0"		2-May	27' 10"				
3-Jun	29' 3"		4-Aug	29' 2"		1-Jun	24' 5"		31-May	25' 10"		4-Jun	28' 2"				
1-Jul	29' 3"		7-Sep	29' 8"		4-Jul	25' 4"		4-Jul	26' 11"		4-Jul	27' 8"				
30-Jul	31' 3"		28-Sep	29' 6"		2-Aug	25' 2"		2-Aug	28 6"		1-Aug	28' 6"				
2-Sep	32' 2"		3-Nov	29' 1"		30-Aug	26' 1"		5-Sep	29' 10"		5-Sep	28' 10"				
9-Oct	32' 2"		1-Dec	29' 6"		4-Oct	25' 2"		2-Oct	28' 11"							
12-Nov	30' 10"					2-Nov	25' 4"		1-Nov	28' 9"							
3-Dec	29' 5"					30-Nov	24' 7"		12-Dec	27' 10"							
30-Dec	28' 11"																

7154

WELL WATER LEVEL READINGS
Well #10
1977- 1988

1970	Static	Run	1971	Static	Run	1972	Static	Run	1973	Static	Run	1974	Static	Run	1975	Static	Run	1976	Static	Run
1-Jan	43' .75"		1-Jan	45' .33"		1-Jan	41' .75"		1-Jan	41' .67"		1-Jan	43' .58"		1-Jan	42' .83"		1-Jan	40' .75"	
2-Feb	43' .82"		1-Feb	45' .33"		1-Feb	42' .25"		1-Feb	42' .17"		1-Feb	44' .00"		1-Feb	43' .25"		1-Feb	41' .08"	
1-Mar	44' .50"		1-Mar	46' .00"		1-Mar	42' .75"		1-Mar	42' .58"		1-Mar	44' .42"		1-Mar	43' .50"		1-Mar	41' .42"	
1-Apr	45' .17"		1-Apr	46' .25"		1-Apr	42' .83"		1-Apr	43' .08"		1-Apr	44' .83"		1-Apr	44' .17"		1-Apr	43' .08"	
1-May	48' .17"		1-May	45' .33"		1-May	42' .83"		1-May		45' .67"	1-May	45' .17"		1-May	44' .50"		1-May	43' .58"	
1-Jun	47' .08"		1-Jun	43' .75"		1-Jun	42' .00"		1-Jun	45' .50"		1-Jun		46' .58"	1-Jun		44' .08"	1-Jun		44' .08"
1-Jul	46' .42"		1-Jul		44' .67"	1-Jul		43' .33"	1-Jul		46' .00"	1-Jul		46' .50"	1-Jul	42' .08"		1-Jul		45' .33"
1-Sep	45' .58"		1-Aug	41' .83"		1-Aug		44. '42"	1-Aug		46' .08"	1-Aug	45' .25"		1-Aug		42' .42"	1-Aug		44' .50"
1-Oct	44' .58"		1-Sep	41' .83"		1-Sep	40' .75"		1-Sep	43' .75"		1-Sep	44' .00"		1-Sep	40' .58"		1-Sep		43' .00"
1-Nov	44' .83"		1-Oct	42' .25"		1-Oct	40' .33"		1-Oct	42' .83"		1-Oct	42' .50"		1-Oct	39' .83"		1-Oct	41' .42"	
1-Dec	45' .00"		1-Nov	41' .33"		1-Nov	40' .67"		1-Nov	42' .83"		1-Nov	42' .67"		1-Nov	39' .67"		1-Nov	41' .17"	
			1-Dec	41' .58"		1-Dec	40' .58"		1-Dec	43' .25"		1-Dec	43' .83"		1-Dec	40' .17"		1-Dec	41' .17"	

7155

WELL WATER LEVEL READINGS
Well #10
1977- 1988

1977	Static	Run	1978	Static	Run	1979	Static	Run	1980	Static	Run
1-Jan	42'.08"		1-Jan	45'.92"		1-Jan	46'.82"		1-Jan	47'.83"	
2-Feb	43'.00"		1-Feb	46'.08"		1-Feb	47'.33"		2-Feb	47'.92"	
1-Mar	43'.33"		1-Mar	46'.92"		1-Mar	47'.25"		1-Mar	47'.50"	
1-Apr	44'.67"		1-Apr	46'.67"		1-Apr	47'.83"		1-Apr	47'.50"	
16-Apr	44'.50"		1-May	47'.17"		1-May		40'.75"	1-May	48'.00"	
1-May	45'.00"		1-Jun		50'.25"	1-Jun		50'.00"	1-Jun		46'.00"
15-May	45'.08"		1-Jul		47'.50"	1-Jul		50'.83"	1-Jul		46'.42"
1-Jun	45'.68"		1-Aug		49'.83"	1-Aug	48'.75"		1-Aug	48'.50"	
15-Jun	45'.25"		1-Sep	47'.25"		1-Sep	49'.08"		1-Sep	47'.33"	
1-Jul	46'.42"		1-Oct	47'.42"		1-Oct	48'.75"		1-Oct	48'.08"	
13-Jul	46'.25"		1-Nov	46'.08"		1-Nov	47'.83"		1-Nov	45'.50"	
1-Aug	44'.83"		1-Dec	46'.83"		1-Dec	48'.08"		1-Dec	45'.67"	
15-Aug	46'.67"										
1-Sep	46'.17"										
15-Sep	46'.68"										
1-Oct	48'.00"										
1-Nov	45'.42"										
1-Dec	45'.83"										

1981	Static	Run	1982	Static	Run	1983	Static	Run	1984	Static	Run
1-Jan	45'.58"		1-Jan	46'.25"		1-Jan	43'.75"		1-Jan	42'.17"	
1-Feb	45'.67"		1-Feb	46'.75"		1-Feb	43'.42"		1-Feb	42'.33"	
1-Mar	45'.83"		1-Mar	46'.17"		1-Mar	43'.75"		1-Mar	42'.75"	
1-Apr	44'.25"		1-Apr	46'.25"		1-Apr	44'.00"		1-Apr	42'.00"	
1-May	46'.58"		1-May	46'.42"		1-May	44'.00"		1-May	42'.67"	
1-Jun	46'.83"		1-Jun	46'.33"		1-Jun	43'.00"		1-Jun	42'.00"	
1-Jul		49'.67"	1-Jul		46'.83"	1-Jul	42'.83"		1-Jul		43'.33"
1-Aug		50'.00"	1-Aug	46'.00"		1-Aug	43'.17"		1-Aug	42'.00"	
1-Sep	46'.17"		1-Sep	45'.17"		1-Sep	42'.75"		1-Sep	42'.17"	
1-Oct	47'.33"		1-Oct	43'.83"		1-Oct	40'.67"		1-Oct	41'.00"	
1-Nov	46'.50"		1-Nov	43'.42"		1-Nov	40'.58"		1-Nov	41'.83"	
1-Dec	46'.25"		1-Dec	43'.50"		1-Dec	42'.17"		1-Dec	41'.83"	

1985	Static	Run	1986	Static	Run	1987	Static	Run	1988	Static	Run
1-Jan	41'.50"		1-Jan	43'.00"		1-Jan	42'.67"		1-Jan	46'.75"	
1-Feb	42'.00"		1-Feb	43'.50"		1-Feb	43'.00"		1-Feb	47'.00"	
1-Mar	42'.00"		1-Mar	43'.17"		1-Mar	43'.08"		1-Mar	47'.00"	
1-Apr	42'.25"		1-Apr	43'.00"		1-Apr	44'.00"		1-Apr	46'.92"	
1-May	42'.75"		1-May	43'.42"		2-May	48'.00"		1-May	48'.00"	
1-Jun	43'.00"		1-Jun		43'.17"	12-May	45'.83"		1-Jun		50'.00"
1-Jul		45'.50"	1-Jul		44'.58"	21-May	45'.67"		2-Jul		50'.92"
1-Aug		45'.83"	1-Aug		44'.50"	28-May	45'.50"		9-Jul		52'.00"
1-Sep	43'.58"		1-Sep	44'.00"		4-Jun		45'.50"	16-Jul		52'.25"
1-Oct	43'.58"		1-Oct	43'.00"		12-Jun		46'.17"	23-Jul	51'.67"	
1-Nov	43'.00"		1-Nov	42'.00"		18-Jun	46'.08"		1-Aug	52'.25"	
1-Dec	43'.00"		1-Dec	42'.00"		26-Jun		47'.00"	7-Aug	52'.25"	
						10-Jul		47'.50"	13-Aug	52'.50"	
						17-Jul	46'.25"		20-Aug	52'.50"	
						24-Jul	46'.83"		27-Aug	52'.42"	
						31-Jul	46'.00"		3-Sep	52'.50"	
						7-Aug		48'.00"	10-Sep	52'.58"	
						14-Aug	48'.25"		17-Sep	48'.00"	
						21-Aug	47'.50"		24-Sep	52'.08"	
						28-Aug	45'.42"		1-Oct	51'.58"	
						1-Sep	47'.75"		1-Nov	50'.83"	
						1-Oct	48'.00"		1-Dec	50.00"	
						1-Nov	47'.42"				
						1-Dec	46'.75"				

7156

WELL WATER LEVEL READINGS
Well #10
1977- 1989

1989	Static	Run	1990	Static	Run	1991	Static	Run	1992	Static	Run
3-Jan	49' 7"		2-Jan	48' 0"		2-Jan	49' 4"		2-Jan	54' 4"	
1-Feb	48' 6"		3-Feb	47' 9"		2-Feb	48' 11"		1-Feb	49' 0"	
4-Mar	48' 5"		3-Mar	47' 10"		2-Mar	48' 11"		29-Feb	49' 0"	
1-Apr	48' 1"		31-Mar	48' 1"		1-Apr	48' 10"		28-Mar	49' 3"	
30-Apr	48' 9"		28-Apr	48' 9"		4-May	49' 3"		2-May	50' 5"	
7-May	48' 11"		2-Jun	49' 4"		2-Jun	49' 4"		9-May	51' 0"	
13-May	49' 0"		9-Jun	49' 6"		20-Jun		51' 4"	16-May	51' 1"	
20-May	49' 1"		17-Jun	49' 6"		6-Jul		51' 10"	23-May	51' 5"	
27-May	49' 3"		23-Jun	49' 11"		13-Jul		51' 11"	30-May	51' 8"	
4-Jun	49' 6"	49' 11"	1-Jul		51' 5"	20-Jul		52' 2"	6-Jun	51' 10"	
10-Jun	49' 8"	50' 6"	7-Jul		52' 0"	27-Jul	51' 10"		13-Jun	52' 2"	
17-Jun	50' 0"	50' 10"	14-Jul		52' 2"	3-Aug		52' 8"	20-Jun	52' 0"	
24-Jun		50' 10"	21-Jul		52' 5"	10-Aug		52' 8"	27-Jun	52' 4"	
1-Jul	50' 5"	51' 6"	28-Jul		52' 6"	17-Aug		52' 11"	4-Jul	52' 4"	
8-Jul	50' 10"	51' 8"	4-Aug		53' 0"	24-Aug		52' 11"	11-Jul		53' 6"
15-Jul	51' 0"	51' 10"	11-Aug		53' 0"	31-Aug	52' 2"		18-Jul		54' 1"
22-Jul	51' 2"	52' 0"	18-Aug		53' 2"	5-Oct	51' 0"		25-Jul		53' 8"
29-Jul	51' 6"	52' 1"	25-Aug	52' 2"		3-Nov	50' 6"		2-Aug		54' 1"
5-Aug	51' 7"	52' 4"	1-Sep	52' 3"		30-Nov	49' 8"		8-Aug		54' 3"
12-Aug	51' 3"	52' 3"	29-Sep	51' 4"					15-Aug		52' 8"
19-Aug	51' 3"	52' 3"	4-Nov	50' 2"					22-Aug		51' 11"
26-Aug	51' 0"	52' 1"	1-Dec	49' 8"					29-Aug		53' 0"
2-Sep	50' 10"	51' 8"							6-Sep	54' 4"	
9-Sep	50' 10"	51' 7"							12-Sep	54' 4"	
30-Sep	50' 2"								19-Sep	54' 5"	
4-Nov	48 11"								26-Sep	54' 5"	
2-Dec	48' 2"								3-Oct	54' 8"	
									31-Oct	53' 9"	
									26-Nov	52' 8"	

1993	Static	Run	1994	Static	Run	1995	Static	Run	1996	Static	Run
3-Jan	51' 6"		1-Jan	47' 6"		2-Jan	50' 3"		2-Mar	48' 4"	
30-Jan	51' 2"		3-Feb	48' 0"		28-Jan	49' 2"		30-Mar	48' 6"	
27-Feb	50' 10"		26-Feb	47' 10"		25-Feb	50' 2"		6-May	48' 3"	
27-Mar	50' 7"		2-Apr	48' 1"		1-Apr	49' 4"		2-Jun	48' 3"	
1-May	50' 0"		30-Apr	48' 10"		29-Apr	49' 5"		30-Jun		49' 3"
29-May	49' 10"		28-May	49' 9"		3-Jun	49' 4"		4-Aug		49' 4"
3-Jul	49' 11"		2-Jul		51' 8"	1-Jul	49' 1"		7-Sep	51' 3"	
30-Jul	51' 11"		30-Jul		58' 0"	30-Jul	50' 1"		28-Sep	51' 1"	
28-Aug		50' 3"	3-Sep	53' 0"		2-Sep		52' 0"	3-Nov	48' 11"	
2-Oct	48' 11"		1-Oct	52' 8"		9-Oct	50' 5"		1-Dec	49' 11"	
30-Oct	48' 2"		29-Oct	51' 5"		12-Nov	49' 10"				
27-Nov	47' 8"		1-Dec	52' 8"		3-Dec	48' 10"				
						30-Dec	48' 5"				

1997	Static	Run	1998	Static	Run	1999	Static	Run	2000	Static	Run	2001
4-Jan	47' 2"		4-Jan	45' 9"		2-Jan	46' 2"		8-Jan	48' 6"		5-Jan
2-Feb	46' 9"		1-Feb	46' 2"		31-Jan	48' 0"		5-Feb	45' 2"		4-Feb
2-Mar	46' 9"		1-Mar	45' 11"		5-Mar	47' 6"		4-Mar	48' 6"		3-Mar
5-Apr	46' 8"		29-Mar	46' 8"		3-Apr	47' 4"		1-Apr	48' 8"		1-Apr
4-May	46' 9"		3-May	47' 2"		2-May	47' 9"		30-Apr	48' 8"		5-May
1-Jun	46' 7"		31-May	47' 2"		5-Jun	47' 6"		4-Jun	50' 10"		2-Jun
4-Jul	46' 9"		4-Jul	47' 5"		4-Jul	47' 5"		1-Jul		53' 4"	9-Jun
2-Aug	49' 1"		2-Aug		49' 8"	1-Aug	50' 2"		5-Aug		55' 2"	15-Jun
30-Aug	43' 6"		5-Sep	49' 4"		5-Sep	50' 6"		3-Sep	55' 0"		7-Jul
4-Oct	45' 10"		2-Oct	48' 5"		3-Oct	50' 0"		30-Sep	54' 5"		22-Jul
2-Nov	46' 2"		1-Nov	49' 0"		30-Oct	49' 4"		6-Nov	53' 0"		28-Jul
30-Nov	45' 6"		12-Dec	47' 8"		5-Dec	49' 1"		3-Dec	52' 9"		4-Aug
												14-Aug
												25-Aug
												2-Sep
												8-Sep
												16-Sep
												7-Oct
												3-Nov
												2-Dec

7157

WELL WATER LEVEL READINGS
Well #10
1977- 1988

Static	Run	2002	Static	Run	2003	Static	Run	2004	Static	Run	2005	Static	Run	2006	Static	Run
	56' 0"	6-Jan	53' 5"		1-Jan	52' 11"		1-Jan	56' 0"		7-Jan	54' 7"		10-Jan	51' 4"	
52' 11"		1-Feb	52' 6"		2-Feb	52' 6"		6-Feb	54' 9"		4-Feb	53' 9"		10-Feb	50' 9"	
52' 1"		1-Mar	52' 2"		4-Mar	52' 3"		3-Mar	55' 1"		2-Mar	53' 5"		8-Mar	50' 4"	
52. 0"		1-Apr	48' 6"		3-Apr	52' 3"		1-Apr	54' 6"		5-Apr	52' 10"				
52' 4"		1-May	51' 1"		1-May	52' 2"		5-May	54' 6"		5-May	52' 10"				
53' 8"		2-Jun		54' 5"	2-Jun	53' 8"		17-May	53' 10"		8-Jun	52' 1"				
53' 11"		12-Jun		54' 11"	9-Jun		55' 3"	24-May	54' 11"		6-Jul	52' 8"				
54' 0"		19-Jun		55' 3"	16-Jun		55' 10"	1-Jun	54' 11"		3-Aug		54' 9"			
	56' 1"	26-Jun		55' 6"	23-Jun		56' 6"	16-Jun		56' 3"	8-Sep		55' 6"			
	56' 4"	3-Jul		56' 0"	7-Jul		57' 6"	22-Jun		57' 7"	5-Oct	54' 1"				
	56' 5"	10-Jul		56' 2"	14-Jul		57' 10"	30-Jun		56' 8"	2-Nov	53' 2"				
	56' 10"	17-Jul		56 5"	21-Jul		58' 1"	8-Jul		56' 11"	6-Dec	52' 2"				
	56' 3"	24-Jul		56' 10"	28-Jul		58' 6"	16-Jul		57' 0"						
	56' 10"	7-Aug		56' 10"	4-Aug	58' 0"		20-Jul		57' 2"						
	56' 9"	8-Sep	56' 0"		11-Aug		59' 3"	28-Jul		57' 6"						
56' 1"		10-Oct	55' 3"		18-Aug		59' 7"	3-Aug		57' 6"						
	59' 7"	1-Nov	55' 2"		25-Aug		60' 0"	12-Aug		58' 1"						
	58' 11"	3-Dec	53' 7"		4-Sep		59' 6"	19-Aug		58' 2"						
56' 3"					8-Sep		59' 6"	26-Aug	57' 6"							
54' 3"					15-Sep		58' 9"	16-Sep		58' 3"						
					29-Sep	58' 9"		5-Oct	57' 3"							
					6-Oct	58' 7"		3-Nov	58' 6"							
					15-Oct	58' 9"										
					3-Nov	58' 6"										
					1-Dec	57' 4"										

7158

WELL WATER LEVEL
Well #12
1989 - 2003

1970	Static	Run	1971	Static	Run	1972	Static	Run	1973	Static	Run	1974	Static	Run	1975	Static	Run	1976	Static	Run
1-Jan	34' .00"		1-Jan	38' .00"		1-Jan	31' .17"		1-Jan	31' .08"		1-Jan	33' .08"		1-Jan	32' .25"		1-Jan	30' .42"	.
1-Feb	34' .82"		1-Feb	38' .33"		1-Feb	31' .58"		1-Feb	31' .67"		1-Feb	33' .67"		1-Feb	32' .50"		1-Feb	30' .17"	
1-Mar	35' .00"		1-Mar		39' .17"	1-Mar		34' .08"	1-Mar	32' .25"		1-Mar	34' .25"		1-Mar	33' .33"		1-Mar	30' .67"	
1-Apr		38' .00"	1-Apr	37' .00"		1-Apr		34' .50"	1-Apr		34' .92"	1-Apr		36' .67"	1-Apr		35' .92"	1-Apr		34' .67"
1-May	38' .67"		1-May	34' .67"		1-May		33' .83"	1-May		37' .17"	1-May		36' .58"	1-May		35' .67"	1-May	32' .00"	
1-Jun	38' .00"		1-Jun	32' .83"		1-Jun	31' .33"		1-Jun		37' .25"	1-Jun		37' .25"	1-Jun		32' .75"	1-Jun		39' .58"
1-Jul	37' .58"		1-Jul		36' .50"	1-Jul	31' .83"		1-Jul		37' .50"	1-Jul		37' .33"	1-Jul		33' .00"	1-Jul		35' .58"
1-Sep	37' .00"		1-Aug		35' .50"	1-Aug	31' .67"		1-Aug		37' .75"	1-Aug		37' .17"	1-Aug		33' .83"	1-Aug	32' .92"	
1-Oct	36' .00"		1-Sep	31' .50"		1-Sep	30' .17"		1-Sep	33' .67"		1-Sep	34' .17"		1-Sep		32' .17"	1-Sep		33' .25"
1-Nov	35' .83"		1-Oct	30' .50"		1-Oct	29' .67"		1-Oct	33' .75"		1-Oct	32' .33"		1-Oct	30' .75"		1-Oct	29' .42"	
1-Dec	36' .00"		1-Nov	30' .58"		1-Nov	30' .00"		1-Nov	33' .67"		1-Nov	32' .00"		1-Nov	28' .75"		1-Nov	30' .33"	
			1-Dec	31' .08"		1-Dec	29' .75"		1-Dec	32' .83"		1-Dec	32' .25"		1-Dec	29' .08"		1-Dec	31' .08"	

7159

WELL WATER LEVEL
Well #12
1989 - 2003

1977	Static	Run	1978	Static	Run	1979	Static	Run	1980	Static	Run	1981	Static	Run	1982	Static	Run	1983	Static	Run	1984	Static	Run	1985	Static	Run	1986	Static
1-Jan	30' .17		1-Jan	36' .25"		1-Jan	37' .33"		1-Jan	39' .08"		1-Jan	34' .92"		1-Jan	36' .33"		1-Jan	32' .25"		1-Jan	31' .00"		1-Jan	31' .17"		1-Jan	32' .33"
1-Feb	32' .25"		1-Feb	30' .58"		1-Feb	37' .17"		1-Feb	39' .17"		1-Feb	35' .42"		1-Feb	36' .67"		1-Feb	32' .25"		1-Feb	31' .17"		1-Feb	31' .33"		1-Feb	33' .42"
1-Mar	32' .08"		1-Mar	37' .33"		1-Mar	37' .92"		1-Mar	37' .75"		1-Mar	35' .92"		1-Mar	36' .50"		1-Mar	32' .58"		1-Mar	31' .58"		1-Mar	31' .00"		1-Mar	31', 33"
1-Apr	34' .67"		1-Apr	37' .33"		1-Apr		39' .83"	1-Apr		39' .75"	1-Apr	35' .63"		1-Apr	37' .58"		1-Apr	33' .08"		1-Apr	32' .17"		1-Apr	30' .17"		1-Apr	31' .33"
15-Apr	34' .42"		1-May	37' .92"		1-May		42' .08"	1-May	38' .33"		1-May	37' .42"		1-May	36' .33"		1-May	32' .67"		1-May	31' .33"		1-May		32' .33"	1-May	29' .50"
1-May	35' .33"		1-Jun		40' 33"	1-Jun		42' .08"	1-Jun		40' .25"	1-Jun		39' .58"	1-Jun	35' .67"		1-Jun	30' .83"		1-Jun	30' .00"		1-Jun	31' .25"		1-Jun	
15-May	35' .08"		1-Jul		41' .92"	1-Jul		43' .25"	1-Jul		39' .00"	1-Jul		41' .17"	1-Jul		37' .25"	1-Jul		33' .67"	1-Jul		33' .00"	1-Jul		34' .75"	1-Jul	
1-Jun	36' .67"		1-Aug		41' .75"	1-Aug		43' .42"	1-Aug	38' .17"		1-Aug		42' .25"	1-Aug		37' .00"	1-Aug		33' .92"	1-Aug		34' .33"	1-Aug		32' .33"	1-Aug	31' .33"
15-Jun		36' .25"	1-Sep		40' .67"	1-Sep		46' .33"	1-Sep	37' .67"		1-Sep	41' .50"		1-Sep		36' .33"	1-Sep		33' .50"	1-Sep	31' .00"		1-Sep	34' .25"		1-Sep	
1-Jul	37' .50"		1-Oct	36' .50"		1-Oct	41' .58"		1-Oct	35' .25"		1-Oct	37' .92"		1-Oct	33' .00"		1-Oct	29' .25"		1-Oct	30' .00"		1-Oct	34' .25"		1-Oct	31' .42"
13-Jul	37' .33"		1-Nov	37' .33"		1-Nov	39' .83"		1-Nov	34' .33"		1-Nov	36' .17"		1-Nov	32' .33"		1-Nov	29' .25"		1-Nov	30' .92"		1-Nov	31' .33"		1-Nov	30' .42"
1-Aug	39' .25"		1-Dec	36' .58"		1-Dec	38' .50"		1-Dec	34' .67"		1-Dec	36' .08"		1-Dec	32' .58"		1-Dec	30' .92"		1-Dec	30' .92"		1-Dec	31' .33"		1-Dec	31' .42"
15-Aug	37' .33"																											
1-Sep		38' .83"																										
15-Sep	38' .58"																											
1-Oct	36' .67"																											
1-Nov	36' .67"																											
1-Dec	36' .67"																											

7160

WELL WATER LEVEL
Well #12
1980 - 2003

Run	1987	Static	Run	1988	Static	Run
	1-Jan	31' .33"		1-Jan	37' .42"	
	1-Feb	32' .17"		1-Feb	36' .33"	
	1-Mar	31' .75"		1-Mar	36' .08"	
	1-Apr	33' .08"		1-Apr	36' .75"	
	2-May	33' .76"		1-May	37' .92"	
31' .83"	12-May	33' .83"		1-Jun		43' .67"
34' .50"	21-May	35' .33"		2-Jul	42' .75"	
	28-May	35' .25"		9-Jul	43' .33"	
31' .67"	4-Jun	37' .17"		16-Jul	42' .33"	
	12-Jun		37' .33"	1-Aug	43' .58"	
	19-Jun	36' .50"		7-Aug	44' .00"	
	26-Jun		37' .75"	13-Aug	44' .08"	
	10-Jul		38' .83"	20-Aug	43' .50"	
	17-Jul		38' .50"	27-Aug	43' .33"	
	24-Jul		38' .33"	10-Sep	42' .58"	
	31-Jul		40' .33"	17-Sep	43' .67"	
	7-Aug		39' .50"	24-Sep	42' .33"	
	14-Aug		39' ,67"	1-Oct	42' .75"	
	21-Aug		39' .75"	1-Nov	41; .83"	
	28-Aug		40' .00"	1-Dec	39' .67"	
	1-Sep		41' .33"			
	1-Oct	38' .75"				
	1-Nov	36' .75"				
	1-Dec	37' .33"				

7161

WELL WATER LEVEL
Well #12
1989 - 2003

1989	Static	Run	1990	Static	Run	1991	Static	Run	1992	Static	Run	1993	Static	Run
3-Jan	39' 8"		2-Jan	37' 9"		3-Jan	40' 0"		2-Jan	39' 4"		3-Jan	43' 3"	
1-Feb	39' 2"		3-Feb	37' 5"		3-Feb	39' 11"		1-Feb	40' 1"		30-Jan	42' 6"	
4-Mar	39' 2"		3-Mar	37' 6"		2-Mar	39' 10"		29-Feb	40' 1"		27-Feb	42' 1"	
1-Apr	37' 10"		31-Mar	37' 10"		1-Apr	39' 10"		29-Mar	40' 4"		27-Mar	41' 9"	
30-Apr	37' 9"		28-Apr	38' 5"		4-May	39' 11"		2-May	41' 4"		1-May	41' 1"	
8-May		39' 6"	2-Jun	39' 4"		2-Jun	39' 11"		9-May		43' 11"	29-May	40' 4"	
13-May	38' 8"		9-Jun		41' 2"	29-Jun		43' 4"	16-May		42' 3"	3-Jul	41' 0"	
20-May	38' 9"		16-Jun	39' 7"		6-Jul		43' 7"	23-May		42' 7"	30-Jul	40' 2"	
27-May	38' 11"		23-Jun		41' 5"	13-Jul		44' 3"	30-May		40' 6"	28-Aug	40' 6"	
3-Jun	39' 4"		1-Jul		39' 0"	20-Jul		44' 7"	6-Jun		44' 9"	2-Oct	39' 11"	
10-Jun	39' 3"		7-Jul		42' 9"	27-Jul		44' 7"	13-Jun		45' 3"	30-Oct	39' 0"	
17-Jun	39' 9"		14-Jul		43' 4"	3-Aug		44' 11"	20-Jun	43' 5"		27-Nov	38' 4"	
24-Jun	40' 0"		21-Jul		43' 9"	10-Aug		45' 1"	27-Jun		45' 6"			
1-Jul	42' 0"		28-Jul		44' 1"	17-Aug		45' 8"	4-Jul	43' 10"				
8-Jul		42' 4"	4-Aug		44' 2"	24-Aug		45' 4"	11-Jul		45' 11"			
15-Jul		42' 10"	11-Aug		44' 5"	31-Aug		45' 3"	18-Jul		46' 2"			
22-Jul		43' 0"	18-Aug	43' 4"		5-Oct	42' 7"		25-Jul		46' 7"			
29-Jul		43' 1"	25-Aug	43' 2"		3-Nov	41' 9"		2-Aug		46' 7"			
5-Aug		43' 4"	1-Sep	42' 10"		30-Nov	40' 9"		8-Aug		46' 9"			
12-Aug		43' 3"	29-Sep	42' 4"					15-Aug		47' 5"			
19-Aug		43' 6"	4-Nov	40' 11"					22-Aug		47' 6"			
26-Aug		42' 11"	1-Dec	40' 0"					29-Aug		47' 6"			
2-Sep		42' 11"							6-Sep		47' 8"			
9-Sep	41' 4"								12-Sep	46' 4"				
30-Sep		42' 4"							19-Sep	46' 4"				
4-Nov	38' 11"								26-Sep	46' 6"				
2-Dec	38' 0"								3-Oct	46' 4"				
									31-Oct	45' 7"				
									28-Nov	44' 5"				

1994	Static	Run	1995	Static	Run	1996	Static	Run	1997	Static	Run	1998
1-Jan	38' 1"		2-Jan	46' 3"		4-Mar	37' 7"		4-Jan	36' 8"		4-Jan
3-Feb	37' 6"		28-Jan	40' 8"		30-Mar	38' 5"		2-Feb	36' 0"		1-Feb
26-Feb	38' 4"		25-Feb	40' 8"		5-May	38' 0"		2-Mar	35' 10"		1-Mar
2-Apr	38' 6"		1-Apr	40' 1"		2-Jun	37' 4"		5-Apr	36' 0"		29-Mar
30-Apr	39' 6"		29-Apr	39' 10"		30-Jun	37' 6"		4-May	35' 8"		2-May
28-May	40' 8"		3-Jun	39' 11"		4-Aug		40' 3"	1-Jun	34' 10"		31-May
2-Jul		43' 10"	1-Jul	39' 10"		7-Sep		42' 6"	4-Jul		36' 10"	4-Jul
30-Jul		45' 4"	30-Jul		43' 2"	28-Sep	40' 10"		2-Aug	38' 4"		2-Aug
3-Sep		46' 2"	2-Sep	42' 4"		3-Nov	39' 11"		30-Aug		39' 9"	5-Sep
1-Oct	44' 6"		9-Oct	40' 10"		1-Dec	39' 10"		4-Oct	34' 10"		2-Oct
29-Oct	43' 0"		13-Nov	40' 6"					2-Nov	34' 11"		1-Nov
1-Dec	43' 3.5"		3-Dec	39' 7"					30-Nov	34' 5"		12-Dec
			30-Dec	39' 2"								

7162

WELL WATER LEVEL
Well #12
1989 - 2003

Static	Run	1999	Static	Run	2000	Static	Run	2001	Static	Run	2002	Static	Run	2003	Static	Run	2004	Static	Run	2005	Static	Run	2006	Static	Run
34' 7"		2-Jan	35' 2"		8-Jan	38' 4"		5-Jan		56' 0"	6-Jan	44' 2"		1-Jan	43' 7"		1-Jan	48' 2"		7-Jan	48' 8"		10-Jan	42' 7"	
35' 2"		31-Jan	34' 8"		5-Feb	42' 0"		4-Feb	44' 4"		1-Feb	44' 4"		2-Feb	43' 2"		6-Feb	47' 3"		4-Feb	46' 0"		10-Feb	41' 7"	
35' 0"		5-Mar	35' 6"		4-Mar	38' 8"		5-Mar	43' 0"		1-Mar	44' 0"		4-Mar	43' 11"		3-Mar	47' 1"		2-Mar	45' 5"		8-Mar	41' 2"	
35' 10"		3-Apr	35' 8"		1-Apr	38' 10"		1-Apr	43' 1"		1-Apr	43' 6"		3-Apr	43' 9"		1-Apr	47' 4"		5-Apr	44' 10"				
36' 2"		2-May	37' 4"		30-Apr	39' 9"		5-May	43' 4"		1-May	42' 7"		1-May	42' 10"		5-May		48' 7"	5-May	44' 3"				
36' 1"		5-Jun		38' 4"	4-Jun	43' 9"		2-Jun	45'		2-Jun		46' 8"	2-Jun		47' 10"	17-May	46' 7"		8-Jun	43' 6"				
	38' 0"	4-Jul		38' 0"	1-Jul		45' 7"	9-Jun	45' 5"		12-Jun		47' 10"	9-Jun		48' 4"	24-May	46' 11"		6-Jul	46' 2"				
	39' 6"	1-Aug		42' 6"	1-Aug		47' 7"	15-Jun	45' 6"		19-Jun		48' 2"	16-Jun		49' 1"	1-Jun		48' 1"	3-Aug		47' 10"			
	40' 6"	5-Sep		43' 1"	3-Sep		48' 10"	7-Jul		49' 3"	26-Jun		48' 7"	23-Jun		49' 6"	16-Jun		49' 3"	8-Sep		48' 9"			
38' 3"		3-Oct		42' 10"	30-Sep	46' 0"		22-Jul		49' 2"	3-Jul		48' 11"	7-Jul		50' 6"	22-Jun		49' 8"	5-Oct	46' 0"				
37' 7"		30-Oct	39' 5"		6-Nov	44' 3"		28-Jul		49' 7"	10-Jul		49' 5"	14-Jul		51' 6"	30-Jun		49' 10"	2-Nov	44' 8"				
38' 4"		5-Dec	38' 7"		3-Dec	44' 1"		4-Aug		49' 11"	17-Jul		49' 9"	21-Jul		51' 10"	8-Jul		50' 2"	6-Dec	43' 7"				
								14-Aug		49' 10"	24-Jul		49' 10"	28-Jul		52' 6"	15-Jul		50' 4"						
								25-Aug		49' 11"	7-Aug		50' 0"	4-Aug		52' 9"	20-Jul		50' 4"						
								2-Sep		49' 10"	8-Sep		49' 7"	11-Aug		53' 1"	28-Jul		50' 9"						
								8-Sep	47' 10"		10-Oct	47' 5"		18-Aug		51' 2"	3-Aug		50' 11"						
								16-Sep	47' 8"		1-Nov	48' 7"		25-Aug	43' 8"		12-Aug		51' 9"						
								7-Oct	47' 10"		3-Dec	45' 5"		4-Sep	51' 5"	53' 2"	19-Aug		52' 0"						
								3-Nov	48' 9"					9-Sep	50' 1"		26-Aug	51' 9"							
								2-Dec	45' 5"					15-Sep	41' 3"		16-Sep	49' 10"							
														29-Sep	51' 2"		6-Oct	49' 6"							
														6-Oct	50' 0"		3-Nov	48' 9"							
														15-Oct	50' 4"										
														3-Nov	48' 11"										
														1-Dec	48' 7"										

7163

WELL WATER LEVEL READINGS
Well #13
1992 - 2003

1992	Static	Run	1993	Static	Run	1994	Static	Run	1995	Static	Run	1996	Static	Run	1997	Static	Run	1998	Static	Run	1999	Static	Run	2000	Static	Run	2001
17-Mar	32' 0"		30-Jan	Skipped		2-Jan	Probe		1-Jan	33' 9"		2-Mar	31' 7"		4-Jan	28' 2"		4-Jan	26' 5"		2-Jan	29' 6"		8-Jan	33' 2"		5-Jan
			27-Feb	33' 9"		3-Feb	30' 0"		28-Jan		35' 0"	30-Mar	31' 7"		2-Feb	28' 5"		1-Feb	27' 0"		31-Jan	29' 1"		5-Feb	34' 0"		4-Feb
			28-Mar	35' 1"		28-Feb	30' 4"		25-Feb	33' 0"		5-May		32' 7"	2-Mar	28' 6"		1-Mar	26' 9"		5-Mar		31' 8"	4-Mar	33' 7"		3-Mar
			1-May	Probe		2-Apr	30' 7"		1-Apr	32' 6"		2-Jun		30' 1"	5-Apr		29' 7"	29-Mar	27' 11"		3-Apr	29' 10"		1-Apr	33' 10"		1-Apr
			29-May	31' 3"		30-Apr	31' 5"		29-Apr	32' 7"		30-Jun		30' 2"	4-May		28' 7"	3-May		34' 6"	2-May	30' 3"		30-Apr		35' 10"	5-May
			3-Jul	31' 5"		28-May	32' 6"		3-Jun		34' 2"	4-Aug		31' 4"	1-Jun		25' 7"	31-May	26' 7"		4-Jun	29' 10"		4-Jun		37' 7"	2-Jun
			30-Jul	32' 0"		2-Jul	34' 7"		1-Jul		34' 5"	7-Sep		32' 3"	4-Jul	24' 11"		4-Jul	27' 5"		4-Jul	29' 7"		1-Jul		40' 2"	9-Jun
			28-Aug	31 2"		30-Jul		38' 2"	30-Jul		35' 6"	28-Sep		32' 6"	2-Aug	26' 6"		2-Aug	29' 4"		1-Aug	33' 0"		5-Aug	41' 3"		15-Jun
			2-Oct	31' 2"		3-Sep		40' 1"	2-Sep		37' 2"	3-Nov	29' 6"		30-Aug	26' 8"		5-Sep	31' 1"		5-Sep	33' 3"		3-Sep		44' 2"	7-Jul
			30-Oct	29' 11"		1-Oct		40' 3"	9-Oct	35' 3"		1-Dec	28' 10"		4-Oct	25' 10"		2-Oct	30' 0"		3-Oct	33' 10"		30-Sep	43' 2"		22-Jul
			27-Nov	Probe		29-Oct	36' 6"		11-Nov		34' 7"				2-Nov		26' 6"	1-Nov	30' 6"		30-Oct	33' 4"		6-Nov		42' 1"	28-Jul
						1-Dec	35' 11.5"		3-Dec	32' 6"					30-Nov	25' 7"		12-Dec	30' 1"		5-Dec		34' 2"	3-Dec	38' 10"		4-Aug
									30-Dec	32' 2"																	14-Aug
																											25-Aug
																											2-Sep
																											8-Sep
																											16-Sep
																											7-Oct
																											3-Nov
																											2-Dec

7164

WELL WATER LEVEL READINGS
Wall #13
1992 - 2003

Static	Run	2002	Static	Run	2003	Static	Run	2004	Static	Run	2005	Static	Run	2006	Static	Run
39' 1"		6-Jan	39' 11"		1-Jan	45' 89"		1-Jan		46' 0"	7-Jan		43' 7"	10-Jan		38' 9"
39' 7"		1-Feb	39' 2"		2-Feb	39' 2"		6-Feb	43' 2"		4-Feb		42' 8"	10-Feb		38' 0"
39' 8"		1-Mar	37' 5"		4-Mar	39' 2"		3-Mar	42' 1"		2-Mar	40' 8"		8-Mar	34' 0"	
39' 6"		1-Apr	38' 8"		3-Apr	38' 10"		1-Apr	42' 0"		6-Apr	49' 9"				
	42' 1"	1-May	38' 2"		1-May	39' 0"		5-May	41' 8"		5-May	38' 10"				
	44' 4"	2-Jun	38' 2"		2-Jun		42' 0"	17-May	40' 9"		8-Jun	37' 1"				
42' 8"		12-Jun	39' 2"		9-Jun	41' 1"		24-May	42' 0"		6-Jul		38' 11"			
42' 10"		19-Jun	39' 6"		16-Jun	41' 9"		1-Jun	42' 0"		3-Aug	39' 6"				
43' 10"		26-Jun	39' 11"		23-Jun	42' 6"		16-Jun		43' 10"	8-Sep		41' 9"			
44' 0"		3-Jul	40' 4"		7-Jul	43' 6"		22-Jun		44' 1"	6-Oct	40' 1"				
44' 3"		10-Jul	40' 8"		14-Jul	44' 2"		30-Jun	43' 10"		2-Nov	38' 5"				
44' 8"		17-Jul	41' 2"		21-Jul	48' 11"		8-Jul		44' 10"	6-Dec	37' 4"				
44' 6"		24-Jul	41' 4"		28-Jul	45' 4"		15-Jul	43' 6"							
44' 8"		7-Aug	41' 7"		4-Aug	45' 11"		20-Jul		45' 5"						
45' 1"		6-Sep	42' 4"		11-Aug	46' 3"		28-Jul		46' 0"						
45' 1"		10-Oct		43' 10"	18-Aug	46' 8"		3-Aug	45' 0"							
45' 0"		1-Nov	41' 2"		25-Aug	46' 10"		12-Aug		46' 10"						
45' 3"		3-Dec	40' 5"		4-Sep	47' 0"		19-Aug	45' 10"							
43' 10"					9-Sep	46' 9"		26-Aug		47' 1"						
41' 11"					13-Sep	47' 0"		16-Sep		47' 11"						
					29-Sep	47' 5"		5-Oct		47' 9"						
					6-Oct	47' 1"		3-Nov		46' 8"						
					15-Oct	47' 1"										
					3-Nov	46' 9"										
					1-Dec		46' 10"									

7165

WELL WATER LEVEL READINGS
Well #14
1990 - 2003

1990	Static	Run	1991	Static	Run	1992	Static	Run
31-Mar		33' 0"	2-Feb		34' 8"	2-Jan		34' 7"
28-Apr		33' 2"	2-Mar		34' 9"	1-Feb		34' 8"
2-Jun		33' 11"	1-Apr		34' 1"	29-Feb		34' 7"
9-Jun		34' 3"	4-May		34' 5"	28-Mar		34' 10"
1-Jul		35' 8"	2-Jun		33' 11"	2-May		35' 10"
7-Jul		36' 0"	29-Jun		35' 5"	9-May		36' 4"
14-Jul		36' 7"	6-Jul		35' 10"	16-May		36' 11"
21-Jul		37' 0"	13-Jul		36' 4"	23-May		37' 0"
28-Jul		37' 6"	20-Jul		36' 10"	30-May		37' 6"
4-Aug		37' 8"	27-Jul		36' 11"	6-Jun		38' 0"
11-Aug		38' 0"	3-Aug		37' 1"	13-Jun		38' 5"
18-Aug		38' 3"	10-Aug		37' 6"	20-Jun		38' 6"
25-Aug		38' 3"	17-Aug		37' 8"	27-Jun		38' 10"
1-Sep		38' 4"	24-Aug		37' 10"	4-Jul	38' 9"	
29-Sep		38' 0"	31-Aug		37' 9"	11-Jul		39' 3"
3-Nov		36' 10"	5-Oct		37' 3"	18-Jul		39' 8"
1-Dec		36' 1"	3-Nov		36' 1"	25-Jul	39' 10"	
			30-Nov		35' 4"	1-Aug		40' 5"
						8-Aug		40' 10"
						15-Aug		41' 2"
						22-Aug		41' 7"
						29-Aug		41' 11"
						6-Sep		42' 3"
						12-Sep		42' 4"
						19-Sep	42' 8"	
						26-Sep	42' 7"	
						3-Oct		42' 10"
						31-Oct	41' 2"	
						28-Nov		39' 11"

1993	Static	Run	1994	Static	Run	1995	Static	Run
3-Jan		38' 3"	1-Jan	29' 7"		1-Jan	34' 3"	
30-Jan		37' 8"	3-Feb	29' 6"		28-Jan	33' 10"	
27-Feb		37' 6"	28-Feb	30' 6"		25-Feb	33' 8"	
27-Mar		36' 6"	2-Apr	30' 8"		1-Apr	33' 5"	
1-May		34' 11"	30-Apr	31' 7"		29-Apr	33' 4"	
29-May		31' 3"	29-May	32' 8"		3-Jun	33' 0"	
3-Jul		31' 1"	2-Jul	34' 6"		1-Jul	33' 0"	
31-Jul		31' 2"	30-Jul	36' 1"		30-Jul	36' 0"	
28-Aug		30' 7"	3-Sep	38' 1"		2-Sep	35' 8"	
2-Oct	30' 8"		1-Oct	38' 9"		8-Oct	35' 2"	
30-Oct	29' 7"		29-Oct	36' 10"		13-Nov	34' 10"	
27-Nov	29' 6"		1-Dec	36' 5.5"		3-Dec	33' 1"	
						30-Dec	33' 0"	

1996	Static	Run	1997	Static	Run	1998	Static	Run	1999
3-Mar	32' 7"		4-Jan	28' 1"		4-Jan	28' 4"		2-Jan
30-Mar	32' 4"		2-Feb	28' 3"		1-Feb	27' 1"		31-Jan
5-May	31' 0"		2-Mar	28' 6"		1-Mar	27' 0"		6-Mar
2-Jun	28' 11"		5-Apr	27' 10"		29-Mar	26' 3"		3-Apr
30-Jun	27' 4"		4-May	25' 10"		3-May	27' 7"		5-May
4-Aug	27' 9"		1-Jun	21' 7"		31-May	26' 10"		5-Jun
7-Sep	29' 1"		4-Jul	22' 10"		4-Jul		27' 4"	4-Jul
28-Sep	29' 8"		2-Aug	24' 11"		2-Aug	28' 7"		1-Aug
3-Nov	28' 8"		30-Aug	26' 3"		5-Sep		30' 11"	5-Sep
1-Dec	28' 3"		4-Oct	24' 7"		3-Oct	30' 1"		3-Oct
			2-Nov	24' 11"		1-Nov	29' 4"		30-Oct
			30-Nov	25' 2"		12-Dec	29' 8"		5-Dec

7166

WELL WATER LEVEL READINGS
Well #14
1990 - 2003

Static	Run	2000	Static	Run	2001	Static	Run	2002	Static	Run	2003	Static	Run	2004	Static	Run	2005	Static	Run	2006	Static	Run
28' 8"		8-Jan	34' 7"		5-Jan	42' 4"		6-Jan	41' 9"		1-Jan	41' 8"		1-Jan	46' 11"		7-Jan	44' 3"		10-Jan	Unable to obtain read	
28' 2"		5-Feb	35' 2"		4-Feb	42' 0"		1-Feb	41' 0"		2-Feb	41' 2"		6-Feb	45' 6"		4-Feb	43' 3"		10-Feb	Unable to obtain read	
29' 11"		4-Mar	35' 4"		3-Mar	42' 2"		1-Mar	40' 5"		4-Mar	41' 5"		3-Mar	45' 6"		2-Mar	42' 7"		8-Mar	35' 1"	
28' 10"		1-Apr	35' 7"		1-Apr	41' 10"		1-Apr	38' 10"		3-Apr	41' 2"		1-Apr	44' 5"		5-Apr	41' 3"				
31' 1"		30-Apr	36' 4"		6-May	42' 9"		1-May	38' 10"		1-May	41' 3"		5-May	43' 10"		5-May	40' 2"				
29' 10"		4-Jun	38' 4"		2-Jun		45' 6"	2-Jun	40' 8"		2-Jun	42' 10"		17-May	44' 2"		8-Jun	38' 0"				
29' 4"		1-Jul	41' 0"		9-Jun	44' 11"		12-Jun	40' 8"		9-Jun	43' 7"		24-May	44' 1"		8-Jul	38' 2"				
32' 6"		5-Aug	43' 4"		15-Jun	45' 0"		19-Jun	39' 8"		16-Jun	44' 3"		1-Jun	43' 10"		3-Aug	39' 10"				
32' 1"		3-Sep		45' 5"	7-Jul	46' 3"		26-Jun	41' 6"		23-Jun		45' 5"	18-Jun	44' 5"		8-Sep	40' 11"				
34' 3"		30-Sep	45' 2"		27-Jul	46' 3"		3-Jul	41' 10"		7-Jul	46' 4"		22-Jun	44' 7"		5-Oct	40' 7"				
34' 2"		6-Nov	43' 2"		28-Jul	48' 7"		10-Jul	42' 2"		14-Jul		47' 2"	30-Jun	45' 0"		2-Nov	39' 3"				
35' 1"		3-Dec	42' 1"		4-Aug	46' 11"		17-Jul	42' 7"		22-Jul	47' 4"		8-Jul	45' 4"		6-Dec	Unable to obtain read				
					14-Aug		47' 5"	24-Jul	42' 11"		28-Jul	47' 8"		15-Jul	45' 10"							
					26-Aug	47' 0"		7-Aug	43' 3"		4-Aug	48' 3"		20-Jul	46' 1"							
					2-Sep	47' 3"		8-Sep	44' 0"		11-Aug		49' 0"	28-Jul	46' 3"							
					8-Sep	47' 5"		10-Oct	44' 1"		18-Aug	48' 10"		3-Aug	47' 1"							
					16-Sep	47' 6"		1-Nov	43' 4"		25-Aug	49' 1"		12-Aug	47' 6"							
					7-Oct	47' 8"		3-Dec	42' 1"		4-Sep	49' 1"		19-Aug	47' 11"							
					3-Nov	46' 5"					9-Sep	49' 0"		24-Aug	47' 11"							
					2-Dec	44' 3"					14-Sep	49' 4"		16-Sep	48' 8"							
											29-Sep	49' 6"		5-Oct	48' 6"							
											6-Oct	49' 1"		3-Nov	47' 6"							
											15-Oct	49' 4"										
											3-Nov	48' 10"										
											1-Dec	47' 11"										

7167

WELL WATER LEVEL READINGS
Well #16
1989 - 2003

1970	Static	Run	1971	Static	Run	1972	Static	Run	1973	Static	Run	1974	Static	Run	1975	Static	Run	1976	Static	Run
1-Jan	37' .50"		1-Jan	40' .17"		1-Jan	35' .75"		1-Jan	35' .83"		1-Jan	37' .83"		1-Jan	37'.00"		1-Jan	34' .58"	
1-Feb	38' .67"		1-Feb	40' .33"		1-Feb	36' .42"		1-Feb	38' .17"		1-Feb	38' .17"		1-Feb	37' .50"		1-Feb	35' .00"	
1-Mar	39' .33"		1-Mar	41' .08"		1-Mar	37' .25"		1-Mar	38' .67"		1-Mar	38' .75"		1-Mar	38' .17"		1-Mar	35' .42"	
1-Apr	40' .25"		1-Apr	41' .00"		1-Apr	37' .33"		1-Apr	38' .42"		1-Apr	39' .25"		1-Apr	37' .50"		1-Apr	37' .33"	
1-May	40' .83"		1-May	39' .75"		1-May		40' .58"	1-May		40' .42"	1-May		43' .00"	1-May		42' .67"	1-May		41' .00"
1-Jun	41' .92"		1-Jun		41' .67"	1-Jun		39' .00"	1-Jun		43' .08"	1-Jun		43' .50"	1-Jun		40' .76"	1-Jun		42' .50"
1-Jul		44' .50"	1-Jul	38' .33"		1-Jul		40' .67"	1-Jul	47' .00"		1-Jul		43' .58"	1-Jul	36' .08"		1-Jul		42' .83"
1-Sep	41' .08"		1-Aug	38' .33"		Aaaug 1		40' .17"	1-Aun	40' .17"		1-Aug		43' .17"	1-Aug	35' .67"		Agu 1		41' .92"
1-Oct	40' .00"		1-Sep	36' .17"		1-Sep	36' .17"		1-Sep	38' .17"		1-Sep		42' .33"	1-Sep	35' .00"		1-Sep	36' .25"	
1-Nov	40' .00"		1-Oct	35' .83"		1-Oct	34' .67"		1-Oct	37' .08"		1-Oct	37' .00"		1-Oct	34' .50"		1-Oct	35' .50"	
1-Dec	40' .00"		1-Nov	35' .50"		1-Nov	35' .00"		1-Nov	37' .25"		1-Nov	36' .67"		1-Nov	33' .17"		1-Nov	35' .75"	
			1-Dec	35' .58"		1-Dec	34' .92"		1-Dec	37' .33"		1-Dec	37' .08"		1-Dec	34' .00"		1-Dec	36' .00"	

WELL WATER LEVEL READINGS
Well #16
1989 - 2003

1977	Static	Run	1978	Static	Run	1979	Static	Run	1980	Static	Run
1-Jan	35' .33"		1-Jan	40' .92"		1-Jan		44' .83"	1-Jan		45' .25"
1-Feb	37' .33"		1-Feb	40' .75"		1-Feb		44' .67"	1-Feb		44' .92"
1-Mar	38' .17"		1-Mar		44' .17"	1-Mar	41'. 83"		1-Mar	41' .75"	
1-Apr	39' .08"		1-Apr		43' .83"	1-Apr		45' .58"	1-Apr	41' .83"	
16-Apr	38' .50"		1-May		44' .33"	1-May		46' .33"	1-May		44' .92"
1-May	39' .42"		1-Jun		43' .58"	1-Jun		47' .58"	1-Jun		44' .17"
15-May	39' .67"		1-Jul		44' .50"	1-Jul		48' .25"	1-Jul		45' .00"
1-Jun	40' .00"		1-Aug		46' .82"	1-Aug		48' .08"	1-Aug	43' .00"	
15-Jun	41' .00"		1-Sep		46' .17"	1-Sep		48' .17"	1-Sep		44' .75"
1-Jul	41' .25"		1-Oct		44' .00"	1-Oct		47' .17"	1-Oct		42' 67"
13-Jul	41' 42"		1-Nov	41' .50"		1-Nov	46' .17"		1-Nov		41' .92"
1-Aug	43' .83"		1-Dec	41' .60"		1-Dec		48' .67"	1-Dec	39' .42"	
15-Aug	41' .58"										
1-Sep	41' .08"										
15-Sep	42' .00"										
1-Oct		43' .67"									
1-Nov	38' .92"										
1-Dec	40' .17"										

1981	Static	Run	1982	Static	Run	1983	Static	Run	1984	Static	Run
1-Jan	38' .33"		1-Jan	40' .50"		1-Jan	37' .17"		1-Jan	35' .92"	
1-Feb	39' .83"		1-Feb	41' .17"		1-Feb	37' .25"		1-Feb	36' .08"	
1-Mar	40' .08"		1-Mar	41' .33"		1-Mar	37' .67"		1-Mar	36' .67"	
1-Apr		43' .50"	1-Apr	41' .33"		1-Apr	37' .67"		1-Apr	37' .33"	
1-May		44' .00"	1-May	41' .08"		1-May	38' .75"		1-May	36' .50"	
1-Jun	42' .00"		1-Jun	40' .17"		1-Jun	36' .50"		1-Jun	35' .50"	
1-Jul		46' .42"	1-Jul	40' .60"		1-Jul	37' .50"		1-Jul		39' .17"
1-Aug		47' .50"	1-Aug		42' .75"	1-Aug		43' .08"	1-Aug		37' .25"
1-Sep	44' .50"		1-Sep	39' .50"		1-Sep	36' .42"		1-Sep	35' .00"	
1-Oct	42' .33"		1-Oct	37' .83"		1-Oct	34' .33"		1-Oct		37' .67"
1-Nov	40' .83"		1-Nov	37' .50"		1-Nov	34' .17"		1-Nov	34' .50"	
1-Dec	40' .60"		1-Dec	37' .25"		1-Dec	35' 67"		1-Dec	34' .50"	

1985	Static	Run	1986	Static	Run	1987	Static	Run	1988	Static	Run
1-Jan	34' .50"		1-Jan	37' .33"		1-Jan	35' .50"		1-Jan	41' .25"	
1-Feb	35' .00"		1-Feb	37' .42"		1-Feb	37' .67"		1-Feb	41' .25"	
1-Mar	36' .25"		1-Mar		39' .33"	1-Mar	37' .50"		1-Mar	41' .50"	
1-Apr	35' .50"		1-Apr	38' .25"		1-Apr	38' .25"		1-Apr		43' .00"
1-May	36' .75"		1-May		39' .33"	2-Mar	39' .50"		1-May	43' .17"	
1-Jun	37' .25"		1-Jun		38' .58"	12-May	40' .08"		1-Jun	45' .67"	
1-Jul	38' .33"		1-Jul		40' .33"	21-May	39' .92"		2-Jul	46' .60"	
1-Aug		36' .60"	1-Aug		40' .75"	28-May	39' .67"		9-Jul		48' .00"
1-Sep		40' .42"	1-Sep	39' .50"		4-Jun		42' .50"	16-Jul		49' .50"
1-Oct		40' .42"	1-Oct		36' .67"	12-Jun	40' .00"		23-Jul	46' .75	
1-Nov	37' .17"		1-Nov	36' .00"		19-Jun	40' .83"		1-Aug	46' .50"	
1-Dec		39' .00"	1-Dec	35' .67"		26-Jun		43' .50"	7-Aug	46' .58"	
						10-Jul		43' .33"	13-Aug	45' .67"	
						17-Jul	41' .50"		20-Aug	47' .75"	
						24-Jul	41' .33"		27-Aug	48' .00"	
						31-Jul	41' .76"		3-Sep	47' .92"	
						7-Aug	41' .92"		10-Sep	47' .75"	
						14-Aug		44' .50"	17-Sep	47' .42"	
						21-Aug		44' .25"	24-Sep	46' .83"	
						28-Aug		45' .08"	1-Oct	47' .42"	
						1-Sep	43' .08"		1-Nov		47' .82"
						1-Oct		45' .00"	1-Dec	44' .83"	
						1-Nov	41' .92"				
						1-Dec	41' .58"				

7169

WELL WATER LEVEL READINGS
Well #16
1989 - 2003

1989	Static	Run	1990	Static	Run	1991	Static	Run	1992	Static	Run	1993	Static	Run	1994	Static	Run	1995	Static	Run	1996	Static	Run	1997	Static	Run	1998	Static	Run	1999	Static	Run	2000	Static	Run	2001
3-Jan	44' 0"		2-Jan	43' 0"		2-Jan	44' 3"		2-Jan	43' 6"		3-Jan		49' 0"	2-Jan	42' 0"		1-Jan	45' 1"		3-Mar	43' 0"		4-Jan	43' 3"		4-Jan	39' 10"		2-Jan		43' 6"	8-Jan		45' 2"	5-Jan
1-Feb	43' 6"		3-Feb	42' 5"		2-Feb	44' 0"		1-Feb	43' 9"		30-Jan	46' 1"		1-Feb	42' 2"		28-Jan	44' 5"		30-Mar	43' 1"		2-Feb	40' 11"		1-Feb		42' 2"	31-Jan	40' 1"		6-Feb	44' 7"		4-Feb
4-Mar	43' 6"		3-Mar	42' 6"		2-Mar	43' 9"		29-Feb	43' 10"		27-Feb	45' 8"		26-Feb	42' 4"		25-Feb	44' 4"		5-May	42' 7"		2-Mar	41' 3"		1-Mar	40' 0"		6-Mar	42' 0"		4-Mar	43' 3"		3-Mar
1-Apr	42' 11"		31-Mar	42' 10"		1-Apr	43' 11"		28-Mar		45' 7"	27-Mar	45' 5"		2-Apr	42' 8"		1-Apr	44' 1"		2-Jun	42' 6"		5-Apr	40' 10"		29-Mar	40' 9"		3-Apr	42' 2"		1-Apr	43' 5"		1-Apr
30-Apr		45' 4"	28-Apr		45' 7"	4-May	44' 0"		2-May		47' 5"	2-May	44' 9"		30-Apr	43' 5"		29-Apr	43' 8"		30-Jun	43' 0"		4-May	40' 8"		3-May		43' 7"	2-May		43' 6"	30-Apr		46' 1"	5-May
7-May	43' 10"		2-Jun		46' 4"	2-Jun	44' 1"		9-May	45' 10"		29-May	44' 5"		28-May	44' 5"		3-Jun	43' 8"		4-Aug	43' 8"		1-Jun	40' 3"		31-May		44' 0"	5-Jun	42' 1"		4-Jun	45' 8"		2-Jun
13-May	43' 10"		9-Jun		46' 6"	29-Jun		47' 8"	16-May		48' 1"	3-Jul	44' 8"		2-Jul		47' 9"	1-Jul		45' 3"	7-Sep	45' 0"		4-Jul		42' 10"	4-Jul		43' 9"	4-Jul		43' 9"	1-Jul		49' 6"	9-Jun
20-May		45' 6"	16-Jun		46' 10"	6-Jul		48' 3"	23-May	46' 3"		30-Jul		47' 9"	30-Jul		49' 4"	30-Jul		47' 0"	28-Sep		47' 8"	2-Aug		42' 10"	2-Aug	43' 4"		1-Aug	45' 1"		6-Aug		51' 9"	15-Jun
27-May		45' 6"	23-Jun		47' 2"	13-Jul		48' 7"	30-May		48' 3"	28-Aug	44' 8"		3-Sep		49' 8"	2-Sep	45' 10"		3-Nov	44' 2"		30-Aug	42' 4"		6-Sep	44' 3"		5-Sep	45' 2"		2-Sep	50' 8"		15-Jun
4-Jun	44' 7"	46' 3"	1-Jul		47' 7"	20-Jul		48' 6"	6-Jun	46' 11"		2-Oct		45' 10"	1-Oct	47' 8"		9-Oct	45' 4"		1-Dec	43' 2"		4-Oct	39' 10"		2-Oct	43' 2"		3-Oct	44' 11"		30-Sep		52' 6"	29-Jun
10-Jun	44' 5"	45' 10"	7-Jul		47' 10"	27-Jul		48' 8"	13-Jun		48' 8"	30-Oct	42' 1"		29-Oct	46' 5"		12-Nov	44' 6"					2-Nov	40' 2"		1-Nov	44' 0"		30-Oct	44' 0"		6-Nov	48' 8"		7-Jul
17-Jun	45' 3"	47' 3"	14-Jul		48' 7"	3-Aug		48' 7"	20-Jun		49' 1"	27-Nov	42' 2"		1-Dec	46' 10"		3-Dec	43' 5"					30-Nov	39' 6"		12-Dec	43' 8"		6-Dec	43' 3"		3-Dec	46' 10"		22-Jul
24-Jun		47' 2"	21-Jul		48' 9"	10-Aug	47' 4"		27-Jun		49' 7"							30-Dec	43' 2"																	28-Jul
1-Jul	45' 8"	47' 7"	28-Jul		48' 5"	17-Aug		49' 5"	4-Jul		48' 7"																									4-Aug
8-Jul	45' 11"	47' 3"	4-Aug		49' 5"	24-Aug		49' 8"	11-Jul	47' 9"																										14-Aug
15-Jul	46' 4"	48' 3"	11-Aug		49' 5"	31-Aug		49' 8"	18-Jul		50' 4"																									25-Aug
22-Jul	46' 3"	48' 3"	18-Aug	47' 10"		5-Oct		48' 4"	25-Jul	46' 3"																										2-Sep
29-Jul	46' 5"	47' 9"	25-Aug		49' 7"	3-Nov	45' 4"		2-Aug	46' 8"																										8-Sep
5-Aug	47' 1"	48' 9"	1-Sep		49' 8"	30-Nov	44' 8"		8-Aug	46' 11"																										16-Sep
12-Aug	46' 8"	47' 11"	29-Sep		48' 7"				15-Aug	49' 2"																										7-Oct
19-Aug	46' 5"	46' 6"	3-Nov		47' 4"				22-Aug	49' 6"																										3-Nov
28-Aug	46' 1"	48' 0"	1-Dec	44' 7"					29-Aug	49' 6"																										2-Dec
2-Sep	46' 2"	48' 0"							6-Sep	49' 6"																										
9-Sep	46' 7"	46' 8"							12-Sep		51' 3"																									
30-Sep	45' 8"								19-Sep		51' 9"																									
4-Nov	43' 8"								26-Sep	49' 6"																										
2-Dec	42' 11"								3-Oct		51' 6"																									
									31-Oct		50' 9"																									
									28-Nov		50' 0"																									

7170

WELL WATER LEVEL READINGS
Well #16
1989 - 2003

Static	Run	2002	Static	Run	2003	Static	Run	2004	Static	Run	2005	Static	Run	2006	Static	Run
48' 6"		6-Jan	48' 3"		1-Jan	48' 0"		1-Jan	50' 9"		7-Jan	49' 10"		10-Jan	46' 2"	
47' 6"		1-Feb	47' 8"		2-Feb	47' 8"		6-Feb	48' 1"		4-Feb	49' 3"		10-Feb	45' 4"	
47' 6"		1-Mar	47' 2"		4-Mar	47' 1"		3-Mar	50' 4"		2-Mar	48' 10"		8-Mar	44' 11"	
47' 1"		1-Apr	46' 6"		3-Apr	47' 2"		1-Apr	49' 6"		5-Apr	48' 2"				
	48' 7"	1-May	48' 2"		1-May	47' 1"		5-May		52' 4"	6-May	47' 8"				
49' 0"	50' 10"	2-Jun	48' 9"		2-Jun		51' 3"	17-May		52' 9"	8-Jun	46' 11"				
49' 4"	50' 11"	12-Jun	49' 0"	50' 7"	9-Jun	49' 7"		24-May	50' 1"		6-Jul		49' 3"			
49' 4"	52' 11"	19-Jun	49' 7"	50' 11"	16-Jun		52' 7"	1-Jun		53' 10"	3-Aug	49' 3"				
49' 4"	52' 11"	26-Jun	49' 11"	53' 1"	23-Jun	50' 5"		18-Jun		52' 11"	8-Sep	50' 1"				
50' 4"	52' 0"	3-Jul	49' 11"	53' 4"	7-Jul	51' 4"		22-Jun	50' 7"		5-Oct	48' 3"				
50' 9"	52' 4"	10-Jul	50' 8"	54' 0"	14-Jul		54' 2"	30-Jun	51' 0"		2-Nov	48' 0"				
51' 0"	52' 4"	17-Jul	51' 0"	53' 6"	21-Jul	· 52' 7"		8-Jul		53' 6"	6-Dec	47' 2"				
51' 3"		24-Jul	51' 11"	54' 5"	28-Jul		56' 7"	15-Jul	51' 6"							
51' 7"		7-Aug	51' 6"	52' 5"	4-Aug	53' 5"		20-Jul	51' 10"							
52' 1"	52' 6"	8-Sep	51' 10"		11-Aug		55' 8"	28-Jul	51' 10"							
51' 6"	52' 8"	10-Oct	50' 8"		18-Aug		57' 3"	3-Aug	52' 2"							
51' 8"		1-Nov	49' 10"		25-Aug	44' 7"		12-Aug		55' 0"						
51' 7"	53' 3"	3-Dec	48' 6"		4-Sep		57' 1"	19-Aug	52' 10"							
51' 8"	53' 3"				9-Sep	54' 1"		26-Aug	52' 11"							
51' 8"	53' 4"				15-Sep	54' 2"		16-Sep	52' 10"							
50' 7"					29-Sep		57' 8"	5-Oct	52' 8"							
49' 6"					8-Oct	54' 8"		3-Nov	51' 4"							
					15-Oct	54' 9"										
					3-Nov	53' 9"										
					1-Dec	52' 9"										

7171

WELL WATER LEVEL READINGS
Well #18
1989 - 2003

1970	Static	Run	1971	Static	Run	1972	Static	Run	1973	Static	Run	1974	Static	Run	1975	Static	Run	1976	Static	Run
1-Jan	58' .17"		1-Jan	59' .25"		1-Jan	58' .58"		1-Jan	61' .50"		1-Jan	59' .67"		1-Jan	59' .67"		1-Jan	58' .83"	
1-Feb	59' .50"		1-Feb	60' .58"		1-Feb	59' .17"		1-Feb	59' .00"		1-Feb	60' .17"		1-Feb	60' .17"		1-Feb	58' .00"	
1-Mar	59' .75"		1-Mar	60' .75"		1-Mar	59' .58"		1-Mar	59' .25"		1-Mar	60' .67"		1-Mar	60' .42"		1-Mar	58' .58"	
1-Apr	60' .33"		1-Apr	60' .83"		1-Apr	59' .58"		1-Apr	60' .00"		1-Apr	61' .08"		1-Apr	60' .83"		1-Apr	60' .33"	
1-May	60' .33"		1-May	61' .50"		1-May		68' .67"	1-May	62' .00"		1-May	62' .42"		1-May		68' .92"	1-May		67' .92"
1-Jun	60' .33"		1-Jun		68' .25"	1-Jun		65' .58"	1-Jun		69' .58"	1-Jun		70' .33"	1-Jun		68' .17"	1-Jun		68' .08"
1-Jul	60' .83"	66' .25"	1-Jul		70' .17"	1-Jul		67' .50"	1-Jul		68' .50"	1-Jul		68' .42"	1-Jul	59' .00"		1-Jul		69' .58"
1-Sep			1-Aug	59' .75"		1-Aug	58' .00"		1-Aug		67' .83"	1-Aug		66' .58"	1-Aug		64' .25"	Aag 1		67' .25"
1-Oct	58' .00"		1-Sep	57' .08"		1-Sep	56' .83"		1-Sep	58' .00"		1-Sep	58' .17"		1-Sep		63' .17"	1-Sep	57' .25"	
1-Nov	58' .58"		1-Oct	57' .75"		1-Oct	58' .67"		1-Nov	57' .92"		Noc 1	57' .33"		1-Oct	55' .50"		1-Oct	57' .33"	
1-Dec	59' .08"		1-Nov	57' .67"		1-Nov	61' .33"		1-Dec	58' .83"		1-Nov	58' .00"		1-Nov	55' .75"		1-Nov		62' .42"
			1-Dec	58' .33"		1-Dec	61' .08"					1-Dec	58' .08"		1-Dec	56' .50"		1-Dec	58' 08"	

7172

WELL WATER LEVEL READINGS
Well #18
1989 - 2003

1977	Static	Run	1978	Static	Run	1979	Static	Run
1-Jan	58' .17"		1-Jan		67' 58"	1-Jan	61' .25"	
1-Feb	60' .25"		1-Feb		68' .00"	1-Feb	61' .75"	
1-Mar	61' .17"		1-Mar		67' .92"	1-Mar	62' .00"	
1-Apr	62' .42"		1-Apr	61' .83"		1-Apr	62' .25"	
16-Apr	62' .33"		1-May	61' .92"		1-May	63' .58"	
1-May	61' .17"		1-Jun		66' .67"	1-Jun		69' .50"
15-May	61' .42"		1-Jul	63' .42"		1-Jul		70' .17"
1-Jun	63' .08"		1-Aug	62' .83"		Agu 1	63' .50"	
15-Jun	61' .50"		1-Sep	61' .25"		1-Sep	62' .33"	
1-Jul	61' .33"		1-Oct	60' .25"		1-Oct	61' .92"	
13-Jul	63' .33"		1-Nov	60' .17"		1-Nov	62' .33"	
1-Aug	58' .00"		1-Dec	61' .33"		1-Dec	62' .50"	
15-Aug	62' .75"							
1-Sep	60' .33"							
15-Sep	61' .42"							
1-Oct		67' .67"						
1-Nov		67' .50"						
1-Dec		67' .00"						

1980	Static	Run	1981	Static	Run	1982	Static	Run
1-Jan	63' .00"		1-Jan	60' .83"		1-Jan	61' .33"	
1-Feb	63' .00"		1-Feb	60' .83"		1-Feb	61' .75"	
1-Mar	63' .33"		1-Mar	61' .50"		1-Mar	61' .92"	
1-Apr	63' .17"		1-Apr	61' .58"		1-Apr	61' .92"	
1-May	62' .58"		1-May	62' .00"		1-May	63' .25"	
1-Jun		70' .08"	1-Jun	62' .00"		1-Jun	62' .83"	
1-Jul		69' .42"	1-Jul		71' .33"	1-Jul	63' .75"	
1-Aug	61' .58"		1-Aug		71' .00"	1-Aug		67' .75"
1-Sep	60' .42"		1-Sep	62' .58"		1-Sep	60' .08"	
1-Oct	60' .17"		1-Oct	61' .42"		1-Oct	68' .25"	
1-Nov	59' .83"		1-Nov	61' .00"		1-Nov	69' .33"	
1-Dec	60' .08"		1-Dec	61' .08"		1-Dec	68' .92"	

1983	Static	Run	1984	Static	Run	1985	Static	Run
1-Jan	59' .17"		1-Jan	58' .08"		1-Jan		63' .00"
1-Feb	59' .08"		1-Feb	58' .42"		1-Feb	58' .08"	
1-Mar	69' .33"		1-Mar	59' .00"		1-Mar		65' .00"
1-Apr	69' .75"		1-Apr	58' .58"		1-Apr		65' .00"
1-May	59' .67"		1-May	56' .92"		1-May		65' .08"
1-Jun	59' .42"		1-Jun	58' .67"		1-Jun		65' .67"
1-Jul	59' .50"		1-Jul	60' .17"		1-Jul		65' .42"
1-Aug		65' .42"	1-Aug	57' .92"		1-Aug	60' .26"	
1-Sep		64' .50"	1-Sep	58' .33"		1-Sep	67' .08"	
1-Oct	58' .17"		1-Oct	55' .75"		1-Oct	67' .08"	
1-Nov	56' .33"		1-Nov	58' .33"		1-Nov	56' .42"	
1-Dec	67' .67"		1-Dec	56' .33"		1-Dec	57' .58"	

1986	Static	Run	1987	Static	Run	1988	Static	Run
1-Jan	58' .00"		1-Feb	58' .58"		1-Jan	61' .75"	
1-Feb	59' .17"		1-Mar	59' .08"		1-Feb	61' .08"	
1-Mar	58' .08"		1-Apr	60' .08"		1-Mar	61' .08"	
1-Apr	68' .58"		2-May	61' .08"		1-Apr	61' .33"	
1-May		59' .08"	12-May	63' .00"		1-May	63' .00"	
1-Jun	59' .83"		21-May		64' .42"	1-Jul		71' .92"
1-Jul		58' .08"	28-May	60' .50"		2-Jul	66' .33"	
1-Aug		68' .08"	4-Jun		67' .92"	9-Jul	65' .67"	
1-Sep		65' .08"	12-Jun	60' .58"		16-Jul		70' .42"
1-Oct	58' .08"		19-Jun	62' .33"		23-Jul	68' .08"	
1-Nov	57' .08"		28-Jun		68' .25"	1-Aug	65' .25"	
1-Dec	57' .33"		10-Jul		65' .75"	7-Aug	65' .08"	
			17-Jul		67' .17"	13-Aug	64' .83"	
			24-Jul		66' .83"	20-Aug	63' .25"	
			31-Jul		68' .17"	27-Aug	65' .25"	
			7-Aug		68' .58"	3-Sep	64' .75"	
			14-Aug		67' .83"	10-Sep	64' .75"	
			21-Aug		68' .08"	24-Sep	63' .92"	
			28-Aug		68' .08"	1-Oct		69' .25"
			1-Sep		67' .92"	1-Nov	62' .75"	
			1-Nov	60' .25"		1-Dec	62' .67"	
			1-Dec	60' .67"				

7173

WELL WATER LEVEL READINGS
Well #16
1989 - 2003

1989	Static	Run	1990	Static	Run	1991	Static	Run	1992	Static	Run
3-Jan	62' 9"		2-Jan	61' 5"		2-Jan	62' 7"		2-Jan	63' 1"	
1-Feb	62' 7"		4-Feb	61' 4"		3-Feb	62' 9"		2-Feb	62' 10"	
4-Mar	63' 1"		3-Mar	61' 8"		7-Mar	63' 0"		1-Mar	63' 0"	
2-Apr	62' 4"		1-Apr	61' 11"		1-Apr	62' 8"		28-Mar	63' 2"	
30-Apr		71' 5"	29-Apr	62' 4"		5-May	63' 1"		2-May	64' 6"	
7-May		70' 10"	2-Jun	62' 10"		7-Jun	63' 8"		9-May	65' 6"	
13-May	63' 10"		10-Jun	64' 6"		29-Jun	66' 2"		17-May	65' 9"	
21-May		70' 11"	17-Jun	63' 4"		7-Jul		70' 10"	23-May		71' 8"
28-May	64' 10"		23-Jun	65' 1"		14-Jul	66' 4"		30-May		71' 5"
4-Jun	64' 4"		30-Jun	66' 2"		20-Jul	66' 4"		6-Jun		71' 11"
11-Jun	64' 4"		7-Jul	65' 4"		28-Jul	64' 3"		13-Jun		71' 4"
18-Jun		70' 10"	14-Jul	65' 4"		4-Aug		70' 8"	21-Jun		70' 2"
25-Jun	64' 1"		22-Jul	65' 8"		11-Aug		70' 8"	28-Jun		70' 11"
7-Jul		72' 4"	29-Jul	66' 0"		18-Aug	65' 3"		5-Jul		70' 2"
9-Jul		72' 0"	4-Aug	66' 5"		24-Aug		70' 8"	12-Jul		71' 1"
16-Jul		71' 0"	11-Aug	65' 6"		1-Sep	63' 11"		19-Jul		71' 3"
23-Jul		70' 10"	19-Aug	63' 5"		5-Oct	62' 3"		25-Jul		71' 0"
30-Jul		71' 10"	25-Aug	62' 8"		3-Nov	62' 6"		2-Aug		72' 3"
5-Aug		71' 5"	1-Sep	63' 8"		30-Nov	62' 5"		9-Aug		71' 11"
13-Aug	64' 3"		30-Sep	62' 2"					16-Aug		72' 9"
20-Aug	63' 6"		4-Nov	61' 3"					23-Aug		72' 7"
27-Aug	63' 8"		2-Dec	61' 9"					30-Aug		72' 2"
2-Sep	63' 7"								6-Sep	66' 6"	
10-Sep	63' 4"								12-Sep	66' 8"	
30-Sep	62' 3"								19-Sep		73' 2"
5-Nov	60' 4"								20-Sep	66' 6"	
3-Dec	60' 7"								3-Oct		71' 4"
									31-Oct	66' 1"	
									29-Nov	65' 10"	

1993	Static	Run	1994	Static	Run	1995	Static	Run	1996	Static	Run
3-Jan	65' 7"		2-Jan	62' 2"		2-Jan		70' 7"	3-Mar	63' 9"	
30-Jan	65' 7"		3-Feb	62' 1"		29-Jan		73' 6"	30-Mar	64' 5"	
28-Feb	65' 9"		28-Feb	62' 6"		25-Feb		73' 4"	6-May		71' 9"
28-Mar	64' 11"		2-Apr	63' 7"		2-Apr	65' 6"		2-Jun	63' 11"	
2-May	65' 2"		30-Apr	63' 10"		29-Apr		70' 8"	30-Jun		70' 8"
29-May	66' 8"		28-May	64' 1"		3-Jun	64' 10"		4-Aug	66' 0"	
3-Jul	65' 10"		2-Jul	56' 6"		1-Jul	65' 8"		7-Sep	66' 7"	
30-Jul	64' 10"		30-Jul		72' 4"	30-Jul	66' 6"		28-Sep	64' 7"	
28-Aug	62' 4"		5-Sep	64' 9"		2-Sep	66' 3"		3-Nov	64' 4"	
2-Oct	62' 1"		2-Oct	64' 0"		9-Oct	63' 2"		1-Dec	64' 9"	
30-Oct	61' 4"		30-Oct	63' 1"		17-Nov		58' 3"			
27-Nov	61' 1"		1-Dec	65' 7"		3-Dec		60' 6"			
						30-Dec	63' 10"				

1997	Static	Run	1998	Static	Run	1999	Static	Run	2000	Static	Run	2001
4-Jan	61' 9"		4-Jan	60' 4"		2-Jan	61' 11"		8-Jan	62' 7"		6-Jan
2-Feb	61' 11"		1-Feb	60' 9"		31-Jan	61' 10"		6-Feb	62' 10"		4-Feb
2-Mar	62' 4"		1-Mar	60' 7"		5-Mar	63' 5"		4-Mar	63' 7"		3-Mar
5-Apr	62' 6"		29-Mar	61' 4"		3-Apr	63' 2"		1-Apr	63' 11"		1-Apr
4-May	62' 3"		3-May	61' 8"		2-May	63' 4"		30-Apr	64' 11"		5-May
1-Jun	67' 11"		31-May	63' 7"		5-Jun	63' 0"		4-Jun	67' 5"		2-Jun
4-Jul	63' 9"		4-Jul		72' 1"	4-Jul		72' 0"	1-Jul		74' 1"	9-Jun
2-Aug	65' 8"		2-Aug	66' 2"		1-Aug		73' 1"	5-Aug	69' 7"		15-Jun
30-Aug	74' 9"		6-Sep	66' 4"		6-Sep	61' 10"		3-Sep	66' 11"		24-Jun
4-Oct	58' 10"		2-Oct	61' 6"		3-Oct	64' 1"		30-Sep		72' 11"	7-Jul
2-Nov	60' 4"		1-Nov	63' 7"		30-Oct	62' 7"		6-Nov		71' 1"	22-Jul
30-Nov	59' 11"		12-Dec	62' 10"		5-Dec	63' 1"		3-Dec	64' 11"		28-Jul
												4-Aug
												14-Aug
												25-Aug
												2-Sep
												8-Sep
												16-Sep
												7-Oct
												3-Nov
												2-Dec

7174

WELL WATER LEVEL READINGS
Well #18
1989 - 2003

Static	Run	2002	Static	Run	2003	Static	Run	2004	Static	Run	2005	Static	Run	2006	Static	Run
65' 0"		6-Jan	61' 10"		1-Jan	68' 1"		1-Jan	66' 1"		7-Jan	68' 2"		10-Jan	68' 4"	
64' 9"		1-Feb	63' 1"		2-Feb	68' 2"		6-Feb	68' 8"		4-Feb	68' 2"		10-Feb	68' 2"	
64' 11"		1-Mar	67' 1"		4-Mar	68' 9"		3-Mar	58' 4"		2-Mar	67' 8"		8-Mar	65' 11"	
65' 1"		1-Apr	67' 3"		3-Apr	68' 9"		1-Apr	68' 10"		5-Apr	68' 0"				
66' 8"		1-May	68' 5"		1-May	65' 8"		5-May		70' 3"	5-May	67' 0"				
69' 1"		2-Jun	68' 7"		2-Jun		75' 11"	17-May		76' 2"	8-Jun		74' 0"			
69' 4"		12-Jun	69' 9"		9-Jun		76' 1"	24-May	71' 0"		6-Jul		76' 11"			
69' 5"		19-Jun	70' 5"		16-Jun		78' 1"	1-Jun		77' 2"	3-Aug		77' 10"			
50' 3"	51' 6"	26-Jun		76' 10"	23-Jun		73' 10"	16-Jun		75' 11"	8-Sep		75' 11"			
70' 9"		3-Jul		80' 8"	7-Jul		80' 2"	22-Jun		77' 0"	6-Oct		72' 6"			
69' 2"		10-Jul		78' 3"	14-Jul		78' 6"	30-Jun	71' 8"		2-Nov	67' 3"				
69' 5"		17-Jul		80' 1"	21-Jul		78' 0"	8-Jul		78' 7"	6-Dec	66' 6"				
69' 7"		24-Jul		78' 11"	28-Jul		77' 0"	15-Jul		76' 2"						
69' 11"		7-Aug		78' 3"	4-Aug		77' 9"	20-Jul		75' 4"						
69' 5"		8-Sep	69' 1"		11-Aug		75' 10"	28-Jul		78' 0"						
68' 8"		10-Oct	67' 8"		18-Aug	71' 6"		3-Aug		77' 2"						
67' 7"		1-Nov	66' 3"		25-Aug	70' 9"		12-Aug		78' 8"						
68' 4"		3-Dec	64' 0"		4-Sep		75' 7"	19-Aug		76' 5"						
66' 7"					9-Sep		74' 10"	26-Aug		76' 6"						
68' 9"					15-Sep		76' 3"	10-Sep		76' 0"						
66' 6"					29-Sep		78' 3"	6-Oct		76' 1"						
					6-Oct	77' 0"		3-Nov	68' 4"							
					15-Oct	70' 10"										
					3-Nov		73' 9"									
					1-Dec	68' 10"										

7175

WELL WATER LEVEL READINGS
Well # 21
1989 - 2003

1970	Static	Run	1971	Static	Run	1972	Static	Run	1973	Static	Run	1974	Static	Run	1975	Static	Run	1976	Static	Run
1-Jan	72' .50"		1-Jan	73' .50"		1-Jan	70' .42"		1-Jan	70' .42"		1-Jan	72' .33"		1-Jan	71' .92"		1-Jan	69' .42"	
1-Feb	72' .33"		1-Feb	73' .92"		1-Feb	71' .00"		1-Feb	71' .08"		1-Feb	72' .92"		1-Feb	72' .25"		1-Feb	69' .92"	
1-Mar	73' .00"		1-Mar	74' .17"		1-Mar	71' .42"		1-Mar	71' .50"		1-Mar	73' .25"		1-Mar	72' .83"		1-Mar	70' .33"	
1-Apr	73' .33"		1-Apr	74' .33"		1-Apr		72' .00"	1-Apr	71' .67"		1-Apr	73' .75"		1-Apr	73' .25"		1-Apr	72' .33"	
1-May	74' .50"		1-May	73' .67"		1-May		72' .17"	1-May		74' .50"	1-May		74' .42"	1-May		73' .83"	1-May		73' .00"
1-Jun		75' .50"	1-Jun		75' .08"	1-Jun	71' .83"		1-Jun		74' .83"	1-Jun		75' .00"	1-Jun		73' .42"	1-Jun		72' .92"
1-Jul		75' .08"	1-Jul		72' .58"	1-Jul	71' .17"		1-Jul		74' .58"	1-Jul		75' 08"	1-Jul	71' .00"		1-Jul		74' .50"
1-Sep	73' .92"		1-Aug		72' .58"	1-Aug	70' .50"		1-Aug		74' .33"	1-Aug		74' .17"	1-Aug	70' .33"		1-Aug		73' 83"
1-Oct	73' .00"		1-Sep		70' .83"	1-Sep	68' .33"		1-Sep	72' .42"		1-Sep		74' .42"	1-Sep		69' .83"	1-Sep		73' .50"
1-Nov	73' .17"		1-Oct	70' .08"		1-Oct	69' .17"		1-Oct	71' .75"		1-Oct	71' .25"		1-Oct	69' .50"		1-Oct	70' .08"	
1-Dec	73' .67"		1-Nov	69' .92"		1-Nov	69' .67"		1-Nov	71' .67"		1-Nov	71' .25"		1-Nov	67' .58"		1-Nov	70' .25"	
			1-Dec	70' .25"		1-Dec	69' .50"		1-Dec	72' .08"		1-Dec	72' .08"		1-Dec	68' .92"		1-Dec	70' .92"	

7176

WELL WATER LEVEL READINGS
Well # 21
1989 - 2003

1977	Static	Run	1978	Static	Run	1979	Static	Run	1980	Static	Run	1981	Static	Run	1982	Static	Run	1983	Static	Run	1984	Static	Run	1985	Static	Run	1986	Static
1-Jan	70' .42"		1-Jan	74' .75"		1-Jan	75' .83"		1-Jan	76' .50"		1-Jan	73' .75"		1-Jan	74' .58"		1-Jan	72' .08"		1-Jan		71' .25"	1-Jan	68' .58"		1-Jan	73' .00"
1-Feb	72' .08"		1-Feb	74' .83"		1-Feb	75' .75"		1-Feb	76' .50"		1-Feb	74' .00"		1-Feb	74' .83"		1-Feb	71' .75"		1-Feb	69' .33"		1-Feb	70' .50"		1-Feb	72' .08"
1-Mar	72' .50"		1-Mar	74' .08"		1-Mar	75' .83"		1-Mar	76' .08"		1-Mar	74' .33"		1-Mar	75' .33"		1-Mar	72' .00"		1-Mar	71' .42"		1-Mar	70' .67"		1-Mar	71' .50"
1-Apr	73' .58"		1-Apr	75' .50"		1-Apr		76' .58"	1-Apr	76' .67"		1-Apr	75' .08"		1-Apr	75' .00"		1-Apr	72' .25"		1-Apr	71' .75"		1-Apr	70' .17"		1-Apr	73' .17"
16-Apr	72' .17"		1-May	75' .58"		1-May		85' .17"	1-May		75' .33"	1-May		76' .08"	1-May		75' .67"	1-May		74' .75"	1-May	71' .75"		1-May	71' .83		1-May	
1-May	73' .58"		1-Jun	76' .67"		1-Jun		78' .00"	1-Jun		76' .50"	1-Jun		76' .00"	1-Jun		75' .33"	1-Jun		71' .83"	1-Jun	70' .50"		1-Jun		71' .50"	1-Jun	
15-May	73' .75"		1-Jul		76' .75"	1-Jul		78' .42"	1-Jul		76' .92"	1-Jul		77' .25"	1-Jul		75' .17"	1-Jul		71' .58"	1-Jul		71' .50"	1-Jul		71' .33"	1-Jul	
1-Jun	74' .58"		1-Aug	77' .83"		1-Aug		78' .00"	1-Aug		76' .83"	1-Aug		78' .08"	1-Aug		74' .50"	1-Aug		72' .08"	1-Aug		71' .33"	1-Aug		71'.33"	1-Aug	
15-Jun		74' .17"	1-Sep		76' .50"	1-Sep		78' .17"	1-Sep		75' .75"	1-Sep	77' .67"		1-Sep		73' .75"	1-Sep		72' .33"	1-Sep		70' .42"	1-Sep		72' .50"	1-Sep	
1-Jul	75' .25"		1-Oct	76' .00"		1-Oct	77' .08"		1-Oct		75' .50"	1-Oct	76' .08"		1-Oct	72' .50"		1-Oct	68' .92"		1-Oct		70' .00"	1-Oct		72' .50"	1-Oct	70' .92"
13-Jul	74' .58"		1-Nov	76' .50"		1-Nov	76' .17"		1-Nov	73' .92"		1-Nov	74' .92"		1-Nov	72' .25"		1-Nov	68' .92"		1-Nov	69' .50"		1-Nov	71' .50"		1-Nov	70' .50"
1-Aug	74' .50"		1-Dec	76' .00"		1-Dec	76' .58"		1-Dec	73' .67"		1-Dec	74' .50"		1-Dec	71' .92"		1-Dec	70' .75"		1-Dec	69' .50"		1-Dec	71' .50"		1-Dec	72' .00"
15-Aug	75' .25"																											
1-Sep	74' .50"																											
15-Sep	76' .17"																											
1-Oct	74' .33"																											
1-Nov	74' .33"																											
1-Dec	74' .25"																											

7177

WELL WATER LEVEL READINGS
Well # 21
1989 - 2003

Run	1987	Static	Run	1988	Static	Run
	1-Jan		71. 08"	1-Jan		76' .17"
	1-Feb	72' .00"		1-Feb		75' .17"
	1-Mar	71' .83"		1-Mar	75' .50"	
	1-Apr		73' .50"	1-Apr		76' .17"
72' .00"	2-May	73' .50"		1-May	75' .08"	
70. 92"	12-May	73' .60"		1-Jun		79' .75"
73' .00"	21-May	73' .50"		2-Jul		81' .75"
72' .83"	28-May	73' .75"		9-Jul		80' .00"
72' .50"	4-Jun	73' .92"		16-Jul		80' .50"
	12-Jun		74' .50"	23-Jul	79' .83"	
	19-Jun	74' .50"		1-Aug	80' .67"	
	26-Jun		75' .25"	7-Aug	80' .75"	
	10-Jul	75' .33"		13-Aug	81' .00"	
	17-Jul	75' .67"		20-Aug	81' .17"	
	24-Jul		75' .50"	27-Aug	81' .00"	
	31-Jul		75' .60"	3-Sep	80' .00"	
	7-Aug		75' .67"	10-Sep	81' .08"	
	14-Aug		77' .50"	17-Sep	80' .58"	
	21-Aug	78' .00"		24-Sep	80' .33"	
	28-Aug		78' .17"	1-Oct	80' .00"	
	1-Sep	75' .50"		1-Nov	78' .17"	
	1-Oct		77' .33"	1-Dec	78' .42"	
	1-Nov		76' .17"			
	1-Dec	75' .50"				

WELL WATER LEVEL READINGS
Well # 21
1989 - 2003

1989	Static	Run	1990	Static	Run	1991	Static	Run	1992	Static	Run	1993	Static	Run
3-Jan	77' 6"		2-Jan	74' 4"		2-Jan	77' 7"		2-Jan	77' 6"		3-Jan	80' 3"	
1-Feb	76' 9"		3-Feb	76' 1"		2-Feb	77' 5"		2-Feb	77' 9"		30-Jan	79' 8"	
4-Mar	77' 2"		3-Mar	76' 2"		2-Mar	77' 8"		29-Feb	77' 9"		27-Feb	79' 6"	
1-Apr	76' 3"		31-Mar	76' 5"		1-Apr		77' 10"	28-Mar	76' 0"		27-Mar	79' 2"	
29-Apr	76' 7"		28-Apr	77' 0"		4-May		78' 3"	2-May		79' 6"	2-May	78' 9"	
8-May	77' 3"		2-Jun	77' 7"		2-Jun		78' 2"	9-May		79' 10"	29-May		79' 1"
13-May	77' 3"		10-Jun	77' 8"		29-Jun		79' 5"	16-May		79' 11"	3-Jul		79' 1"
20-May	77' 1"		16-Jun	77' 8"		6-Jul		79' 10"	23-May		80' 3"	30-Jul		79' 4"
27-May	77' 2"		23-Jun	78' 2"		14-Jul		80' 4"	30-May		80' 6"	28-Aug		78' 8"
3-Jun	77' 8"		1-Jul	78' 8"		21-Jul		80' 7"	6-Jun		80' 9"	2-Oct		78' 0"
11-Jun		78' 4"	7-Jul	79' 1"		27-Jul		80' 6"	13-Jun		80' 11"	30-Oct	77' 0"	
18-Jun		78' 5"	14-Jul	79' 5"		3-Aug		80' 8"	20-Jun		80' 9"	27-Nov	76' 8"	
24-Jun		78' 6"	21-Jul	79' 11"		10-Aug		80' 10"	27-Jun		81' 2"			
2-Jul	78' 8"		28-Jul	80' 0"		18-Aug		81' 1"	4-Jul		81' 3"			
8-Jul	79' 0"		4-Aug	80' 4"		24-Aug		81' 0"	11-Jul		82' 6"			
15-Jul	79' 2"		11-Aug	80' 4"		31-Aug		80' 10"	18-Jul		81' 7"			
23-Jul		79' 10"	18-Aug	80' 6"		5-Oct		79' 9"	25-Jul		81' 11"			
30-Jul	79' 7"		25-Aug	80' 1"		3-Nov	79' 1"		2-Aug		82' 3"			
5-Aug	79' 7"		1-Sep	80' 2"		30-Nov	78' 3"		8-Aug		82' 7"			
12-Aug	79' 6"		29-Sep	79' 5"					15-Aug		83' 0"			
19-Aug	79' 7"		3-Nov	78' 6"					22-Aug		83' 2"			
26-Aug	79' 1"		1-Dec	78' 2"					29-Aug		83' 3"			
2-Sep	79' 1"								6-Sep		83' 3"			
9-Sep	79' 0"								12-Sep		83' 3"			
30-Sep	78' 8"								19-Sep	82' 11"				
4-Nov	78' 1"								26-Sep		83' 3"			
2-Dec	76' 5"								3-Oct		83' 4"			
									31-Oct		82' 6"			
									28-Nov	81' 1"				

1994	Static	Run	1995	Static	Run	1996	Static	Run	1997	Static	Run	1998
2-Jan	76' 3"		2-Jan	78' 11"		2-Mar	76' 6"		4-Jan	75' 7"		4-Jan
3-Feb	76' 1"		26-Jan	78' 7"		30-Mar	78' 10"		2-Feb	75' 2"		1-Feb
28-Feb	76' 7"		25-Feb	78' 5"		6-May	76' 8"		2-Mar	75' 7"		1-Mar
2-Apr	76' 11"		1-Apr	78' 5"		2-Jun		77' 0"	6-Apr	75' 1"		29-Mar
30-Apr		78' 1"	29-Apr		78' 6"	30-Jun		77' 5"	4-May	75' 2"		3-May
29-May		78' 10"	3-Jun		78' 6"	4-Aug		78' 3"	1-Jun		75' 6"	31-May
2-Jul		80' 2"	1-Jul		78' 4"	7-Sep		79' 2"	4-Jul		75' 7"	4-Jul
30-Jul		81' 7"	30-Jul		79' 6"	28-Sep		74' 2"	2-Aug		76' 9"	2-Aug
5-Sep		82' 0"	2-Sep		80' 3"	3-Nov	77' 6"		30-Aug		77' 2"	5-Sep
2-Oct		81' 8"	9-Oct	78' 8"		1-Dec	77' 8"		4-Oct		74' 8"	2-Oct
29-Oct	79' 11"		13-Nov		78' 10"				2-Nov	75' 5"		1-Nov
1-Dec	80' 1"		3-Dec	77' 2"					30-Nov	73' 11"		12-Dec
			30-Dec	78' 8"								

7179

WELL WATER LEVEL READINGS
Well # 21
1989 - 2003

Static	Run	1999	Static	Run	2000	Static	Run	2001	Static	Run	2002	Static	Run	2003	Static	Run	2004	Static	Run	2005	Static	Run	2006	Static	Run
74' 2"		2-Jan	75' 9"		6-Jan	76' 7"		5-Jan	80' 8"		6-Jan		81' 8"	1-Jan	81' 9"		1-Jan		84' 8"	7-Jan		83' 5"	10-Jan		80' 3"
74' 7"		31-Jan	75' 2"		5-Feb	76' 5"		4-Feb	80' 6"		1-Feb	81' 5"		2-Feb	80' 6"		6-Feb		83' 9"	4-Feb		82' 10"	10-Feb		79' 8"
74' 5"		5-Mar	74' 7"		4-Mar	76' 10"		3-Mar	80' 5"		1-Mar	80' 6"		4-Mar	80' 10"		3-Mar	83' 2"		2-Mar		82' 6"	8-Mar		79' 2"
75' 2"		3-Apr	74' 6"		1-Apr	77' 0"		1-Apr	80' 3"		1-Apr	80' 2"		3-Apr	80' 8"		1-Apr		83' 6"	5-Apr		82' 0"			
75' 8"		2-May	76' 1"		30-Apr	78' 0"		5-May	80' 4"		1-May	80' 4"		1-May	80' 10"		5-May	Unable to read		5-May		81' 7"			
75' 7"		5-Jun		77' 2"	4-Jun		79' 6"	2-Jun		82' 1"	2-Jun		82' 1"	2-Jun	82' 6"		17-May		83' 10"	8-Jun		81' 0"			
-	76' 2"	4-Jul		77' 4"	1-Jul		80' 11"	9-Jun		82' 3"	12-Jun	82' 10"		9-Jun	83' 2"		24-May		83' 10"	6-Jul		81' 7"			
	77' 6"	1-Aug		78' 0"	5-Aug		82' 8"	15-Jun		82' 6"	19-Jun	83' 1"		16-Jun	83' 8"		1-Jun		83' 11"	3-Aug		83' 0"			
	78' 1"	5-Sep		78' 2"	3-Sep	83' 0"		7-Jul		83' 4"	26-Jun	83' 6"		23-Jun	84' 2"		16-Jun		84' 4"	8-Sep		83' 8"			
	77' 2"	3-Oct	78' 6"		30-Sep	82' 3"		22-Jul	69' 0"		3-Jul	83' 7"		7-Jul	85' 2"		22-Jun		84' 6"	5-Oct		82' 10"			
	77' 8"	30-Oct	77' 7"		8-Nov	81' 0"		28-Jul		84' 0"	10-Jul	83' 8"		14-Jul	85' 7"		30-Jun		84' 9"	2-Nov		82' 0"			
75' 6"		5-Dec	77' 0"		3-Dec	80' 6"		4-Aug		84' 3"	17-Jul		84' 3"	21-Jul		85' 8"	8-Jul		85' 1"	6-Dec		81' 0"			
								14-Aug	84' 3"		24-Jul	84' 8"		28-Jul	86' 4"		15-Jul		85' 2"						
								25-Aug		84' 1"	7-Aug	84' 8"		4-Aug	86' 9"		20-Jul		85' 3"						
								2-Sep		84' 4"	8-Sep		84' 4"	11-Aug	86' 11"		28-Jul		85' 5"						
								8-Sep		84' 4"	10-Oct	84' 0"		18-Aug	86' 5"		3-Aug		85' 8"						
								16-Sep		84' 2"	1-Nov	83' 8"		25-Aug	87' 8"		12-Aug		86' 1"						
								7-Oct		84' 6"	3-Dec	82' 4"		4-Sep		87' 4"	19-Aug		86' 4"						
								3-Nov		83' 6"				9-Sep	87' 0"		26-Aug		86' 5"						
								2-Dec		82' 9"				15-Sep	87' 6"		16-Sep		86' 5"						
														29-Sep	87' 7"		5-Oct		86' 2"						
														6-Oct		87' 0"	3-Nov		85' 2"						
														15-Oct		86' 11"									
														3-Nov	87' 2"										
														1-Dec		85' 8"									

7180

WELL WATER LEVEL READINGS
Well # 22
1969 - 2003

1972	Static	Run	1973	Static	Run	1974	Static	Run	1975	Static	Run	1976	Static	Run
1-Feb	77'.58"		1-Jan	77'.00"		1-Jan	79'.50"		1-Jan	78'.92"		1-Jan	76'.75"	
1-Mar		78'.67"	1-Feb	77'.33"		1-Feb	79'.92"		1-Feb	79'.33"		1-Feb	77'.00"	
1-Apr		78'.83"	1-Mar	77'.92"		1-Mar	80'.25"		1-Mar	79'.92"		1-Mar	77'.50"	
1-May		78'.83"	1-Apr		79'.00"	1-Apr	80'.75"		1-Apr	80'.00"		1-Apr	79'.50"	
1-Jun	77'.50"		1-May		81'.08"	1-May		81'.50"	1-May		81'.08"	1-May		80'.17"
1-Jul		78'.00"	1-Jun		81'.83"	1-Jun		82'.08"	1-Jun		80'.50"	1-Jun		80'.08"
1-Aug		77'.50"	1-Jul	81'.67"		1-Jul		82'.08"	1-Jul		78'.42"	1-Jul		80'.83"
1-Sep		77'.50"	1-Aug		81'.67"	1-Aug		82'.25"	1-Aug		77'.92"	1-Aug		80'.25"
1-Oct	75'.83"		1-Sep		79'.92"	1-Sep		80'.42"	1-Sep		76'.92"	1-Sep		78'.00"
1-Nov	76'.17"		1-Oct	76'.75"		1-Oct	78'.33"		1-Oct	75'.75"		1-Oct	77'.92"	
1-Dec	76'.08"		1-Nov	76'.75"		1-Nov	78'.50"		1-Nov	75'.67"		1-Nov	77'.25"	
			1-Dec	79'.08"		1-Dec	79'.17"		1-Dec	76'.08"		1-Dec	77'.92"	

7181

WELL WATER LEVEL READINGS
Well # 22
1989 - 2003

1977	Static	Run	1978	Static	Run	1979	Static	Run
1-Jan	77'.33"		1-Jan	81'.75"		1-Jan	82'.17"	
1-Feb	79'.25"		1-Feb	81'.58"		1-Feb	83'.08"	
1-Mar	79'.50"		1-Mar	77'.08"		1-Mar	82'.50"	
1-Apr	80'.33"		1-Apr		82'.83"	1-Apr	83'.17"	
16-Apr	79'.50"		1-May	82'.75"		1-May	85'.17"	
1-May	80'.50"		1-Jun		84'.17"	1-Jun		86'.00"
15-May	81'.06"		1-Jul		85'.58"	1-Jul		86'.00"
1-Jun	81'.42"		1-Aug		85'.33"	1-Aug		86'.50"
15-Jun		81'.17"	1-Sep		82'.58"	1-Sep		85'.25"
1-Jul	81'.75"		1-Oct		83'.17"	1-Oct	83'.75"	
13-Jul	81'.50"		1-Nov	82'.25"		1-Nov	83'.50"	
1-Aug	82'.06"		1-Dec	82'.26"		1-Dec	83'.58"	
15-Aug	81'.92"							
1-Sep	81'.42"							
15-Sep	82'.00"							
1-Oct	81;.42"							
1-Nov	81'.06"							
1-Dec	81'.25"							

1980	Static	Run	1981	Static	Run	1982	Static	Run	1983	Static	Run
1-Jan	83'.42"		1-Jan	81'.17"		1-Feb	81'.58"		1-Jan	79'.17"	
1-Feb	83'.76"		1-Feb	81'.00"		1-Mar	81'.50"		1-Feb	78'.75"	
1-Mar	83'.00"		1-Mar	81'.17"		1-Apr	82'.00"		1-Mar	79'.00"	
1-Apr		83'.25"	1-Apr	81'.92"		1-May		83'.00"	1-Apr	79'.25"	
1-May	83'.42"		1-May	82'.42"		1-Jun		82'.67"	1-May	79'.25"	
1-Jun		83'.58"	1-Jun		83'.42"	1-Jul		82'.75"	1-Jun		79'.25"
1-Jul		84'.08"	1-Jul		84'.42"	1-Aug		82'.17"	1-Jul		79'.00"
1-Aug		83'.83"	1-Aug		85'.50"	1-Sep		81'.17"	1-Aug		79'.33"
1-Sep		83'.25"	1-Sep	84'.43"		1-Oct	79'.17"		1-Sep		78'.67"
1-Oct	83'.50"		1-Oct	83'.17"		1-Nov	78'.83"		1-Oct	76'.58"	
1-Nov	80'.83"		1-Nov	82'.92"		1-Dec	78'.92"		1-Nov	76'.58"	
1-Dec	80'.75"		1-Dec	82'.75"					1-Dec	77'.92"	

1984	Static	Run	1985	Static	Run	1986	Static
1-Jan	78'.00"		1-Jan	76'.17"		1-Jan	78'.67"
1-Feb	78'.17"		1-Feb	77'.17"		1-Feb	79'.25"
1-Mar	79'.42"		1-Mar	77'.17"		1-Mar	79'.17"
1-Apr	79'.83"		1-Apr	77'.67"		1-Apr	78'.83"
1-May		79'.17"	1-May	78'.17"		1-May	
1-Jun		78'.42"	1-Jun		79'.00"	1-Jun	
1-Jul		78'.50"	1-Jul		80'.58"	1-Jul	
1-Aug		78'.17"	1-Aug		80'.83"	1-Aug	
1-Sep		78'.17"	1-Sep	79'.00"		1-Sep	
1-Oct	46'.67"		1-Oct	79'.00"		1-Oct	70'.83"
1-Nov	76'.17"		1-Nov	78'.17"		1-Nov	77'.17"
1-Dec	76'.17"		1-Dec	78'.58"		1-Dec	77'.67"

7182

WELL WATER LEVEL READINGS
Well # 22
1989 - 2003

Run	1987	Static	Run	1988	Static	Run
	1-Jan	78' .17"		1-Jan	82' .50"	
	1-Feb	78' .83"		1-Feb	82' .17"	
	1-Mar	79' .75"		1-Mar	82' .00"	
	1-Apr		80' .33"	Apr	83' .17"	
79' .17"	2-May		81' .17"	1-May		84' .67"
78' .58"	12-May	80' .75"		1-Jun		86' .42"
80' .00"	21-May		81' .00"	2-Jul		87' .83"
80' .00"	28-May		81' .50"	9-Jul		87' .42"
79' .83	4-Jun		81' .67"	16-Jul		87' .83"
	12-Jun		81' .25"	23-Jul	88' .83"	
	19-Jun	81' .67"		1-Aug	87' .33"	
	26-Jun		82' .33"	7-Aug	87' .50"	
	10-Jul		83' .00"	13-Aug	87' .67"	
	17-Jul		83' .00"	20-Aug	86' .58"	
	24-Jul		82' .75"	3-Sep	87' .67"	
	31-Jul		82' .42"	10-Sep	87' .92"	
	7-Aug		83' .17"	17-Sep	86' .42"	
	14-Aug		83' .17"	24-Sep	87' .08"	
	21-Aug		83' .33"	1-Oct	86' .00"	
	28-Aug		83' .17"	1-Nov		87' .33"
	1-Sep		83' .58"	1-Dec	85' .42"	
	1-Oct		83' .75"			
	1-Nov	82' .50"				
	1-Dec	83' .00"				

7183

WELL WATER LEVEL READINGS
Well # 22
1989 - 2003

1989	Static	Run	1990	Static	Run	1991	Static	Run	1992	Static	Run	1993	Static	Run	1994	Static	Run	1995	Static	Run	1996	Static	Run	1997	Static	Run	1998
3-Jan	84' 5"		2-Jan		84' 8"	2-Jan		85' 2"	2-Jan		85' 9"	3-Jan	87' 1"		2-Jan		84' 5"	2-Jan		87' 2"	2-Mar		84' 10"	4-Jan		83' 8"	4-Jan
1-Feb	83' 9"		3-Feb		83' 11"	2-Feb		85' 4"	2-Feb		86' 1"	24-Jan	86' 9"	88' 1"	3-Feb		84' 4"	28-Jan		88' 11"	30-Mar		85' 0"	2-Feb		83' 2"	1-Feb
4-Mar	84' 0"		3-Mar		84' 0"	2-Mar		85' 3"	28-Feb		85' 11"	30-Jan		88' 2"	26-Feb		84' 9"	25-Feb		86' 8"	5-May		84' 11"	2-Mar		83' 3"	1-Mar
1-Apr	83' 3"		31-Mar		84' 3"	1-Apr	84' 6"		28-Mar		86' 2"	27-Feb		87' 8"	2-Apr		85' 0"	1-Apr		86' 5"	2-Jun		84' 6"	5-Apr		83' 3"	29-Mar
29-Apr		84' 8"	28-Apr		84' 9"	4-May		88' 3"	2-May		87' 2"	27-May		87' 4"	30-Apr		85' 10"	29-Apr		86' 3"	30-Jun		84' 9"	4-May		83' 2"	3-May
8-May		84' 11"	2-Jun		85' 4"	1-Jun	84' 10"		9-May		87' 9"	2-May		87' 0"	29-May		86' 6"	3-Jun		86' 2"	4-Aug		85' 10"	1-Jun		83' 2"	31-May
14-May	84' 5"		9-Jun		85' 6"	28-Jun	86' 0"		16-May		87' 10"	29-May		87' 0"	2-Jul		88' 0"	1-Jul		85' 11"	7-Sep		87' 8"	4-Jul		83' 2"	4-Jul
20-May		84' 11"	16-Jun		85' 6"	5-Jul	86' 6"		23-May		88' 2"	3-Jul		86' 8"	30-Jul		89' 2"	30-Jul		87' 0"	28-Sep		87' 5"	2-Aug		85' 1"	2-Aug
28-May		84' 11"	23-Jun		86' 11"	13-Jul	86' 10"		30-May		88' 3"	28-Aug		88' 4"	5-Sep		89' 8"	2-Sep		87' 11"	3-Nov		87' 2"	30-Aug	85' 0"		6-Sep
4-Jun	84' 7"	85' 4"	30-Jun		87' 0"	20-Jul	87' 1"		6-Jun		88' 9"	2-Oct		85' 9"	2-Oct		89' 5"	9-Oct		87' 0"	1-Dec		87' 6"	4-Oct		82' 5"	2-Oct
11-Jun		85' 6"	7-Jul		86' 10"	27-Jul	87' 0"		13-Jun		88' 6"	30-Oct		85' 1"	29-Oct		86' 2"	17-Nov		85' 6"				2-Nov		83' 0"	1-Nov
17-Jun	85' 1"	86' 11"	14-Jul		87' 3"	3-Aug	87' 1"		20-Jun		88' 8"	27-Nov		84' 7"	1-Dec		88' 10"	3-Dec		85' 5"				30-Nov		81' 10"	12-Dec
24-Jun		86' 2"	21-Jul		87' 8"	10-Aug	87' 4"		27-Jun		89' 0"							30-Dec		84' 10"							
2-Jul	85' 8"	86' 5"	28-Jul		87' 11"	18-Aug	87' 6"		4-Jul		89' 0"																
9-Jul	85' 11"	86' 11"	4-Aug		87' 11"	24-Aug	87' 7"		11-Jul		89' 2"																
15-Jul	86' 0"	87' 0"	11-Aug		88' 4"	1-Sep	87' 5"		18-Jul		89' 5"																
22-Jul	86' 2"	87' 2"	18-Aug		88' 4"	5-Oct	86' 5"		25-Jul		89' 3"																
29-Jul	87' 0"	88' 0"	25-Aug		88' 1"	3-Nov		87' 4"	2-Aug		90' 2"																
5-Aug	86' 4"	87' 4"	1-Sep		87' 11"	30-Nov		88' 5"	8-Aug	88' 11"																	
12-Aug	86' 5"	87' 5"	29-Sep		87' 2"				15-Aug	89' 3"																	
19-Aug	86' 5"	87' 5"	3-Nov		86' 3"				22-Aug	89' 6"																	
26-Aug	85' 11"	86' 11"	1-Dec		85' 6"				29-Aug	89' 6"																	
2-Sep	85' 11"	86' 11"							5-Sep	89' 7"																	
9-Sep	85' 9"	86' 9"							17-Sep	89' 7"																	
30-Sep		86' 2"							19-Sep	89' 7"																	
4-Nov	84' 1"								26-Sep	89' 8"																	
2-Dec		84' 1"							3-Oct	89' 9"																	
									31-Oct	89' 1"																	
									28-Nov	88' 0"																	

7184

WELL WATER LEVEL READINGS
Well # 22
1999 - 2003

Static	Run	1999	Static	Run	2000	Static	Run	2001	Static	Run	2002	Static	Run	2003	Static	Run	2004	Static	Run	2005	Static	Run	2006	Static	Run
	82' 3"	2-Jan		83' 8"	8-Jan		85' 5"	5-Jan		89' 4"	6-Jan	88' 2"		1-Jan		90' 2"	1-Jan	91' 1"		7-Jan	89' 10"		10-Jan	86' 0"	
	82' 8"	31-Jan		83' 1"	5-Feb		85' 8"	4-Feb		88' 11"	1-Feb		89' 6"	2-Feb		89' 1"	6-Feb	90' 2"		4-Feb	89' 4"		10-Feb	86' 3"	
	82' 8"	5-Mar		83' 8"	4-Mar		85' 2"	3-Mar		88' 7"	1-Mar		89' 11"	4-Mar		89' 5"	3-Mar	90' 2"		2-Mar	88' 11"		8-Mar	85' 9"	
	83' 2"	3-Apr		83' 6"	1-Apr		85' 3"	1-Apr		88' 7"	1-Apr		88' 2"	3-Apr		89' 0"	1-Apr	90' 0"		5-Apr	88' 6"				
	83' 10"	5-May		84' 4"	30-Apr		86' 3"	5-May		88' 3"	1-May		89' 3"	1-May		89' 5"	5-May	90' 0"		5-May	88' 1"				
	83' 6"	5-Jun		83' 11"	4-Jun		87' 7"	2-Jun	88' 7"	89' 9"	2-Jun		90' 0"	2-Jun		90' 11"	17-May	89' 8"		8-Jun	87' 6"				
	84' 0"	4-Jul		85' 0"	1-Jul		86' 4"	9-Jun	88' 10"	90' 6"	12-Jun	89' 6"	91' 1"	9-Jun		91' 7"	24-May	90' 4"		6-Jul		89' 11"			
	85' 4"	1-Aug		86' 8"	6-Aug		90' 11"	15-Jun	89' 4"	90' 7"	19-Jun	90' 0"	91' 7"	16-Jun		92' 1"	1-Jun	90' 3"		3-Aug		92' 1"			
	85' 7"	5-Sep		86' 9"	3-Sep		92' 0"	24-Jun	89' 1"	90' 7"	26-Jun	90' 1"		23-Jun		92' 7"	16-Jun	90' 6"		8-Sep	90' 1"				
	85' 1"	3-Oct		86' 4"	30-Sep	89' 2"		29-Jun	89' 3"		3-Jul	90' 3"		7-Jul	91' 1"		22-Jun	91' 0"		5-Oct	89' 2"				
	85' 4"	30-Oct		85' 10"	6-Nov	88' 0"		7-Jul	89' 9"		10-Jul	90' 6"		14-Jul	92' 2"		30-Jun	91' 2"		2-Nov	88' 6"				
	85' 0"	5-Dec		84' 11"	3-Dec	87' 11"		22-Jul	90' 1"	92' 8"	17-Jul	90' 9"		21-Jul	92' 10"		8-Jul	91' 6"		6-Dec	87' 7"				
								28-Jul	89' 5"	92' 2"	24-Jul	90' 11"		22-Jul	92' 11"		15-Jul	91' 8"							
								4-Aug	90' 7"	92' 8"	7-Aug	91' 3"		4-Aug	93' 3"		20-Jul	91' 10"							
								14-Aug	90' 2"	87' 8"	8-Sep	90' 10"		11-Aug	93' 8"		28-Jul	91' 4"							
								25-Aug	90' 5"	92' 5"	10-Oct	90' 6"		18-Aug	94' 1"		3-Aug	91' 6"							
								2-Sep	90' 7"	92' 6"	1-Nov	89' 10"		25-Aug	94' 2"		12-Aug	91' 10"							
								8-Sep	90' 8"	93' 0"	3-Dec		90' 2"	4-Sep		95' 8"	19-Aug	92' 2"							
								16-Sep	90' 7"	92' 5'				9-Sep	96' 2"		26-Aug	92' 3"							
								7-Oct	90' 10"	92' 10"				15-Sep	94' 2"		16-Sep	92' 11"							
								3-Nov	90' 1"					29-Sep	94' 2"		5-Oct	92' 7"							
								2-Dec	89' 2"					6-Oct	93' 7"		3-Nov	91' 7"							
														15-Oct	88' 9"										
														3-Nov	93' 11"										
														1-Dec	92' 3"										

7185

WELL WATER LEVE READINGS
Well #26
1978 - 1988

1978	Static	Run	1979	Static	Run	1980	Static	Run
1-Dec	69'.00"		1-Jan	64'.75"		1-Jan	71'.17"	
			1-Feb	66'.50"		1-Feb		71'.29"
			1-Mar		69'.67"	1-Mar		71'.33"
			1-Apr	68'.33"		1-Apr	67'.92"	
			1-May		71'.92"	1-May	68'.17"	
			1-Jun		72'.58"	1-Jun		71'.83"
			1-Jul		73'.08"	1-Jul		72'.50"
			1-Aug		70'.50"	1-Aug	67'.67"	
			1-Sep		70'.87"	1-Sep	69'.56"	
			1-Oct		69'.67"	1-Oct	69'.33"	
			1-Nov		72'.08"	1-Nov	68'.25"	
			1-Dec		67'.67"	1-Dec	69'.50"	

1981	Static	Run	1982	Static	Run	1983	Static	Run
1-Jan	69'.67"		1-Jan	65'.50"		1-Jan	64'.42"	
12-Feb	69'.33"		1-Feb	67'.00"		1-Feb	64'.17"	
1-Mar	68'.58"		1-Mar	68'.92"		1-Mar	64'.58"	
1-Apr	69'.67"		1-Apr	67'.08"		1-Apr	65'.00"	
1-May	67'.08"		1-May		71'.33"	1-May	64'.83"	
1-Jun		71'.83"	1-Jun		70'.75"	1-Jun	64'.50"	
1-Jul		74'.67"	1-Jul		71'.58"	1-Jul	64'.67"	
1-Aug		73'.50"	1-Aug		70'.08"	1-Aug	62'.58"	
1-Sep	67'.67"		1-Sep	64'.75"		1-Sep	64'.00"	
1-Oct		66'.92"	1-Oct	63'.50"		1-Oct	61'.00"	
1-Nov	66'.08"		1-Nov	64'.67"		1-Nov	61'.68"	
1-Dec	66'.25"		1-Dec	64'.17"		1-Dec	62'.75"	

1984	Static	Run	1985	Static	Run	1986	Static	Run
1-Jan	63'.33"		1-Jan	63'.00"		1-Jan	63'.26"	
1-Feb	63'.42"		1-Feb	63'.33"		1-Feb	64'.23"	
1-Mar	63'.67"		1-Mar	63'.83"		1-Mar	63'.67"	
1-Apr	61'.00"		1-Apr	64'.00"		1-Apr	64'.50"	
1-May	63'.75"		1-May	64'.67"		1-May	64'.67"	
1-Jun	63'.00"		1-Jun	65'.00"		1-Jun	66'.75"	
1-Jul	64'.83"		1-Jul	66'.75"		1-Jul	67'.08"	
1-Aug	62'.67"		1-Aug	62'.50"		1-Aug	65'.67"	
1-Sep	61'.00"		1-Sep	61'.76"		1-Sep	64'.67"	
1-Oct	61'.50"		1-Oct	61'.75"		1-Oct	62'.67"	
1-Nov	62'.00"		1-Nov	62'.06"		1-Nov	61'.67"	
1-Dec	62'.00"		1-Dec	62'.67"		1-Dec	62'.42"	

1987	Static	Run	1988	Static	Run
1-Jan	63'.92"		1-Jan	68'.25"	
1-Feb	64'.25"		1-Feb	68'.17"	
1-Mar	64'.65"		1-Mar	64'.67"	
1-Apr	64'.67"		1-Apr	67'.67"	
2-May	64'.67"		1-May		71'.67"
12-May	67'.92"		1-Jun	71'.33"	
21-May	66'.67"		2-Jul		74'.67"
28-May	69'.67"		9-Jul	72'.92"	
4-Jun	67'.67"		16-Jul	71'.00"	
12-Jun		68'.33"	23-Jul	72'.33"	
19-Jun	67'.67"		1-Aug	71'.92"	
26-Jun	68'.50"		7-Aug	71'.63"	
10-Jul	67'.00"		13-Aug	70'.08"	
17-Jul	67'.67"		20-Aug	71'.00"	
24-Jul	68'.33"		27-Aug	70'.67"	
31-Jul		65'.67"	3-Sep	70'.33"	
7-Aug	67'.42"		10-Sep	69'.67"	
14-Aug	67'.42"		17-Sep	69'.75"	
21-Aug	67'.92"		24-Sep	68'.83"	
29-Aug		69'.67"	1-Oct		72'.08"
1-Sep		70'.00"	1-Nov	67'.92"	
1-Oct	68'.42"		1-Dec	67'.83"	
1-Nov	69'.67"				
1-Dec	69'.83"				

WELL WATER LEVEL READINGS
Well PIP #26
1989 - 2003

1989	Static	Run	1990	Static	Run	1991	Static	Run	1992	Static	Run
3-Jan	67' 11"		2-Jan	67' 0"		2-Jan	Ice		2-Jan	68' 0"	
1-Feb	68' 4"		4-Feb	67' 0"		2-Feb	67' 9"		2-Feb	68' 5"	
4-Mar	68' 1"	-	3-Mar	67' 4"		3-Mar			1-Mar	68' 1"	
2-Apr	67' 11"		31-Mar	67' 6"		1-Apr	Stuck probe		29-Mar	68' 5"	
29-Apr	68' 6"		29-Apr	68' 0"		5-May	68' 4"		3-May	69' 10"	
7-May	70' 6"		3-Jun	68' 9"		2-Jun	68' 10"		10-May	70' 5"	
14-May	69' 2"		10-Jun	70' 6"		30-Jun	70' 4"		17-May		72' 3"
20-May	70' 9"		16-Jun	69' 3"		7-Jul	71' 8"		24-May		74' 7"
28-May	71' 1"		24-Jun		74' 0"	14-Jul		74' 8"	30-May		74' 4"
4-Jun	70' 1"		30-Jun		73' 3"	21-Jul		74' 2"	7-Jun		74' 11"
11-Jun	70' 3"		8-Jul	71' 4"		28-Jul	Stuck probe		13-Jun	72' 0"	
17-Jun		74' 3"	15-Jul	71' 3"		4-Aug	71' 8"		21-Jun	71' 1"	
24-Jun	69' 9"		22-Jul	72' 8"		11-Aug	71' 6"		27-Jun		74' 7"
2-Jul		74' 9"	28-Jul	70' 11"		18-Aug	70' 6"		4-Jul	71' 0"	
9-Jul		74' 10"	5-Aug	71' 4"		25-Aug		73' 4"	11-Jul		74' 7"
15-Jul		74' 7"	11-Aug	71' 4"		1-Sep	69' 5"		19-Jul		74' 2"
23-Jul		74' 8"	19-Aug	69' 1"		6-Oct	67' 5"		26-Jul	71' 8"	
30-Jul		74' 9"	26-Aug	68' 4"		3-Nov	67' 4"		2-Aug		75' 2"
6-Aug		74' 4"	1-Sep	68' 0"		1-Dec	67' 7"		8-Aug	73' 3"	
13-Aug	69' 4"		29-Sep		71' 1"				18-Aug	73' 10	
27-Aug		72' 3"	4-Nov	66' 9"					23-Aug		75' 9"
3-Sep		72' 2"	2-Dec	67' 2"					30-Aug	72' 11"	
9-Sep		72' 3"							6-Sep	71' 7"	
1-Oct		70' 5"							13-Sep	71' 11"	
4-Nov									19-Sep		75' 10"
2-Dec	68' 0"								26-Sep		74' 9"
	68' 4"								3-Oct	72' 10"	
									31-Oct	71' 5"	
									29-Nov	71' 1"	

1993	Static	Run	1994	Static	Run	1995	Static	Run	1996	Static	Run
3-Jan	70' 10"		2-Jan	Unable to access		1-Jan	71' 4"		2-Mar	69' 11"	
30-Jan	70' 10"		3-Feb	Unable to access		28-Jan	72' 0"		30-Mar	70' 6"	
27-Feb	Door Frozen	-	26-Feb	67' 8"		25-Feb	72' 1"		5-May	71' 0"	
28-Mar	70' 2"		2-Apr	Unable to access		2-Apr	71' 10"		2-Jun		72' 7"
2-May	70' 3"		30-Apr	Unable to access		29-Apr	71' 8"		30-Jun		71' 11"
30-May		74' 7"	29-May	Unable to access		3-Jun	70' 6"		4-Aug		74' 9"
3-Jul	70' 11"		2-Jul		72' 7"	1-Jul		73' 9"	7-Sep		74' 8"
30-Jul	69' 3"	70' 4"	30-Jul	72' 11"		30-Jul		75' 4"	28-Sep		73' 8"
28-Aug		70' 3"	6-Sep		73' 3"	2-Sep		74' 10"	3-Nov	69' 9"	
2-Oct	68' 7"		2-Oct	69' 10"		9-Oct		71' 2"	1-Dec	69' 11"	
30-Oct			30-Oct	68' 6"		17-Nov	69' 9"				
27-Nov	Unable to access		1-Dec	71 2.5"		3-Dec	70' 6"				
						30-Dec	69' 6"				

1997	Static	Run	1998	Static	Run	1999	Static	Run	2000
4-Jan	67' 10"		4-Jan	67' 2"		2-Jan	68' 0"		6-Jan
2-Feb	68' 1"		1-Feb	67' 0"		31-Jan	67' 10"		5-Feb
2-Mar	68' 10"		1-Mar	67' 3"		5-Mar	69' 7"		4-Mar
5-Apr	68' 8"		29-Mar	67' 10"		3-Apr	69' 9"		1-Apr
4-May		71' 5"	3-May	68' 2"		2-May	69' 7"		30-Apr
1-Jun		71' 8"	31-May	70' 0"		6-Jun		74' 1"	4-Jun
4-Jul		73' 2"	4-Jul		75' 3"	4-Jul	69' 4"		1-Jul
2-Aug	70' 6"		2-Aug		75' 3"	1-Aug		87' 1"	5-Aug
30-Aug		76' 5"	6-Sep		75' 0"	5-Sep	68' 5"		3-Sep
4-Oct		68' 5"	2-Oct		70' 5"	3-Oct	70' 3"		30-Sep
2-Nov	68' 6"		1-Nov		72' 3"	30-Oct		71' 8"	6-Nov
30-Nov	68' 5"		12-Dec	68' 2"		6-Dec	70' 0"		3-Dec

7187

WELL WATER LEVEL READINGS
Well PIP #28
1989 - 2003

Static	Run	2001	Static	Run	2002	Static	Run	2003	Static	Run	2004	Static	Run	2005	Static	Run	2006	Static	Run
68' 11"		5-Jan	70' 11"		6-Jan	72' 9"		1-Jan	71' 9"		1-Jan	73' 9"		7-Jan		76' 0"	10-Jan		74' 5"
68' 10"		4-Feb	70' 10"		1-Feb	73' 0"		2-Feb		75' 1"	6-Feb		76' 6"	4-Feb		76' 4"	10-Feb		74' 1"
70' 0"		5-Mar	71' 2"		1-Mar	73' 1"		4-Mar		75 2"	3-Mar		76' 9"	2-Mar	73' 4"		6-Mar		73' 9"
70' 4"		1-Apr	71' 3"		1-Apr	72' 9"		3-Apr		73' 7"	1-Apr		76' 11"	5-Apr		76' 0"			
71' 2"		5-May		75' 2"	1-May	74' 10"		1-May		75' 5"	5-May		79' 10"	5-May		76' 10"			
	76' 7"	2-Jun		76' 3"	2-Jun	74' 8"		2-Jun		78' 7"	17-May	76' 10"		8-Jun		77' 8"			
	77' 8"	9-Jun		78' 7"	12-Jun		77' 10"	9-Jun		79' 5"	24-May	76' 10"		6-Jul	77' 10"				
	76' 6"	15-Jun		76' 11"	19-Jun		78' 6"	16-Jun		80' 6"	1-Jun	77' 10"		3-Aug	78' 5"				
73' 5"		7-Jul		79' 6"	26-Jun		78' 10"	23-Jun		77' 11"	16-Jun		79' 8"	8-Sep	77' 6"				
75' 4"		22-Jul		77' 4"	3-Jul		82' 1"	7-Jul		83' 3"	22-Jun		78' 10"	5-Oct	73' 9"				
74' 3"		28-Jul		76' 3"	10-Jul		81' 8"	14-Jul		82' 4"	26-Jun	77' 4"		2-Nov	73' 0"				
70' 6"		4-Aug		78' 3"	17-Jul		83' 2"	21-Jul		82' 4"	8-Jul		78' 10"	6-Dec		76' 9"			
		14-Aug	75' 7"		24-Jul		81' 0"	28-Jul	78' 3"		15-Jul		79' 9"						
		25-Aug	70' 10"		7-Aug		81' 3"	4-Aug	79' 0"		20-Jul	76' 11"							
		2-Sep	75' 2"		8-Sep	75' 8"		11-Aug	78' 0"		28-Jul		80' 0"						
		8-Sep	74' 3"		10-Oct	73' 2"		18-Aug		79' 11"	3-Aug	78' 1"							
		16-Sep	75' 0"		1-Nov	71' 9"		25-Aug	76' 9"		12-Aug		81' 6"						
		7-Oct	73' 1"		3-Dec	71' 8"		4-Sep		78' 7"	19-Aug	77' 9"							
		3-Nov	73' 3"					9-Sep		78' 7"	26-Aug	77' 4"							
		2-Dec	72' 10"					15-Sep	76' 10"		16-Sep		81' 5"						
								29-Sep	77' 10"		6-Oct	76' 4"							
								6-Oct	78' 1"		3-Nov		77' 0"						
								15-Oct	76' 3"										
								3-Nov	75' 6"										
								1-Dec		77' 6"									

7188

WELL WATER LEVEL READINGS
Well # 27
1969 - 2003

1970	Static	Run	1971	Static	Run	1972	Static	Run	1973	Static	Run	1974	Static	Run	1975	Static	Run	1976	Static	Run
1-Jan	53'.67"		1-Jan	54'.83"		1-Jan	52'.50"		1-Jan	52'.50"		1-Jan	64'.83"		1-Jan		62'.75"	1-Jan	60'.08"	
1-Mar	54'.67"		1-Feb		64'.67"	1-Feb	52'.25"		1-Feb	54'.17"		1-Feb	55'.08"		1-Feb		62'.92"	1-Feb	53'.17"	
1-Apr	55'.83"		1-Mar	56'.00"		1-Mar	54'.75"		1-Mar	54'.50"		1-Mar	55'.50"		1-Mar		63'.25"	1-Mar		60'.75"
1-May	56'.17"		1-Apr	55'.83"		1-Apr	54'.75"		1-Apr	56'.92"		1-Apr	56'.00"		1-Apr	56'.00"		1-Apr		62'.92"
1-Jun		65'.67"	1-May	57'.00"		1-May	55'.58"		1-May	57'.33"		1-May		65'.67"	1-May		64'.75"	1-May	64'.00"	
1-Jul	57'.33"		1-Jun		66'.00"	1-Jun		58'.83"	1-Jun		66'.83"	1-Jun		65'.83"	1-Jun		64'.58"	1-Jun		63'.92"
1-Sep	54'.33"		1-Jul		65'.58"	1-Jul		63'.83"	1-Jul		65'.58"	1-Jul		65'.25"	1-Jul	54'.08"		1-Jul		64'.67"
1-Oct	53'.42"		1-Aug	55'.00"		1-Aug	53'.00"		1-Aug	55'.75"		1-Aug	56'.08"		1-Aug		60'.58"	1-Aug		62'.58"
1-Nov	56'.25"		1-Sep	52'.75"		1-Sep		61'.00"	1-Sep	53'.08"		1-Sep	54'.25"		1-Sep	51'.67"		1-Sep		59'.92"
1-Dec	54'.17"		1-Oct	52'.67"		1-Oct	51'.83"		1-Oct	53'.08"		1-Oct		60'.42"	1-Oct		58'.00"	1-Oct		58'.50"
			1-Nov	52'.75"		1-Nov	52'.50"		1-Nov		62'.25"	1-Nov	53'.33"		1-Nov	50'.67"		1-Nov	53'.08"	
			1-Dec	52'.25"		1-Dec	52'.75"		1-Dec	53'.33"		1-Dec	54'.25"		1-Dec	51'.58"		1-Dec	53'.87"	

7189

WELL WATER LEVEL READINGS
Well # 27
1989 - 2003

1977	Static	Run	1978	Static	Run	1979	Static	Run	1980	Static	Run
1-Jan	53'.50"		1-Jan	57'.33"		1-Jan	55'.75"		1-Jan	59'.00"	
1-Feb	55'.33"		1-Feb	57'.67"		1-Feb	56'.33"		1-Feb	57'.92"	
1-Mar		63'.08"	1-Mar	58'.08"		1-Mar	57'.08"		1-Mar	58'.58"	
1-Apr	57'.58"		1-Apr	57'.33"		1-Apr	58'.58"		1-Apr	57'.50"	
16-Apr	55'.58"		1-May	57'.33"		1-May	59'.06"		1-May		65'.00"
1-May	58'.25"		1-Jun	58'.50"		1-Jun	60'.25"		1-Jun		67'.25"
15-May	58'.67"		1-Jul		65'.67"	1-Jul	60'.67"		1-Jul		67'.17"
1-Jun	62'.50"		1-Aug	57'.17"		1-Aug	57'.75"		1-Aug	57'.08"	
15-Jun		63'.50"	1-Sep	58'.08"		1-Sep	56'.83"		1-Sep		62'.67"
1-Jul	57'.50"		1-Oct	55'.67"		1-Oct	56'.92"		1-Oct		63'.17"
13-Jul	58'.17"		1-Nov	55'.83"		1-Nov	56'.75"		1-Nov	55'.25"	
1-Aug	56'.67"		1-Dec	55'.76"		1-Dec	57'.00"		1-Dec	55'.42"	
16-Aug	57'.75"										
1-Sep	65'.83"										
15-Sep	56'.83"										
1-Oct		63'.67"									
1-Nov	53'.17"										
1-Dec	56'.83"										

1981	Static	Run	1982	Static	Run	1983	Static	Run	1984	Static	Run
1-Jan	56'.83"		1-Jan	56'.33"		1-Jan	53'.82"		1-Jan	53'.17"	
1-Feb	55'.67"		1-Feb	57'.00"		1-Feb	54'.00"		1-Feb	53'.42"	
1-Mar		63'.33"	1-Mar	57'.67"		1-Mar		60'.83"	1-Mar		60'.42"
1-Apr	56'.50"		1-Apr	56'.92"		1-Apr		61'.58"	1-Apr	56'.25"	
1-May		63'.08"	1-May		67'.00"	1-May	54'.83"		1-May		58'.17"
1-Jun		64'.75"	1-Jun	58'.08"		1-Jun	64'.25"		1-Jun	54'.00"	
1-Jul		67'.83"	1-Jul		66'.92"	1-Jul	56'.17"		1-Jul		61'.67"
1-Aug		67'.58"	1-Aug		64'.42"	1-Aug		62'.33"	1-Aug	53'.00"	
1-Sep	58'.00"		1-Sep	54'.42"		1-Sep	53'.42"		1-Sep	53'.00"	
1-Oct	58'.42"		1-Oct	53'.25"		1-Oct		57'.33"	1-Oct		58'.50"
1-Nov	56'.00"		1-Nov		60'.50"	1-Nov		67'.50"	1-Nov	52'.00"	
1-Dec	58'.50"		1-Dec		60'.50"	1-Dec	62'.83"		1-Dec	52'.00"	

1985	Static	Run	1986	Static	Run	1987	Static	Run	1988	Static	Run
1-Jan	53'.00"		1-Jan	53'.00"		1-Jan	53'.00"		1-Jan		61'.68"
1-Feb	54'.00"		1-Feb		60'.50"	2-Feb		58'.75"	1-Feb	55'.83"	
1-Mar	53'.75"		1-Mar	53'.17"		1-Mar		60'.58"	1-Mar	57'.75"	
1-Apr	64'.00"		1-Apr	53'.75"		1-Apr		62'.00"	1-Apr	56'.83"	
1-May		62'.00"	1-May		61'.00"	2-May	56'.58"		1-May		64'.17"
1-Jun	55'.00"		1-Jun	62'.42"		12-May	57'.00"		1-Jun	61'.00"	
1-Jul		64'.00"	1-Jul		63'.42"	21-May	55'.83"		2-Jul	62'.25"	
1-Aug	62'.92"		1-Aug		62'.00"	28-May	56'.50"		9-Jul		67'.33"
1-Sep		59'.67"	1-Sep		60'.00"	4-Jun		63'.33"	16-Jul		68'.25"
1-Oct		59'.67"	1-Oct		58'.00"	12-Jun		63'.00"	23-Jul	61'.42"	
1-Nov	51'.67"		1-Nov		58'.42"	19-Jun	57'.58"		1-Aug	61'.75"	
1-Dec	52'.67"		1-Dec	53'.58"		26-Jun		65'.17"	7-Aug	61'.17"	
						10-Jul	57'.92"		13-Aug	61'.58"	
						17-Jul		63'.57"	20-Aug	61'.33"	
						24-Jul	68'.33"		27-Aug	61'.75"	
						31-Jul	55'.02"		3-Sep	59'.25"	
						7-Aug	58'.42"		10-Sep	60'.75"	
						14-Aug	58'.00"		17-Sep	59'.58"	
						21-Aug	58'.00"		24-Sep	59'.25"	
						28-Aug		63'.00"	1-Oct		65'.17"
						1-Sep	57'.00"		1-Nov	60'.00"	
						1-Oct		63'.33"	1-Dec	58'.08"	
						1-Nov		61'.92"			
						1-Dec		61'.33"			

7190

WELL WATER LEVEL READINGS
Well # 27
1989 - 2003

1989	Static	Run	1990	Static	Run	1991	Static	Run	1992	Static	Run	1993	Static	Run	1994	Static	Run	1995	Static	Run	1996	Static	Run	1997	Static	Run	1998	Static	Run	1999	Static	Run	2000	Static	Run	2001
3-Jan	58' 0"		2-Jan	56' 5"		2-Jan	57' 10"		2-Jan		63' 7"	3-Jan		66' 10"	2-Jan		63' 0"	2-Jan		66' 3"	2-Mar		64' 7"	4-Jan	56' 10"		4-Jan	55' 4"		2-Jan		67' 4"	8-Jan		64' 6"	5-Jan
1-Feb		63' 10"	3-Feb	56' 9"		2-Feb	58' 1"		2-Feb	58' 3"		30-Jan	60' 9"		3-Feb		63' 0"	28-Jan		67' 9"	30-Mar		65' 1"	2-Feb		64' 7"	1-Feb	55' 5"		31-Jan		68' 0"	5-Feb		65' 0"	4-Feb
4-Mar	58' 1"		3-Mar	56' 10"		2-Mar	58' 3"		29-Feb	58' 4"		27-Feb		66' 7"	26-Feb		63' 10"	25-Feb		66' 0"	5-May		66' 8"	2-Mar		63' 9"	1-Mar	55' 8"		5-Mar		67' 2"	4-Mar		68' 8"	3-Mar
1-Apr	57' 5"		31-Mar	57' 1"		1-Apr	58' 3"		29-Mar	58' 6"		27-Mar	60' 3"		2-Apr		64' 4"	2-Apr		66' 6"	2-Jun		64' 7"	5-Apr		63' 3"	29-Mar	56' 4"		3-Apr		67' 5"	1-Apr		68' 2"	1-Apr
29-Apr	57' 10"		28-Apr	57' 6"		5-May	58' 6"		2-May	59' 10"		2-May	60' 3"		30-Apr	59' 0"		29-Apr		66' 4"	30-Jun		67' 2"	4-May	57' 7"		3-May		69' 7"	5-May		67' 4"	30-Apr		69' 0"	5-May
7-May		67' 10"	3-Jun		64' 9"	1-Jun	59' 1"		9-May	60' 8"		29-May		67' 10"	29-May	59' 1"		3-Jun		65' 9"	4-Aug		66' 10"	1-Jun	57' 11"		31-May		68' 4"	6-Jun		67' 0"	4-Jun		70' 3"	2-Jun
14-May	58' 6"		10-Jun		66' 10"	29-Jun		67' 4"	16-May	61' 3"		3-Jul	61' 0"		2-Jul		66' 1"	1-Jul	60' 7"		7-Sep		67' 1"	4-Jul		65' 3"	4-Jul		71' 2"	4-Jul		68' 4"	1-Jul	64' 2"		9-Jun
21-May		66' 8"	16-Jun		65' 0"	6-Jul	62' 1"		23-May	62' 6"		30-Jul		67' 10"	30-Jul		66' 9"	30-Jul		67' 8"	28-Sep		65' 7"	2-Aug	60' 7"		2-Aug		71' 1"	1-Aug		72' 6"	5-Aug		75' 0"	15-Jun
28-May	59' 0"		24-Jun		67' 6"	13-Jul		68' 2"	31-May	61' 4"		28-Aug		63' 7"	5-Sep		66' 1"	2-Sep		67' 7"	3-Nov		66' 0"	30-Aug		65' 2"	5-Sep		70' 6"	5-Sep		71' 0"	2-Sep		72' 6"	7-Jul
3-Jun		66' 0"	30-Jun		66' 6"	20-Jul	62' 2"		6-Jun		68' 7"	2-Oct		63' 6"	2-Oct		65' 0"	9-Oct	58' 0"		1-Dec		65' 1"	4-Oct	54' 11"		2-Oct	56' 10"		3-Oct	59' 6"		30-Sep		74' 8"	22-Jul
10-Jun	59' 3"		7-Jul		67' 0"	28-Jul	59' 9"		14-Jun		67' 5"	30-Oct		62' 10"	30-Oct	58' 6"		17-Nov		62' 7"				2-Nov		64' 6"	1-Nov	56' 6"		30-Oct		66' 11"	6-Nov	61' 6"		28-Jul
18-Jun	61' 4"		15-Jul	60' 11"		4-Aug	61' 9"		20-Jun	60' 10"		27-Nov	56' 6"		1-Dec		66' 10"	3-Dec		65' 0"				30-Nov		60' 11"	12-Dec		70' 8"	5-Dec		66' 8"	3-Dec	64' 0"		4-Aug
25-Jun	59' 2"		21-Jul	62' 1"		11-Aug	61' 6"		28-Jun	62' 0"								30-Dec		64' 1"																14-Aug
1-Jul		67' 9"	29-Jul		66' 11"	18-Aug	61' 1"		5-Jul	61' 3"																									25-Aug
9-Jul		67' 7"	5-Aug	61' 10"		25-Aug	61' 4"		12-Jul	62' 0"																									2-Sep
16-Jul		67' 6"	12-Aug	61' 11"		31-Aug		65' 9"	18-Jul	61' 10"																									8-Sep
23-Jul	61' 10"		19-Aug	58' 10"		5-Oct	58' 10"		25-Jul	62' 2"																									16-Sep
29-Jul		67' 7"	26-Aug	58' 0"		3-Nov	57' 10"		2-Aug	63' 0"																									7-Oct
6-Aug		67' 1"	2-Sep	59' 1"		30-Nov	57' 11"		8-Aug	64' 4"																									3-Nov
13-Aug	59' 5"		30-Sep		64' 0"				15-Aug	65' 0"																									2-Dec
20-Aug	56' 9"		3-Nov	56' 7"					22-Aug	64' 1"																									
26-Aug	59' 6"		2-Dec	56' 10"					29-Aug		68' 11"																								
3-Sep	58' 9"								6-Sep	61' 11"																									
10-Sep		65' 8"							12-Sep	62' 2"																									
30-Sep	57' 5"								19-Sep		69' 3"																								
4-Nov	55' 6"								28-Sep	62' 3"																									
3-Dec	56' 0"								3-Oct	63' 1"																									
									31-Oct		67' 11"																								
									28-Nov		68' 11"																								

7191

WELL WATER LEVEL READINGS
Well # 27
1989 - 2003

Static	Run	2002	Static	Run	2003	Static	Run	2004	Static	Run	2005	Static	Run	2006	Static	Run
62' 1"		6-Jan		72' 0"	1-Jan	61' 0"	1-Jan	63' 0"			7-Jan	63' 8"		10-Jan	61' 6"	
57' 11"		1-Feb		70' 6"	2-Feb	61' 5"	6-Feb	63' 6"			4-Feb	63' 4"		10-Feb	61' 7"	
60' 0"		1-Mar		72' 9"	4-Mar	61' 4"	3-Mar	63' 9"			2-Mar	62' 11"		8-Mar	61' 3"	
60' 2"		1-Apr		72' 7"	3-Apr	61' 4"	1-Apr	65' 8"			5-Apr	63' 2"				
62' 5"		1-May		73' 11"	1-May	61' 6"	5-May	67' 1"			5-May	62' 10"				
	75' 3"	2-Jun	63' 11"		2-Jun	65' 4"	17-May	68' 2"			8-Jun	64' 11"				
	75' 8"	12-Jun	65' 11"		9-Jun	65' 8"	24-May	66' 7"			6-Jul	68' 8"				
	73' 6"	19-Jun	66' 7"		16-Jun	67' 3"	1-Jun	67' 10"			3-Aug	68' 2"				
	75' 10"	26-Jun	67' 4"		23-Jun	64' 6"	16-Jun	67' 6"			8-Sep	66' 8"				
	73' 8"	3-Jul	69' 10"		7-Jul	70' 7"	22-Jun	67' 7"			5-Oct	64' 7"				
	75' 0"	10-Jul	69' 9"		14-Jul	70' 0"	30-Jun	68' 1"			2-Nov	63' 7"				
	75' 7"	17-Jul	70' 3"		22-Jul	69' 3"	8-Jul	67' 10"			6-Dec	61' 11"				
	73' 11"	24-Jul	68' 6"		28-Jul	68' 4"	16-Jul	67' 1"								
	76' 11"	7-Aug	68' 10"		4-Aug	69' 2"	20-Jul	66' 5"								
	73' 7"	6-Sep	66' 11"		11-Aug	68' 1"	28-Jul	69' 10"								
	74' 5"	10-Oct	63' 0"		18-Aug	67' 9"	3-Aug	68' 11"								
	73' 10"	1-Nov	61' 2"		25-Aug	66' 11"	12-Aug	69' 6"								
	72' 0"	3-Dec	61' 7"		4-Sep	66' 2"	19-Aug	67' 9"								
	72' 3"				9-Sep	65' 7"	26-Aug	67' 5"								
	70' 9"				15-Sep	66' 7"	16-Sep	67' 11"								
					29-Sep	67' 10"	6-Oct	65' 9"								
					6-Oct	67' 5"	3-Nov	64' 9"								
					15-Oct	65' 9"										
					3-Nov	64' 10"										
					1-Dec	64' 3"										

7192

WELL WATER LEVEL READINGS
Well # 26
1989 - 2003

1972	Static	Run	1973	Static	Run	1974	Static	Run	1975	Static	Run	1976	Static	Run
1-Nov	19'.00"		1-Jan	20'.58"		1-Jan	23'.67"		1-Jan		23'.83"	1-Jan	19'.08"	
			1-Feb	20'.50"		1-Feb	24'.50"		1-Feb	22'.75"		1-Feb	19'.67"	
			1-Mar	22'.00"		1-Mar	25'.00"		1-Mar	23'.17"		1-Mar	20'.08"	
			1-Apr	22'.42"		1-Apr	24'.75"		1-Apr	23'.87"		1-Apr	20'.83"	
			1-May	24'.17"		1-May	21'.42"		1-May		22'.25"	1-May		19'.83"
			1-Jun		26'.00"	1-Jun		24'.75"	1-Jun		18'.75"	1-Jun	20'.83"	
			1-Jul		26'.56"	1-Jul		25'.50"	1-Jul	18'.67"		1-Jul		21'.92"
			1-Aug		27'.08"	1-Aug		25'.33"	1-Aug	19'.17"		1-Aug	20'.75"	
			1-Sep	23'.08"		1-Sep	23'.25"		1-Sep		20'.50"	1-Sep		21'.08"
			1-Oct	22'.75"		1-Oct	21'.58"		1-Oct	18'.17"		1-Oct		21'.25"
			1-Nov	22'.75"		1-Nov	21'.50"		1-Nov	18'.92"		1-Nov	20'.75"	
			1-Dec	23'.17"		1-Dec	21'.83"		1-Dec	18'.17"		1-Dec	20'.00"	

7193

WELL WATER LEVEL READINGS
Well # 28
1989 - 2003

1977	Static	Run	1978	Static	Run	1979	Static	Run	1980	Static	Run
1-Jan	20'.67"		1-Jan	28'.25"		1-Jan		30'.75"	1-Jan	30'.00"	
1-Feb	22'.67"		1-Feb	28'.50"		1-Feb	29'.67"		1-Feb	39'.75"	
1-Mar	22'.25"		1-Mar	28'.50"		1-Mar	30'.17"		1-Mar	29'.08"	
1-Apr	25'.00"		1-Apr	28'.75"		1-Apr	30'.50"		1-Apr		29'.67"
16-Apr	24'.08"		1-May		30'.83"	1-May		33'.17"	1-May	27'.50"	
1-May	25'.33"		1-Jun	29'.92"		1-Jun		34'.67"	1-Jun	27'.50"	
16-May	25'.50"		1-Jul		30'.50"	1-Jul	34'.75"		1-Jul		29'.50"
1-Jun	26'.58"		1-Aug	31'.75"		1-Aug	33'.58"		1-Aug	28'.58"	
15-Jun		27'.25"	1-Sep	30'.83"		1-Sep	34'.00"		1-Sep	25'.83"	
1-Jul		28'.25"	1-Oct	30'.75"		1-Oct	32'.83"		1-Oct	26'.58"	
13-Jul	27'.75"		1-Nov		32'.67"	1-Nov	31'.17"		1-Nov	25'.00"	
1-Aug	29'.42"		1-Dec	30'.42"		1-Dec	30'.83"		1-Dec	25'.17"	
15-Aug	28'.67"										
1-Sep	28'.00"										
15-Sep	28'.42"										
1-Oct	27'.42"										
1-Nov	27'.25"										
1-Dec	27'.67"										

1981	Static	Run	1982	Static	Run	1983	Static	Run	1984	Static	Run
1-Jan	25'.75"		1-Jan	27'.17"		1-Jan	21'.58"		1-Jan	19'.75"	
1-Feb	26'.17"		2-Feb		29'.67"	1-Feb	21'.75"		1-Feb	20'.17"	
1-Mar	26'.75"		1-Mar	27'.92"		1-Mar	21'.83"		1-Mar	20'.92"	
1-Apr	28'.00"		1-Apr	27'.83"		1-Apr	22'.17"		1-Apr	21'.83"	
1-May	28'.50"		1-May	24'.17"		1-May	19'.92"		1-May	17'.08"	
1-Jun	28'.33"		1-Jun	21'.25"		1-Jun	15'.83"		1-Jun	15'.75"	
1-Jul	30'.17"		1-Jul	23'.00"		1-Jul	18'.58"		1-Jul		19'.75"
1-Aug		33'.42"	1-Aug		24'.92"	1-Aug	20'.08"		1-Aug	18'.08"	
1-Sep	30'.92"		1-Sep	22'.83"		1-Sep	19'.42"		1-Sep	18'.50"	
1-Oct	28'.08"		1-Oct	22'.67"		1-Oct	18'.25"		1-Oct		19'.75"
1-Nov	26'.67"		1-Nov	21'.67"		1-Nov	18'.42"		1-Nov	16'.67"	
1-Dec	27'.25"		1-Dec	21'.83"		1-Dec	20'.00"		1-Dec	18'.67"	

1985	Static	Run	1986	Static	Run	1987	Static	Run	1988	Static	Run
1-Jan	18'.67"		1-Jan	23'.42		1-Jan	21'.08"		1-Jan	28'.83"	
1-Feb	18'.08"		1-Feb	21'.92"		1-Feb	21'.83"		1-Feb	28'.08"	
1-Mar	18'.08"		1-Mar	19'.17"		1-Mar	18'.00"		1-Mar	28'.42"	
1-Apr	18'.58"		1-Apr	19'.00"		1-Apr	17'.58"		1-Apr	29'.08"	
1-May		19'.08"	1-May		18'.75"	2-May	19'.00"		1-May	30'.08"	
1-Jun	18'.75"		1-Jun		19'.08"	12-May	19'.75"		1-Jun		35'.25"
1-Jul		23'.17"	1-Jul		22'.33"	21-May	20'.67"		2-Jul		36'.08"
1-Aug		24'.75"	1-Aug		23'.08"	28-May	25'.58"		9-Jul	33'.33"	
1-Sep	21'.67"		1-Sep	21'.67"		4-Jun		26'.92"	16-Jul		38'.08"
1-Oct	21'.67"		1-Oct	20'.42"		12-Jun		27'.00"	23-Jul	34'.17"	
1-Nov	20'.75"		1-Nov	19'.83"		19-Jun	26'.58"		1-Aug	35'.42"	
1-Dec	22'.67"		1-Dec	20'.08"		26-Jun		29'.08"	7-Aug	35'.42"	
						10-Jul		28'.33"	13-Aug	35'.25"	
						17-Jul	28'.33"		20-Aug	35'.67"	
						24-Jul	28'.08"		27-Aug	35'.67"	
						31-Jul		29'.42"	3-Sep	35'.58"	
						7-Aug	29'.00"		10-Sep	35'.83"	
						14-Aug		31'.08"	17-Sep	35'.75"	
						21-Aug	29'.33"		24-Sep	35'.33"	
						28-Aug		31'.58"	1-Oct	34'.58"	
						1-Sep	30'.08"		1-Nov	33'.92"	
						1-Oct	30'.08"		1-Dec	33'.00"	
						1-Nov	28'.25"				
						1-Dec	28'.08"				

7194

WELL WATER LEVEL READINGS
Well # 28
1989 - 2003

1989	Static	Run	1990	Static	Run	1991	Static	Run	1992	Static	Run
3-Jan	31' 4"		2-Jan	29' 9"		2-Jan	31' 5"		2-Jan	31' 7"	
1-Feb	30' 11"		3-Feb	29' 9"		2-Feb	31' 4"		2-Feb	32' 2'	
4-Mar	31' 1"		3-Mar	29' 11"		2-Mar	32' 3"		29-Feb	32' 2"	
1-Apr	29' 9"		31-Mar	30' 0"		1-Apr	32' 2'		29-Mar	32' 4"	
29-Apr	29' 4"		28-Apr	30' 5"		4-May	33' 3"		2-May	33' 7"	
7-May	30' 0"		2-Jun	31' 4"		2-Jun	31' 10"		9-May	34' 1"	
13-May		32' 1"	9-Jun	31' 10"		29-Jun		35' 4"	16-May	34' 5"	
20-May	30' 6"		16-Jun	31' 10"		6-Jul	34' 1"		23-May	34' 6"	
27-May	31' 11"		23-Jun	32' 4"		13-Jul	34' 8"		30-May	35' 1"	
4-Jun	30' 11"	32' 8"	1-Jul	33' 2"		20-Jul	35' 2"		6-Jun	35' 6"	
10-Jun	31' 1"	33' 0"	7-Jul	33' 11"		27-Jul	35' 0"		13-Jun	36' 1"	
17-Jun	31' 4"	32' 1"	14-Jul	34' 2"		3-Aug	35' 5"		20-Jun	35' 11"	
24-Jun	31' 5"		21-Jul	34' 10"		10-Aug	35' 10"		27-Jun	36' 6"	
1-Jul	31' 9"	33' 9"	28-Jul	35' 0"		17-Aug		37' 11"	4-Jul	36' 3"	
8-Jul	27' 7"	33' 9"	4-Aug	35' 4"		24-Aug		38' 3"	11-Jul	36' 10"	
15-Jul	32' 9"	34' 9"	11-Aug	35' 6"		31-Aug	36' 1"		18-Jul	37' 1"	
29-Jul	33' 3"	34' 2"	18-Aug	35' 11"		5-Oct	35' 3"		25-Jul		39' 6"
5-Aug	34' 5"	35' 6"	25-Aug	35' 9"		3-Nov	34' 1"		1-Aug		39' 3"
12-Aug	33' 7"	34' 4"	1-Sep	35' 8"		30-Nov	33' 1"		8-Aug	38' 5"	
19-Aug	34' 7"	35' 5"	29-Sep	35' 3"					15-Aug	38' 6"	
26-Aug	33' 6"	34' 5"	3-Nov	33' 7"					22-Aug		41' 1"
2-Sep	33' 6"	34' 1"	1-Dec	32' 9"					29-Aug		41' 3"
9-Sep	33' 7"	34' 2"							6-Sep	39' 6"	
30-Sep		34' 6"							12-Sep		42' 0"
4-Nov	30' 11"								19-Sep		42' 4"
2-Dec	30' 0"								26-Sep		42' 3"
									3-Oct		42' 6"
									31-Oct	38' 7"	
									28-Nov	37' 3"	

1993	Static	Run	1994	Static	Run	1995	Static	Run	1996	Static	Run	1997	Static	Run
3-Jan		37' 3"	1-Jan	Probe		1-Jan	Probe		2-Mar	Probe		4-Jan	Probe	
30-Jan	35' 0"		3-Feb	30' 6"		28-Jan	Probe		30-Mar	Probe		2-Feb	Probe	
27-Feb	34' 9"		26-Feb	Probe		25-Feb	Probe		5-May	Probe		2-Mar	Probe	
27-Mar	34' 0"		2-Apr	Probe		1-Apr	Probe		2-Jun	Probe		5-Apr	Probe	
1-May	Probe		30-Apr	Probe		29-Apr	Probe		30-Jun	Probe		4-May	Probe	
29-May	Probe		28-May	Probe		3-Jun	Probe		4-Aug	Probe		1-Jun	Probe	
3-Jul	Probe		2-Jul	Probe		1-Jul	Probe		7-Sep	Probe		4-Jul	Probe	
28-Aug	Probe		30-Jul	Probe		30-Jul	Probe		28-Sep	Probe		2-Aug	Probe	
2-Oct	Probe		3-Sep	Probe		2-Sep	Probe		3-Nov	Probe		30-Aug	Probe	
30-Oct	Probe		1-Oct	Probe		9-Oct	Probe		1-Dec	Probe		4-Oct	Probe	
27-Nov	Probe		29-Oct	Probe		11-Nov	Probe					2-Nov	Probe	
			1-Dec	Probe		3-Dec	Probe					30-Nov	Probe	
						30-Dec	Probe							

1998	Static	Run	1999	Static	Run	2000	Static	2001	Static
4-Jan	Probe		2-Jan	Probe		8-Jan	Probe	6-Jan	Probe
1-Feb	Probe		31-Jan	Probe		5-Feb	Probe	4-Feb	Probe
1-Mar	Probe		5-Mar	Probe		4-Mar	Probe	3-Mar	Probe
29-Mar	Probe		3-Apr	Probe		1-Apr	Probe	1-Apr	Probe
3-May	Probe		5-May	Probe		30-Apr	Probe	5-May	Probe
31-May	Probe		5-Jun	Probe		4-Jun	Probe	2-Jun	Probe
4-Jul	Probe		4-Jul	Probe		1-Jul	Probe	9-Jun	Probe
2-Aug	Probe		1-Aug	Probe		5-Aug	Probe	15-Jun	Probe
5-Sep	Probe		6-Sep	Probe		3-Sep	Probe	24-Jun	Probe
2-Oct	Probe		3-Oct	Probe		30-Sep	Probe	7-Jul	Probe
1-Nov	Probe		30-Oct	Probe		6-Nov	Probe	22-Jul	Probe
12-Dec	Probe		5-Dec	Probe		3-Dec	Probe	22-Jul	Probe
								4-Aug	Probe
								14-Aug	40' 7"
								25-Aug	Probe
								2-Sep	Probe
								8-Sep	Probe
								16-Sep	Probe
								7-Oct	Probe
								3-Nov	Probe
								2-Dec	Probe

7195

WELL WATER LEVEL READINGS
Well # 28
1989 - 2003

Run	2002	Static	Run	2003	Static	Run	2004	Static	Run	2005	Static	Run	2006	Static	Run
	6-Jan	Probe		1-Jan	Probe		1-Jan		Probe	7-Jan	40' 10"		10-Jan	35' 5"	
	1-Feb	Probe		2-Feb	Probe		6-Feb		Probe	4-Feb	39' 11"		10-Feb	33' 9"	
	1-Mar	Probe		4-Mar	Probe		3-Mar		Probe	2-Mar	39' 4"		6-Mar	33' 1"	
	1-Apr	Probe		3-Apr	Probe		1-Apr		Probe	5-Apr	38' 6"				
	1-May	Probe		1-May	Probe		5-May		Probe	5-May	37' 11"				
	2-Jun	Probe		2-Jun	Probe		17-May		Probe	8-Jun	36' 1"				
	12-Jun	Probe		9-Jun	Probe		24-May	39' 11"	Probe	6-Jul	36' 9"	38' 3"			
	19-Jun	Probe		16-Jun	Probe		1-Jun		Probe	3-Aug	38' 7"				
	26-Jun	Probe		23-Jun	Probe		16-Jun	41' 0"	Probe	8-Sep	39' 5"				
	3-Jul	Probe		7-Jul	Probe		22-Jun	41' 11"	Probe	5-Oct	39' 1"				
	10-Jul	Probe		14-Jul	Probe		30-Jun	41' 6"	Probe	2-Nov	37' 4"				
	17-Jul	Probe		21-Jul	Probe		8-Jul	41' 10"	Probe	6-Dec	36' 3"				
	24-Jul	Probe		28-Jul	Probe		15-Jul	42' 6"	Probe						
Probe	7-Aug	Probe		4-Aug	Probe		20-Jul	42' 8"	Probe						
	8-Sep	Probe		11-Aug	Probe		28-Jul	43' 1"							
	10-Oct	Probe		18-Aug	Probe		3-Aug	43' 5"							
	1-Nov	Probe		25-Aug	Probe		12-Aug	43' 11"							
	3-Dec	Probe		4-Sep	Probe		19-Aug	44' 4"							
				9-Sep	Probe		26-Aug	44' 3"							
				15-Sep	Probe		16-Sep	45' 1"							
				29-Sep	Probe		5-Oct	44' 10"							
				6-Oct	Probe		3-Nov	43' 5"							
				15-Oct	Probe										
				3-Nov	Probe										
				1-Dec	Probe										

7196

WELL WATER LEVEL READINGS
Well # 29
1989 - 2003

1974	Static	Run	1975	Static	Run	1976	Static	Run
1-Jan	63' .33"		1-Jan	62' .75"		1-Jan	60' .42"	
1-Feb	63' .92"		1-Feb	63' .25"		1-Feb	60' .83"	
1-Mar	64' .00"		1-Mar	63' .83"		1-Mar	61' .17"	
1-Apr	64' .67"		1-Apr	64' .00"		1-Apr	63' .00"	
1-May	64' .58"		1-May	64' .33"		1-May	63' .42"	
1-Jun		87' .58"	1-Jun		84' .83"	1-Jun		83' .50"
1-Jul	65' .42"		1-Jul	61' .75"		1-Jul		86' .92"
1-Aug	65' .67"		1-Aug	61' .17"		1-Aug	64' .25"	
1-Sep	63' .50"		1-Sep	60' .25"		1-Sep	61' .67"	
1-Oct	62' .17"		1-Oct	59' .50"		1-Oct	61' .50"	
1-Nov	62' .17"		1-Nov	59' .58"		1-Nov	60' .67"	
1-Dec	63' .33"					1-Dec	61' .17"	

WELL WATER LEVEL READINGS
Well # 29
1989 - 2003

1977	Static	Run	1978	Static	Run	1979	Static	Run
1-Jan	61'.25"		1-Jan	65'.58"		1-Jan	68'.08"	
1-Feb	63'.08"		1-Feb	65'.83"		1-Feb	66'.59"	
1-Mar	63'.42"		1-Mar	66'.08"		1-Mar	66'.58"	
1-Apr	64'.58"		1-Apr	67'.67"		1-Apr	67'.08"	
16-Apr	64'.33"		1-May	66'.83"		1-May	68'.00"	
1-May	64'.67"		1-Jun		85'.25"	1-Jun		88'.50"
15-May	63'.08"		1-Jul		84'.50"	1-Jul		88'.25"
1-Jun	65'.33"		1-Aug		84'.02"	1-Aug	68'.50"	
15-Jun	64'.92"		1-Sep	67'.25"		1-Sep	68'.50"	
1-Jul	65'.82"		1-Oct	66'.42"		1-Oct	67'.75"	
13-Jul	66'.33"		1-Nov	64'.58"		1-Nov	68'.42"	
1-Aug	66'.17"		1-Dec	66'.42"		1-Dec	68'.50"	
15-Aug	66'.50"							
1-Sep	65'.50"							
16-Sep	66'.00"							
1-Oct	66'.00"							
1-Nov	65'.17"							
1-Dec	65'.60"							

1980	Static	Run	1981	Static	Run	1982	Static	Run
1-Jan	67'.50"		1-Jan	65'.00"		1-Jan	65'.58"	
1-Feb	67'.68"		1-Feb	64'.83"		1-Feb	65'.83"	
1-Mar	66'.92"		1-Mar	65'.17"		1-Mar	66'.08"	
1-Apr	67'.00"		1-Apr	65'.83"		1-Apr	66'.00"	
1-May	67'.08"		1-May	66'.33"		1-May	66'.25"	
1-Jun		84'.75"	1-Jun	66'.67"		1-Jun	65'.75	
1-Jul		84' 83"	1-Jul		65'.75"	1-Jul	65'.83"	
1-Aug	67'.50"		1-Aug		88'.67"	1-Aug		82'.08"
1-Sep	66'.08"		1-Sep	66'.75"		1-Sep	65'.42"	
1-Oct	64'.33"		1-Oct	67'.17"		1-Oct	63'.17"	
1-Nov	64'.75"		1-Nov	65'.82"		1-Nov	61'.92"	
1-Dec	64'.75"		1-Dec	65'.58"		1-Dec	62'.92"	

1983	Static	Run	1984	Static	Run	1985	Static	Run
1-Jan	63'.17"		1-Jan	62'.00"		1-Jan	61'.25"	
1-Feb	62'.83"		1-Feb	62'.25"		1-Feb	61'.42"	
1-Mar	63'.08"		1-Mar	62'.58"		1-Mar	60'.58"	
1-Apr	62'.17"		1-Apr	63'.58"		1-Apr	62'.08"	
1-May	63'.25"		1-May	62'.75"		1-May	62'.58"	
1-Jun	62'.42"		1-Jun	61'.58"		1-Jun	62'.75"	
1-Jul		79'.42"	1-Jul		81'.33"	1-Jul		78'.42"
1-Aug		78'.75"	1-Aug		77'.42"	1-Aug		81'.42"
1-Sep	61'.92"		1-Sep	63'.58"		1-Sep	63'.42"	
1-Oct	60'.00"		1-Oct	60'.83"		1-Oct	63'.42"	
1-Nov	59'.92"		1-Nov	60'.58"		1-Nov	62'.92"	
1-Dec	61'.92"		1-Dec	60'.58"		1-Dec	62'.92"	

1986	Static	Run	1987	Static	Run	1988	Static	Run
1-Jan	62'.92"		1-Jan	62'.08"		1-Jan	66'.33"	
1-Feb	63'.25"		1-Feb	63'.25"		1-Feb	66'.25"	
1-Mar	62'.75"		1-Mar	63'.58"		1-Mar	66'.58"	
1-Apr	63'.42"		1-Apr	63'.58"		1-Apr	66'.87"	
1-May	62'.33"		2-May	64'.58"		1-May	67'.83"	
1-Jun		79'.42"	12-May	65'.42"		1-Jun		87'.75"
1-Jul		80' 33"	21-May	65'.17"		2-Jul		87'.50"
1-Aug	1-Aug	79'.75"	28-May	64'.92"		9-Jul		87'.92"
1-Sep		78' 56"	4-Jun		83'.68"	16-Jul		88'.00"
1-Oct	62'.17"		12-Jun	65'.00"		23-Jul	71'.25"	
1-Nov	61'.92"		19-Jun	65'.75"		1-Aug	71'.83"	
1-Dec	61'.75"		26-Jun		81'.83"	7-Aug	71'.75"	
			10-Jul	66'.25"		13-Aug	72'.00"	
			17-Jul	66'.58"		20-Aug	72'.58"	
			24-Jul	65'.75"		27-Aug	72'.42"	
			31-Jul	66'.25"		3-Sep	71'.92"	
			7-Aug		83'.58"	10-Sep	71'.75"	
			14-Aug	66'.92"		17-Sep	71'.58"	
			21-Aug		85'.25"	24-Sep	71'.42"	
			28-Aug	66'.92"		1-Oct	70'.92"	
			1-Sep		84'.58"	1-Nov	70'.33"	
			1-Oct		84'.67"	1-Dec	68'.83"	
			1-Nov	67'.00"				
			1-Dec	67'.58"				

7198

WELL WATER LEVEL READINGS
Well # 29
1989 - 2003

1989	Static	Run	1990	Static	Run	1991	Static	Run	1992	Static	Run
3-Jan	68' 11"		2-Jan	67' 7"		2-Jan	68' 10"		2-Jan	68' 9"	
1-Feb	68' 3"		3-Feb	67' 6"		2-Feb	68' 9"		1-Feb	68' 7"	
4-Mar	67' 11"		4-Mar	67' 5"		2-Mar	68' 7"		29-Feb	68' 6"	
1-Apr	67' 7"		31-Mar	67' 9"		1-Apr	68' 5"		28-Mar	68' 9"	
29-Apr	67' 7"		28-Apr	68' 5"		4-May	68' 10"		2-May	69' 10"	
7-May		85' 5"	3-Jun	68' 11"		2-Jun	68' 10"		9-May	70' 5"	
13-May	68' 7"		9-Jun	69' 1"		28-Jun		86' 0"	16-May		88' 9"
20-May	68' 8"		16-Jun	69' 1"		6-Jul		86' 4"	23-May		88' 5"
27-May	68' 6"		23-Jun		85' 0"	13-Jul		88' 7"			88' 6"
3-Jun	69' 1"		1-Jul		87' 1"	20-Jul		88' 1"	6-Jun		89' 3"
10-Jun	69' 3"		8-Jul		84' 0"	27-Jul		87' 7"	13-Jun		88' 3"
18-Jun	69' 6"		22-Jul	71' 3"		3-Aug	71' 4"		20-Jun		88' 11"
24-Jun	69' 9"		28-Jul	71' 6"		10-Aug		88' 6"	27-Jun		89' 0"
1-Jul		86' 5"	4-Aug		85' 10"	17-Aug	71' 6"		4-Jul		89' 1"
8-Jul		86' 10"	11-Aug		65' 6"	24-Aug	71' 8"		11-Jul		89' 7"
15-Jul		85' 9"	18-Aug	71' 11"		31-Aug		89' 1"	18-Jul		89' 7"
22-Jul		83' 7"	25-Aug	71' 6"		5-Oct		88' 2"	25-Jul		89' 1"
29-Jul		83' 9"	1-Sep	71' 6"		3-Nov	69' 11"		2-Aug		90' 3"
5-Aug		87' 1"	29-Sep	70' 8"		30-Nov	69' 1"		8-Aug		89' 11"
13-Aug	70' 11"		4-Nov	69' 10"					15-Aug		90' 6"
19-Aug	70' 11"		1-Dec	69' 1"					22-Aug		90' 3"
26-Aug	70' 6"								29-Aug		89' 11"
2-Sep	70' 5"								6-Sep		89' 9"
9-Sep	70' 4"								12-Sep		91' 0"
30-Sep	69' 8"								19-Sep		91' 1"
5-Nov	68' 6"								26-Sep		91' 2"
2-Dec	67' 11"								3-Oct		89' 0"
									31-Oct	73' 2"	
									28-Nov	72' 2"	

1993	Static	Run	1994	Static	Run	1995	Static	Run	1996	Static	Run
3-Jan		88' 0"	2-Jan	67' 1"		2-Jan	69' 10"		2-Mar	67' 11"	
30-Jan	70' 7"		3-Feb	67' 9"		28-Jan	69' 6"		30-Mar	68' 1"	
27-Feb	70' 3"		26-Feb	67' 5"		25-Feb	69' 4"		5-May	68' 2"	
27-Mar	70' 1"		2-Apr	67' 9"		1-Apr	69' 1"		2-Jun	68' 2"	
2-May	69' 7"		30-Apr	68' 7"		29-Apr	68' 11"		30-Jun	68' 4"	
29-May	69' 5"		29-May	69' 4"		3-Jun	68' 11"		4-Aug		84' 3"
3-Jul		85' 7"	2-Jul	70' 9"		1-Jul		86' 5"	7-Sep		86' 8"
30-Jul		86' 11"	30-Jul	71' 11"		30-Jul		87' 0"	28-Sep		87' 5"
28-Aug	69' 1"		3-Sep		88' 2"	2-Sep	70' 8"		3-Nov	69' 1"	
2-Oct	68' 4"		1-Oct	72' 3"		9-Oct	69' 10"		1-Dec	68' 3"	
30-Oct	67' 9"		29-Oct	70' 9"		13-Nov	69' 4"				
27-Nov	67' 3"		1-Dec	71' 4"		3-Dec	68' 6"				
						30-Dec	67' 11"				

1997	Static	Run	1998	Static	Run	1999	Static	Run	2000	Static	Run	2001
4-Jan	66' 10"		4-Jan	65' 6"		2-Jan	67' 1"		8-Jan	68' 0"		5-Jan
2-Feb	68' 6"		1-Feb	65' 10"		31-Jan	66' 6"		6-Feb	68' 4"		4-Feb
2-Mar	66' 11"		1-Mar	65' 8"		5-Mar	67' 0"		4-Mar	68' 1"		3-Mar
5-Apr	66' 5"		29-Mar	66' 6"		3-Apr	67' 3"		1-Apr	68' 3"		1-Apr
4-May	66' 6"		3-May		84' 10"	6-May	67' 7"		30-Apr		85' 11"	5-May
1-Jun	66' 7"		31-May		65' 0"	5-Jun	67' 2"		4-Jun	70' 2"		2-Jun
4-Jul		82' 11"	4-Jul	67' 5"		4-Jul	67' 5"		1-Jul	72' 1"		9-Jun
2-Aug	73' 8"		2-Aug	69' 7"		1-Aug		84' 6"	5-Aug	73' 10"		15-Jun
30-Aug	67' 7"		5-Sep	69' 1"		5-Sep	67' 2"		3-Sep	74' 5"		7-Jul
4-Oct	65' 9"		2-Oct	67' 2"		3-Oct	69' 9"		30-Sep	73' 11"		22-Jul
2-Nov		82' 0"	1-Nov	68' 3"		30-Oct	67' 10"		8-Nov	71' 8"		28-Jul
30-Nov	65' 4"		12-Dec	68' 1"		5-Dec	66' 11"		3-Dec	72' 5"		4-Aug
												14-Aug
												25-Aug
												2-Sep
												8-Sep
												16-Sep
												7-Oct
												3-Nov
												2-Dec

7199

WELL WATER LEVEL READINGS
Well # 29
1989 - 2003

Static	Run	2002	Static	Run	2003	Static	Run	2004	Static	Run	2005	Static	Run	2006	Static	Run
72' 3"		6-Jan	72' 10"		1-Jan	72' 5"		1-Jan	75' 3"		7-Jan	74' 0"		10-Jan		87' 7"
71' 11"		1-Feb	72' 11"		2-Feb	72' 0"		6-Feb	74' 6"		4-Feb	73' 6"		10-Feb	70' 4"	
71' 9"		1-Mar	71' 10"		4-Mar	71' 9"		3-Mar	74' 4"		2-Mar	73' 2"		6-Mar	69' 10"	
71' 11"		1-Apr	71' 2"		3-Apr	71' 8"		1-Apr	74' 1"		5-Apr	72' 7"				
71' 8"		1-May	71' 10"		1-May	71' 10"		5-May		89' 6"	5-May		88' 6"			
73' 3"		2-Jun	73' 2"		2-Jun	73' 7"		17-May		90' 6"	8-Jun		87' 7"			
73' 6"		12-Jun	73' 7"		9-Jun	74' 0"		24-May	74' 6"		6-Jul	72' 5"				
73' 7"		19-Jun	73' 11"		16-Jun	74' 8"		1-Jun		91' 5"	3-Aug	73' 9"				
74' 7"		26-Jun		90' 8"	23-Jun	75' 3"		16-Jun		90' 3"	8-Sep	74' 4"				
75' 1"		3-Jul	74' 5"		7-Jul	76' 0"		22-Jun		91' 7"	5-Oct	73' 6"				
75' 1"		10-Jul	74' 9"		14-Jul	76' 7"		30-Jun	75' 7"		2-Nov	72' 7"				
76' 3"		17-Jul	75' 7"		21-Jul	77' 2"		8-Jul		91' 4"	6-Dec		87' 5"			
74' 11"		24-Jul	76' 4"		28-Jul	77' 3"		15-Jul	75' 10"							
75' 2"		7-Aug	74' 0"		4-Aug	77' 10"		20-Jul	75' 10"							
75' 4"		8-Sep	75' 6"		11-Aug	77' 11"		28-Jul		92' 10"						
75' 5"		10-Oct	74' 11"		18-Aug	76' 3"		3-Aug	76' 4"							
76' 0"		1-Nov	74 6"		25-Aug	78' 7"		12-Aug	76' 8"							
75' 7"		3-Dec	73' 3"		4-Sep	78' 10"		19-Aug		91' 8"						
74' 8"					9-Sep	78' 5"		26-Aug	77' 0"							
73' 9"					15-Sep	78' 5"		18-Sep	77' 1"							
					29-Sep	78' 6"		5-Oct		92' 1"						
					6-Oct	78' 6"		3-Nov	76' 0"							
					15-Oct	78' 5"										
					3-Nov		92' 7"									
					1-Dec	76' 10"										

7200

WELL WATER LEVEL READINGS
Well # 30
1989 - 2003

1980	Static	Run	1981	Static	Run	1982	Static	Run	1983	Static	Run	1984	Static	Run	1985	Static	Run	1986	Static	Run	1987	Static	Run	1988	Static	Run
1-Dec	41' .50"		1-Jan	41' .50"		1-Jan	42' .83"		1-Jan	39' .00"		1-Jan	37' .83"		1-Jan	38' .67"		1-Jan		41' 83"	1-Jan		38' .50"	1-Jan	43' .50"	
			1-Feb	41' .92"		1-Feb		45' .67"	1-Feb	39' .08"		1-Feb	38' .08"		1-Feb		39' .50"	1-Feb	39' .50"		1-Feb	39' .17"		1-Feb	43' .50"	
			1-Mar	42' .42"		1-Mar	43' .00"		1-Mar		44' .25"	1-Mar	38' .50"		1-Mar		40' .25"	1-Mar		41' .50"	1-Mar	39' .25		1-Mar		45' .67"
			1-Apr	43' .50"		1-Apr		46' .17"	1-Apr	39' .92"		1-Apr		41' .50"	1-Apr		40' .50"	1-Apr	38' .67"		1-Apr	40' .50"		1-Apr		46' .42"
			1-May	44' .00"		1-May		45' .83"	1-May		42' .33"	1-May		40' .83"	1-May		41' .17"	1-May		40' .33"	2-May	41' .50"		1-May	45' .17"	
			1-Jun	44' .33"		1-Jun		44' .75"	1-Jun		41' .83"	1-Jun	37' .92"		1-Jun		41' .42"	1-Jun		40' .50"	12-May	42' .42"		1-Jun	48' .00"	
			1-Jul	45' .33"		1-Jul		45' .00"	1-Jul	39' .42"		1-Jul	38' .17"		1-Jul	40' .25"		1-Jul	39' .50"		21-May	41' .92"		2-Jul	48' .75"	
			1-Aug	46' .58"		1-Aug	42' .00"		1-Aug	40' .25"		1-Aug	37' .17"		1-Aug		43' .42"	1-Aug	39' .25"		28-May	41' .92"		9-Jul		51' .08"
			1-Sep	46' .50"		1-Sep	41' .42"		1-Sep	39' 75"		1-Sep	37' .50"		1-Sep	40' .08"		1-Sep	41' .17"		4-Jun		44' .25"	16-Jul		51' .33"
			1-Oct	44' .58"		1-Oct	39' .83"		1-Oct	36' .33"		1-Oct	37' .83"		1-Oct	40' .08"		1-Oct	38' .92"		12-Jun	42' .08"		23-Jul	49' .83"	
			1-Nov	43' .00"		1-Nov	39' .33"		1-Nov	36' .17"		1-Nov	36' .50"		1-Nov	39' .50"		1-Nov	38' .50"		19-Jun	42' .75"		1-Aug	49' .83"	
			1-Dec		45' .50"	1-Dec	39' .33"		1-Dec	37' .83"		1-Dec	36' .50"		1-Dec	38' .83"		1-Dec	37' .92"		26-Jun		45' .50"	7-Aug	50' .17"	
																					10-Jul		45' .75"	13-Aug	50' .08"	
																					17-Jul	43' .76"		20-Aug	50' .67"	
																					24-Jul	43' .60"		27-Aug	50' .25"	
																					31-Jul	43' .60"		3-Sep	50' .17	
																					7-Aug		46' .33"	10-Sep	50' .08"	
																					14-Aug		46' .67"	17-Sep	49' .83"	
																					21-Aug		46' .75"	24-Sep	49' .25"	
																					28-Aug		46' .92"	1-Oct	49' .50"	
																					1-Sep		47' .25"	1-Nov	48' .42"	
																					1-Oct		47' .33"	1-Dec		49' .06"
																					1-Nov	45' .67"				
																					1-Dec		46' .00"			

7201

WELL WATER LEVEL READINGS
Well # 30
1989 - 2003

1989	Static	Run	1990	Static	Run	1991	Static	Run	1992	Static	Run
3-Jan		48' 4"	2-Jan		47' 2"	2-Jan		46' 8"	2-Jan		48' 3"
1-Feb	45' 6"		3-Feb		46' 9"	2-Feb		48' 1"	1-Feb		48' 0"
4-Mar		47' 5"	3-Mar		46' 6"	2-Mar		48' 1"	29-Feb		48' 0"
1-Apr	45' 3"		31-Mar		47' 2"	1-Apr	46' 1"		28-Mar		48' 5"
29-Apr	45' 9"		28-Apr	45' 9"	47' 10"	4-May		48' 0"	2-May		49' 7"
7-May		48' 2"	2-Jun	46' 7"		2-Jun		48' 4"	9-May	48' 0"	
13-May		48' 3"	9-Jun		49' 0"	29-Jun		49' 11"	16-May		50' 3"
20-May		48' 1"	15-Jun	47' 6"		6-Jul	48' 6"		23-May		50' 6"
27-May		48' 9"	16-Jun		49' 5"	13-Jul		50' 11"	30-May		50' 11"
3-Jun		48' 10"	30-Jun	46' 6"	87' 1"	20-Jul		51' 3"	6-Jun		51' 3"
10-Jun	46' 7"		7-Jul		50' 6"	27-Jul	49' 4"		13-Jun		51' 6"
17-Jun		49' 4"	14-Jul		51' 0"	3-Aug	49' 6"		20-Jun		51' 6"
24-Jun	47' 4"		21-Jul		51' 4"	10-Aug	50' 1"		27-Jun		51' 11"
1-Jul		50' 0"	28-Jul		51' 8"	17-Aug	49' 11"		4-Jul		51' 10"
8-Jul		50' 4"	4-Aug		51' 10"	24-Aug	50' 0"		11-Jul		52' 3"
15-Jul		50' 6"	11-Aug		52' 4"	31-Aug	49' 8"		18-Jul		52' 7"
22-Jul		50' 9"	18-Aug	50' 2"		5-Oct	48' 8"		25-Jul		52' 7"
29-Jul	48' 9"		25-Aug		52' 0"	2-Nov	47' 10"		2-Aug	51' 6"	
5-Aug	48' 11"		1-Sep		51' 11"	30-Nov	46' 10"		8-Aug		53' 4"
12-Aug	48' 10"		29-Sep		51' 4"				15-Aug		53' 9"
19-Aug		51' 1"	3-Nov		49' 10"				22-Aug		53' 11"
26-Aug		51' 7"	1-Dec	57' 6"					29-Aug		54' 1"
2-Sep		50' 2"							6-Sep	52' 1"	
9-Sep		50' 7"							12-Sep	52' 6"	
30-Sep	47' 11"								19-Sep		54' 3"
4-Nov	46' 1"								26-Sep		54' 4"
2-Dec	45' 4"								3-Oct		54' 2"
									31-Oct		53' 8"
									28-Nov		52' 4"

1993	Static	Run	1994	Static	Run	1995	Static	Run	1996	Static	Run
3-Jan	49' 2"		2-Jan		45' 10"	1-Jan		49' 9"	2-Mar	45' 1"	
30-Jan		50' 0"	3-Feb	44' 6"		28-Jan	46' 8"		31-Mar	45' 3"	
27-Feb	48' 0"		26-Feb	44' 6"		25-Feb		49' 0"	5-May	44' 11"	
27-Mar		49' 7"	2-Apr		47' 2"	1-Apr		48' 8"	2-Jun	44' 7"	
2-May	47' 0"		30-Apr		47' 11"	29-Apr	48' 0"		30-Jun		47' 1"
29-May		48' 6"	28-May	46' 9"		3-Jun	45' 11"		4-Aug	45' 11"	
3-Jul		48' 10"	2-Jul		51' 0"	1-Jul	45' 11"		7-Sep	47' 4"	
30-Jul		49' 11"	30-Jul	49' 10"		30-Jul	47' 6"		28-Sep	47' 1"	
28-Aug	46' 9"		3-Sep	50' 6"		2-Sep	48' 2"		3-Nov	44' 8"	
2-Oct		48' 2"	1-Oct	50' 2"		9-Oct	47' 8"		1-Dec		46' 8"
30-Oct	45' 2"		29-Oct		51' 2"	12-Nov	47' 2"				
27-Nov	44' 6"		1-Dec		51' 8"	3-Dec	45' 9"				
						30-Dec	45' 4"				

1997	Static	Run	1998	Static	Run	1999	Static	Run	2000	Static	Run	2001
4-Jan	43' 6"		4-Jan		44' 1"	2-Jan	44' 1"		8-Jan	45' 7"		5-Jan
2-Feb	43' 1"		1-Feb		44' 9"	31-Jan		44' 11"	5-Feb		49' 9"	4-Feb
2-Mar	43' 1"		1-Mar	41' 8"		5-Mar	44' 4"		4-Mar	45' 7"		3-Mar
5-Apr	43' 2"		29-Mar	42' 0"		3-Apr	44' 2"		1-Apr	40' 10"		1-Apr
4-May	42' 11"		3-May	43' 5"		2-May	44' 6"		30-Apr	47' 0"		5-May
1-Jun	42' 4"		31-May	43' 7"		5-Jun		44' 10"	4-Jun	46' 0"		2-Jun
4-Jul	43' 7"		4-Jul		46' 9"	4-Jul		46' 0"	1-Jul	50' 2"		9-Jun
2-Aug		46' 10"	2-Aug	45' 8"		1-Aug		47' 9"	5-Aug		54' 10"	15-Jun
30-Aug	44' 8"		5-Sep		48' 9"	5-Sep	44' 8"		3-Sep	53' 2"		7-Jul
4-Oct		44' 7"	2-Oct	45' 2"		3-Oct	47' 4"		30-Sep	52' 6"		22-Jul
2-Nov	43' 0"		1-Nov	45' 6"		30-Oct	46' 4"		6-Nov	50' 10"		28-Jul
30-Nov	41' 8"		12-Dec		47' 8"	5-Dec	45' 6"		3-Dec	51' 6"		4-Aug
												14-Aug
												25-Aug
												2-Sep
												8-Sep
												16-Sep
												7-Oct
												3-Nov
												2-Dec

7202

WELL WATER LEVEL READINGS
Well # 30
1989 - 2003

Static	Run	2002	Static	Run	2003	Static	Run	2004	Static	Run	2005	Static	Run
	52' 8"	6-Jan	50' 9"		1-Jan	50' 6"		1-Jan	53' 9"		7-Jan	52' 4"	
	52' 3"	1-Feb	50' 1"		2-Feb	49' 10"		6-Feb	52' 11"		4-Feb	WELL CAPPED	
49' 8"		1-Mar	49' 6"		4-Mar	49' 7"		3-Mar	52' 9"				
49' 8"		1-Apr	49' 0"		3-Apr	49' 6"		1-Apr	52' 1"				
50' 1"		1-May	48' 6"		1-May	48' 5"		5-May	52' 0"				
51' 7"		2-Jun	51' 1"		2-Jun	51' 4"		17-May	52' 5"				
51' 10"		12-Jun	51' 5"		9-Jun	51' 9"		24-May	52' 7"				
51' 11"		19-Jun	51' 9"		16-Jun	52' 8"		1-Jun	52' 8"				
	55' 8"	26-Jun	52' 3"		23-Jun	53' 2"		16-Jun	53' 2"				
53' 7"		3-Jul	52' 7"		7-Jul	54' 1"		22-Jun	53' 1"				
53' 11"		10-Jul		55' 3"	14-Jul	54' 10"		30-Jun	53' 7"				
54' 2"		17-Jul	53' 7"		21-Jul		58' 0"	8-Jul	53' 9"				
54' 0"		24-Jul	53' 8"		28-Jul	55' 10"		15-Jul	54' 1"				
54' 4"		7-Aug	53' 9"		4-Aug	46' 1"		20-Jul	54' 3"				
54' 8"		8-Sep	54' 0"		11-Aug		59' 4"	28-Jul	54' 8"				
	56' 7"	10-Oct	53' 1"		18-Aug	57' 0"		3-Aug	54' 9"				
	56' 5"	1-Nov	52' 3"		25-Aug		60' 0"	12-Aug	55' 3"				
54' 4"		3-Dec	51' 2"		4-Sep	56' 11"		19-Aug	55' 5"				
53' 3"					9-Sep	56' 8"		26-Aug	55' 4"				
52' 0"					15-Sep	56' 9"		16-Sep	55' 4"				
					29-Sep	56' 11"		5-Oct	55' 3"				
					6-Oct	56' 8"		3-Nov	54' 8"				
					15-Oct	56' 11"							
					3-Nov	56' 5"							
					1-Dec	55' 3"							

WELL WATER LEVEL READINGS
Well # 31
1989 - 2003

1977	Static	Run	1978	Static	Run	1979	Static	Run
1-Oct	57' .33"		1-Jan	58' .08"		1-Jan	57' .83"	
1-Nov	57' .00"		1-Feb	58' .08"		1-Feb	58' .67"	
1-Dec	57' .00"		1-Mar	58' .75"		1-Mar	57' .67"	
			1-Apr	58' .67"		1-Apr	58' .00"	
			1-May	58' .75"		1-May	59' .50"	
			1-Jun	59' .42"		1-Jun		61' .42"
			1-Jul	60' .08"		1-Jul		60' .00"
			1-Aug	59' .17"		1-Aug		61' .67"
			1-Sep	58' .67"		1-Sep	57' .83"	
			1-Oct	58' .75:		1-Oct	57' .33"	
			1-Nov	57' .08"		1-Nov	58' .00"	
			1-Dec	58' .00"		1-Dec	59' .92"	

1980	Static	Run	1981	Static	Run	1982	Static	Run
1-Jan	59' .42"		1-Jan	57' .00"		1-Jan	57' .75"	
1-Feb	59' .00"		1-Feb	56' 83"		1-Feb	58' .17"	
1-Mar	59' .42"		1-Mar	57' .50"		1-Mar	58' .17"	
1-Apr	59' .50"		1-Apr	56' .67"		1-Apr	58' .00"	
1-May	59' .33"		1-May	58' .33"		1-May	59' .17"	
1-Jun	59' .58"		1-Jun	58' .25"		1-Jun	56' .33"	
1-Jul	60' .67"		1-Jul		60' .42"	1-Jul	59' .75"	
1-Aug	63' .00"		1-Aug	60' .17"		1-Aug	57' .17"	
1-Sep	57' .00"		1-Sep	58' .33"		1-Sep	65' .00"	
1-Oct	57' .33"		1-Oct	57' .42"		1-Oct	54' .17"	
1-Nov	56' .33"		1-Nov	57' .08"		1-Nov	55' .17"	
1-Dec	56' .50"		1-Dec	57' .17"		1-Dec	54' .75"	

1983	Stattic	Run	1984	Static	Run	1985	Static	Run	1986	Static
1-Jan	56' .17"		1-Jan	54' .00"		1-Jan	63' .42"		1-Jan	54' .08"
1-Feb	54' .92"		1-Feb	54' .25"		1-Feb	64' .42"		1-Feb	55' .08"
1-Mar	56' .60"		1-Mar	65' .00"		1-Mar	54' .50"		1-Mar	54' .67"
1-Apr	55' .92"		1-Apr	54' .75"		1-Apr	55' .00"		1-Apr	54' .83"
1-May	55' .56"		1-May	55' .42"		1-May	56' .58"		1-May	55' .00"
1-Jun	55' .00"		1-Jun	54' .25"		1-Jun	55' .33"		1-Jun	55' .75"
1-Jul		59' .75"	1-Jul		59' .00"	1-Jul		60' .33"	1-Jul	
1-Aug	65' .17"		1-Aug	53' .00"		1-Aug		60' .00"	1-Aug	
1-Sep	53' .83"		1-Sep	53' .00"		1-Sep	53' .17"		1-Sep	54' .17"
1-Oct	51' .83"		1-Oct	52' .00"		1-Oct	63' .17"		1-Oct	53' .00"
1-Nov	52' .08"		1-Nov	52' .00"		1-Nov	53' .00"		1-Nov	52' .00"
1-Dec	53' .67"		1-Dec	52' .00"		1-Dec	53' .83"		1-Dec	53' .00"

7204

WELL WATER LEVEL READINGS
Well # 31
1989 - 2003

Run	1987	Static	Run	1988	Static	Run
	1-Jan	54'.00"		1-Jan	57'.67"	
	1-Feb	55'.92"		1-Feb	58'.00"	
	1-Mar	55'.17"		1-Mar	38'.67"	
	1-Apr	55'.92"		1-Apr	58'.00"	
	2-May	55'.92"		1-May	60'.00"	
	12-May	56'.67"		1-Jun		62'.25"
60'.00"	21-May	57'.00"		2-Jul		63'.25"
59'.25"	28-May	56'.50"		9-Jul		63'.00"
	4-Jun	56'.50"		16-Jul		62'.67"
	12-Jun	57'.00"		23-Jul	59'.33"	
	19-Jun	57'.58"		1-Aug	61'.83"	
	26-Jun		58'.17"	7-Aug	61'.25"	
	10-Jul	57'.08"		13-Aug	61'.33"	
	17-Jul	58'.00"		20-Aug	61'.33"	
	24-Jul	56'.33"		27-Aug	61'.25"	
	31-Jul	57'.25"		3-Sep	61'.33"	
	7-Aug		60'.50"	10-Oct	61'.00"	
	14-Aug		61'.25"	17-Sep	60'.58"	
	21-Aug		60'.33"	24-Sep	60'.00"	
	28-Aug	57'.00"		1-Oct	60'.17"	
	1-Sep	57'.33"		1-Nov	59'.82"	
	1-Oct	56'.83"		1-Dec	59'.42"	
	1-Nov	56'.50"				
	1-Dec	57'.00"				

WELL WATER LEVEL READINGS
Well # 31
1989 - 2003

1989	Static	Run	1990	Static	Run	1991	Static	Run	1992	Static	Run	1993	Static	Run
3-Jan	59' 4"		2-Jan	56' 0"		2-Jan	59' 4"		2-Jan	59' 11"		3-Jan	62' 6"	
1-Feb	59' 9"		3-Feb	58' 6"		2-Feb	59' 6"		2-Feb	59' 6"		30-Jan	62' 6"	
4-Mar	59' 4"		4-Mar	56' 8"		2-Mar	59' 6"		25-Feb	61' 5"		27-Feb	62' 5"	
2-Apr	59' 2"		31-Mar	56' 11"		1-Apr	59' 6"		5-Apr	61' 9"		28-Mar	61' 5"	
30-Apr	60' 10"		28-Apr	59' 4"		4-May	59' 8"		1-May	62' 7"		2-May	61' 6"	
6-May	62' 10"		2-Jun	59' 6"		2-Jun	60' 2"		8-May	63' 6"		29-May	62' 9"	
14-May	60' 5"		9-Jun	62' 7"		29-Jun	62' 11"		22-May	63' 6"		3-Jul	61' 8"	
21-May	60' 7"		16-Jun	61' 8"		6-Jul	64' 0"		29-May	63' 6"		30-Jul		66' 1"
28-May	61' 1"		24-Jun	62' 6"		13-Jul	65' 0"		12-Jun		65' 8"	28-Aug	58' 11"	
3-Jun	60' 4"		30-Jun	62' 9"		20-Jul	64' 3"		17-Jun	63' 6"		2-Oct	58' 8"	
11-Jun	60' 10"		7-Jul	63' 9"		27-Jul	60' 10"		4-Jul	62' 3"		30-Oct	58' 0"	
17-Jun	61' 6"		14-Jul	63' 11"		3-Aug	64' 0"		11-Jul	63' 2"		27-Nov	57' 10"	
25-Jun	60' 7"		21-Jul		63' 9"	11-Aug	63' 11"		19-Jul	62' 8"				
1-Jul	62' 3"		29-Jul	63' 8"		17-Aug	63' 7"		25-Jul	64' 5"				
8-Jul	62' 5"		4-Aug		64' 2"	24-Aug	63' 5"		2-Aug	64' 9"				
15-Jul	62' 5"		12-Aug		63' 11"	31-Aug	60' 10"		8-Aug		71' 0"			
22-Jul		63' 0"	18-Aug	60' 7"		6-Oct	59' 1"		15-Aug		72' 5"			
29-Jul	62' 4"		25-Aug	59' 11"		3-Nov	59' 3"		22-Aug	66' 4"				
6-Aug	62' 1"		1-Sep	61' 7"		30-Nov	59' 3"		29-Aug	65' 11"				
12-Aug	60' 9"		29-Sep	59' 5"					6-Sep	63' 2"				
20-Aug	60' 4"		4-Nov	58' 8"					12-Sep	63' 5"				
27-Aug		62' 5"	1-Dec	58' 11"					Saept 19	64' 8"				
2-Sep	60' 1"								26-Sep	63' 8"				
9-Sep	60' 0"								3-Oct	64' 4"				
1-Oct	58' 8"								31-Oct	63' 4"				
5-Nov	57' 10"								29-Nov	62' 10"				
3-Dec	58' 0"													

1994	Static	Run	1995	Static	Run	1996	Static	Run	1997	Static	Run	1998
2-Jan	58' 6"		2-Jan	61' 8"		2-Mar	60' 7"		4-Jan	66' 7"		4-Jan
2-Feb	58' 0"		28-Jan	62' 4"		30-Mar	60' 2"		2-Feb	58' 6"		1-Feb
26-Feb	59' 1"		25-Feb	62' 5"		5-May	61' 6"		2-Mar	59' 4"		1-Mar
2-Apr	59' 11"		2-Apr	61' 10"		2-Jun	60' 5"		5-Apr	59' 2"		29-Mar
30-Apr	60' 1"		29-Apr	62' 0"		30-Jun	60' 6"		4-May	58' 11"		3-May
29-May	60' 3"		3-Jun	61' 2"		4-Aug		63' 0"	1-Jun	59' 0"		31-May
2-Jul	64' 2"		1-Jul	62' 1"		7-Sep	62' 8"		4-Jul	60' 9"		4-Jul
30-Jul	63' 9"		30-Jul	62' 9"		28-Sep	61' 4"		2-Aug		63' 2"	2-Aug
5-Sep	61' 6"		2-Sep	64' 0"		3-Nov	60' 8"		30-Aug		63' 4"	5-Sep
2-Oct	60' 10"		9-Oct	60' 2"		1-Dec	61' 0"		4-Oct	56' 5"		2-Oct
30-Oct	60' 0"		17-Nov	60' 2"					2-Nov	58' 6"		1-Nov
1-Dec	62' 11.5"		3-Dec	60' 7"					30-Nov	56' 10"		12-Dec
			30-Dec	60' 2"								

7206

WELL WATER LEVEL READINGS
Well # 31
1989 - 2003

Static	Run	1999	Static	Run	2000	Static	Run	2001	Static	Run	2002	Static	Run	2003	Static	Run	2004	Static	Run	2005	Static	Run	2006	Static	Run
57' 2"		2-Jan	58' 8"		8-Jan	58' 9"		5-Jan	62' 3"		5-Jan	64' 11"		1-Jan	62' 8"		1-Jan	65' 1"		7-Jan	64' 10"		10-Jan	62' 7"	
57' 5"		31-Jan	57' 5"		5-Feb	58' 10"		4-Feb	62' 0"		1-Feb	64' 0"		2-Feb	62' 8"		6-Feb	65' 4"		4-Feb	64' 10"		10-Feb	62' 4"	
57' 3"		5-Mar	58' 8"		4-Mar	60' 7"		3-Mar	61' 10"		1-Mar	63' 10"		4-Mar	62' 10"		3-Mar	65' 5"		2-Mar	64' 3"		8-Mar	62' 0"	
58' 0"		3-Apr	59' 3"		1-Apr	60' 11"		1-Apr	62' 2"		1-Apr	63' 11"		3-Apr	63' 0"		1-Apr	65' 5"		5-Apr	64' 4"				
61' 1"		2-May	60' 0"		30-Apr	61' 11"		6-May	64' 5"		1-May	67' 6"		1-May	63' 0"		5-May	69' 9"		5-May	64' 0"				
59' 7"		5-Jun	59' 8"		4-Jun	64' 7"		2-Jun	65' 6"		2-Jun	65' 6"		2-Jun	71' 3"		17-May		73' 2"	8-Jun	64' 10"				
60' 10"		4-Jul		65' 7"	1-Jul		64' 8"	9-Jun	67' 9"		12-Jun		72' 7"	9-Jun	66' 8"		24-May		74' 7"	6-Jul		76' 3"			
61' 7"		1-Aug	63' 0"		5-Aug		65' 7"	15-Jun	66' 3"		19-Jun		76' 10"	16-Jun	69' 6"		1-Jun		75' 0"	3-Aug	67' 11"				
62' 2"		5-Sep	58' 0"		3-Sep	64' 5"		7-Jul		73' 3"	26-Jun		78' 3"	23-Jun	66' 4"		18-Jun		72' 0"	8-Sep		71' 9"			
58' 6"		3-Oct	61' 10"		30-Sep		64' 9"	22-Jul	66' 1"		3-Jul		77' 8"	7-Jul		78' 11"	22-Jun		73' 10"	5-Oct		70' 3"			
59' 1"		30-Oct	59' 8"		6-Nov	62' 5"		28-Jul		72' 8"	10-Jul		78' 1"	14-Jul		77' 7"	30-Jun		76' 10"	2-Nov	65' 10"				
59' 6"		6-Dec	60' 0"		3-Dec	62' 0"		4-Aug		72' 10"	17-Jul		79' 0"	21-Jul		77' 4"	8-Jul	67' 6"		8-Dec	62' 11"				
								14-Aug		71' 8"	24-Jul		77' 11"	28-Jul		78' 7"	16-Jul	68' 2"							
								25-Aug		73' 10"	7-Aug		77' 4"	4-Aug		78' 5"	20-Jul	67' 5"							
								2-Sep		71' 6"	8-Sep		72' 9"	11-Aug		78' 8"	28-Jul		75' 5"						
								8-Sep		73' 0"	10-Oct	66' 2"		18-Aug		75' 10"	3-Aug		74' 7"						
								18-Sep	68' 5"		1-Nov	68' 0"		25-Aug		75' 6"	12-Aug		77' 7"						
								7-Oct	64' 10"		3-Dec	62' 8"		4-Sep	67' 2"		19-Aug	70' 0"							
								3-Nov	64' 10"					9-Sep	67' 6"		26-Aug	69' 10"							
								2-Dec	64' 5"					15-Sep		73' 11"	18-Sep		75' 0"						
														29-Sep		75' 6"	5-Oct		73' 0"						
														6-Oct	58' 8"		3-Nov	65' 11"							
														15-Oct	67' 7"										
														3-Nov	67' 11"										
														1-Dec	66' 4"										

7207

WELL WATER LEVEL READINGS
Well # 32
1989 - 2003

1978	Static	Run	1979	Static	Run	1980	Static	Run	1981	Static	Run
1-Apr		80'.25"	1-Jan		75'.58"	1-Jan	57'.17"		1-Jan		72'.75"
1-May		78'.92"	1-Feb		74'.50"	1-Feb	57'.00"		1-Feb		74'.42"
1-Jun		76'.92"	1-Mar		75'.33"	1-Mar	57'.33"		1-Mar		71'.00"
1-Jul		79'.06"	1-Apr		77'.42"	1-Apr	57'.33"		1-Apr		72'.92"
1-Aug		77'.83"	1-May		78'.75"	1-May		71'.00"	1-May		73'.17"
1-Sep		74'.50"	1-Jun		79'.75"	1-Jun		71'.00"	1-Jun		71'.92"
1-Oct		74'.68"	1-Jul		80'.00"	1-Jul		72'.58"	1-Jul		72'.67"
1-Nov	72'.50"		1-Oct	55'.75"		1-Aug		74'.17"	1-Aug		74'.75"
1-Dec		73'.83"	1-Nov	55'.83"		1-Sep		72'.42"	1-Sep	65'.33"	
			1-Dec	55'.67"		1-Oct		72'.67"	1-Oct		73'.42"
						1-Nov		71'.33"	1-Nov		72'.00"
						1-Dec		72'.00"	1-Dec		73'.58"

1982	Static	Run	1983	Static	Run	1984	Static	Run	1985	Static	Run
1-Jan		73'.00"	1-Aug	50'.83"		1-Jan		82'.67"	1-Jan	52'.17"	
1-Feb		73'.00"	1-Sep	50'.50"		1-Feb		84'.83"	1-Feb	52'.83"	
1-Mar		73'.58"	1-Oct		83'.17"	1-Mar		84'.42"	1-Mar	52'.67"	
1-Apr		72'.75"	1-Nov	50'.00"		1-Apr		82'.33"	1-Apr	52'.50"	
1-May	57'.08"		1-Dec		84'.42"	1-May		86'.17"	1-Aug		66'.00"
1-Jun	58'.75"					1-Jun		84'.50"	1-Sep		67'.17"
1-Jul	58'.75"					1-Jul		85'.17"	1-Oct		67'.17"
1-Aug	58'.75"					1-Aug		87'.17"	1-Nov		65'.83"
1-Sep	58'.75"					1-Sep		84'.00"	1-Dec		66'.83"
						1-Oct		86'.92"			
						1-Nov	51'.33"				
						1-Dec	51'.33"				

1986	Static	Run	1987	Static	Run	1988	Static	Run
1-Jan		69'.17"	1-Jan	65'.67"		1-Jan		68'.83"
1-Feb		65'.42"	1-Feb		67'.17"	1-Feb		70'.67"
1-Mar		65'.17"	1-Mar		65'.17"	1-Mar		68'.67"
1-Apr		64'.58"	1-Apr		67'.17"	1-Apr		70'.08"
1-May		67'.17"	2-May		67'.17"	1-May	57'.67"	
1-Jun		68'.17"	12-May	65'.83"		1-Jun		71'.17"
1-Jul		64'.83"	21-May		64'.75"	2-Jul		72'.25"
1-Aug		64'.83"	28-May		67'.00"	9-Jul		70'.33"
1-Sep		65'.83"	4-Jun		68'.83"	16-Jul		70'.33"
1-Oct		61'.00"	12-Jun		68'.00"	23-Jul	62'.42"	
1-Nov		64'.92"	19-Jun		65'.00"	1-Aug	62'.33"	
1-Dec		65'.25"	26-Jun		68'.67"	7-Aug	61'.75"	
			10-Jul		65'.83"	13-Aug	58'.17"	
			17-Jul		68'.42"	20-Aug	57'.67"	
			24-Jul		67'.17"	27-Aug	57'.17"	
			31-Jul		68'.08"	3-Sep	57'.17"	
			7-Aug		67'.00"	10-Sep	57'.25"	
			14-Aug		65'.92"	17-Sep	57'.08"	
			21-Aug		65'.92"	24-Sep	57'.00"	
			28-Aug		66'.92"	1-Oct		69'.00"
			1-Sep		66'.08"	1-Nov		69'.17"
			1-Oct		68'.00"	1-Dec		69'.83"
			1-Nov		68'.17"			
			1-Dec		68'.17"			

7208

WELL WATER LEVEL READINGS
Well # 32
1989 - 2003

1989	Static	Run	1990	Static	Run	1991	Static	Run	1992	Static	Run
3-Jan		69' 11"	2-Jan		69' 9"	2-Jan		71' 2"	2-Jan		69' 4"
1-Feb		70' 3"	4-Feb		68' 10"	2-Feb		70' 6"	2-Feb		69' 8"
4-Mar		71' 2"	4-Mar		71' 3"	2-Mar		70' 7"	29-Feb		69' 9"
2-Apr		70' 1"	1-Apr		70' 4"	1-Apr		70' 3"	28-Mar		70' 5"
30-Apr		72' 2"	29-Apr		70' 3"	4-May		68' 11"	3-May		71' 5"
7-May		72' 3"	3-Jun		71' 1"	2-Jun		70' 3"	9-May		70' 7"
13-May		70' 10"	10-Jun		70' 9"	30-Jun		68' 10"	17-May		70' 0"
21-May		71' 0"	16-Jun		69' 0"	6-Jul		69' 8"	24-May		69' 5"
28-May		70' 10"	24-Jun		70' 10"	13-Jul		70' 3"	31-May		70' 1"
3-Jun		70' 9"	30-Jun		70' 0"	21-Jul		69' 5"	7-Jun		70' 0"
11-Jun		70' 3"	7-Jul		69' 10"	27-Jul		69' 2"	14-Jun		70' 1"
17-Jun		69' 7"	15-Jul		69' 2"	4-Aug		68' 11"	21-Jun		69' 5"
25-Jun		69' 2"	21-Jul		68' 11"	11-Aug		69' 0"	28-Jun		69' 6"
2-Jul		69' 0"	29-Jul		68' 6"	18-Aug		68' 11"	5-Jul		69' 3"
9-Jul		71' 8"	5-Aug		68' 9"	24-Aug		68' 2"	12-Jul		69' 2"
16-Jul		69' 6"	12-Aug		69' 0"	31-Aug		68' 9"	19-Jul		69' 10"
23-Jul		69' 8"	19-Aug		68' 6"	5-Oct		67' 5"	26-Jul		69' 1"
30-Jul		69' 8"	26-Aug		68' 10"	3-Nov		70' 4"	2-Aug		69' 5"
6-Aug		69' 9"	2-Sep		68' 11"	1-Dec		69' 1"	9-Aug		68' 7"
13-Aug		67' 11"	30-Sep		68' 3"				16-Aug		69' 5"
19-Aug		67' 11"	3-Nov		68' 3"				23-Aug		69' 4"
27-Aug		68' 3"	1-Dec	56' 10"	69' 10"				30-Aug		70' 8"
3-Sep		68' 11"							6-Sep		70' 7"
10-Sep		69' 4"							12-Sep		72' 1"
1-Oct		67' 0"							20-Sep		72' 0"
5-Nov		68' 5"							26-Sep		71' 1"
3-Dec		69' 0"							3-Oct		70' 6"
									31-Oct		73' 8"
									29-Nov		72' 3"

1993	Static	Run	1994	Static	Run	1995	Static	Run	1996	Static	Run
3-Jan		72' 10"	2-Jan	67' 6"	68' 1"	2-Jan	59' 1"		2-Mar		66' 5"
30-Jan		72' 7"	3-Feb		68' 2"	29-Jan	59' 4"		30-Mar		66' 9"
28-Feb		70' 11"	28-Feb		68' 5"	25-Feb	59' 6"		5-May		67' 6"
28-Mar		70' 10"	2-Apr		68' 1"	2-Apr		68' 1"	2-Jun		64' 10"
2-May		71' 6"	30-Apr		68' 7"	28-Apr		67' 2"	30-Jun		64' 3"
30-May		71' 7"	29-May		67' 2"	3-Jun		66' 10"	4-Aug		63' 5"
3-Jul		68' 1"	2-Jul		67' 9"	1-Jul		65' 3"	7-Sep		65' 0"
30-Jul		67' 6"	30-Jul		67' 8"	30-Jul		65' 2"	28-Sep		65' 11"
28-Aug		65' 8"	5-Sep		67' 7"	2-Sep	66' 8"		3-Nov		66' 8"
2-Oct		67' 3"	2-Oct		65' 4"	9-Oct		64' 11"	1-Dec		66' 8"
30-Oct		68' 0"	30-Oct		68' 2"	17-Nov		64' 10"			
27-Nov		67' 1"	1-Dec		60' 5	3-Dec	57' 9"				
						30-Dec		65' 8"			

1997	Static	Run	1998	Static	Run	1999	Static	Run	2000	Static	Run	2001
4-Jan		65' 3"	4-Jan		62' 10"	2-Jan	54' 10"		8-Jan	57' 7"		5-Jan
2-Feb		64' 8"	1-Feb		63' 7"	31-Jan	54' 8"		5-Feb	57' 10"		4-Feb
2-Mar		64' 10"	1-Mar		63' 1"	5-Mar	57' 2"		4-Mar	58' 2"		3-Mar
5-Apr		64' 10"	28-Mar		63' 7"	3-Apr	57' 0"		1-Apr	58' 2"		1-Apr
4-May		65' 0"	3-May		63' 7"	2-May	57' 5"		30-Apr		65' 11"	5-May
1-Jun		63' 3"	31-May		63' 0"	6-Jun	57' 8"		4-Jun		65' 4"	2-Jun
4-Jul		62' 4"	4-Jul		62' 3"	4-Jul	58' 0"		1-Jul	58' 5"		9-Jun
2-Aug		63' 10"	2-Aug		62' 6"	1-Aug	57' 1"		5-Aug		58' 7"	15-Jun
30-Aug		60' 0"	5-Sep		62' 4"	5-Sep	57' 0"		3-Sep	58' 10"		24-Jun
4-Oct		60' 1"	2-Oct		62' 1"	3-Oct	58' 4"		30-Sep	58' 7"		29-Jun
2-Nov		60' 11"	1-Nov		62' 5"	30-Oct	56' 4"		6-Nov	59' 1"		7-Jul
30-Nov		63' 0"	12-Dec	69' 0"		5-Dec	57' 2"		3-Dec		65' 8"	22-Jul
												28-Jul
												4-Aug
												14-Aug
												25-Aug
												2-Sep
												8-Sep
												16-Sep
												7-Oct
												3-Nov
												2-Dec

7209

WELL WATER LEVEL READINGS
Well # 32
1999 - 2003

Static	Run	2002	Static	Run	2003	Static	Run	2004	Static	Run	2005	Static	Run	2006	Static	Run
66' 4"		6-Jan	60' 11"		1-Jan		68' 7"	1-Jan	63' 3"		7-Jan	62' 9"		10-Jan	60' 8"	
	67' 10"	1-Feb	58' 7"		2-Feb	61' 3"		8-Feb	63' 3"		4-Feb	62' 8"		10-Feb	60' 7"	
	67' 6"	1-Mar	61' 10"		4-Mar	61' 4"		3-Mar	63' 3"		2-Mar		70' 11"	8-Mar	60' 4"	
	67' 5"	1-Apr	60' 9"		3-Apr	61' 5"		1-Apr	63' 7"		5-Apr	62' 6"				
	66' 6"	1-May	61' 9"		1-May	61' 5"		5-May	63' 6"		5/5	62' 5"				
60' 8"	67' 0"	2-Jun	61' 4"		2-Jun	61' 0"		17-May		71' 7"	6-Jun	61' 7"				
60' 9"	67' 0"	12-Jun	61' 4"	67' 0"	9-Jun		70' 3"	24-May	63' 0"		6-Jul	60' 11"				
60' 5"	66' 8"	19-Jun	61' 2"	67' 0"	16-Jun	61' 1"		1-Jun	62' 6"		3-Aug		69' 4"			
59' 3"	66' 8"	26-Jun	61' 1"	67' 3"	23-Jun	60' 11"		16-Jun	62' 1"		8-Sep	60' 3"				
60' 2"	66' 4"	3-Jul		67' 8"	7-Jul	61' 6"		22-Jun	62' 1"		6-Oct	60' 0"				
60' 3"	65' 10"	10-Jul	61' 2"	67' 10"	14-Jul	61' 8"		30-Jun	62' 0"		2-Nov	60' 7"				
60' 0"	65' 7"	17-Jul	61' 6"	67' 10"	21-Jul		70' 4"	8-Jul		69' 10"	6-Dec	60' 10"				
59' 10"	65' 8"	24-Jul	61' 0"	67' 8"	28-Jul		70' 6"	15-Jul	61' 11"							
60' 0"	65' 9"	7-Aug	61' 1"	66' 11"	4-Aug	62' 4"		20-Jul	61' 11"							
59' 8"	64' 7"	8-Sep	59' 11"		11-Aug		70' 11"	28-Jul	61' 9"							
69' 2"	65' 11"	10-Oct	61' 0"		18-Aug		70' 9"	3-Aug	61' 9"							
59' 0"	65' 0"	1-Nov	61' 3"		25-Aug		70' 8"	17-Aug	61' 10"							
59' 6"		3-Dec		67' 5"	4-Sep	61' 8"		19-Aug	62' 2"							
58' 7"					8-Sep	62' 0"		28-Aug	62' 2"							
60' 6"	66' 0"				15-Sep	62' 6"		18-Sep	62' 2"							
	67' 7"				29-Sep	63' 6"		6-Oct	62' 9"							
61' 2"					6-Oct	62' 11"		3-Nov	63' 2"							
					15-Oct	63' 6"										
					3-Nov	63' 11"										
					1-Dec	64' 0"										

7210

WELL WATER LEVEL READINGS
Well # 33
1989 - 2003

1988	Static	Run
7-Aug	55' .83"	
13-Aug	55' .75"	
20-Aug	56' .00"	
27-Aug	56' .00"	
3-Sep	56' .25"	
10-Sep	56' .50"	
17-Sep	56' .26"	
1-Oct	56' .08"	
1-Nov	55' .33"	
1-Dec	55' .00"	

WELL WATER LEVEL READINGS
Well # 33
1989 - 2003

1989	Static	Run	1990	Static	Run	1991	Static	Run	1992	Static	Run
3-Jan	54' 10"		2-Jan	54' 0"		2-Jan	55' 7"		2-Jan	55' 7"	
1-Feb	55' 3"		3-Feb	54' 7"		2-Feb	56' 0"		1-Feb	55' 10"	
4-Mar	55' 9"		3-Mar	55' 1"		2-Mar	56' 8"		29-Feb	56' 0"	
1-Apr	53' 9"		1-Apr	54' 10"		1-Apr	56' 5"		29-Mar	56' 4"	
29-Apr	53' 0"		28-Apr	54' 7"		4-May	55' 9"		2-May		59' 1"
7-May	53' 9"		2-Jun	55' 2"		2-Jun	55' 3"		9-May		59' 10"
14-May	53' 3"		9-Jun	55' 8"		29-Jun		58' 1"	17-May		58' 11"
20-May	52' 11"		17-Jun	55' 4"		6-Jul		58' 7"	23-May		60' 10"
27-May		54' 10"	23-Jun		57' 2"	13-Jul		58' 11"	30-May		61' 4"
3-Jun	53' 1"		1-Jul	56' 9"		20-Jul		59' 3"	8-Jun		61' 8"
10-Jun	53' 9"		8-Jul		59' 1"	27-Jul	57' 1"		13-Jun		62' 1"
17-Jun	53' 10"		14-Jul		58' 11"	3-Aug		59' 6"	20-Jun		62' 2"
24-Jun	53' 0"		21-Jul		59' 4"	10-Aug		59' 10"	27-Jun		62' 6"
1-Jul	53' 9"		28-Jul		59' 10"	17-Aug		59' 9"	4-Jul		62' 3"
8-Jul		55' 7"	4-Aug		60' 0"	24-Aug	57' 9"		11-Jul		62' 7"
15-Jul	54' 9"		11-Aug		59' 10"	31-Aug		57' 8"	18-Jul		62' 10"
22-Jul	54' 11"		18-Aug		59' 0"	5-Oct	58' 9"		25-Jul		63' 2"
29-Jul	54' 10"		25-Aug		59' 0"	3-Nov	58' 2"		1-Aug		63' 5"
5-Aug	55' 0"	59' 9"	1-Sep		60' 2"	30-Nov	55' 10"		8-Aug		63' 10"
12-Aug	54' 10"		29-Sep		60' 2"				15-Aug		64' 3"
19-Aug	55' 0"		4-Nov	56' 10"					22-Aug		64' 5"
26-Aug	54' 10"		1-Dec	56' 10"					29-Aug		64' 8"
2-Sep	55' 2"								6-Sep		64' 6"
9-Sep	54' 11"								12-Sep		64' 8"
30-Sep	54' 5"								19-Sep		64' 11"
4-Nov	53' 8"								26-Sep		65' 0"
2-Dec	53' 9"								3-Oct		65' 1"
									31-Oct	60' 3"	
									28-Nov	59' 3"	

1993	Static	Run	1994	Static	Run	1995	Static	Run	1996	Static	Run
3-Jan	58'2"		2-Jan	51' 3"		1-Jan	55' 5"		3-Mar	55' 2"	
30-Jan	58' 4"		3-Feb	51' 5"		28-Jan	55' 3"		30-Mar	54' 9"	
27-Feb	58' 7"		26-Feb	52' 11"		25-Feb	55' 4"		5-May	52' 1"	
27-Mar	56' 10"		2-Apr	63' 2"		1-Apr	55' 2"		2-Jun	45' 0"	
2-May	55' 10"		30-Apr	63' 3"		20-Apr	55' 3"		30-Jun	47' 6"	
29-May	Probe		26-May	52' 10"		3-Jun	54' 4"		4-Aug	45' 10"	
3-Jul	Probe		2-Jul	65' 3"		1-Jul	54' 5"		7-Sep	46' 11"	
28-Aug	Probe		30-Jul	56' 1"		30-Jul	55' 5"		28-Sep	49' 0"	
2-Oct	Probe		3-Sep	57' 2"		2-Sep	55' 5"		3-Nov	46' 10"	
30-Oct	50' 3"		1-Oct	67' 7"		9-Oct	54' 10"		1-Dec	50' 2"	
27-Nov	50' 9"		29-Oct	66' 5"		11-Nov	56' 0"				
			1-Dec	56' 7"		3-Dec	54' 6"				
						30-Dec	54' 11"				

1997	Static	Run	1998	Static	Run	1999	Static	Run	2000	Static	Run	2001
4-Jan	49' 5		4-Jan	48' 1"		2-Jan	53' 5"		8-Jan	57' 4"		5-Jan
2-Feb	49' 7"		1-Feb	49' 0"		31-Jan	52' 5"		6-Feb	57' 6"		4-Feb
2-Mar	60' 3"		1-Mar	48' 10"		6-Mar	53' 10"		4-Mar	48' 2"		3-Mar
5-Apr	49' 0"		29-Mar	50' 4"		3-Apr	53' 7"		1-Apr	58' 4"		1-Apr
4-May	45' 11"		3-May	48' 8"		2-May	53' 5"		30-Apr	58' 10"		5-May
1-Jun	40' 0"		31-May	46' 4"		6-Jun	53' 4"		4-Jun	60' 8"		2-Jun
4-Jul	41' 10"		4-Jul	56' 8"		4-Jul	53' 10"		1-Jul	62' 0"		9-Jun
2-Aug	44' 8"		2-Aug	48' 10"		1-Aug	53' 2"		5-Aug	63' 0"		15-Jun
30-Aug	45' 0"		5-Sep	50' 10"		5-Sep	53' 0"		3-Sep	63' 10"		7-Jul
4-Oct	46' 3"		2-Oct	50' 7"		3-Oct	55' 6"		30-Sep	63' 10"		22-Jul
2-Nov	44' 6"		1-Nov	50' 1"		30-Oct	55' 10"		6-Nov	63' 10"		28-Jul
30-Nov	46' 6"		12-Dec	49' 10"		5-Dec	56' 7"		3-Dec	63' 0"		4-Aug
												14-Aug
												25-Aug
												2-Sep
												8-Sep
												16-Sep
												7-Oct
												3-Nov
												2-Dec

7212

WELL WATER LEVEL READINGS
Well # 33
1989 - 2003

Static	Run	2002	Static	Run	2003	Static	Run	2004	Static	Run	2005	Static	Run	2006	Static	Run
63' 6"		6-Jan	60' 7"		1-Jan	63' 4"		1-Jan	65' 2"		7-Jan	63' 2"		10-Jan	67' 2"	
63' 6"		1-Feb	60' 9"		2-Feb	62' 5"		6-Feb	64' 7"		4-Feb	62' 5"		10-Feb	57' 2"	
63' 8"		1-Mar	60' 9"		4-Mar	62' 9"		3-Mar	65' 1"		2-Mar	62' 3"		8-Mar	58' 10"	
63' 3"		1-Apr	60' 7"		3-Apr	62' 10"		1-Apr	54' 2"		5-Apr	61' 3"				
63' 8"		1-May	60' 7"		1-May	63' 1"		5-May	64' 0"		5-May	60' 2"				
64' 0"		2-Jun	60' 9"		2-Jun	64' 7"		17-May	64' 2"		6-Jun	58' 2"				
64' 2"		12-Jun	61' 0"		9-Jun	65' 1"		24-May	64' 6"		6-Jul	58' 1"				
64' 1"		19-Jun	61' 3"		16-Jun	65' 6"		1-Jun	64' 1"		3-Aug	59' 1"				
64' 11"		26-Jun	61' 6"		23-Jun	65' 10"		16-Jun	64' 9"		8-Sep	60' 0"				
64' 10"		3-Jul	61' 11"		7-Jul	66' 7"		22-Jun	64' 9"		5-Oct	59' 9"				
65' 2"		10-Jul	62' 4"		14-Jul	66' 9"		30-Jun	65' 3"		2-Nov	59' 1"				
65' 5"		17-Jul	62' 2"		22-Jul	66' 8"		8-Jul	65' 8"		6-Dec	58' 4"				
64' 10"		24-Jul	62' 6"		28-Jul	66' 10"		15-Jul	66' 0"							
65' 6"		7-Aug	62' 4"		4-Aug	66' 10"		20-Jul	66' 1"							
66' 7"		6-Sep	62' 10"		11-Aug	67' 0"		28-Jul	66' 3"							
65' 6"		10-Oct	63' 3"		18-Aug	67' 1"		3-Aug	66' 5"							
65' 6"		1-Nov	62' 4"		25-Aug	67' 0"		12-Aug	66' 9"							
65' 6"		3-Dec	62' 3"		4-Sep	67' 2"		19-Aug	66' 10"							
64' 4"					9-Sep	61' 4"		26-Aug	66' 10"							
62' 6"					15-Sep	66' 8"		16-Sep	66' 7"							
					29-Sep	66' 5"		5-Oct	66' 5"							
					6-Oct	66' 7"		3-Nov	65' 5"							
					15-Oct	66' 6"										
					3-Nov	66' 3"										
					1-Dec	66' 11"										

7213

WELL WATER LEVEL READINGS
Well # 34
1989 - 2003

1987	Static	Run	1988	Static	Run
21-Aug	61' .50"		1-Jan	57' .75"	
28-Aug	56' .75"		1-Feb	57' .42"	
1-Sep	58' .06"		1-Mar	57' .08"	
1-Oct	58' .75"		1-Apr	58' .50"	
1-Nov	57'.17"		1-May	60' .00"	
1-Dec	57' .75"		1-Jun	64' .25"	
			2-Jul	64' .63"	
			16-Jul	64' .75"	
			23-Jul	65' .58"	
			1-Aug	62' .75"	
			7-Aug	63' .42"	
			13-Aug	62' .08"	
			20-Aug	61' .75"	
			27-Aug	61'.75"	
			3-Sep	61' .67"	
			10-Sep	61' .42"	
			17-Sep	60' .75"	
			24-Sep	60' .42"	
			1-Oct	60' .00"	
			1-Nov	59' .92"	

WELL WATER LEVEL READINGS
Well # 34
1989 - 2003

1989	Static	Run	1990	Static	Run	1991	Static	Run	1992	Static	Run	1993	Static	Run	1994	Static	Run	1995	Static	Run	1996	Static	Run	1997	Static	Run	1998	Static	Run	1999	Static	Run	2000	Static	Run	2001
3-Jan	59' 9"		2-Jan	58' 9"		2-Jan		59' 8"	2-Jan	60' 2"		3-Jan	62' 8"		2-Jan	59' 0"		1-Jan	62' 11"		3-Mar	60' 11"		4-Jan	58' 10"		4-Jan	57' 5"		2-Jan	58' 6"		8-Jan	60' 2"		5-Jan
1-Feb	60' 2"		3-Feb	58' 10"		2-Feb		59' 10"	2-Feb	59' 10"		30-Jan	62' 9"		3-Feb	59' 5"		28-Jan	62' 7"		30-Mar	61' 3"		2-Feb	58' 10"		1-Feb	57' 10"		31-Jan	57' 10"		5-Feb	60' 4"		4-Feb
4-Mar	59' 9"		3-Mar	59' 1"		2-Mar		59' 10"	25-Feb	61' 10"		27-Feb	62' 9"		26-Feb	59' 5"		25-Feb	62' 9"		5-May	62' 0"		2-Mar	59' 7"		1-Mar	57' 8"		5-Mar	60' 2"		4-Mar	61' 0"		3-Mar
2-Apr	59' 7"		31-Mar	58' 3"		1-Apr		59' 10"	28-Mar	61' 2"		28-Mar	61' 8"		2-Apr	60' 3"		2-Apr	62' 2"		2-Jun	60' 9"		5-Apr	59' 7"		29-Mar	58' 4"		3-Apr	60' 0"		1-Apr	61' 3"		1-Apr
30-Apr	61' 3"		26-Apr	59' 8"		4-May		60' 0"	6-Apr	61' 41"		2-May	61' 9"		30-Apr	60' 5"		29-Apr	62' 4"		30-Jun		66' 9"	4-May	59' 2"		3-May		66' 2"	2-May	60' 6"		30-Apr	62' 1"		5-May
6-May		67' 8"	2-Jun	60' 1"		2-Jun		60' 8"	16-Apr	61' 9"	69' 6"	29-May	63' 0"		29-May	60' 7"		3-Jun	61' 6"		4-Aug	64' 7"		1-Jun	59' 5"		31-May	60' 2"		5-Jun	60' 2"		4-Jun		68' 10"	2-Jun
14-May	61' 0"		9-Jun		68' 5"	29-Jun	65' 7"		24-Apr	63' 1"		3-Jul	62' 0"		2-Jul		67' 3"	1-Jul	61' 6"		7-Sep	62' 3"		4-Jul		65' 0"	4-Jul		66' 2"	4-Jul		66' 4"	1-Jul	67' 6"		9-Jun
21-May	61' 1"		16-Jun		64' 10"	6-Jul	66' 8"		26-Apr	63' 2"	60' 3"	28-Aug	59' 3"		30-Jul		67' 10"	30-Jul	63' 1"		28-Sep	61' 8"		2-Aug	62' 4"		2-Aug		68' 7"	1-Aug		68' 7"	5-Aug	66' 5"		15-Jun
28-May	61' 6"		24-Jun		67' 0"	13-Jul	67' 5"		1-May	63' 5"	68' 6"	2-Oct	58' 11"		5-Sep	61' 10"		2-Sep		67' 3"	3-Nov	60' 8"		30-Aug		67' 0"	5-Sep		68' 5"	5-Sep	57' 10"		3-Sep	64' 8"		7-Jul
3-Jun	60' 10"		30-Jun		67' 0"	20-Jul	67' 2"		4-May	64' 4"		30-Oct	58' 4"		2-Oct	61' 3"		9-Oct	60' 1"		1-Dec	61' 0"		4-Oct	58' 9"		2-Oct	58' 4"		3-Oct		64' 10"	30-Sep	68' 2"		22-Jul
11-Jun	61' 1"		7-Jul		68' 10"	27-Jul		61' 2"	8-May	64' 4"		27-Nov	58' 2"		30-Oct	60' 4"		11-Nov	60' 8"					2-Nov	58' 10"		1-Nov	58' 10"		30-Oct	60' 2"		6-Nov	62' 9"		28-Jul
17-Jun	61' 11"		14-Jul		66' 10"	3-Aug	66' 9"		22-May	64' 3"					1-Dec	62' 5.5"		3-Dec	61' 1"					30-Nov	57' 4"		12-Dec	59' 0"		5-Dec	60' 3"		3-Dec	62' 2"		4-Aug
25-Jun	61' 0"		21-Jul		68' 11"	11-Aug	66' 10"		29-May	64' 4"								30-Dec	60' 9"																	14-Aug
1-Jul	62' 6"		29-Jul		66' 9"	17-Aug	66' 5"		12-Apr		67' 7"																									25-Aug
8-Jul	62' 9"		4-Aug		68' 11"	24-Aug	66' 4"		11-Jul	63' 4"																										2-Sep
15-Jul	62' 9"		12-Aug		68' 11"	31-Aug		61' 2"	19-Jul	62' 11"	62' 10"																									8-Sep
22-Jul	64' 8"		18-Aug	61' 0"		6-Oct		59' 5"	25-Jul		67' 0"																									16-Sep
29-Jul	62' 8"		25-Aug	60' 4"		3-Nov		59' 7"	2-Aug		67' 11"																									7-Oct
6-Aug	62' 5"		1-Sep		64' 11"	30-Nov		59' 7"	8-Aug		70' 6"																									3-Nov
12-Aug	61' 2"		29-Sep	59' 10"					15-Aug		71' 5"																									2-Dec
20-Aug	60' 8"		4-Nov	59' 1"					22-Aug		68' 11"																									
27-Aug	62' 9"		1-Dec	59' 3"					29-Aug		68' 5"																									
2-Sep	60' 6"								6-Sep	63' 5"																										
9-Sep	60' 5"								12-Sep	63' 9"																										
1-Oct	59' 2"								19-Sep	64' 11"																										
5-Nov	58' 2"								26-Sep	63' 11"																										
3-Dec	58' 4"								3-Oct	64' 7"																										
									31-Oct	63' 7"																										
									29-Nov	63' 2"																										

7215

WELL WATER LEVEL READINGS
Well # 34
1989 - 2003

Static	Run	2002	Static	Run	2003	Static	Run	2004	Static	Run	2005	Static	Run	2006	Static	Run
62' 0"		6-Jan	64' 3"		1-Jan	63' 1"		1-Jan	65' 5"		7-Jan	65' 1"		10-Jan	62' 10"	
62' 4"		1-Feb	62' 3"		2-Feb	63' 4"		6-Feb	65' 7"		4-Feb	65' 0"		10-Feb	62' 8"	
61' 4"		1-Mar	64' 3"		4-Mar	63' 3"		3-Mar	66' 0"		2-Mar	64' 7"		8-Mar	62' 4"	
63' 4"		1-Apr	64' 1"		3-Apr	63' 4"		1-Apr	65' 9"		5-Apr	64' 7"				
	67' 11"	1-May	69' 7"		1-May	63' 10"		5-May		72' 7"	5-May	64' 3"				
	70' 7"	2-Jun	65' 8"		2-Jun		72' 4"	17-May	69' 3"		8-Jun	65' 0"				
	71' 0"	12-Jun	68' 4"		9-Jun	68' 11"		24-May		73' 4"	6-Jul		74' 10"			
65' 5"		19-Jun		73' 8"	16-Jun		71' 10"	1-Jun		74' 4"	3-Aug		70' 4"			
69' 11"		26-Jun		74' 7"	23-Jun	68' 4"		16-Jun	69' 5"		8-Sep		71' 10"			
66' 3"		3-Jul		76' 3"	7-Jul		77' 0"	22-Jun	69' 9"		5-Oct	66' 10"				
68' 11"		10-Jul		78' 3"	14-Jul		76' 4"	30-Jun		74' 9"	2-Nov		68' 8"			
69' 0"		17-Jul		77' 3"	21-Jul		78' 3"	8-Jul	67' 10"		6-Dec	63' 2"				
68' 10"		24-Jul		75' 11"	28-Jul		75' 6"	15-Jul	68' 5"							
69' 4"		7-Aug		75' 8"	4-Aug		75' 9"	20-Jul	67' 8"							
68' 1"		8-Sep	68' 2"		11-Aug		75' 5"	28-Jul		75' 2"						
68' 0"		10-Oct	68' 11"		18-Aug		74' 9"	3-Aug		76' 3"						
68' 0"		1-Nov	63' 8"		25-Aug		74' 2"	12-Aug		76' 3"						
65' 1"		3-Dec	63' 1"		4-Sep	67' 6"		19-Aug		72' 9"						
65' 1"					9-Sep	67' 7"		26-Aug		72' 9"						
64' 7"					15-Sep	69' 10"		18-Sep	71' 0"							
					29-Sep	.	70' 3"	5-Oct	68' 11"							
					6-Oct	70' 7"		3-Nov	68' 3"							
					15-Oct	67' 11"										
					3-Nov	67' 4"										
					1-Dec	65' 11"										

7216

WELL WATER LEVEL READINGS
Well # 35 Airport
1989 - 2003

1980	Static	Run	1981	Static	Run	1982	Static	Run	1983	Static	Run	1984	Static	Run
1-Jan	44'.08"		1-Jan	44'.58"		1-Jan	44'.75"		1-Jan	44'.17"		1-Jan	42'.60"	
1-Feb	44'.08"		1-Feb	44'.42"		1-Feb	45'.17"		1-Feb	43'.67"		1-Feb	42'.83"	
1-Mar	43'.75"		1-Apr	44'.50"		1-Mar	45'.60"		1-Mar	43'.50"		1-Mar	42' 50"	
1-Apr	44'.00"		1-May	44'.42"		1-Apr	44' 25"		1-Apr	43'.33"		1-Apr	42'.08"	
1-May	43'.33"		1-May	44'.42"		1-May	44'.25"		1-May	43'.50"		1-May	41'.92"	
1-Jun	45'.67"		1-Jun	44'.42"		1-Jun	45'.17"		1-Jun	43'.60"		1-Jun	43'.25"	
1-Jul	46'.25"		1-Jul	47'.50"		1-Jul	46'.67"		1-Jul	43'.75"		1-Jul	44'.00"	
1-Aug	45'.67"		1-Aug	46'.33"		1-Aug	44'.33"		Agu 1	43'.00"		1-Aug	43'.25"	
1-Sep	44'.50"		1-Sep	45'.33"		1-Sep	44'.50"		1-Sep	43'.00"		1-Sep	41'.60"	
1-Oct	44'.42"		1-Oct	44'.42"		1-Oct	43'.33"		1-Oct	41'.50"		1-Oct	40'.83"	
1-Nov	44'.33"		1-Nov	44'.67"		1-Nov	43'.58"		1-Nov	40'.50"		1-Nov	41'.33"	
1-Dec	44'.25"		1-Dec	44'.83"		1-Dec	44'.00"		1-Dec	42'.33"		1-Dec	41'.33"	

1985	Static	Run	1986	Static	Run	1987	Static	Run	1988	Static	Run
1-Jan	42'.92"		1-Jan	42'.33"		1-Jan	43'.50"		1-Jan	43'.50"	
1-Feb	42'.50"		1-Feb	42'.50"		1-Feb	42'.60"		1-Feb	43. 25"	
1-Mar	42'.75"		1-Mar		43'.50"	1-Mar	42'.58"		1-May	43'.50"	
1-Apr	42'.00"		1-Apr	42'.25"		1-Apr	42'.60"		1-Apr	43'.60"	
1-May		43'.50"	1-May	42'.00"		2-May		44'.92"	1-May	43'.92"	
1-Jun	41'.08"		1-Jun		45'.50"	12-May	43'.00"		2-Jul	46'.00"	
1-Jul	44'.67"		1-Jul	45'.00"		21-May	43'.00"		9-Jul	46'.33"	
1-Aug	43'.00"		1-Aug		44'.25"	26-May	42'.75"		16-Jul	45'.67"	
1-Sep	41'.67"		1-Sep	42'.50"		4-Jun	44'.67"		23-Jul	45'.42"	
1-Oct	41'.67"		1-Oct	41'.75"		12-Jun	44' 25"		1-Aug	45'.00"	
1-Nov	41'.67"		1-Nov	42'.00"		19-Jun	45'.60"		7-Aug	45'.00"	
1-Dec	42' 00"		1-Dec	42'.42"		26-Jun	46'.00"		13-Aug	44'.92"	
						10-Jul	45'.17"		20-Aug	45'.08"	
						17-Jul	44'.33"		27-Aug	44'.67"	
						24-Jul		42'.50"	3-Sep	44'.75"	
						31-Jul	44'.67"		10-Sep	44'.33"	
						7-Aug		43'.50"	17-Sep	44'.17"	
						14-Aug		45'.00"	24-Sep	44'.08"	
						21-Aug	44'.08"		1-Oct	44'.00"	
						28-Aug		69'.67"	1-Nov	43'.75"	
						1-Sep		44'.50"	1-Dec	44'.00"	
						1-Oct	43'.92"				
						1-Nov	42'.50"				
						1-Dec	42'.83"				

7217

WELL WATER LEVEL READINGS
Well # 35 Airport
1989 - 2003

1989	Static	Run	1990	Static	Run	1991	Static	Run	1992	Static	Run
3-Jan	44' 0"		2-Jan	43' 11"		2-Jan	44' 3"		2-Jan	44' 9"	
1-Feb	44' 1"		4-Feb	44' 0"		2-Feb	44' 4"		2-Feb	44' 8"	
4-Mar	44' 1"		4-Mar	44' 0"		2-Mar	44' 5"		29-Feb	44' 8"	
2-Apr	43' 7"		31-Mar	44' 0"		1-Apr	44' 3"		28-Mar	44' 9"	
29-Apr	44' 1"		28-Apr	44' 5"		4-May	44' 5"		2-May	47' 1"	
6-May	45' 0"		2-Jun	44' 8"		2-Jun	46' 0"		10-May	47' 7"	
13-May	45' 3"		9-Jun	46' 8"		30-Jun	47' 8"		17-May	47' 8"	
20-May	45' 1"		16-Jun	46' 8"		6-Jul	48' 0"		23-May	47' 11"	
27-May	45' 10"		23-Jun	47' 5"		13-Jul	48' 3"		30-May	48' 5"	
4-Jun	45' 8"		30-Jun		49' 0"	20-Jul	47' 10"		6-Jun	48' 6"	
11-Jun	45' 7"		7-Jul	47' 10"		27-Jul	48' 8"		14-Jun	48' 9"	
17-Jun	46' 10"		14-Jul	47' 3"		3-Aug	46' 2"		20-Jun	46' 3"	
24-Jun	46' 11"		21-Jul	46' 5"		10-Aug	45' 10"		27-Jun	48' 2"	
1-Jul	47' 4"		28-Jul	45' 0"		17-Aug	45' 9"		4-Jul	47' 2"	
8-Jul		49' 0"	4-Aug	45' 6"		24-Aug	45' 8"		11-Jul	47' 4"	
15-Jul	47' 0"		12-Aug	45' 4"		31-Aug	45' 8"		19-Jul	48' 3"	
23-Jul	48' 1"		18-Aug	45' 0"		6-Oct	44' 5"		26-Jul	46' 1"	
30-Jul	45' 5"		26-Aug	45' 0"		2-Nov	44' 3"		2-Aug	46' 1"	
6-Aug	44' 9"		1-Sep	45' 2"		1-Dec	44' 5"		9-Aug	46' 0"	
13-Aug	44' 9"		29-Sep	44' 4"					15-Aug	46' 3"	
19-Aug	44' 7"		3-Nov	43' 9"					22-Aug	46' 10"	
28-Aug	44' 7"		1-Dec	44' 1"					29-Aug	46' 8"	
3-Sep	45' 1"								6-Sep		47' 7"
9-Sep	45' 2"								12-Sep	46' 1"	
30-Sep	44' 2"								20-Sep	45' 9"	
4-Nov	43' 4"								26-Sep	45' 10"	
2-Dec	43' 9"								4-Oct	45' 11"	
									31-Oct	45' 4"	
									29-Nov	45' 5"	

1993	Static	Run	1994	Static	Run	1995	Static	Run	1996	Static	Run
3-Jan	45' 7"		2-Jan	44' 6"		1-Jan	45' 4"		3-Mar	38' 2"	
30-Jan	45' 9"		3-Feb	44' 10"		28-Jan	45' 5"		31-Mar	44' 7"	
28-Feb	45' 8"		26-Feb	44' 7"		25-Feb	45' 3"		5-May	45' 3"	
27-Mar	45' 2"		2-Apr	44' 9"		1-Apr	45' 2"		2-Jun	44' 3"	
2-May	45' 3"		30-Apr	45' 6"		29-Apr	45' 6"		30-Jun	47' 3"	
29-May	46' 10"		29-May	46' 10"		3-Jun	46' 6"		4-Aug	45' 4"	
3-Jul	47' 10"		2-Jul	49' 1"		1-Jul	47' 4"		8-Sep	47' 0"	
30-Jul	46' 9"		30-Jul	48' 5"		30-Jul		46' 11"	28-Sep	45' 9"	
28-Aug	45' 0"		3-Sep		47' 6"	2-Sep	46' 1"		3-Nov	46' 1"	
2-Oct	44' 10"		1-Oct	45' 0"		9-Oct	44' 4"		1-Dec	46' 1"	
30-Oct	44' 0"		30-Oct	44' 11"		17-Nov	43' 11"				
27-Nov	44' 4"		1-Dec	46' 5"		3-Dec	44' 1"				
						30-Dec	44' 2"				

1997	Static	Run	1998	Static	Run	1999	Static	Run	2000	Static	Run	2001
4-Jan	44' 1"		4-Jan	43' 11"		2-Jan	43' 6"		8-Jan	44' 0"		5-Jan
2-Feb	44' 5"		1-Feb	44' 2"		31-Jan	43' 8"		5-Feb	44' 5"		4-Feb
2-Mar	44' 6"		1-Mar	44' 3"		5-Mar	44' 3"		4-Mar	43' 11"		3-Mar
5-Apr	44' 6"		29-Mar	43' 11"		3-Apr	44' 4"		1-Apr	43' 11"		1-Apr
4-May	44' 6"		3-May	45' 1"		2-May	44' 0"		30-Apr	45' 0"		5-May
1-Jun		46' 9"	31-May	44' 9"		5-Jun	43' 11"		4-Jun	46' 11"		2-Jun
4-Jul		48' 6"	4-Jul		47' 8"	4-Jul	44' 6"		1-Jul	48' 0"		9-Jun
2-Aug	45' 6"		2-Aug	44' 10"		1-Aug	45' 5"		5-Aug	46' 0"		15-Jun
30-Aug		46' 9"	5-Sep	45' 3"		5-Sep	46' 1"		3-Sep	45' 4"		7-Jul
4-Oct	43' 8"		2-Oct	43' 9"		3-Oct	44' 6"		30-Sep	45' 2"		22-Jul
2-Nov	44' 4"		1-Nov	44' 4"		30-Oct	43' 6"		6-Nov	4' 4"		28-Jul
30-Nov	43' 10"		12-Dec	44' 0"		6-Dec	43' 10"		3-Dec	44' 9"		4-Aug
												14-Aug
												25-Aug
												2-Sep
												8-Sep
												16-Sep
												7-Oct
												3-Nov
												2-Dec

7218

WELL WATER LEVEL READINGS
Well # 35 Airport
1989 - 2003

Static	Run	2002	Static	Run	2003	Static	Run	2004	Static	Run	2005	Static	Run	2006	Static	Run
44' 8"		8-Jan		48' 0"	1-Jan	48' 3"		1-Jan	48' 9"		7-Jan	48' 9"		10-Jan	48' 7"	
45' 1"		1-Feb	44' 10"		2-Feb	48' 2"		8-Feb	47' 0"		4-Feb	48' 11"		10-Feb	45' 7"	
45' 0"		1-Mar	44' 10"		4-Mar	48' 2"		3-Mar	47' 2"		2-Mar	48' 10"		8-Mar	48' 5"	
	41' 4"	1-Apr	44' 9"		3-Apr	48' 3"		1-Apr	47' 2"		5-Apr	48' 11"				
45' 8"		1-May	48' 3"		1-May	45' 8"		5-May	49' 1"		5-May	47' 2"				
47' 9"		2-Jun	48' 2"		2-Jun	49' 0"		17-May	48' 5"		8-Jun	47' 11"				
47' 11"		12-Jun	48' 8"		9-Jun		50' 3"	24-May	49' 0"		6-Jul	50' 2"				
47' 9"		19-Jun	49' 2"		18-Jun	49' 9"		1-Jun	48' 5"		3-Aug	48' 3"				
48' 6"		20-Jun	49' 8"		23-Jun	49' 5"		10-Jun	51' 7"	51' 7"	8-Sep	48' 8"				
48' 5"		3-Jul	49' 10"		7-Jul	48' 10"		22-Jun		51' 11"	5-Oct	48' 6"				
	47' 11"	10-Jul	48' 11"		Ju 14	49' 4"		30-Jun		51' 9"	2-Nov	48' 5"				
46' 6"		17-Jul	49' 0"		21-Jul	49' 2"		8-Jul	50' 5"		8-Dec	48' 8"				
45' 8"		24-Jul	48' 4"		28-Jul	48' 3"		15-Jul	49' 10"							
45' 5"		7-Aug		48' 2"	4-Aug	48' 0"		20-Jul	48' 8"							
45' 6"		8-Sep		47' 9"	11-Aug	48' 2"		28-Jul	48' 8"							
45' 0"		10-Oct	47' 1"		18-Aug	48' 0"		3-Aug	48' 8"							
45' 3"		1-Nov	45' 8"		25-Aug	47' 7"		12-Aug	48' 10"							
44' 6"		3-Dec	45' 9"		4-Sep	47' 6"		19-Aug	48' 10"							
44' 8"					9-Sep	47' 1"		28-Aug	48' 1"							
44' 5"					15-Sep	47' 1"		18-Sep	47' 9"							
					29-Sep	47' 3"		5-Oct	47' 2"							
					6-Oct	47' 1"		3-Nov	48' 11"							
					15-Oct	47' 3"										
					3-Nov	47' 1"										
					1-Dec	48' 11"										

7219

CITY OF POCATELLO

EXHIBIT 116

Spronk Water Engineers, Inc., Expert Report Dated September 29, 2006,

Subcase Nos.

all 38

Admitted 29-271 et al
(Subcase No.)
EXHIBIT
Poc. 116
Date: 3/8/07

IN THE DISTRICT COURT OF THE FIFTH JUDICIAL DISTRICT OF THE STATE OF IDAHO, IN AND FOR THE COUNTY OF TWIN FALLS

In Re SRBA Case No. 39576	SPRONK WATER ENGINEERS, INC. EXPERT REPORT DATED SEPTEMBER 29, 2006 PREPARED FOR THE CITY OF POCATELLO, CLAIMANT

PROFESSIONAL ENGINEER REGISTERED 8387 9/29/06 STATE OF IDAHO GREGORY K. SULLIVAN

Spronk Water Engineers, Inc.
1000 Logan Street
Denver, Colorado 80203

7221

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

APPENDICES

Spronk Water Engineers, Inc.
Expert Report
Dated September 29, 2006
Prepared For The
City of Pocatello,
Claimant

1.0 INTRODUCTION

The City of Pocatello (Pocatello, the City) has claimed water rights in the Snake River Basin Adjudication ("SRBA") under two different legal approaches. These include claims based on Idaho State Law ("State-law claims") and another claim based on Federal Law. The State-law claims are the subject of this report.

The City originally filed 38 State-law claims in the SRBA for ground water and surface water rights on April 16, 1990. Amended claims were filed on November 18, 2003. There were no objections to the City's original or amended claims filed by other water users. The Idaho Department of Water Resources (the "Department") Basin 29 Director's Report for Irrigation and Other Uses ("Director's Report") was filed with the SRBA Court on November 18, 2003 and included recommendations for the City's SRBA claims. Pocatello filed various objections to these recommendations. There were no objections to the Director's recommendations by an other water users. Negotiations between Pocatello and the Department have resulted in a number of stipulations regarding certain of the City's State-law claims, although a number of disputed issues remain. This report addresses the following disputed issues:

- A condition proposed by the Department to limit the City's claims for alternate points of diversion for its interconnected municipal wells,
- The Department's recommended denial of the City's claim for alternate points of diversion for its surface water rights on Mink Creek and Gibson Jack Creek,
- Miscellaneous issues related to identification of the wells included in the City's

interconnected municipal well systems, and subset of these wells that were the subject of prior formal administrative transfers approved by the Department.

The above issues are described in The Department's April 13, 2006 Supplemental Director's Report Regarding the City of Pocatello's Basin 29 State-Based Water Rights ("706 Report"). This expert report was prepared to support the City's positions regarding the disputed issues.

1.1 Pocatello's Interconnected Water Systems

The City supplies water to over 50,000 residents in a service area of approximately 34 square miles. The primary source of water supply for the City is ground water pumped from municipal wells constructed in the Lower Portneuf River Valley Aquifer ("LPRVA"). The City currently has 28 wells that provide water to the primary municipal area of the City ("City Wells"). The City claimed water rights in the SRBA for 23 interconnected City Wells[1]. These wells withdraw water from the LPRVA, with the exception of Well 32, which is constructed in the Eastern Snake Plain Aquifer ("ESPA") near where it connects to the LPRVA.. A map showing the location of the City Wells is attached as Figure 1.

Commercial and industrial development in and around the Pocatello Municipal Airport is supplied water from two interconnected wells, Wells. 35 and 39. Other wells near the airport are used for land application of biosolids from the Pocatello Wastewater Treatment Plant. The municipal and land application wells near the airport are collectively referred to as the "Airport Wells." These wells are constructed in the ESPA as shown in Figure 1.

1.2 Pocatello's SRBA Claims

Table 1 summarizes the City's State-law SRBA claims, including the claim number, priority date, diversion rate and location. Also shown in Table 1 are the priority dates and diversion rates recommended by the Department that are different from those claimed by the City.

---

[1]Twenty-two of the interconnected wells existed in 1987. Well 44 was constructed as a replacement well after 1987 and is included in the City's SRBA claims.

Pocatello's water system developed over time as the water use by a growing population increased. The City's SRBA claims reflect the periodic increase in water supply capacity that was developed in response to increasing demands. Each water right claimed by the City represents the date (priority date) and amount (rate in cubic feet per second) of increases in system production capacity that resulted from construction of new wells, enlargement of well pumping capacity or acquisition of existing wells. The result was 22 ground water rights for 23 interconnected City Wells, each of which is claimed as an alternate point of diversion. The City Wells are also claimed as alternate points of diversion for surface water rights on Mink Creek and Gibson Jack Creek. In addition, the City claimed its two interconnected Airport Wells as alternate points of diversion for the two ground water rights associated with those wells.

Table 2 is a summary of the City's State-law claims that include alternate points of diversion. The alternate points of diversion reflect the physical operation of the City's water supply system, and allow the City to exercise its water rights in order of priority from senior to junior regardless of which interconnected wells are pumping at a given time.

The City Wells that serve the interconnected system and are claimed as alternate points of diversion are shown with red text labels in Figure 1. Of these, the wells that are interconnected are labeled red on yellow and those that are not interconnected are labeled red on white. The two interconnected Airport Wells are shown with red on blue labels. Other City Wells and Airport Wells for which no alternate points of diversion are claimed are shown with back on white labels.

Table 3 lists The Department's recommendations for water rights that Pocatello claimed with alternate points of diversion. The differences between what was claimed by Pocatello and what was recommended by the Department are highlighted in yellow on Table 2.

Pocatello filed objections to all 38 of the Department's recommendations listed in the Director's Report for the City's claimed water rights. These objections were for global issues that applied to many or all of the claims, and for specific issues for particular claims. Table 4 summarizes the City's objections that were filed on November 14, 2003 in the SRBA Court. A table similar to Table

4 was attached to each objection filed by the City. The objections addressed in this report are those identified in Table 4 by the columns, *Provisions Necessary*, *Correct Interconnection*, *Accomplished Transfer*, and *Point of Diversion.*

2.0 ALTERNATE POINTS OF DIVERSION FOR GROUND WATER RIGHTS

Pocatello's claim for alternate points of diversion for its ground water rights was made under the accomplished transfer provisions in Idaho Code §42-1425 ("Accomplished Transfer Statute"). The following is the essential portion of the statue:

> Any change of ... point of diversion ... by any person entitled to use water ... prior to November 19, 1987, may be claimed in a general adjudication even though the person has not complied with 42-108 and 42-222, Idaho Code, provided no other water rights **existing on the date of the change were injured** and the change did not result in an enlargement of the original right. (emphasis added). I.C. §42-1425(2).

The 22 ground water rights and 23 alternate points of diversion claimed by Pocatello are listed in Table 3, and are described in Section 1.3. No objections to the City's claims were filed by other water right holders. Nevertheless, The Department seeks to add a condition to limit the City's alternate point of diversion operations as described below.

2.1 The Department's "Other Provisions Necessary" Condition

In July 2003, the Department recommended approval of 22 alternate points of diversion for 18 of the water rights claimed for the City Wells provided the exercise of the water rights at the alternate points was conditioned as follows:

> To the extent necessary for administration, water was first appropriated or used from: (List of alternate points of diversion, e.g., Pocatello Well No. 2 located in T07S, R34E, S01, NW¼NE¼, on 12/31/1926 in the amount of 3.12 cfs)

The above condition listed the location, priority date, and diversion rate amount for each of the 22 wells recommended as alternate points of diversion. The water rights that were conditioned and the alternate points of diversion are listed in Table 3, under the column heading "IDWR July 2003 Recommendations".

In April 2006, in the Department's 706 Report to Special Master Bilyue, the proposed condition was modified to the following ("Condition"):

> To the extent necessary for administration between points of diversion for ground water, and between points of diversion for ground water and hydraulically connected surface sources, water was first appropriated or used from:

The Department also revised the conditions list of wells, quantities and priority dates. The wells and water rights proposed to be conditioned by he Department are listed in Table 3, under the column heading "IDWR April 2006 Recommendations". In this April 2006 revision, the Department has recommended the Condition apply to 18 water rights and 31 alternate points of diversion for the interconnected City Wells. The Department added nine wells to the original list of 22 recommended alternate points to which the Condition would apply. The additional nine wells include original wells that are not in use but are related to the water rights claimed. The Department also revised the diversion rates for Wells 2 and 29.

For legal and technical reasons, Pocatello does not believe the Condition imposed by the Department on the City's water rights claimed with alternate points of diversion is warranted, and the Condition effectively denies the transfers claimed by the City under the Accomplished Transfer Statute.

2.2 The Departments's Basis for the Condition

The basis for the Department's proposed Condition on the alternate points of diversion claimed by Pocatello for its interconnected wells is described on pages 12-15 of the 706 Report. The Department contends that the Condition is necessary to avoid injury to other water users and to assist in the administration and definition of the water rights. A summary of IDWR's reasoning follows.

> By listing all of its points of diversion for all of its water rights, the City would be allowed to withdraw water under its most senior priority water right from any well location. The Department, in order to recommend multiple, alternate points of diversion on the City's interconnected water rights under an accomplished transfer theory, included a condition to prevent injury that could result from allowing this practice. Without the condition, the Department would not have recommended the multiple, alternate points of diversion because **injury to other water rights was likely**. (emphasis added). (pp. 12-13).

The 706 Report lists three substantive parts of the condition (location, priority date, and amount), summarized as follows:

1. <u>Location</u> - The Department considers well location important because *"many other wells <u>could</u> have been drilled nearby before or after the City owned well was drilled or used"* (emphasis added) (p 14).

2. <u>Priority Date</u> - The Department considers the *"... date water was first appropriated from that well..."* important *"... when addressing well-interference issues and mitigation requirements for aquifer-wide regulation."* It offers the following hypothetical example to illustrate its concern:

> If at some time in the future, the City increases the pumping capacity of a well within the City's interconnected system, and it reduces the amount of water available to another water user, this condition preserves the ability of a water user to protect their water right". b) If a well developed by Pocatello in 1990 causes interference with a neighbor's well that was drilled in 1960, the City's well will be treated as junior to the1960 well even though the City, on occasion, could be diverting a quantity from that well that is associated with a 1950 well owned elsewhere in the City. (page 14).

3. <u>Amount</u> - The Department stresses the importance of the water right amount when evaluating potential injury from the alternate point operation on other surface and ground water rights. This concern is illustrated by two hypothetical examples as follows:

> If a senior surface water user makes a call and the Department determines that the City's use of ground water is causing injury to that senior surface water user from a certain well, the City has the flexibility to obtain that quantity from different well locations to supply its residents with water. However, the City is still responsible for mitigating any injury associated with the withdrawal of the quantity from its wells. In addition, when the City pumps water from a well at a different location, it may cause interference with a different surface water source, or another water user's well. " (p 15).

Finally, the 706 Report states that the proposed Condition *"... preserves the historical information necessary for administering the water rights as they were historically developed."* (p.15).

In summary, the Department believes the proposed Condition is necessary for both local well-to-well interference concerns as well as for regional conjunctive administration of ground water and surface water rights. These concerns are addressed in the following sections.

2.3 Well-to-Well Interference Impacts

The City has exercised its water rights with multiple points of diversion as its water uses increased and its interconnected water system expanded. As the City's demand increased, it constructed and acquired additional wells that were added to the interconnected system. The City has long delivered water for municipal uses through a central distribution system that is supplied through multiple wells. The wells that are actually pumped into the system vary from time-to-time for a variety of reasons. However, the City's exercise of its water rights in order from senior to junior reflects the increasing use of water through time by the City residents. The City's oldest water uses occur under the City's oldest water rights regardless of the wells that it operates because of convenience, reliability or other reasons.

The Department has provided no evidence of actual injury to other ground water users resulting from the City's pumping at multiple alternate points of diversion. Instead, the proposed Condition is based, in part, on speculation by the Department that injury may occur due to well-to-well interference, and hypothetical situations in which injury might occur. This is not a sufficient basis to limit Pocatello's water rights given that it properly claimed the alternate points of diversion under the Accomplished Transfer Statue and there were no objections to the claims filed by other water users. In addition, we are not aware of delivery calls made by local well users that have been placed against Pocatello's wells either before or after 1987.

In addition to not presenting evidence of actual injury caused by Pocatello's alternate point of diversion operations, the Department has no objective standards or criteria by which potential injury can be evaluated. The Department has not established "reasonable pumping levels" for the LPRVA or the ESPA. Nor has the Department quantified the amount of aquifer water level drawdown from pumping that is injurious to other water users.

Notwithstanding the lack of standards or criteria for evaluating injury, SWE analyzed the magnitude of aquifer drawdown that existed prior to November 19, 1987 as a result of the City's well operations. Legal counsel has advised SWE that the relevant period is prior to November 19, 1987.

Water Level Measurements

SWE obtained water level measurements for the interconnected City Wells and Airport Wells. The data included measurements of depth to water and whether the measurements were taken while the pump was running (pumping water level) or when the pump was not running (static water level). The period of record for the water level measurements varies by well. Graphs of the pumping and static water levels for each well for which data were available are provided in Figure 2.

Average pumping and static water levels were calculated for each well for the period of record through 1987. The average pumping water levels were subtracted from the average static water levels and the resulting average pumping drawdown levels were plotted in Figure 3. The long-term average pumping drawdown gives a general indication of the magnitude of drawdown experienced within the pumping well. Drawdown in the aquifer immediately outside the well casing will typically be less than inside the well casing as a result of well losses and inefficiencies. The aquifer drawdown becomes less as the distance from the well increases because a greater portion of the aquifer is contributing to the well pumping rate.

The Pocatello wells were categorized by the average measured pumping drawdown as follows:

Average Measured Pumping Drawdown
as of 1987
City of Pocatello Wells

0 - 4 feet	4 - 10 feet	10 - 19 feet	No Data
Well 10	Well 2	Well 29	Well 13
Well 12	Well 7	Well 32	Well 14
Well 21	Well 16		Well 15
Well 22	Well 18		Well 23
Well 28	Well 26		Well 33
Well 30	Well 27		Well 34
Well 31			Well 39
Well 35			Well 44

There reportedly are no water level measurements available prior to 1987 for the wells listed in "No Data" column. Static and pumping water levels measured post-1987 for Wells 13, 14, 33 and 34 show average measured pumping drawdowns of 1.5, 1.0, 3.0 feet and 6.2 feet, respectively. Average measured pumping drawdowns for Wells 15 and 44 could not be calculated because either only static water levels were generally measured (Well 15) or only pumping levels were generally measured (Well 44).

Hydrogeology

Published reports, pumping test results and other materials were reviewed for information regarding the aquifer hydrogeology in the vicinity of the City's wells. A list of the information that was reviewed is included in Section 5.

The City Wells, with the exception of Well 32, withdraw water from the LPRVA, which extends from the Portneuf Gap, through the City, to the City of Chubbuck. The Airport Wells and Well 32 are completed in the ESPA. The LPRVA aquifer is connected to the ESPA northwest of Pocatello.

The locations of the City's wells, and the LPRVA and ESPA aquifers are shown in Figure 1.

The LPRVA is a prolific aquifer, and many of the City's wells have impressive yields ranging as high as 3,600 gpm. Southeast of the City, the aquifer is characterized by 60 to 120 feet of highly permeable, unconfined gravels overlying a much thicker section of low-permeability basin fill sediments. Analysis of the City's wells in the southern portion of the aquifer (Wells 36, 13, and 28) indicated aquifer transmissivities of up to 7.5 ft^2/sec (Welhan et. al., 1996).

The LPRVA within and north of the City is comprised of multiple, confined silty gravel and sand layers, and appears to consist of at least two major water-bearing zones which include a shallow, confined gravel aquifer and a deep confined gravel aquifer. Depths to water are generally greater than in the southern portion of the aquifer. Analysis of the City's wells in the northern portion of the aquifer (Wells 26, 27, 31, and 24) indicate transmissivities ranging from 1.5 ft^2/sec to 4.7 ft^2/sec. Aquifer thickness ranges from approximately 60 to 250 feet. (Welhan, et. al., 1996, Welhan, et. al., 1994) An upper clay layer, believed to represent the American Falls lake beds, overlies the confined layers in the northern portion of the aquifer that supply the City's wells. The clay layer is approximately 5 to 20 feet thick in the vicinity of Well 26 (Welhan, et. al., 1996) and may extend as far northwest as American Falls Reservoir.

CH2M Hill performed a 30-hour constant rate discharge pumping test on the LDS Farm North Irrigation Well on May 14 and 15, 1994 in response to TCE contamination in the southern aquifer. This well is located near Well 44 as shown in Figure 1. The discharge rate for the test was approximately between 1,000 and 1,220 gpm. The maximum observed drawdown at the end of the pump test in the primary observation well, PA-5, located 40 feet from the pumping well, was 0.39 foot (CH2M Hill, 1994).

A pumping test was performed in April 1992 on Well 34 located in the northern portion of the aquifer as shown in Figure 1. The data collected during the pump test indicate that after 5.25 hours of pumping, there was drawdown of approximately 5.0 feet at the pumping well and approximately 2.5 feet in Well 31, 104 feet away. The pumping rate in Well 34 was 3,090 gpm (6.8 cfs). The long-term average drawdown for the entire period of record (1988 - 2005) for Well 34 is 6.2 feet. (Welhan, personal communication, 2006).

The two pumping tests described above indicate that there does not appear to be significant water level drawdown that extends any appreciable distance away from wells that withdraw water from the LPRVA. Additionally, the small magnitude of drawdown experienced in Well 35 (interconnected Airport well completed in ESPA) also indicates that there does not appear to be a significant water level drawdown that extends from the City's Airport pumping wells.

The LPRVA aquifer is considered to have little direct hydraulic connection to the Portneuf River in the reach extending through the City during periods of normal and low flows. The lack of direct hydraulic connection is attributed to the approximately 50 feet thick layer of clayey silt underlying the bed of the Portneuf River. In addition, the Portneuf River flows in a concrete lined channel through portions of the City. South of the City in the southern portion of the LPRVA, the Portneuf River is generally a losing stream, with the river surface elevation typically above the ground water level elevations[2]. The surface water elevations and ground water elevations become similar north of the City indicating connection of the ground and surface water system. However, the exchange of water between the deeper confined layer and the surface is limited by the American Falls lake bed sediments.

Conclusion

Due on the prolific nature of the LPRVA and the relatively small magnitude of drawdowns measured, it is unlikely that Pocatello's alternate point of diversion operations had any significant impact to neighboring wells prior to November 19, 1987.

The basis for the Condition proposed by the Department to limit the City's diversions of its ground water rights at alternate points of diversion appears to be largely based on a concern for potential

[2] During high flows, overbank flooding may recharge the aquifer and raise aquifer water levels to near the level of the surface flows resulting in a transient direct hydraulic connection.

interference with surrounding wells. The Department provided no evidence of actual injury, no standards by which it would judge injury, and in short, no means for the City to gauge the impact of its operations on other wells in the vicinity of the City. Nevertheless, based solely on speculation of potential injury, the Department is recommending the proposed Condition.

In my opinion, the information and analysis described herein indicates that diversion of the City's ground water rights at alternate points of diversion was not injurious to nearby wells prior to 1987 nor is this operation causing material adverse impacts at the present time.

2.4 Regional Impacts

The 706 Report alludes to the potential impacts to surface water rights that may occur if the proposed Condition limiting the City's diversion of its ground water rights at alternate points of diversion is not imposed as recommended by the Department. SWE reviewed information to determine whether injury to surface water users occurred prior to November 19, 1987 as a result of the City's pumping at its alternate points of diversion.

We are not aware of specific claims of injury by surface water rights in the Portneuf River basin nor downstream on the Snake River against the City's wells prior to 1987. Even if a delivery call was made by senior surface water users (as it was in 2005), the issue relevant to the proposed Condition would be whether (a) depletions to surface flows resulting from the City's ground water use were materially different with pumping at the alternate points of diversions compared to depletions for the same amounts withdrawn from the City's senior priority wells at their original points of diversion, and (b) whether any material differences in depletions caused injury to downstream surface water rights.

When the City diverts at alternate points of diversion, some pumping occurs at wells closer to the Snake River and some pumping occurs at wells further from the Snake River. Pumping closer to the Snake River could theoretically accelerate the timing of depletions, while pumping further from the river could have an opposite effect by slowing the timing of the depletions. Regardless of the well location the ultimate total depletion to the Snake River will be the same. The potential for a change in the timing of the depletions was evaluated by determining if there is any significant difference in the centroid[3] of the City's pumping under the following two conditions:

1. Historical Pumping Condition - The first condition is the pumping distribution that existed in 1987 as represented by the average pumping distribution for the period 1983 - 1987. The production records for the wells are provided in Appendix A.

2. Priority Pumping Condition - The second condition reflects pumping from the City's wells at their original points of diversion in order of priority from senior to junior up to the monthly demands existing in 1987.

The centroid of pumping for the two conditions was determined by GIS analysis. The results are shown in Figure 4. The pumping centroids are within approximately 1.3 miles of each other. This difference is relatively insignificant in comparison to the distance from the centroid to points of substantial hydraulic connection to the surface system which are likely near American Falls Reservoir (10+ miles). Furthermore, the City's pumping developed over many decades and has been relatively stable over recent years. Depletions from the City's pumping are likely at near steady state and therefore any differences in the timing of depletions between the two conditions would be minimal.

Conclusion

In my opinion there is no material difference in the depletions to surface water from when the City is pumping its senior priorities first or when the City is pumping using its alternate points of diversion. Priority administration of the City's wells should be based on the City being able to divert water from its interconnected wells in order of priority from senior to junior regardless of which of these wells it operates.

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[3] Geographic center of the City's pumping weighted by the average annual withdrawals from each well.

3.0 ALTERNATE POINTS OF DIVERSION FOR SURFACE WATER RIGHTS

Pocatello claimed its City Wells as alternate points of diversion for the City's surface water rights on Mink Creek and Gibson Jack Creek under the Accomplished Transfer Statute. The claim, if approved, would allow the City to continue its practice of pumping ground water under the City's senior surface water right priorities. The Department has recommended that this claim be denied. The claim is summarized on Table 2.

3.1 The Department's Basis for Refusal

The Departments's basis for recommending denial of the City's claim for alternate points of diversion of its surface water rights at its City Wells refusal is provided on pages 11 and 12 of the 706 Report. The reports states as follows:

> The basis of the Department's refusal to recommend the wells as alternate points of diversion for rights is twofold: first, the change, if any, on how the water was diverted occurred after 1987 and second, there is no factual basis for recognizing the wells as alternate points of diversion for these surface water sources." (p. 11).

The 706 Report identifies IDWR's October 30, 2002 Transfer Processing Memo No. 24 ("Transfer Guidelines") as providing guidance for evaluating a well claimed as alternate points of diversion for a surface water right. The memo provides that for a change in source from surface water to ground water, *"... factual evidence is needed that illustrates there is an immediate and direct connection between the surface source and the well."* The memo states further that the connection must show *"...at least 50 percent depletion in the original source from depletion at a proposed point of diversion in one day ..."* Finally, the memo states the following:

> The existing point of diversion and proposed point of diversion must be proximate such that diversion and use of water from the proposed point of diversion would have substantially the same effect on the hydraulically connected source as diversion and use of water from the original point of diversion. (p. 12).

SWE has been advised by Pocatello's legal counsel that the Transfer Guidelines are not legally binding principles for limiting SRBA claims for alternate points of diversion. As a result, the factual basis for the City's claim was evaluated by other means. (See Pocatello's Brief in Support of Motion for Summary Judgement on IDWR's Authority Under I.C. § 42-1425)

3.2 Surface Water Rights

The City owns three surface water rights on Mink Creek and one surface water right on Gibson Jack Creek. The Mink Creek water rights are based on a decree entered in the Bannock County District court on June 5, 1926 in Sam B. Smith, Administrator, et.al. v. City of Pocatello, et.al. (Appendix B). This case granted the City the following water rights:

Mink Creek Water Rights
City of Pocatello

Priority	Amount (cfs)
February 26, 1869	3.222
October 1, 1901	0.560
October 1, 1917	1.218
Total	5.000

These water rights are claimed as 29-271, 29-272, and 29-273. The decreed point of diversion is in the NE¼ of the SE¼ of Section 13, Township 8 South, Range 34 East, located at the confluence of the West and South Forks of Mink Creek.

The City claims a single water right on Gibson Jack Creek for 7.00 cfs with a priority date of June 16, 1898. The decreed point of diversion is on Gibson Jack Creek in the SE¼ of the SW¼ of Section 24, Township 7 South, Range 34 East. This point is immediately downstream from the confluence of the mainstem and the South Fork of Gibson Jack Creek.

3.3 Historical Use

The City's diversions from Mink Creek and Gibson Jack Creek were the primary sources of water for the City following its acquisition of the Pocatello Water Company in 1916. Water was conveyed via pipeline to operational storage facilities located on the bench west of the City and then distributed for municipal water uses. The early municipal use of water that developed in the City and was supplied from surface water sources continues to this day. Until recently, the City diverted from Mink Creek and Gibson Jack Creek relatively uniformly year-around. As a result of increasing water treatment regulations, the City began reducing its surface water diversion during the late-1980's. After diversions for culinary uses ceased, surface water continued to be diverted for municipal irrigation uses. The City currently leases a small part of its surface water supply for open space irrigation in the Wildhorse Ridge Subdivision.

Records kept by the City of Pocatello show combined surface water diversions for Mink Creek and Gibson Jack Creek. Figure 5 illustrates the annual water use of surface water and ground water (excluding the airport supply) and for the period 1964 to 1987. These reports show that the maximum surface water use occurred in 1982, and surface water diversions began declining in 1985. From 1982 through 1984 surface water comprised of approximately 25 percent of the City's municipal water supply. By 1987, surface water use had declined to approximately 10 percent of the City's water use. The records also show that there were three months in 1985 (April - June), and three months in 1986 (March - May) during which no surface water was diverted, and Pocatello's entire demand was satisfied from LPRVA ground water diverted from its interconnected City Wells. Copies of these records are included in Appendix C.

The City's water use records indicate the City used its wells as alternate points of diversion for its surface water rights prior to November 19, 1987. The City's overall increasing water use through the late-1980's and the concurrent decline in surface water use indicates that the City was diverting through wells what it previously diverted from surface water sources. The surface water rights were fully diverted at the City's wells during April - June 1985 and during March - May 1986. By meeting its demand through the interconnected wells in lieu of diverting surface water, Pocatello diverted its surface water rights through its interconnected well system as alternate points of diversion prior to November 19, 1987. The wells serving as alternate points of diversion for the surface water rights prior to November 19, 1987 are listed in Table 2.

The Department cites a letter from the Idaho Department of Environmental Quality in 1998 as evidence that Pocatello was still using its surface water for culinary purposes, and therefore concludes that an accomplished transfer is not appropriate because the change in practice did not occur prior to November 19, 1987. The Department's reasoning is misapplied because the City's claim is for <u>alternate</u> points of diversion, not <u>changes</u> in points of diversion. The City's water use records support the alternate point of diversion claim because they show that prior to November 19, 1987 the City's surface water rights were, at times, being partially or fully diverted at alternate points of diversion at the City Wells.

3.4 Hydraulic Connection between Surface Water Sources and the LPRVA

SWE reviewed published reports, pumping test results and other information regarding the hydrogeology of the area to determine whether there is a hydraulic connection between the City's surface water supply sources (Mink Creek and Gibson Jack Creek) and the LPRVA which is the source for the City Wells that are claimed as alternate points of diversion for the City's surface water rights. The information reviewed indicates that the primary sources of recharge to the LPRVA are runoff and ground water underflow from the Bannock Range southwest of the City, particularly from the Mink Creek and Gibson Jack Creek basins, as well as from the upper Portneuf watershed as underflow through the Portneuf Gap (Welhan, et. al., 1996).

In addition, information reviewed indicates that the LPRVA is in hydraulic connection with the surface water system at two locations: (1) generally along the Bannock Range, where tributaries to the Portneuf River, including Mink Creek and Gibson Jack Creek, emerge from the foothills and comprise a source of recharge to the LPRVA, and, (2) north of the City. Based on that information, it is my opinion that the City's surface water diversions and ground water diversions are from the same water source.

3.5 Effect on Other Water Rights

SWE analyzed the potential impact of diverting the City's surface water rights from its interconnected municipal wells on water rights on Mink Creek, Gibson Jack Creek, the Portneuf River, and the Snake River. Summaries of these analyses follow.

<u>Effect on Mink Creek and Gibson Jack Creek Water Rights</u>

Historical surface diversions of the City's surface water rights have been fully consumptive against other water rights on Mink Creek and Gibson Jack Creek. There were no return flows from the City's use of the subject water rights that accrued locally and were relied upon by other users on the two creeks. Instead, diversions under the subject water rights were delivered to the City, and return flows accrued directly to the Portneuf River. Therefore, diversions of Pocatello's surface water rights through the City Wells have not injured other water rights on the two creeks.

<u>Portneuf River and Snake River Water Rights</u>

The City's use of the surface water rights diverted at the City's interconnected municipal wells will be generally the same as it was historically, except that water will be diverted from the interconnected City Wells rather than from the diversion structures on Mink and Gibson Jack Creeks. SWE analyzed whether diverting the surface water rights through the interconnected City Wells have caused in change any stream depletions to the detriment of existing surface water rights on the Portneuf River and the Snake River.

Net stream depletions are computed as the streamflow depletions from diversions less streamflow accruals from return flows (i.e., water not consumed). There is no change in return flows that results from diverting surface water from the wells, because the City has and will continue to use the water the same as it did in the past, except for diverting the water at the wells. If the return flows are the same, then any changes in stream depletions would have to result from changes in the diversion depletions.

Review of the records in Table 5 indicates the City's historical diversions from Mink Creek and Gibson Jack Creek were relatively steady from month-to-month. The City's diversion of its surface water rights through the interconnected alternate points of diversion follow the same pattern of use, since the wells are pumping in lieu of the surface water diversions. The City's pumping has developed over a period of many decades, and therefore the cumulative effect of pumping is at near steady state. In addition, the large distance to the points of hydraulic connection to the surface water attenuates the resulting depletions. As a result, there is likely no significant change in timing of depletions whether the surface water rights are diverted at the original points of surface diversion or at the alternate ground water points of diversion. Finally, it is noted that the City's surface water rights are generally senior to most of the downstream senior surface water rights that might potentially place a call.

When the surface water rights are being diverted from the interconnected wells, there is a change in the location of the stream depletion. Prior to the use of alternate points of diversion, diversions from Mink Creek and Gibson Jack Creek depleted the surface water system at the points of diversion. The location of the depletions caused by diversions from the City's wells occurs downstream from the original point of diversion. If anything, this would improve, not hinder, the water supply to local surface water users on the Portneuf River.

Local Impacts

Potential impacts to local well users from the City's pumping are addressed in Section 2. It is unlikely that Pocatello's municipal wells had any significant impact to neighboring wells prior to November 19, 1987 as a result of diverting its surface water rights at alternate points of diversions for the same reasons as described in Section 2.0.

Conclusion

In my opinion, the City's water use records indicate that the City used its wells as alternate points of diversion for its surface water rights prior to November 19, 1987. Since the surface water sources are hydraulically connected to the LPRVA, and diversion of the City's surface water rights at the City Wells does not adversely affect other water users, the City's claim for alternate points of diversion for its surface water rights should be approved.

4.0 MISCELLANEOUS OBJECTIONS

Pocatello objected to the following miscellaneous recommendations made by the Department as summarized on Table 4:

- The City and Airport interconnected wells ("Correct Interconnected Objection")
- Water rights 29-2274, 29-2338, 29-7375 ("Accomplished Transfer" Objection:)
- Water right 19-7782 ("Correct Interconnection" objection)

Pocatello's position on these objections is described below.

4.1 Interconnected City Wells

The Department recommended 22 interconnected wells as alternate points of diversion, rather than the 23 interconnected City Wells claimed by Pocatello. The Department's recommended list of interconnected wells omits Well 44. Well 44 was constructed in the LPRVA in 1999, and was formally added as a point of diversion to Water Rights Nos. 29-2274, 29-2338, and 29-7375 (priorities 6/15/1948, 9/1/1952, and 2/24/1977 respectively) in Transfer 5452 approved by the Department on June 28, 1999. These three water rights were among the 22 water rights for the City's interconnected culinary system; for each of these 22 water rights Pocatello claimed 23 alternate points of diversion under the Accomplished Transfer Statute. Because Well 44 is an approved point of diversion for three of the water rights claimed for the City's interconnected culinary system, and because other wells listed with these three rights (e.g. Wells 13 and 15) are recommended as APODs for the interconnected City wells, Well 44 should by extension also be included in the list of alternate points of diversion for the interconnected City culinary system (see Table 2).

4.2 Water Right Nos. 29-2274, 29-2338, and 29-7375

Water diverted by these three water rights comes from the City's interconnected culinary system. The Department's recommendation for Water Right Nos. 29-2274, 29-2338 and 29-7375 should be modified to include all 23 alternate points of diversion claimed for the City's interconnected culinary system (see Table 2).

4.3 Water Right No. 29-7782

Well 34 is the original point of diversion for Water Right No. 29-7782. This well was connected to the interconnected City Wells in November 19, 1987. The Department's recommendation for Water No. 29-7782 is limited to the single original point of diversion. This water right should be approved with 23 alternate points of diversion as part of the interconnected City Wells (see Table 2).

5.0 DOCUMENTS RELIED ON

1. CH2M-Hill, 1994, Hydrogeology and Assessment of TCE Contamination in the Southern Portion of the Pocatello Aquifer - Phase I Aquifer Management Plan.

2. City of Pocatello historic water level data for each of the City of Pocatello's wells (beginning of period of record to March 2006) (spreadsheets prepared by the City of Pocatello Water Department) and Well Driller's Reports.

3. City of Pocatello, Existing System Hydraulic Schematic.

4. Idaho Department of Water Resources, April 13, 2006, Supplemental Director's Rep. Regarding City of Pocatello's Basin 29 State-Based Water Rights.

5. Memorandum from Tom Dekker, City of Pocatello Water Department, to Ivan Legler, City Attorney, City of Pocatello (March 31, 1989) (Surface Supply from Mink Creek and Gibson Jack Creek).

6. Report, City of Pocatello, Yearly Water Consumption from 1956 to Present (April 12, 1989).

7. State of Idaho Department of Water Resources, Transfer of Water Right, Transfer No. 5452, Water Right Nos. 29-02274, 29-02338, and 29-07375.

8. Telephone Interview with John A. Welhan, Idaho Geological Survey (Sept. 25, 2006).

9. Water Department, City of Pocatello, Monthly Report (January to December, 1962-1993).

10. Welhan, John, 2006, Idaho Geologic Survey Staff Rep. 05-6, Water Balance and Pumping Capacity of the Lower Portneuf River Valley Aquifer, Bannock County, Idaho.

11. Welhan, J.A., Meehan, C. and Reid, T., 1996, The Lower Portneuf River Valley Aquifer: A Geologic/ Hydrologic Model and Its Implications For Wellhead Protection Strategies.

12. Welhan, J.A., and Meehan, C., 1994, *Hydrogeology of the Pocatello Aquifer: Implications for Wellhead Protection Strategies*, 30th Symposium, Engineering Geology and Geotechnical Engineering, Boise, ID).

13. <www. idwr.gov/gis_data.htm.>. Idaho Department of Water Resources GIS shapefiles (showing Pocatello well locations, ESPA aquifer boundary, and rivers and streams).

14. <www.idwr.gov/gis_data.htm>. United States Geological Survey Quadrangles (Michaud, Michaud Creek, Pocatello North, Pocatello South, Moonlight Mountain, Inkom).

15. <www.idwr.idaho.gov/apps/ExtSearch/SearchWRAJ.asp> (Table, City of Pocatello Claims, Idaho Department of Water Resources).

Figures

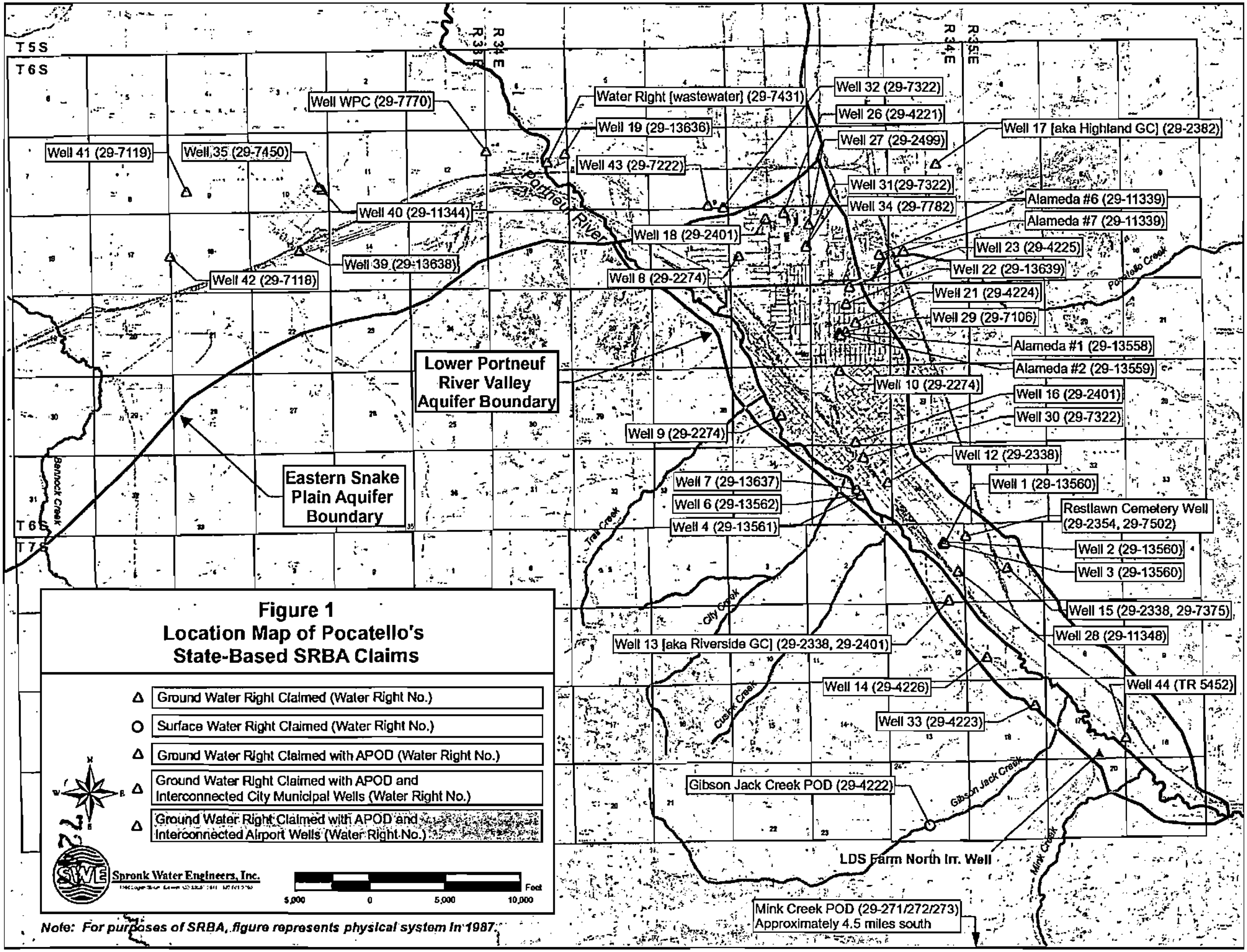
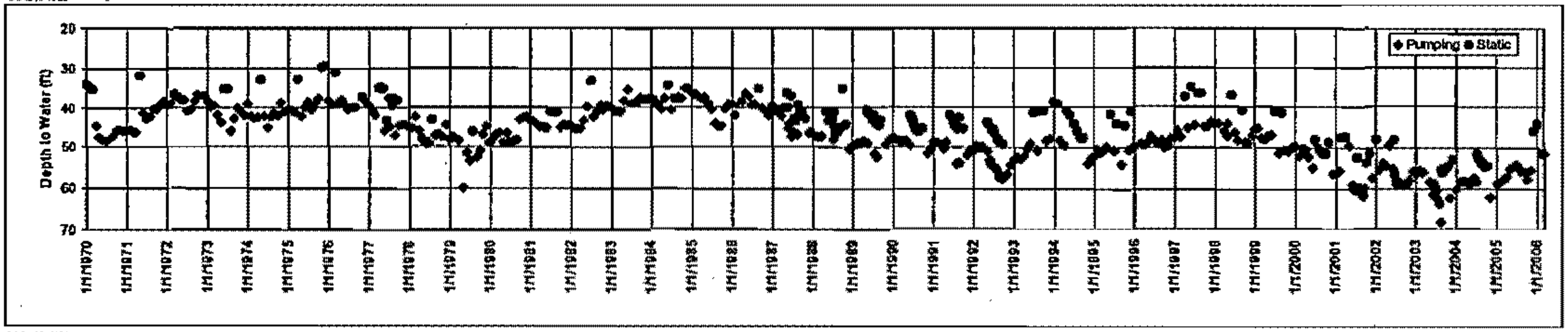


Figure 1
Location Map of Pocatello's State-Based SRBA Claims

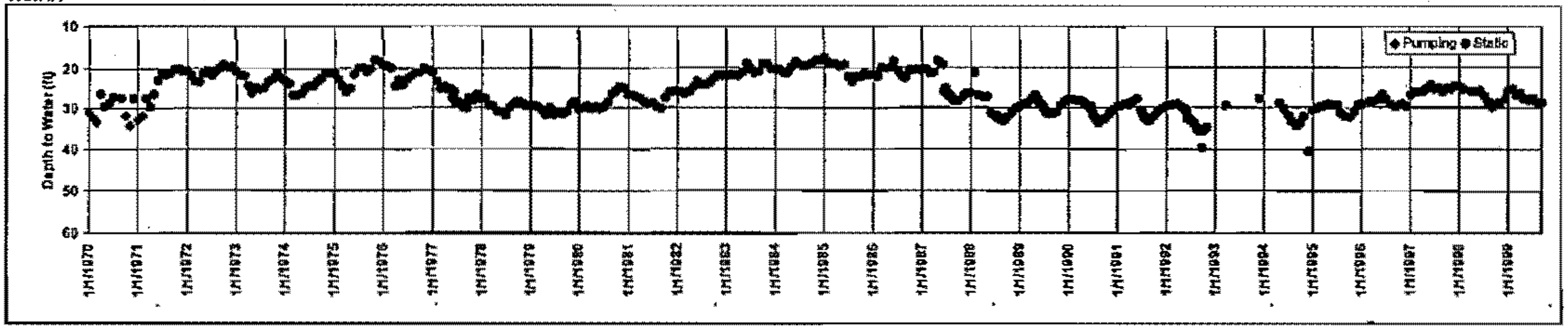
Note: For purposes of SRBA, figure represents physical system in 1987.

Figure 2
Measured Ground Water Levels for Interconnected Wells
City of Pocatello
(feet)

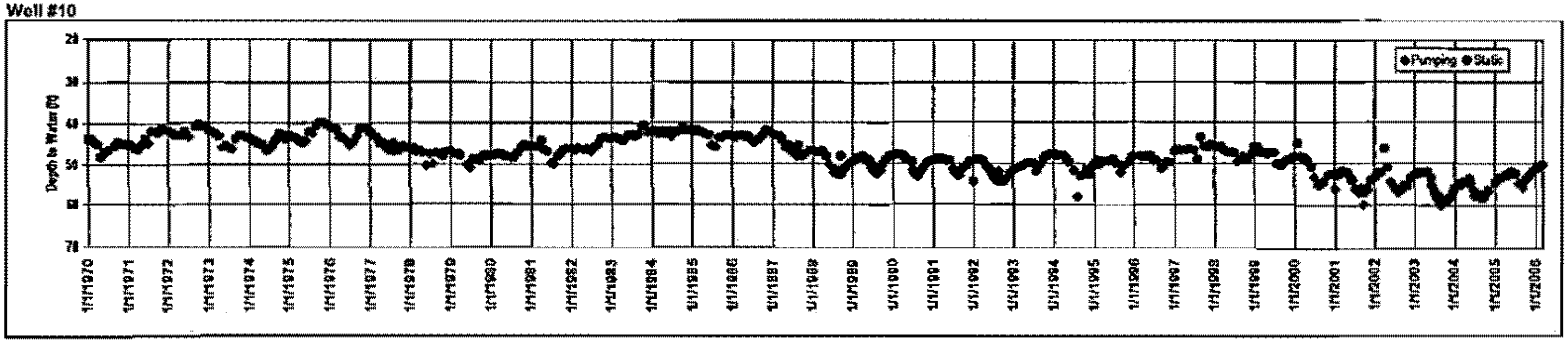
Well #2



Well #7



Well #10



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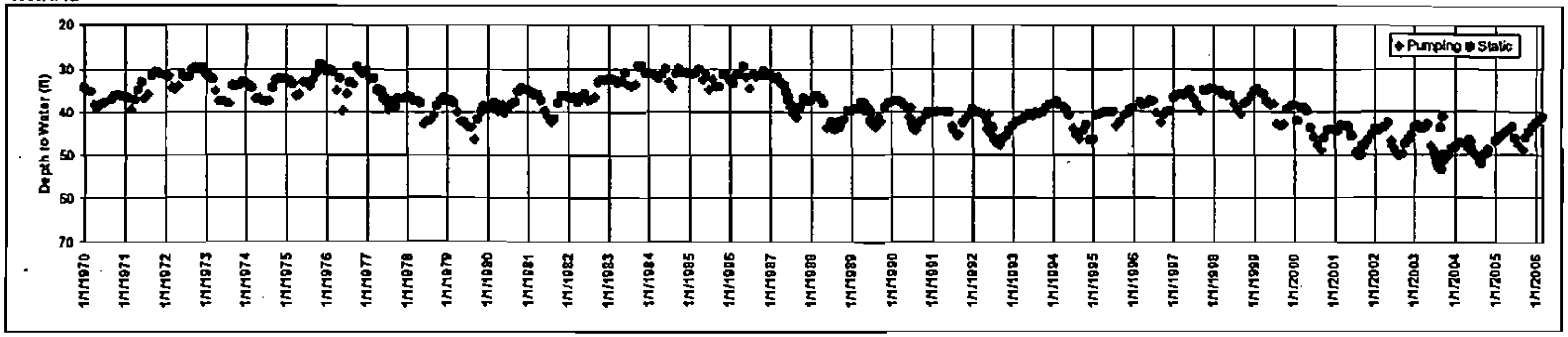
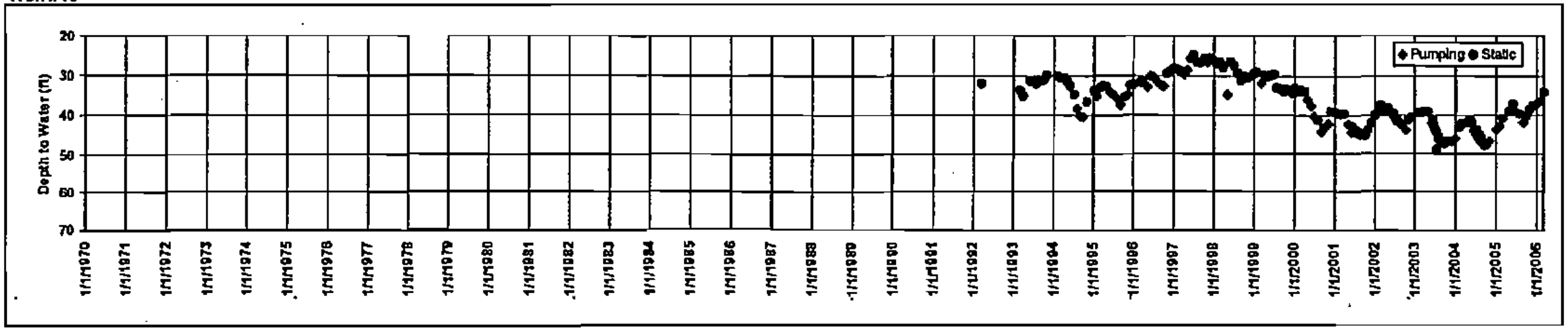
Spronk Water Engineers, Inc.

Figure 2
Measured Ground Water Levels for Interconnected Wells
City of Pocatello
(feet)

Well #12



Well #13



Well #14

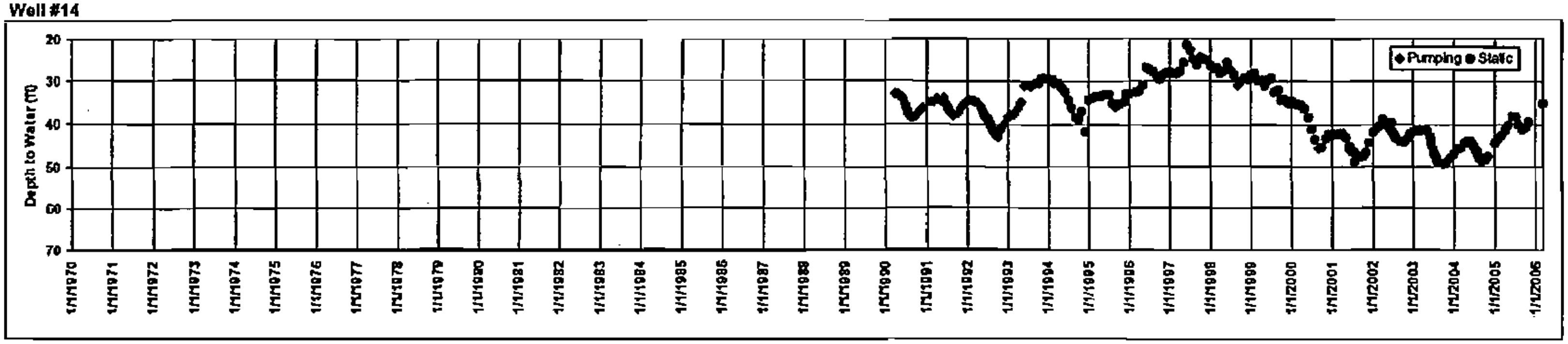


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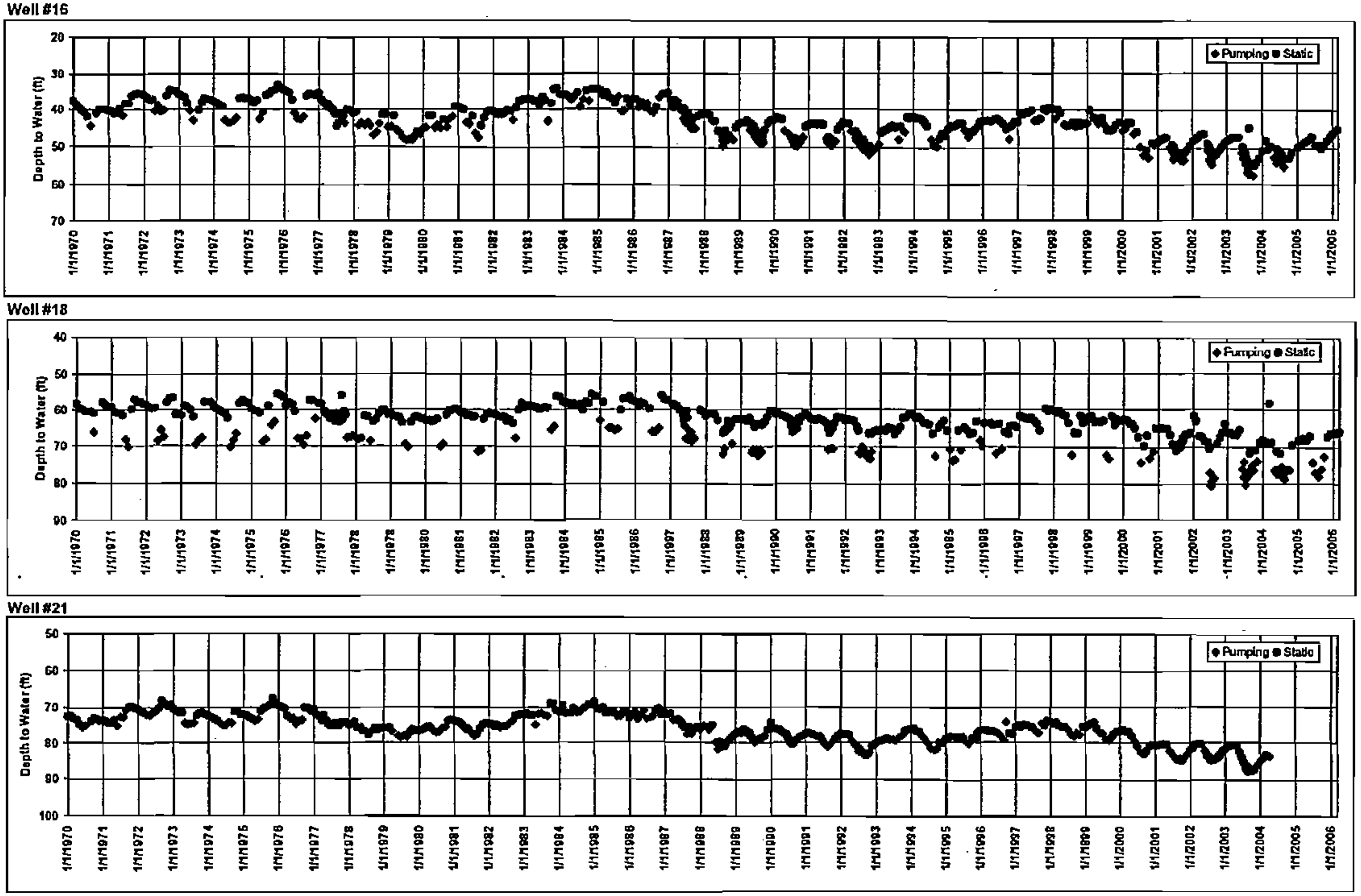
Figure 2
Measured Ground Water Levels for Interconnected Wells
City of Pocatello
(feet)



Sprunk Water Engineers, Inc.

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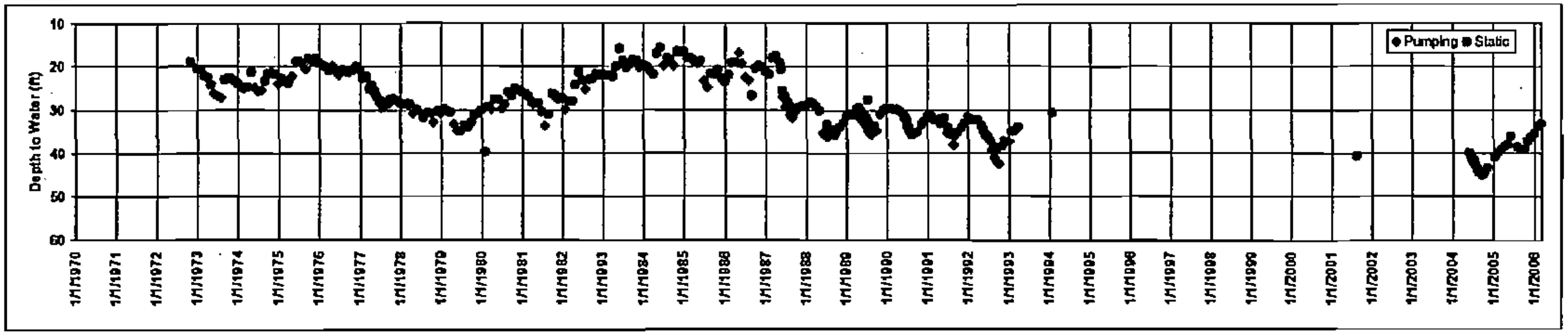
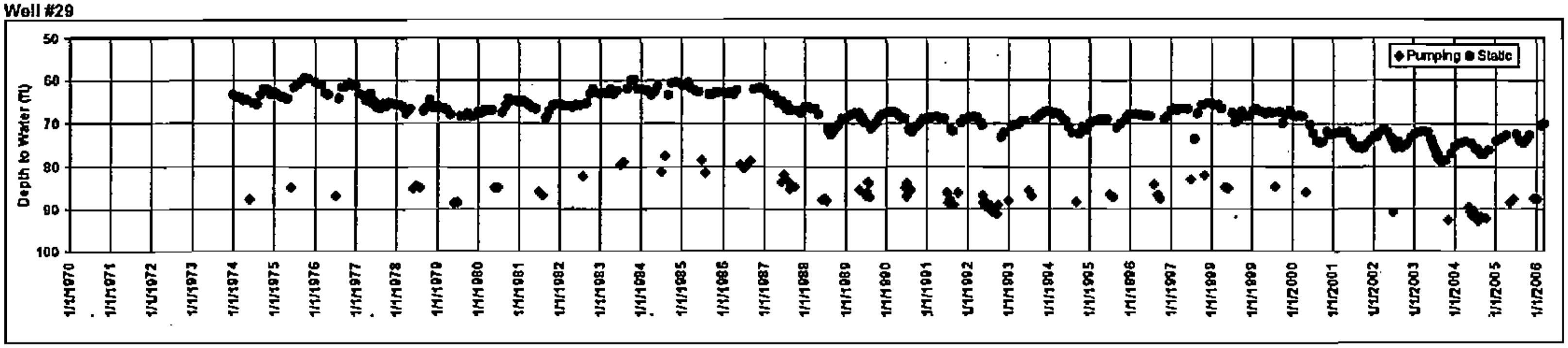
Figure 2
Measured Ground Water Levels for Interconnected Wells
City of Pocatello
(feet)

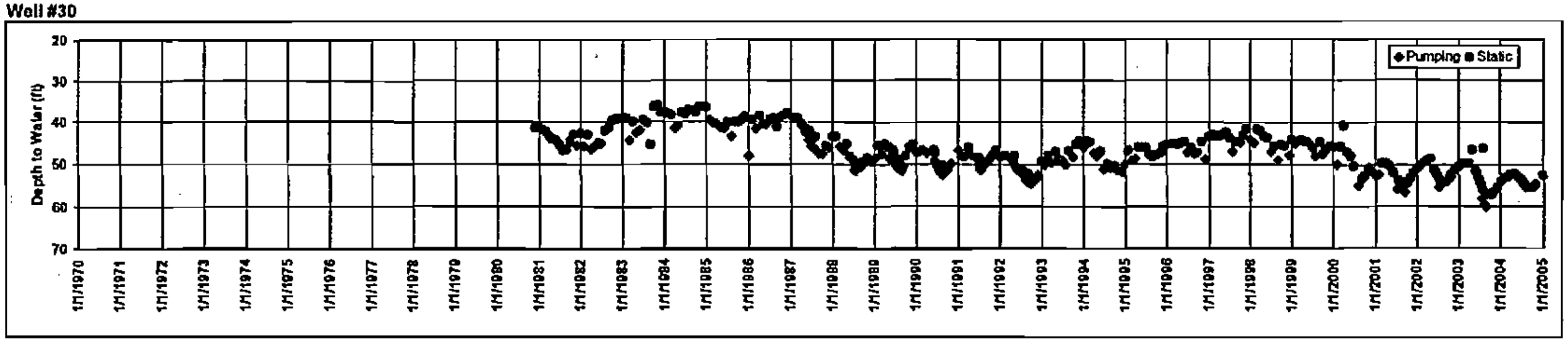
Well #28



Well #29



Well #30



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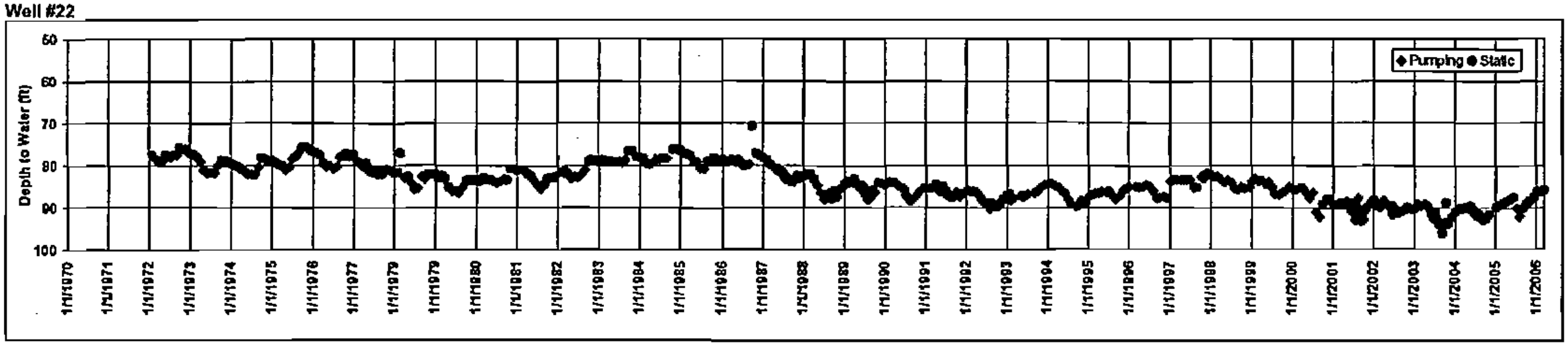
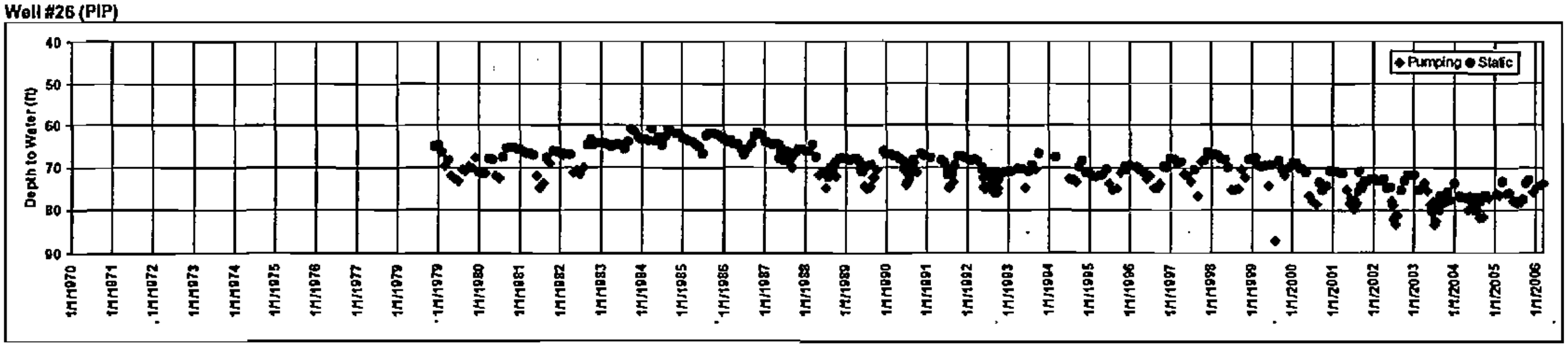
7251

Figure 2
Measured Ground Water Levels for Interconnected Wells
City of Pocatello
(feet)

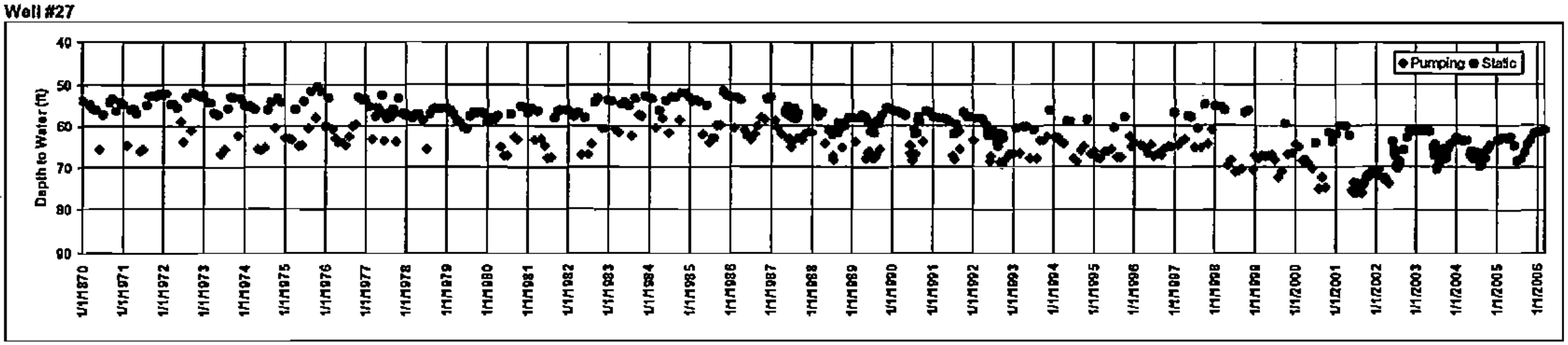
Well #22



Well #26 (PIP)



Well #27



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Spronk Water Engineers, Inc.

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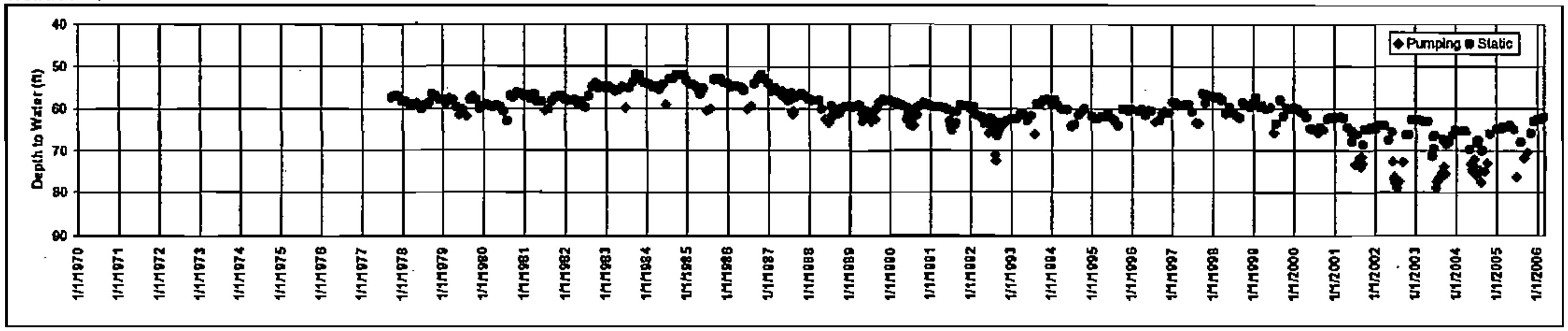
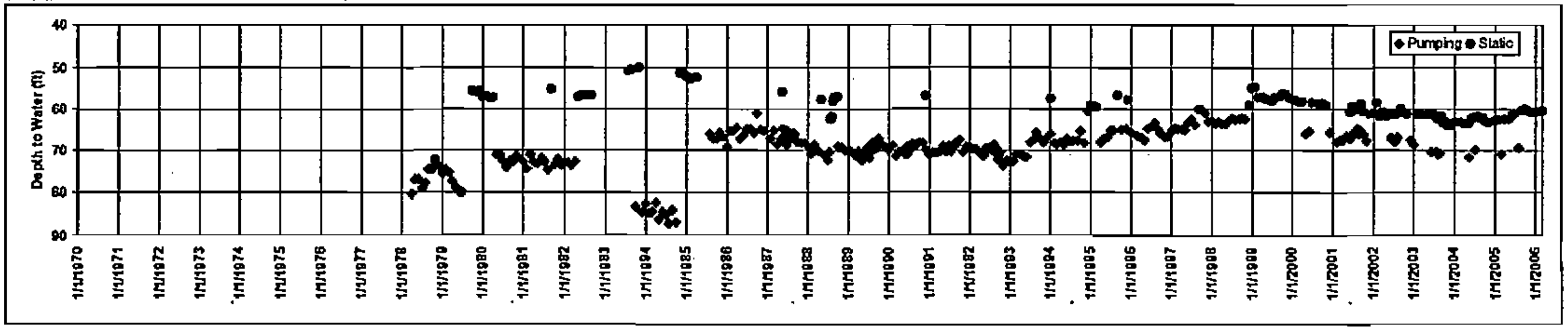
Figure 2
Measured Ground Water Levels for Interconnected Wells
City of Pocatello
(feet)

Well #31



Well #32



Well #33

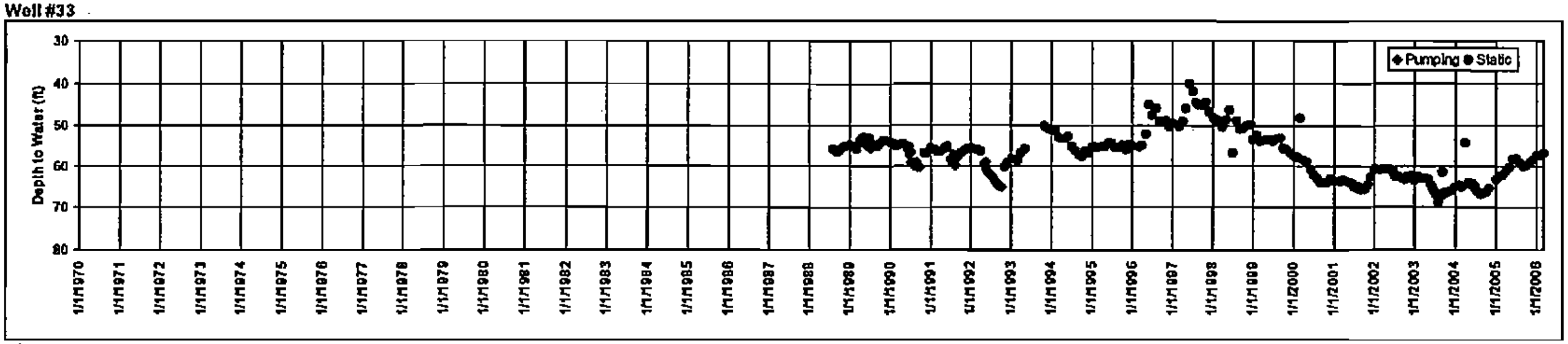
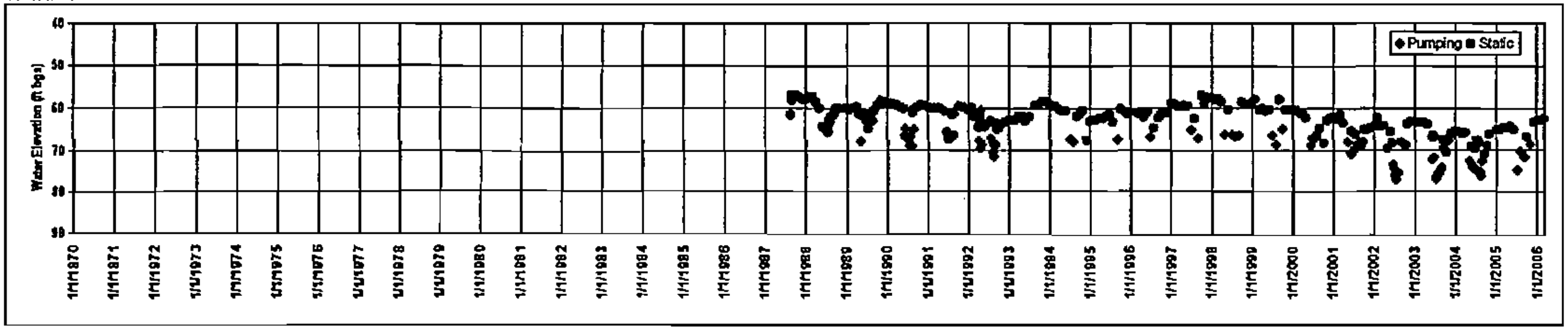
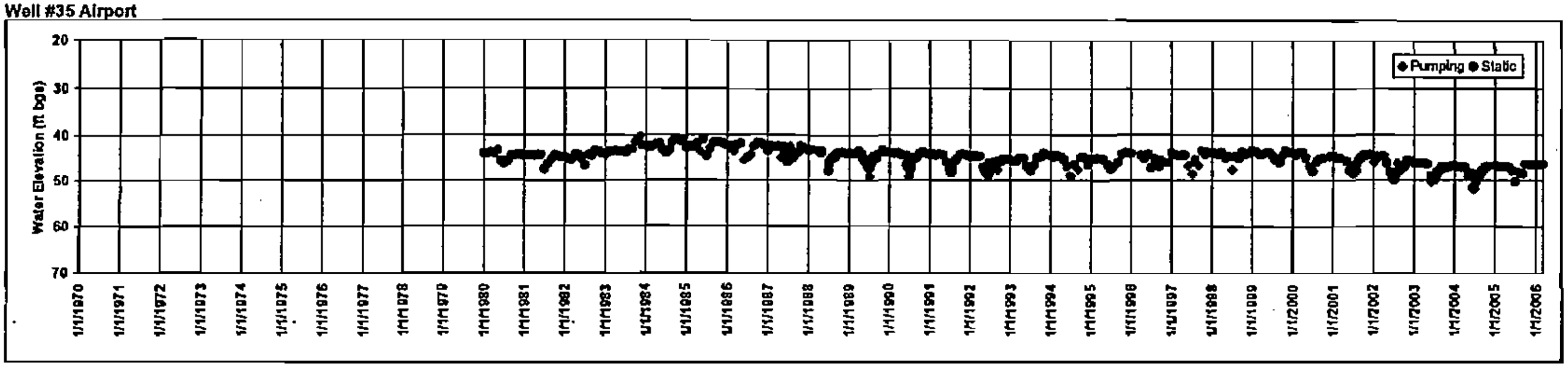


Figure 2
Measured Ground Water Levels for Interconnected Wells
City of Pocatello
(feet)

Well #34



Well #35 Airport



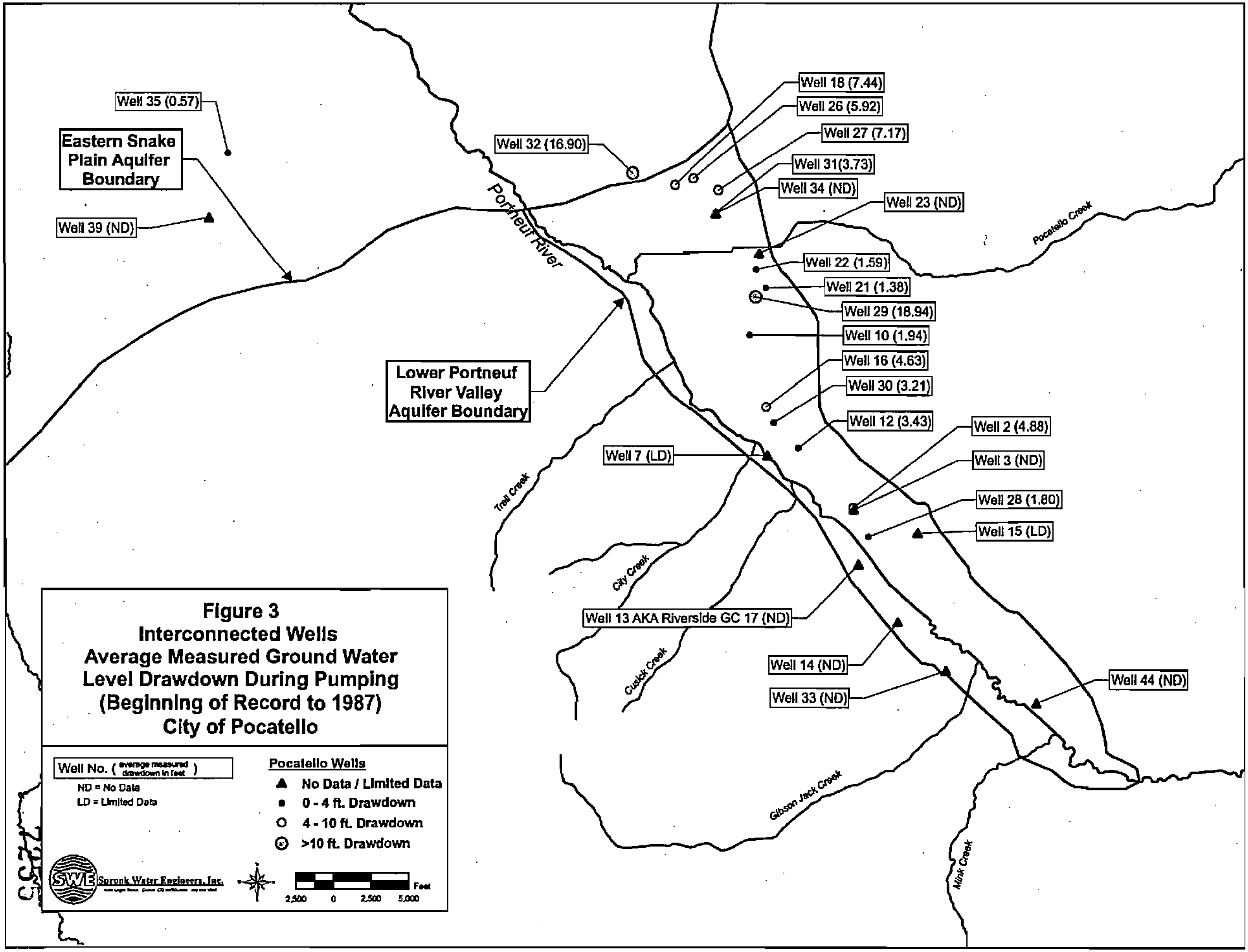


Figure 3
Interconnected Wells
Average Measured Ground Water Level Drawdown During Pumping
(Beginning of Record to 1987)
City of Pocatello

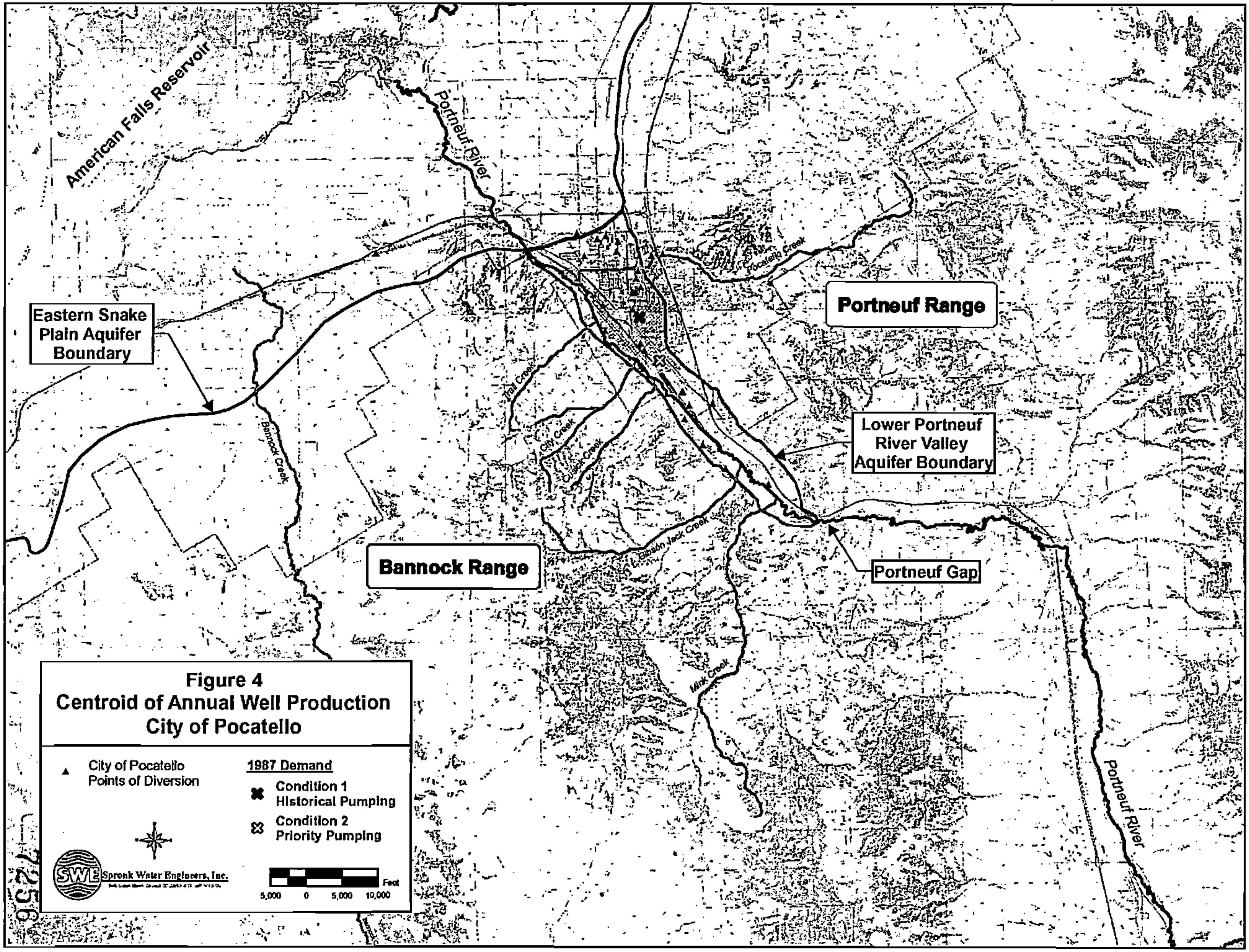
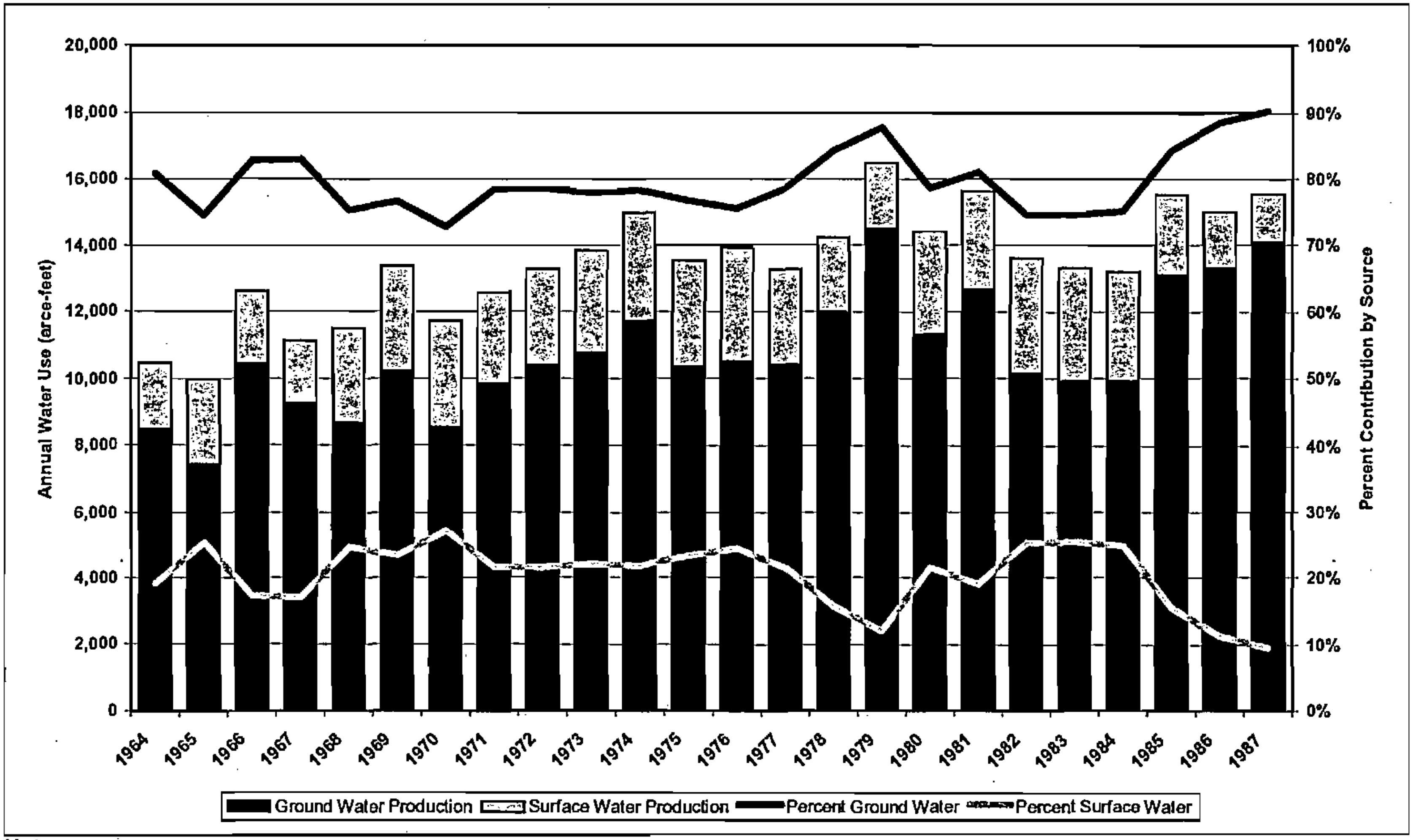


Figure 4
Centroid of Annual Well Production
City of Pocatello

Figure 5
Summary of Annual Water Use (1964 - 1987)
City of Pocatello



Note:
Excluding Airport Wells

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Tables

7258

Table 1
City of Pocatello
Summary of State-law SRBA Claims (1)

SRBA Claim No.	Claimed by Pocatello		Recommended by IDWR (2)		Historical Well No. or Source	AKA/Name	Location				
	Priority Date	Diversion Rate (cfs)	Priority Date	Diversion Rate (cfs)			T	R	Sec	40	160
29-271	2/26/1869	3.22			Mink Creek		8	34	13	NE	SE
29-272	10/1/1901	0.56			Mink Creek		8	34	13	NE	SE
29-273	10/1/1917	1.218			Mink Creek		8	34	13	NE	SE
29-2274	6/15/1948	9.69			8		6	34	15	NW	SW
					9		6	34	27	NW	SE
					10		6	34	26	NE	NW
29-2338	9/1/1953	9.53			12		6	34	35	SE	NE
					13	17	7	34	1	SE	SE
					15		7	35	6	NW	SE
29-2354	8/27/1954	0.28			Restlawn Cemetery		7	35	6	NW	NW
29-2382	12/21/1956	3.82			17	Highland GC	6	34	12	NW	SE
29-2401	10/16/1958	13.02			13	17	7	34	12	NW	NE
					16		6	34	26	SW	SE
					18		6	34	15	NE	NW
29-2499	10/10/1964	4.1			27		6	34	14	NW	NW
29-4221	6/1/1945	2.67			26	PIP	6	34	15	NW	NE
29-4222	6/16/1898	7		5	Gibson Jack Creek		7	34	24	SE	SW
29-4223	10/1/1962	2.67		0.21	33	Call	7	35	18	SE	NE
29-4224	9/15/1955	3.89			21	Alameda 4	6	34	23	SW	NE
29-4225	8/15/1956	4.44			23	Alameda 5	6	34	23	NW	NE
29-4226	10/1/1955	1.22	12/31/1955	0.22	14	Cree	7	35	7	NE	SW
29-7106	11/6/1972	3.9			29		6	34	23	NE	SW
29-7118	4/11/1973	4.01			42	Airport 1	6	33	16	NW	SW
29-7119	4/11/1973	6			41	Airport 2	6	33	9	NW	SW
29-7222	8/22/1974	1			43	Ward Park	6	34	9	SW	SE
29-7322	4/25/1976	17.07		17.06	30		6	34	35	NW	NE
					31		6	34	15	NE	SE
					32		6	34	16	NE	NE
29-7375	2/24/1977	2.23			15		7	35	6	NW	SE
29-7431	12/29/1977	9.28			Wastewater		6	34	7	SW	NE
29-7450	6/13/1978	3.34			35	Phillips 3	6	33	10	NE	SE
29-7502	7/6/1979	0.1			Restlawn Cemetery		7	35	6	NW	NW
29-7770	5/21/1984	4.46			WPC		6	33	12	SE	NE
29-7782	1/18/1985	7			34		6	34	15	NE	SE
29-11339	1961	3.36			Alameda 6		6	34	14	NE	SE
					Alameda 7		6	34	13	NW	SW
29-11344	12/31/1942	1.92			40	Phillips 4	6	33	10	NE	SE
29-11348	Aug-51	4.9			28	20/Turner	7	34	1	NE	SE
29-13558	1905	1.34	7/16/1924		Alameda 1		6	34	23	NE	SW
29-13559	1925	0.96			Alameda 2		6	34	23	NE	SW
29-13560	12/31/1926	9.13			1		7	34	1	NE	CENTER
					2		7	34	1	NE	CENTER
					3		7	34	1	NE	CENTER
29-13561	8/31/1931	4.23			4		6	34	35	NW	SE
29-13562	1936	2.45			6		6	34	35	NW	SE
29-13636	10/16/1958	0.8			19		6	34	7	SE	NE
29-13637	12/31/1940	4.46			7		6	34	35	NW	SE
29-13638	12/31/1940	2.2			39	Phillips 1	6	33	15	SW	NE
29-13639	12/31/1940	3.68	10/22/1952		22	Alameda 3	6	34	23	SE	NW
Transfer 5452					44		7	35	16	SW	SW

Notes:

(1) Table 1 does not show whether the SRBA claim listed more than one pont of diversion. Table 2 identifies which of the City's 38 State-law SRBA claims listed more than one point of diversion. Where more than one point of diversion is listed on a claim, each point of diversion is an alternate point of diversion.

(2) Only noted when different than claimed.

Table 2
City of Pocatello
38 State-law SRBA Claims and Sublisting of Claims with Alternate Points of Diversion

Thirty-eight State-law SRBA Claims					Ground Water Claims with Alternate Points of Diversion				Surface Water Claims with Alternate Points of Diversion	
SRBA Claim No.	Priority Date	Diversion Rate Claimed (cfs)	Historical Well No./Source	AKA/Name	City		Pocatello Airport			
					WR No.	APOD	WR No.	APOD	WR No.	APOD
29-271	2/26/1869	3.22	Mink Creek						29-271	
29-272	10/1/1901	0.56	Mink Creek						29-272	
29-273	10/1/1917	1.218	Mink Creek						29-273	
29-2274	6/15/1948	9.69	8		29-2274					
			9							
			10			10				10
29-2338	9/1/1953	9.53	12		29-2338	12				12
			13	17		13				13
			15			15				15
29-2354	8/27/1954	0.28	Restlawn Cemetery							Restlawn Cemetary
29-2382	12/21/1956	3.82	17	Highland GC						17
29-2401	10/16/1958	13.02	13	17	29-2401	13				13
			16			16				16
			18			18				18
29-2499	10/10/1964	4.1	27		29-2499	27				27
29-4221	6/1/1945	2.67	26	PIP	29-4221	26				26
29-4222	6/16/1898	7	Gibson Jack Creek						29-4222	
29-4223	10/1/1962	2.67	33	Call	29-4223	33				33
29-4224	9/15/1955	3.89	21	Alameda 4	29-4224	21				21
29-4225	8/15/1956	4.44	23	Alameda 5	29-4225	23				23
29-4226	10/1/1955	1.22	14	Cree	29-4226	14				14
29-7106	11/6/1972	3.9	29		29-7106	29				29
29-7118	4/11/1973	4.01	42	Airport 1						
29-7119	4/11/1973	6	41	Airport 2						
29-7222	8/22/1974	1	43	Ward Park						
29-7322	4/25/1976	17.06	30		29-7322	30				30
			31			31				31
			32			32				32
29-7375	2/24/1977	2.23	15		29-7375	15				15
29-7431	12/29/1977	9.28	Wastewater							
29-7450	6/13/1978	3.34	35	Phillips 3			29-7450	35		
29-7502	7/6/1979	0.1	Restlawn Cemetery							
29-7770	5/21/1984	4.46	WPC							
29-7782	1/18/1985	7	34		29-7782	34				34
29-11339	1961	3.36	Alameda 6		29-11339					
			Alameda 7							
29-11344	12/31/1942	1.92	40	Phillips 4						
29-11348	Aug-51	4.9	28	20/Turner	29-11348	28				28
29-13558	1905	1.34	Alameda 1		29-13558					
29-13559	1925	0.96	Alameda 2		29-13559					
29-13560	12/31/1926	9.13	1		29-13560					
			2			2				2
			3			3				3
29-13561	8/31/1931	4.23	4		29-13561					
29-13562	1936	2.45	6		29-13562					
29-13636	10/16/1958	0.8	19							
29-13637	12/31/1940	4.46	7		29-13637	7				7
29-13638	12/31/1940	2.2	39	Phillips 1			29-13638	39		
29-13639	10/22/1952	3.68	22	Alameda 3	29-13639	22				22
					TR 5452	44				44
Total					22	23	2	2	4	25

Notes:

Yellow shading indicates difference between Pocatello's claim and IDWR recommendation. In Table 2, yellow shading identifies any alternate point of diversion claimed by Pocatello but not recommended as an alternate point of diversion by IDWR.

Table 3
City of Pocatello
38 State-law SRBA Claims and Sublisting of IDWR Recommendations for Ground Water Claims with Alternate Points of Diversion

38 State-law SRBA Claims					IDWR July 2003 Recommendations (Other Provisions Necessary)[1]				IDWR April 2006 Recommendations (Other Provisions Necessary)[1]			
SRBA Claim No.	Priority Date	Diversion Rate Claimed (cfs)	Historical Well No./Source	AKA/Name	City		Pocatello Airport		City		Pocatello Airport	
					WR No.	APODs	WR No.	APOD	WR No.	Well	WR No.	Well
29-271	2/26/1869	3.22	Mink Creek									
29-272	10/1/1901	0.56	Mink Creek									
29-273	10/1/1917	1.218	Mink Creek									
29-2274	6/15/1948	9.69	8		29-2274				29-2274	8		
			9							9		
			10			10				10		
29-2338	9/1/1953	9.53	12		29-2338	12			29-2338	12		
			13	17		13				13		
			15			15				15		
29-2354	8/27/1954	0.28	Restlawn Cemetery									
29-2382	12/21/1956	3.82	17	Highland GC								
29-2401	10/16/1958	13.02	13	17	29-2401	13			29-2401	13		
			16			16				16		
			18			18				18		
29-2499	10/10/1964	4.1	27		29-2499	27			29-2499	27		
29-4221	6/1/1945	2.67	26	PIP	29-4221	26			29-4221	26		
29-4222	6/16/1898	7	Gibson Jack Creek									
29-4223	10/1/1962	2.67	33	Call	29-4223	33			29-4223	33		
29-4224	9/15/1955	3.89	21	Alameda 4	29-4224	21			29-4224	21		
29-4225	8/15/1956	4.44	23	Alameda 5	29-4225	23			29-4225	23		
29-4226	10/1/1955	1.22	14	Cree	29-4226	14			29-4226	14		
29-7106	11/6/1972	3.9	29		29-7106	29			29-7106	29		
29-7118	4/11/1973	4.01	42	Airport 1								
29-7119	4/11/1973	6	41	Airport 2								
29-7222	8/22/1974	1	43	Ward Park								
29-7322	4/25/1976	17.06	30		29-7322	30			29-7322	30		
			31			31				31		
			32			32				32		
29-7375	2/24/1977	2.23	15		29-7375	15			29-7375	15		
29-7431	12/29/1977	9.28	Wastewater									
29-7450	6/13/1978	3.34	35	Phillips 3			29-7450	35			29-7450	35
29-7502	7/6/1979	0.1	Restlawn Cemetery									
29-7770	5/21/1984	4.46	WPC									
29-7782	1/18/1985	7	34		29-7782	34			29-7782	34		
29-11339	1961	3.36	Alameda 6		29-11339				29-11339	Alameda 6		
			Alameda 7							Alameda 7		
29-11344	12/31/1942	1.92	40	Phillips 4			29-11344	40			29-11344	40
29-11348	Aug-51	4.9	28	20/Turner	29-11348	28			29-11348	28		
29-13558	1905	1.34	Alameda 1		29-13558				29-13558	Alameda 1		
29-13559	1925	0.96	Alameda 2		29-13559				29-13559	Alameda 2		
29-13560	12/31/1926	9.13	1		29-11360				29-13560	1		
			2			2				2		
			3			3				3		
29-13561	8/31/1931	4.23	4		29-11361				29-13561	4		
29-13562	1936	2.45	6		29-11362				29-13562	6		
29-13636	10/16/1958	0.8	19									
29-13637	12/31/1940	4.46	7		29-13637	7			29-13637	7		
29-13638	12/31/1940	2.2	39	Phillips 1			29-11368	39			29-13638	39
29-13639	10/22/1952	3.68	22	Alameda 3	29-13639	22			29-13639	22		
Total					18	22	3	3	18	31	3	3

Notes:

Yellow shading indicates a difference between Pocatello's claim and IDWR recommendation. Pocatello claimed 22 water rights were served by the City's interconnected culinary system. In Table 3, the yellow shading identifies four water rights (of the 22) that IDWR did not recommend as being served by the City's interconnected culinary system.

Table 4
City of Pocatello
Summary of Objections to IDWR Recommendations

CITY OF POCATELLO OBJECTIONS FILED NOVEMBER 14, 2003

	General Provisions	**Municipal POU**	**Provisions Necessary**	**Correct Interconnection**	**Accomplished Transfer**	**Point of Diversion (Surface)**	Name and address	Source	Quantity	Priority Date	Points of Diversion	Instream Flow	Purpose of Use	Period of Year	Place of Use
29 271	X	X				X									
29 272	X	X				X									
29 273	X	X				X									
29 2274	X	X		X	X										
29 2338	X	X		X	X										
29 2354	X	X													
29 2382	X	X													
29 2401	X	X	X	X											
29 2499	X	X	X	X											
29 4221	X	X	X	X						X					
29 4222	X	X				X			X						
29 4223	X	X	X	X					X						
29 4224	X	X	X	X											
29 4225	X	X	X	X											
29 4226	X	X	X	X					X						
29 7106	X	X	X	X											
29 7118	X	X											X		X
29 7119	X	X											X		X
29 7222	X	X													
29 7322	X	X	X	X											
29 7375	X	X		X	X										
29 7431	X								X				X		X
29 7450	X	X	X								X				
29 7502	X	X													
29 7770	X	X											X		X
29 7782	X	X		X											
29 11339	X	X	X	X											
29 11344	X	X	X								X				
29 11348	X	X	X	X											
29 11609									X		X		X		X
29 12877							X	X	X	X	X	X	X	X	X
29 13558	X	X	X	X						X					
29 13559	X	X	X	X											
29 13560	X	X	X	X											
29 13561	X	X	X	X											
29 13562	X	X	X	X											
29 13636	X	X													X
29 13637	X	X	X	X											
29 13638	X	X	X								X				
29 13639	X	X	X	X						X					

Note 1: Six group objections affect multiple water rights (objections in bold).
Note 2: Sixteen objections are to individual water rights (water right numbers in bold).

7262

Table 5
City of Pocatello
Summary of Monthly Surface Water Use, 1980 - 1987
(acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1980	224	246	343	232	205	259	289	290	266	262	230	240	3,085
1981	271	259	284	226	175	233	321	266	244	239	209	239	2,964
1982	255	255	284	310	295	298	275	321	285	316	279	263	3,436
1983	284	237	280	294	316	309	305	296	281	249	240	284	3,376
1984	300	278	294	274	283	241	229	267	287	269	284	267	3,273
1985	332	352	355	0	0	0	294	204	191	196	198	305	2,426
1986	Monthly surface water combined with other well production data												1,711
1987													1,499

Note:
Records show that in March, April, and May of 1986, there was no surface water diverted (see Appendix C).

Appendix A
Pocatello Well Production Records

Appendix A
Annual Production
City of Pocatello
(acre-feet)

Year	Wells 2 & 6	Well 3	Well 7	Well 10	Well 12	Well 13	Cree Well Well 14	Well 15	Well 16	Well 18	Well 20 A & B	Well 21	Well 22	Well 23	Wells 24 & 25	PP Well 26	Well 27	Well 28	Well 29	Well 30	Well 31	Well 32	Well 33	Well 34	Well 44	URPP Intercon	West Bench Booster	Wellyard Wells 4,5,6,7,&30	Total
1962	866	877	0	1,433	45	0	0	0	144	515	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35	0	1,660	6,677
1963	1,443	525	5	811	80	0	0	0	748	290	198	185	418	1,155	83	0	0	0	0	0	0	0	0	0	0	128	0	152	6,229
1964	1,016	699	0	1,558	207	0	0	0	530	437	218	318	413	1,677	38	0	0	0	0	0	0	0	0	0	0	85	0	0	7,401
1965	899	1,087	0	916	48	0	0	0	581	315	162	250	290	1,564	227	0	16	0	0	0	0	0	0	0	0	0	0	310	6,642
1966	1,202	651	0	2,154	388	0	0	24	864	490	349	801	354	1,222	14	0	571	0	0	0	0	0	0	0	0	0	0	0	8,982
1967	1,138	546	1,302	1,830	207	0	0	45	763	431	202	439	317	595	0	0	511	0	0	0	0	0	0	0	0	0	0	214	8,559
1968	1,246	1,107	582	955	1,815	0	0	119	387	386	169	631	340	512	0	0	412	0	0	0	0	0	0	0	0	0	0	0	9,839
1969	1,502	1,379	423	765	1,862	0	0	0	750	706	153	673	313	991	0	0	746	0	0	0	0	0	0	0	0	0	0	0	10,283
1970	1,348	1,139	694	203	1,908	0	0	0	521	414	99	917	120	1,013	0	0	864	0	0	0	0	0	0	0	0	0	0	0	9,640
1971	1,540	1,306	318	482	1,476	0	0	0	681	354	158	569	200	685	0	1,382	824	0	0	0	0	0	0	0	0	0	0	0	9,865
1972	1,387	1,239	27	469	1,508	0	0	0	618	254	184	517	393	807	0	2,404	839	0	0	0	0	0	0	0	0	0	0	0	10,406
1973	1,350	867	0	500	1,576	0	0	0	591	431	309	374	439	480	0	2,403	885	773	0	0	0	0	0	0	0	0	0	0	10,778
1974	1,207	1,377	0	863	1,023	0	0	0	833	545	0	498	435	0	0	2,411	987	340	833	0	0	0	0	0	0	0	0	0	11,719
1975	1,489	543	0	480	1,498	0	0	0	449	557	0	451	439	0	0	2,248	990	505	717	0	0	0	0	0	0	0	0	0	10,361
1976	1,430	842	0	982	1,465	0	0	0	459	773	0	307	438	0	0	1,745	1,070	548	381	0	0	0	0	0	0	0	0	0	10,437
1977	1,441	909	0	507	1,475	0	0	0	888	1,214	0	335	388	0	0	1,482	905	554	164	0	0	0	0	0	0	0	0	0	10,301
1978	1,649	710	0	898	1,274	0	83	0	1,399	1,112	0	253	389	0	0	874	450	892	524	0	0	1,815	0	0	0	0	0	481	12,001
1979	1,464	978	0	802	1,474	0	261	8	1,838	461	0	439	447	0	0	1,408	409	848	683	0	505	1,756	0	0	0	0	0	479	14,471
1980	1,873	570	0	422	1,218	0	173	0	1,312	229	0	389	482	0	0	808	864	754	489	0	224	1,678	0	0	0	0	21	0	11,326
1981	1,558	734	0	815	1,301	0	498	0	1,022	293	0	470	395	0	0	868	890	738	515	0	408	2,205	130	0	0	0	24	0	12,630
1982	1,361	833	0	357	796	0	608	0	537	232	0	458	487	0	0	501	898	432	383	0	202	2,044	70	0	0	0	31	0	9,878
1983	1,558	688	0	193	813	0	577	0	733	568	0	378	448	0	0	94	907	299	631	0	198	1,618	75	0	0	0	47	0	9,862
1984	1,542	689	0	143	739	0	564	0	834	391	0	453	500	0	0	58	601	245	481	0	131	2,170	52	0	0	0	326	0	9,820
1985	1,535	737	0	498	1,224	0	480	0	848	1,543	0	412	451	0	0	250	686	508	877	703	681	684	229	0	0	0	264	0	12,689
1986	1,410	773	0	548	1,000	0	574	12	1,290	360	0	430	482	0	0	384	786	437	803	597	488	1,988	180	0	0	0	460	0	12,882
1987	1,015	1,281	0	703	1,347	0	618	0	703	1,346	0	332	586	0	0	338	722	424	847	0	369	1,887	181	0	0	0	507	0	13,187
1988	1,185	1,304	0	1,452	1,163	0	598	0	1,131	514	0	889	892	0	0	299	710	409	742	235	1,047	2,001	220	2	0	0	500	0	14,873
1989	1,165	886	0	886	1,069	0	544	0	1,142	499	0	559	697	0	0	783	611	483	559	0	527	2,052	209	148	0	0	383	0	13,281
1990	1,352	1,154	0	809	761	0	563	0	1,412	31	0	838	1,079	0	0	352	671	261	451	0	445	2,035	343	1,157	0	0	484	0	13,909
1991	897	608	0	564	866	0	574	0	1,333	330	0	713	551	0	0	75	498	321	834	0	170	1,845	487	933	0	0	418	0	12,218
1992	1,128	528	0	567	1,157	0	479	0	1,360	879	0	1,184	702	0	0	212	726	538	1,035	253	235	1,972	980	788	0	0	434	0	15,134
1993	1,114	0	0	213	478	0	405	0	1,539	284	0	932	1,418	0	0	381	1,093	168	635	2,204	38	1,843	0	339	0	0	0	0	13,184
1994	874	0	0	816	664	363	0	0	889	520	0	937	1,371	0	0	210	1,233	258	738	1,541	213	1,408	0	527	0	0	0	0	12,391
1995	1,340	108	0	0	449	844	0	0	458	1,205	0	1,263	1,417	0	0	467	1,781	195	738	549	247	1,286	0	708	0	0	0	0	13,835
1996	1,447	0	0	530	732	897	0	0	325	947	0	868	1,546	0	0	708	1,878	149	779	957	556	1,649	0	547	0	0	0	0	14,702
1997	1,234	0	0	48	578	805	0	0	530	44	0	1,002	1,567	0	0	842	1,004	102	589	602	388	1,513	0	485	0	0	0	0	11,328
1998	1,479	0	0	304	815	598	0	0	1,524	258	0	741	1,575	0	0	482	1,603	270	881	1,396	437	1,195	0	574	0	0	0	0	13,983
1999	1,310	0	0	35	1,422	328	0	0	1,018	717	0	864	1,580	0	0	227	2,068	599	205	1,548	332	36	0	1,063	550	0	0	0	14,789
2000	1,074	0	0	836	1,418	555	0	0	887	968	0	494	1,076	0	0	478	2,143	182	636	819	952	558	0	496	2,196	0	0	0	15,611
2001	1,257	0	0	990	767	323	0	0	493	0	0	1,522	789	0	0	401	1,859	13	138	1,159	1,076	1,546	0	498	2,352	0	0	0	15,126
2002	1,623	0	0	1,371	1,188	208	0	0	871	523	0	1,269	847	0	0	381	1,324	15	227	840	1,681	958	0	821	2,151	0	0	0	16,154
2003	1,232	463	0	989	1,183	288	0	0	524	1,060	0	1,080	1,412	0	0	858	149	10	1,280	1,405	929	412	0	943	2,027	0	0	0	16,302
2004	1,095	771	0	1,040	971	795	0	0	488	1,137	0	2,526	0	0	0	908	0	2	612	0	957	389	0	904	1,948	0	0	0	14,701
Maximum	1,873	1,379	1,302	2,154	1,862	897	618	119	1,838	1,543	[illegible]	2,526	1,580	1,677	227	2,411	2,984	848	1,280	2,204	1,681	2,205	980	1,157	2,352	128	507	1,660	16,302

7265

Appendix B
Mink Creek Decree

Mink Creek
Water Rights

IN THE DISTRICT COURT OF THE FIFTH JUDICIAL DISTRICT OF THE STATE OF IDAHO, IN AND FOR THE COUNTY OF BANNOCK.

SAM B. SMITH, Administrator of the Estate of T. B. Smith, deceased, Elkhorn Livestock and DAIRY COMPANY, a corporation, JOSEPH [illegible] AND WILLIAM H. EDWARDS,	:	
Plaintiffs,	:	
-vs-	:	RECORD #6669 June 5, 1926
CITY OF POCATELLO, a municipal corporation, ARTHUR RAY, J. A. McKINNON, H. F. GALLOWAY, JAMES A. CAMPBELL, JOHN PATTIS and JOHN COVISIC,	:	
Defendants.	:	

: :

This cause came on regularly for trial on the 23rd day of June, 1925, before the court sitting without a jury, a jury having expressly waived by the respective parties; Messrs. McDougall, McDougall & McDougall appeared for the plaintiffs, Messrs. D. W. Standrod and James Bacon appeared for the defendants and cross-complainants, J. S. Campbell and J. A. McKinnon, Messrs. Peterson and Coffin appeared for Arthur Ray and H. F. Galloway and no one appeared for John Pattis and John Covisic, and their default was duly entered and Jones, Pomeroy & Jones appeared for the defendant and cross-complainant, the City of Pocatello.

Thereupon witnesses were sworn and testified on behalf of the plaintiff and the several defendants and cross-complainants herein, and documentary evidence was offered and received by and on behalf of the respective parties and the testimony closed. Argument was submitted by the respective counsel on behalf of said parties and the cause was finally submitted to the Court for decision and the Court having duly considered the testimony, the argument of the counsel, and being fully advised in the premises, has made its finding of fact and conclusions of law and ordered judgment to be entered in accordance therewith.

That in the years 1917 and 1[illegible], the Cross-complainant, the City of Pocatello, purchased [illegible] acres of land from certain tribal Indians who were occupying, irrigating and cultivating their said lands

7267

to the extent of 181.1 acres at the time of the sale; and that on October 1st, 1901, the predecessors of the City of Pocatello constructed a pipe line which diverted water from Mink Creek to the City of Pocatello for municipal purposes to the extent of 28 inches (.56 Cu. feet);

That on September 1st, 1917, the City of Pocatello increased the size of the pipe line to a carrying capacity of 5 cubic feet per second of time and since said time has diverted said amount from the waters of Mink Creek for municipal purposes.

That on June 17th, 1902, the cross-complainant, James S. Campbell, appropriated and diverted 70 inches of the waters of Mink Creek and Campbell Creek and has used the same since said date.

That on September 7th, 1904, Arthur Say appropriated and diverted 75 inches of the waters of Mink Creek and used the same for irrigation purposes since said date.

That on August 20th, 1907, the predecessors of H. F. Galloway appropriated and diverted 20 inches of the waters of Mink Creek and has since used the same for irrigation purposes.

That on July 5th, 1910, J. A. McKinnon appropriated and diverted 10 inches of the waters of Mink Creek and has since used the same for irrigation purposes.

IT IS FURTHER ORDERED, ADJUDGED AND DECREED; that the following named persons and corporation, defendants and cross-complainants in this action have the right to the use of said Mink Creek and the tributaries thereof, and springs, the sources of said tributaries, such amount and amounts of water, of the date of appropriation and priority, and for the uses and purposes and the point of diversion and means of diversion as set forth in the following schedule:

MINK CREEK

Name of Claimant and Date of Priority	Amount in Second Feet	Point of Diversion And Place of Use
1. Estate of T. D. Smith deceased:		Said water to be diverted from the said creek by means of a dam in said creek at or near the center of section 20, Twp. 7, South Range 35, E.B.M. Said water to be used on the following described lands: Northwest Quarter of Section seventeen and Northeast Quarter of Southwest Quarter of Section 17, and Southeast Quarter of Southwest Quarter of Section 8, Twp. 7, South Range 35, E.B.M.
1869 - February 26,	10 inches	
1902 - July 21	44.05 inches	

Pocatello amended

MINK CREEK

Name of Claimant and Date of Priority	Amount in Second feet	Point of Diversion And Place of Use
2. Elkhorn Livestock and Dairy Company, a corporation, 1889- -February 26 1903- -July 21	416 inches 47.22 inches	Said water to be diverted by means of a dam across said Mink Creek at or near the center of Section 20, Twp. 7, South Rang 35, E.B.M. Said water to be used upon the following described lands: Southeast quarter of the Northwest quarter, and the East one-half of the Southwest quarter of Section 17, Twp. 7, South Range 35, E.B.M. City succeeded to ? - See Amended Complaint - Sheldon v Smith
3. Joseph Hunn 1889- -February 26 1903- -July 21	5 inches 26.06 inches	Said water to be diverted by means of a dam across said Mink Creek at or near the center of Section 20, Twp. 7, South Range 35, E.B.M. Said water to be used upon the following described lands: Southeast quarter of the Northeast quarter of Section 18, and the West eighteen acres of the Southwest quarter of the Northwest quarter of Section 17, Twp. 7, South Range 35, E.B.M.
4. William H. Edwards 1889- -February 26 1902- -July 21	20 inches 31.53 inches	Said water to be diverted by means of a dam across Mink Creek at or near the center of section 20, Twp., 7, South Range 35, E.B.M. Said Water to be used upon the following described lands: North half of the Northeast quarter of section 18, Twp. 7, South Range 35, E.B.M.
5. City of Pocatello 1889- -February 26 1901- -October 1 1917- -October 1	161.1 inches 28 inches 60.0 inches	Said water to be diverted by means of a dam and head gate into a pipe line at a point 70 38' West 738.5 feet from the East quarter corner of section 15, Twp. 6, South Range 34, E.B.M. To be used for municipal purposes within the City of Pocatello, Bannock County, State of Idaho.
6. James E. Campbell 1902- -June 17	70 inches (From Mink Creek and Campbell Creek, the amount which he shall receive from Campbell Creek to be deducted from the 70 In. and the balance from Mink)	Said water to be diverted near the Southeast corner of the Northeast quarter of the Northeast quarter of section 31, Twp. 7, South Range 35, E.B.M. Said water to be used upon the lands described as follows: Southeast quarter of the Northeast quarter, East half of the Southeast quarter of section 30, Northeast quarter of section 31, all in Twp. 7, South Range 35, E.B.M.
7. Arthur Coy 1894- -September 7	75 inches	Said water to be diverted by means of a dam and head gate in the Southeast quarter of the Southeast quarter of Section 19, Twp. 7 South Range 35 E.B.M. Said water to be used upon the lands described as follows: The Southeast quarter of the Southeast quarter of Section 19, the Northeast quarter of the Northeast quarter of section 30, the Northwest quarter of the Northwest quarter of section 29, the Southwest quarter of the Southwest quarter of section 20, Twp. 7, South Range 35, E.B.M.

ame of Claimant and date of Priority	Amount in Second Feet	Point of Diversion and Place of Use
8. H. F. Galloway		
1907- -August 7 Nault	20 inches	Said water to be diverted from the said creek in the Southwest quarter of section 30, Twp. 7, South Range 35, E.B.M. Said water to be used upon the lands described as follows: Northeast quarter of the Southwest quarter, the Northwest quarter of the Southeast quarter of Section 30, Twp. 7, South Range 35, E.B.M.
9. J. H. McKinnon		
1910- -July 10	12 inches	Said water to be diverted from the said creek through the ditch of James B. Campbell at a point near the Southeast corner or the Northwest quarter of the Northeast quarter of section 31, Twp. 7, South Range 35, E.B.M. Said water to be used upon the lands described as follows: South half of the Northeast quarter, the southeast quarter of the Northwest quarter and the Northeast quarter of the Southeast quarter of Section 31, Twp. 7, South Range 35, E.B.M.

IT IS FURTHER DECREED that the parties hereto shall permit sufficient water to flow through their respective headgates during the irrigation season to furnish 58.71 inches to Big Elk Allottment, and 37.46 to the Toane Allottment, with a priority of February 28, 1869, and an additional inch of water for each additional acre added to the present irrigated area while the same is in Indian ownership, which area at the date hereof is 97.17 acres.

The above provision regarding said Indian lands is made to avoid litigation with said Indians and to enjoin each of the parties hereto from preventing the said amount of water from flowing to said allottments while the same are in Indian ownership. Provided, however, in the event litigation shall be instituted to decree said Indian rights the profision herein regarding the same shall not be constructed as any waiver of the right of the parties hereto to question the amount, extent, or priority of the use of the waters to which said Indian allottments are entitled, and shall not bar or estop or limit the parties hereto from urging any matter that could have been raised had said provision not been included in this decree.

No costs or disbursements are allowed to any of the parties to this action, but each shall pay his, her or its own costs.

IT IS FURTHER ORDERED, ADJUDGED AND DECREED: that when the natural flow of the streams, the water of which is awarded by this decree, is not sufficient to furnish all parties claiming water therefrom with the full amount of water awarded to them, then such water shall be distributed in accordance with the priorities as hereinbefore decreed, and if the water is insufficient to furnish all rights which are of equal dignity, then the available supply of water shall be distributed pro rata among such rights.

IT IS FURTHER ORDERED, ADJUDGED AND DECREED: that the Irrigation Season mentioned in this judgment shall be that portion of the calendar year beginning on the 15th day of April and closing on the 15th day of September, being a total of five months, or 152 days; that the term Acre Foot, as used in this judgment, means and shall mean, 43,560 cubic feet of water, or the amount necessary to cover an acre of land one foot in depth;

That the inches referred to in this judgment is such an amount of water which will pass through an orifice one inch square under a four-inch pressure, each second of time, being 1-50 part of a cubic foot per second;

That the term Cubic Foot per second of time as used in this judgment, is and shall be one cubic foot of water passing a definite, fixed cross-section per second of time.

That all water awarded by this judgment shall be measured at the point of diversion, except where conditions make it impossible so to do. Where it is so impossible, measuring devices or measuring stations shall be located at the nearest feasible point below said point of diversion;

That all canals or pipe lines diverting in excess of 50 cubic feet of water per second, must install a standard type of automatic register to be passed upon by the Commissioner of Reclamations and subject to review by this court;

IT IS FURTHER ORDERED, ADJUDGED AND DECREED, That the later appropriators shall be entitled to the benefit of the return flow into the river and its tributaries, as against, prior, lower, or prior and lower appropriators, in computing the amount of water herein awarded to said prior, lower or said proir and lower appropriators.

IT IS FURTHER ORDERED, ADJUDGED AND DECREED: That the water hereby awarded has been applied to a beneficial use and that the parties to said action are the owners of the lands, reservoirs, dams and ditches, and ditches, which by the terms of this judgment are referred to respectively as the lands upon which the water awarded to them has been used by means of said dams, ditches, reservoirs and other works.

That all rights herein awarded to the plaintiff and several defendants and cross-complainants, are for the beneficial uses specified, and none of the parties hereto, or their successors in interest, whether heirs, executors, administrators, successors or assigns shall have the right to divert any of the waters of the said Mink Creek, its tributaries and sources, except for beneficial use, and whenever such use has ceased, such party or parties shall cease to divert, and shall have no right to divert, the said waters, or any part thereof, and each and every of the parties hereto, their servants, attorneys, employees and successors in interest as aforesaid, are hereby enjoined and restrained from any and all interference with or diversion or use of the said waters, except in the manner, and to the extent, and for the purposes provided in this judgment, whenever such interference, diversion or use would in any manner interfere with the diversion or use of the water awarded by this judgment to any of the other parties to this action;

That the parties hereto and their successors in interest shall install and maintain suitable and efficient headgates, controlling works and measuring devices at their respective points of diversion, and all water herein allotted and decreed shall be measured at said points of diversion. Said works and devices shall be built and installed in accordance with plans and specifications to be approved by the state official charged with the duty of supervising the distribution of water, (subject to review by this Court). All such devices shall be of such design as to accurately register the amount of water so diverted, and in case of ditches diverting more than 50 cubic feet per second, automatic measuring and registering devices shall be installed and shall at all times be subject to the inspection of any party to this action, or to any public officials or water masters having jurisdiction over the distribution and diversion of water, and no dam or other obstruction to the natural flow of the stream shall be maintained so as to divert water from the channel of the stream, except through ditches, canals or other works, provided with such headgates, control works and measuring devices, except as in this judgment provided; and each of the parties hereto shall be perpetually enjoined from diverting from the channel of the said Mink Creek, or its tributaries or sources, any water through any ditch, conduit, or other devices not provided with such headgates, control works and measuring device; provided, that in case of diversions through pipes for power purposes or otherwise, measuring devices may be dispensed with where the quantity of water diverted may be otherwise determined by other means of calculation.

That the City of Pocatello must install a Standard Weir and Stevens recording gage or other similar standard device or devices that they may be readily read and may be located so that it is at all times subject to the inspection of the water users of Mink Creek and so located that ingress and egress is permitted thereto and therefrom. And the said City of Pocatello is required to submit to the Court plans for such devices for the approval of the Court.

The rights herein decreed and required are designated and classified as (municipal purposes and irrigation rights). Irrigation rights are defined as the right to divert from Mink Creek waters for the irrigation of the lands described in the decree belonging to the parties to this action. Domestic rights for municipal purposes are defined to be the right to divert from the waters of Mink Creek water through a pipe line to the City of Pocatello to be used by and distributed to the inhabitants of the said City of Pocatello for domestic purposes, irrigation of lawns, sprinkling of streets, fire and the purposes to which water is usually required by its inhabitants.

That no party to this decree shall divert more water than can be beneficially used, and that the waste of water is prohibited and enjoined.

That the retention of jurisdiction by the Court shall be for the following purposes and the following purposes only:

(a) To make corrections for clerical errors, inadvertences and omissions in the rights decreed.

(b) To review and amend the provisions of the decree fixing, if necessary, different limits upon the irrigating season as above described, and for reducing the amount of water which may be shown during actual operation of the creek and its tributaries, to be in excess of the amount actually necessary for the successful raising of crops.

(c) To define more accurately, if necessary, the diversions of the water to the several users mentioned within the decree, with special reference to stipulated rights when one user secures the total amount, through several ditches enumerated opposite his name with no data submitted or available with reference to the capacity of the ditches supplying said lands of the user.

(d) To observe for a season or longer if necessary the operation of the creek in order that such additional provisions may be added to this decree to facilitate such operation in the field, but jurisdiction is not retained to operate the creek, under order of Court.

(e) Until the measuring devices and all diversions are installed and operating to the satisfaction of the Court, and the parties hereto are given sixty (60) days in which to install the same,

Done in open Court this the 5th day of June, A. D. 1956.

L. E. RAJE
DISTRICT JUDGE

Appendix C
Pocatello Monthly Water Use Reports (excerpts)

City of Pocatello
Water Department

1985 Monthly Reports
April, May, June

7275

City of Pocatello • Water Department

P.O. Box 4169 • 902 E. Sherman • Pocatello, Idaho 83201 • (208) 232-4311

WATER DEPARTMENT MONTHLY REPORT

APRIL 1985

MAIN LINE WORK

2000 Blk. So. 4th & So. 5th: Irrigation project. Installed: 2-4" valves, 1-4" Y fitting, 1-4" 45 ° bend.

2225 So. Bannock Highway: Pipe layed: 18' of 6" ductile iron. Installed: 1-6" fire hydrant, 1-6" tapping sleeve, 1-6" tapping valve, 1-valve box. Made 6" tap on 12" main.

During the month of April 326,044,000 gallons of water was produced from the system, or 10,868,133 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Well # 2	45,246,000	144.0 lbs.
Well #12	10,205,000	23.0 lbs.
Well #16	25,614,000	63.5 lbs.
Well #18	72,892,000	233.0 lbs.
Well #21	11,627,000	30.0 lbs.
Well #22	15,228,000	39.5 lbs.
Well #27	15,168,000	36.0 lbs.
Well #28	1,561,000	6.0 lbs.
Well #29	1,302,000	4.5 lbs.
Well #30	99,110,000	248.5 lbs.
PIP Well	4,524,000	8.5 lbs.
Cree Well	16,016,000	37.0 lbs.
West Bench Booster	7,551,000	19.5 lbs.
	326,044,000	893.0 lbs.

This figure is 82,015,000 more than last April. Based on the population figure of 46,736 there were 232.5 gallons of water per person per day produced from the system.

Airport production was 2,258,000 gallons of water using 4.5 lbs. of chlorine and 30 man hours.

City of Pocatello • Water Department

P.O. Box 4169 • 902 E. Sherman • Pocatello, Idaho 83201 • (208) 232-4311

WATER DEPARTMENT MONTHLY REPORT

MAY 1985

MAIN LINE WORK:

Highland Tank: Pipe layed:162' of 18" ductile iron, 194' of 14" ductile iron. Installed 1-18" Tee; 1-18" solid sleeve, 3-18" dresser valves, 3-valve boxes, 1-14" gate valve, top half of 1-valve box, 2-14" 45° bends, 1-14" flange coupling adaptor, 6'-threaded 3/4".

Country Club & Turf Drive: Pipe layed: 859' of 6" ductile iron. Installed: 3-6" tapping valves, 3-6" tapping sleeves, 3-valve boxes, 3-6" solid sleeves, 1-chlorination tap, 1-6" fire hydrant, 1-fire hydrant valve, 1-valve box, 1-6" tee, 2-6" M.J. 45° bends, 38'-6" P.V.C., 2-6" M.J. plugs.

700-800 Block Washington Avenue: Pipe layed: 486' of 10" ductile iron.

During the month of May 470,617,000 gallons of water was produced from the system, or 15,181,193 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Well # 2	47,238,000	225.5.lbs.
Well # 10	1,069,000	3.5 lbs.
Well # 12	45,324,000	112.0 lbs.
Well # 16	37,296,000	95.0 lbs.
Well # 18	75,708,000	183.5 lbs.
Well # 21	16,293,000	55.5 lbs.
Well # 22	27,103,000	78.5 lbs.
Well # 27	26,722,000	53.0 lbs.
Well # 28	27,832,000	95.5 lbs.
Well # 29	26,092,000	70.5 lbs.
Well # 30	104,961,000	
Well # 31	3,204,000	10.5 lbs.
PIP Well	14,952,000	32.5 lbs.
Cree Well	16,823,000	78.0 lbs.
	470,617,000	1,021.0 lbs.

7277

City of Pocatello • Water Department

P.O. Box 4169 • 902 E. Sherman • Pocatello, Idaho 83201 • (208) 232-4311

WATER DEPARTMENT MONTHLY REPORT

JUNE 1985

MAIN LINE WORK:

Washington Street-Cedar to Alameda: Pipe Layed: 33' of 6" ductile iron, 792' of 10" ductile iron. Installed 2-6" fire hydrants, 2-6" fire hydrant valves, 2-10" solid sleeves, 2-12" to 10" M.J. reducers, 6-10" pacific states valves, 2-10" x 6" tee fittings, 1-10" x 10" tee fitting, 8-valve boxes. 1-chlorination tap.

700 Block Willard Avenue: Pipe layed: 649' of 6" ductile iron. Installed: 1-6" pacific states fire hydrant, 1-6" fire hydrant valve, 2-6" Mueller gate valves, 3-valve boxes, 1-6" x 6" tee. 1-chlorination tap.

During the month of June 782,384,000 gallons of water was produced from the system, or 26,079,466 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Well # 2	46,063,000	146.0 lbs.
Well # 3	54,000,000	159.0 lbs.
Well # 10	38,430,000	112.0 lbs.
Well # 12	92,145,000	239.0 lbs.
Well # 16	31,328,000	537.0 lbs.
Well # 18	72,459,000	179.0 lbs.
Well # 21	21,827,000	65.0 lbs.
Well # 22	30,668,000	87.0 lbs.
Well # 27	44,658,000	86½.0 lbs.
WEll # 28	31,720,000	223.0 lbs.
Well # 29	82,883,000	230.0 lbs.
Well # 31	70,464,000	157½.0 lbs.
Well # 33	10,960,000	31.0 lbs.
PIP Well	15,153,000	32.0 lbs.
Cree Well	13,048,000	28.0 lbs.
	726,157,000	2,312.0 lbs.

7278

City of Pocatello
Water Department

1986 Monthly Reports
March, April, May

7279

WATER DEPARTMENT MONTHLY REPORT

MARCH 1986

MAIN LINE WORK

Bannock Highway & Gibson Jack - Pipe layed: 72' of 6" ductile iron. Installed: 1-12" tapping sleeve, 1-valve box, 1-6" push-on plug, 1-6" tapping valve.

Bannock Highway & Country Club - Pipe layed: 54' of 6" ductile iron. Installed: 1-6" tapping valve, 1-12" x 6" tapping sleeve, 1-valve box, 1-6" push-on plug.

Bannock Highway & Shoshoni Trail - Pipe layed: 54' of 6" ductile iron. Installed: 1-6" tapping valve, 1-10" x 6" tapping sleeve, 1-valve box.

Bannock Highway & Leo Lane - Pipe layed: 8' of 6" ductile iron. Installed:
1 - 8" x 6" tapping valve, 1-8" x 6" tapping sleeve, 1-valve box, 1-6" push-on plug.

Bannock Highway & Riverside Golf Course - Pipe layed: 60' of 10" ductile iron. Installed: 1-10" x 12" tapping valve, 1-valve box, 1-10" push-on plug.

Jefferson & Poplar - Pipe layed: 38' of 6" and 6' of 10" ductile iron. Installed: 1-6" solid sleeve, 1-6" x 4" reducer, 1-4" steel to cast coupling, 1-10" x 6" tee, 1-10" solid sleeve, 2- valve boxes, 1-gate valve, 1-butterfly valve.

Jefferson & Maple - Pipe layed: 37' of 6" ductile iron. Installed: 1-6" ground out solid sleeve, 2-6" solid sleeves, 1-6" cross, 1-valve box, 1-gate valve.

During the month of March 248,126,000 gallons of water was produced from the system, or 8,004,064 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Well #2	45,484,000	136.0 Lbs.
Well #16	56,254,000	140.0 Lbs.
Well #21	5,105,000	16.5 Lbs.
Well #27	6,488,000	15.0 Lbs.
Well #30	58,535,000	146.5 lbs.

Water Department Monthly Report (cont.)

Well #32	54,488,000	196.5 Lbs.
Cree Well	16,237,000	37.5 Lbs.
West Bench Booster	5,535,000	18.0 Lbs.
	248,126,000	706.0 Lbs.

This figure is 10,880,000 less than last March. Based on the popu. figure of 46,736 there were 171.2 gallons of water per person per day pr from the system.

Airport production was 2,469,000 gallons of water using 2.5 lbs. of ch and 32 man hours.

5 MAIN LINE LEAKS were REPAIRED at the following locations:
2200 South 2nd
500 Blk So. Grant
Shane Dr. & Juniper Hil
500 Blk South Grant
732 W. Whitman

21 NEW SERVICES were INSTALLED at the following locations:
5520 Bannock Hwy (3/4")
5544 Bannock Hwy (3/4")
5722 Bannock Hwy (3/4")
5788 Bannock Hwy (3/4")
5898 Bannock Hwy (3/4")
4590 Bannock Hwy (3/4")
4330 Bannock Hwy (3/4")
2041 So. Main (3/4")
2065 So. Main (3/4")
2121 So. Main (3/4")
2141 So. Main (3/4")
2151 So. Main (3/4")
2201 So. Main (3/4")
2215 So. Main (3/4")
865 Bitterroot (3/4")
3705 U.S. Hwy 30 W (1")
2403 So. Main (3/4")
2671 Bannock Hwy (3/4")
2711 Bannock Hwy (3/4")
2735 Bannock Hwy (3/4")
2755 Bannock Hwy (3/4"

10 SERVICES were RENEWED at the following locations:
256 So. 6th (3/4")
1635 So. 3rd (3/4")
627 No. 11th (3/4")
1634 Jensen (3/4")
1371-77 Willard (3/4")
751 W. Sublette (3/4")
755 W. Sublette (3/4")
344 McKinley (3/4")
556 So. 11th (1")
467 McKinley (3/4")

19 SERVICES were REPAIRED at the following locations:
787 Bryan (1/2")
1040 Gray (3/4")
962 Gray (3/4")
916 Gray (3/4")
1578 Onyx (3/4")
867 Northgate (3/4")
1306 E. Lewis (1")
1349 Allen Rd. (1/2")
308 So. Main (3/4")
1710 E. Wyeth (1")
1850 No. Main (1")
845 No. Garfield (1/2"
979 Brennan (1/2")
706 No. 10th (3/4")
719 Myrtle (3/4")
519 So. 11th (1/2")
1006 No. Harrison (3/4")
Jefferson & Poplar (3/4
1445 No. 1st (1")

WATER DEPARTMENT MONTHLY REPORT

APRIL 1986

MAIN LINE WORK

100 & 200 Block No. 9th, 100 Block So. 9th - Pipe layed: 1144' of 6" ductile iron. Installed: 1-12" x 6" tapping sleeve, 1-tapping valve, 6-valve boxes, 1-4" solid sleeve, 1-4" m.j. plug, 1-4" split sleeve, 3-6" gate valves, 2-6" fire hydrant valves, 2-6" tees, 2-6" fire hydrants, 1-6" solid sleeve, 1-6" x 4" reducer.

20th & Bonneville - Made 6" tap on 12" main. Made 3/4" chlorination tap.

During the month of April 239,878,000 gallons of water was produced from the system, or 7,995,933 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Well #2	44,814,000	131.0 Lbs.
Well #16	26,216,000	69.0 Lbs.
Well #21	3,776,000	13.0 Lbs.
Well #22	9,409,000	34.5 Lbs.
Well #27	5,721,000	15.5 Lbs.
Well #30	75,555,000	192.5 Lbs.
Well #32	53,399.000	190.5 Lbs.
Cree Well	16,313,000	35.5 Lbs.
West Bench Booster	4,675,000	15.5 Lbs.
	239,878,000	706.0 Lbs.

This figure is 86,166,000 less than last April. Based on the population figure of 46,736 there were 171.1 gallons of water per person per day produced from the system.

Airport production was 1,471,000 gallons of water using 2.5 lbs. of chlorine and 39 man hours.

WATER DEPARTMENT MONTHLY REPORT

MAY 1986

MAIN LINE WORK

300 Block Packard - Construct new main line. Pipe layed: 140' of 6" ductile iron, 2' of 4" cast iron. Installed: 1-6" gate valve, 1-4" steel to cast coupling, 1-valve box, 3/4" chlorination tap.

1000 Block Spruce Street - Capital improvement project. Pipe layed: 108' of 6" ductile iron.

1570 Yellowstone to Flandro - Capital improvement project (construct new main line). Pipe layed: 594' of 8" ductile iron. 79' of 6" ductile iron. Installed: 2-6" fire hydrants valves, 2-6" fire hydrants, 2-8" x 6" tees, 2-valve boxes, 1-8" solid sleeve.

Surrey Ridge 2nd Addition - Made 6" tap on 6" main. Install 2-3/4" chlorination taps.

305 West Quinn - Made 2-10" taps on 10" and 18" main.

During the month of May 424,916,000 gallons of water was produced from the system, or 13,706,968 gallons per day produced from the following sources.

	GALLONS PRODUCED	LBS. OF CHLORINE
Well #2	42,566,000	122.0 Lbs.
Well #3	12,500,000	28.5 Lbs.
Well #10	1,211,000	3.0 Lbs.
Well #12	11,481,000	20.5 Lbs.
Well #16	69,716,000	188.5 Lbs.
Well #18	17,201,000	18.5 Lbs.
Well #21	11,513,000	38.5 Lbs.
Well #22	31,703,000	119.5 Lbs.
Well #27	31,950,000	103.5 Lbs.
Well #28	17,045,000	33.0 Lbs.
Well #29	22,130,000	54.0 Lbs.
Well #30	60,336,000	132.5 Lbs.
Well #32	55,443,000	201.5 Lbs.
Well #33	7,235,000	22.5 Lbs.
PIP Well	6,102,000	12.0 Lbs.
Cree Well	15,183,000	32.0 Lbs.
West Bench Booster	11,571,000	34.5 Lbs.
	424,916,000	1,164.5 Lbs.

This figure is 45,701,000 less than last May. Based on the population figure of 46,736 there were 293.3 gallons of water per person per day produced from the system.

Airport production was 1,779,000 gallons of water using 3.5 lbs. of chlorine and 42 man hours.

<u>6 MAIN LINE LEAKS</u> were <u>REPAIRED</u> at the following locations:

308 North 9th E. Terry & Memorial 1458 So. 2nd
500 Block Fairmont Settling Basin #3 (2" & 10" lines)

<u>9 NEW SERVICES</u> were <u>INSTALLED</u> at the following locations:

1614 So. Fairway (1") 1616 So. Fairway (1") 5505 Shoshone (3/4")
2700 So. 5th (2" S.L.) 1630 No. Hayes (3/4") ISU Research Park (2" S.L.)
Revised Benchland Block 4 Lots O & P (3/4") 1023 Spruce (3/4")

<u>27 SERVICES</u> were <u>RENEWED</u> at the following locations:

837 Berryman (3/4") 244 So. 6th (3/4") 252 No. 7th (3/4")
705 Northland (3/4") 839 So. Main (3/4") 405 Richland (3/4")
235 No. Johnson (3/4") 1357 Santa Anita (3/4") 1365 Santa Anita (3/4")
216 So. 11th (3/4") 1364 Santa Anita (3/4") 1349 Santa Anita (3/4")
638-40 No. 9th (3/4") 963 Santa Anita (3/4") 1333 Santa Anita (3/4")
436 No. Main (3/4") 1341 Santa Anita (3/4") 1289 Santa Anita (3/4")
1297 Santa Anita (3/4") 1281 Santa Anita (3/4") 151 Pearl (3/4")
189 Pearl (3/4") 247 Pearl (3/4") 163 Pearl (3/4")
232 Pearl (3/4") 250 Pearl (3/4") 605 No. Arthur (3/4")

CITY OF POCATELLO

EXHIBIT 117

Spronk Water Engineers, Inc. Expert Rebuttal Report Dated December 1, 2006

Subcase Nos.

all 38

admitted

29-271 et al.
(Subcase No.)
EXHIBIT
Poc. 117
Date: 3/8/07

IN THE DISTRICT COURT OF THE FIFTH JUDICIAL DISTRICT OF THE STATE OF IDAHO, IN AND FOR THE COUNTY OF TWIN FALLS

In Re SRBA Case No. 39576	SPRONK WATER ENGINEERS, INC. EXPERT *REBUTTAL* REPORT DATED DECEMBER 1, 2006 PREPARED FOR THE CITY OF POCATELLO, CLAIMANT

PROFESSIONAL ENGINEER
REGISTERED
8387
12/1/06
STATE OF IDAHO
GREGORY K. SULLIVAN

Spronk Water Engineers, Inc.
1000 Logan Street
Denver, Colorado 80203

Spronk Water Engineers, Inc.
Expert Rebuttal Report
Dated December 1, 2006
Prepared For
The City of Pocatello,
Claimant

1.0 INTRODUCTION

On behalf of the City of Pocatello, Spronk Water Engineers, Inc. ("SWE") prepared an Expert Report dated September 29, 2006, that was filed with the SRBA Court in accordance with the Seventh Amended Trial Scheduling Order. The Expert Report addressed the following disputed issues with regards to recommendations by the Idaho Department of Water Resources ("Department") for the City of Pocatello's ("Pocatello", the "City") State-law claims for water rights in the Snake River Basin Adjudication ("SRBA"):

- A condition proposed by the Department to limit the City's claims for alternate points of diversion for its interconnected municipal wells.

- The Department's recommended denial of the City's claim for alternate points of diversion for its surface water rights on Mink Creek and Gibson Jack Creek.

- Miscellaneous issues related to identification of the wells included in the City's interconnected municipal well systems, and a subset of these wells that were the subject of prior formal administrative transfers approved by the Department.

On November 2, 2006, Brockway Engineering PLLC, on behalf of the Milner Irrigation District, Minidoka Irrigation District, American Falls Reservoir District #2, A & B Irrigation District, Burley Irrigation District, North Side Canal Company, and Twin Falls Canal Company (the "Surface Water Coalition"), filed a Rebuttal Expert Report to the SWE Expert Report dated September 29, 2006 with the SRBA Court ("SWC Rebuttal Report"). The SWC Rebuttal Report describes opinions of the Surface Water Coalition expert regarding Pocatello's claimed water rights.

SWE has reviewed the SWC Rebuttal Report, and provides the following rebuttal opinions regarding opinions offered by the SWC expert.

2.0 SWC EXPERT REBUTTAL REPORT DATED NOVEMBER 2, 2006

Alternate Points of Diversion for Surface Water

Opinion

Page 2 and 3. "*The City of Pocatello claims that City wells should be considered as alternate points of diversion for the claimed water rights from Mink Creek and Gibson Jack Creek. There is no hydrologic evidence to support this contention or to argue that there is no change or impact to other water users if this were allowed. If, in fact, ground water is pumped in lieu of a surface water diversion six miles away from the ground water extraction with the same early priority as the surface right, there will be significant differences in timing and magnitude of both the Portneuf River flow and ground water underflow from the basin.*"

Response

Page 2 of the SWC Rebuttal Report includes the statement, "*The hydrogeology of the lower Portneuf River and tributaries and the aquifer underlying the lower Portneuf area shows that these are interconnected sources and are tributary to the Snake River and/or the Eastern Snake Plain aquifer....*". Based on this statement, there is no disagreement that the ground water and surface water sources of the Snake River and the Portneuf River and its tributaries are interconnected.

The Surface Water Coalition claims there is a change in "*timing and magnitude of both Portneuf River flow and ground water underflow from the basin.*", but provides no evidence or analysis to quantify the alleged changes or that the changes result in injury to the Surface Water Coalition water rights.

An analysis using the Department's "Enhanced-Ground Water Rights Transfer Spreadsheet (version 2.2)" ("Transfer Spreadsheet"), was performed to demonstrate that diversion of the City's surface water rights at the City's wells will not injure the Surface Water Coalition water rights. Diversion at the original points of diversion was assumed to result in an immediate depletion of surface water flow. Diversion at the ground water alternate points of diversion results in delayed surface water depletions. The delayed surface water depletions resulting from diversions at the ground water alternate points of diversion were calculated using the Department's Transfer Spreadsheet. Municipal return flows from exercise of the surface water rights were ignored because they would be the same in both scenarios.

Figure 1 compares the annual depletions resulting from diversion of the surface water rights at (1) the original points of diversion, and (2) at the alternate points of diversion at the City's wells. The annual depletions are expressed as a percent of the total annual diversion. The results of the analysis show that diversions of the City's surface water rights at the claimed ground water alternate points of diversion result in delayed impacts to surface water flows as compared with the immediate impacts that would result from diversion of the City's surface water rights at their original decreed locations. These delayed impacts cause transient reductions in depletions to the surface streams, resulting in a transient benefit to downstream surface water users. Once the depletions from ground water use reaches steady state, they are essentially the same as the depletions that would have resulted had the water rights continued to be diverted at the original points.

The City historically used its surface water supplies year-around at relatively constant rates. The surface water rights are similarly used when exercised at the ground water alternate points of diversion. Constant year-around pumping of the surface water rights at the alternate points of diversion will result in constant year around stream depletions. These depletions will increase and eventually reach a steady state that is equal to the rate of pumping. This constant year-around depletion rate will match the uniform rate of diversion (and stream depletion) that would occur if the City diverted the surface water rights at the original points of diversion. As a result, exercise of the City's surface water rights at the ground water alternate points of diversion will not result in a material change in the seasonal timing of stream depletions to the detriment of downstream surface water users.

Multiple Alternate Points of Diversion

Opinion

Page 3. *"If approved, priority administration would require determination of the instantaneous discharge from each well at all times to determine whether diversion rates were within the priority. If the City was diverting in excess of the rate allowed under the cumulative priority of all rights, then either the Department or the City would have to decide which well or wells would be shut off or curtailed. This would be extremely difficult to regulate or administer.*

Response

The City's cumulative diversion rate at its alternate points of diversion will not exceed the cumulative in-priority diversion rate for the water rights associated with its interconnected wells.

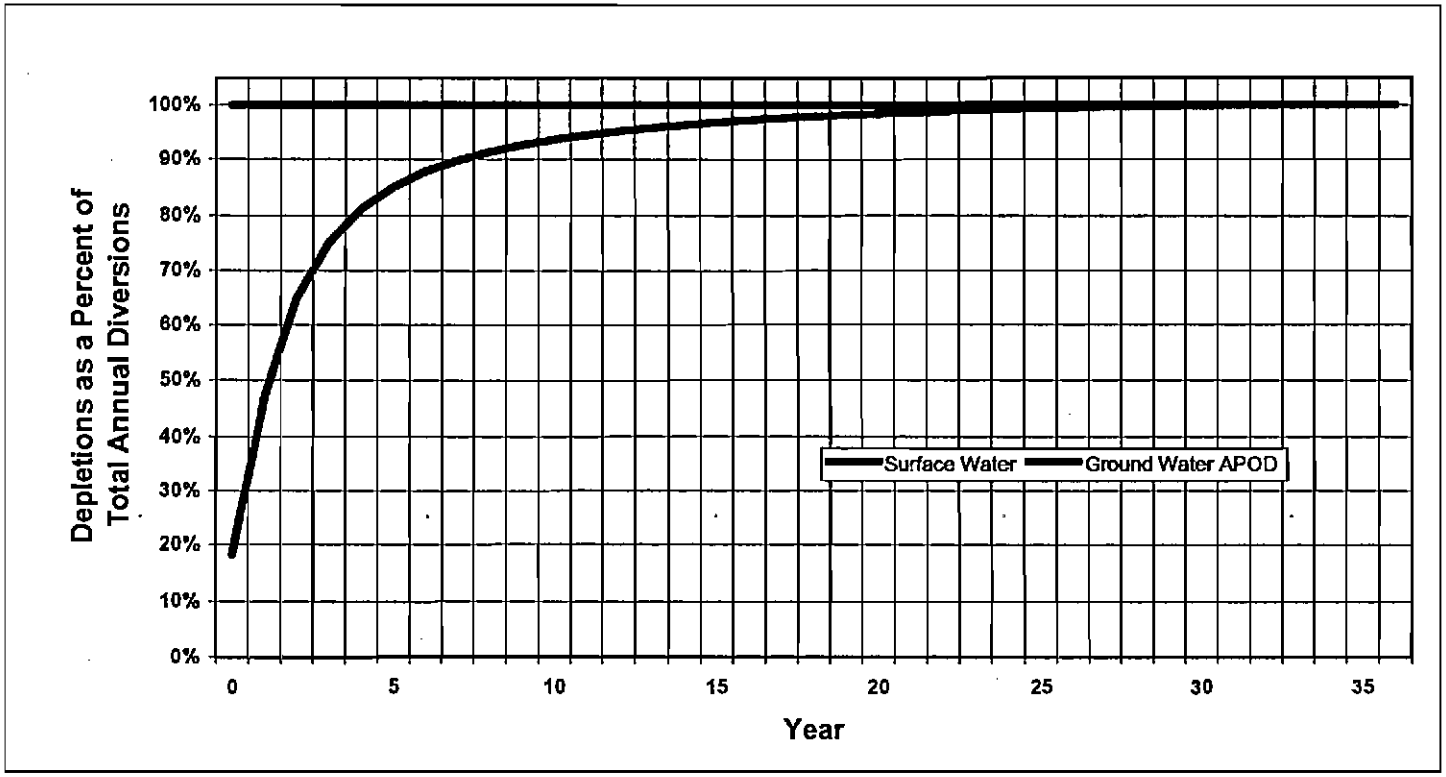
Opinion

Page 3. *"The Department's decision to require a condition on each water right showing the date of first appropriation and the well number and location is justified. Any decision by the City to pump at significantly greater rates than historical practice from later priority wells could result in injury to local ground water users, especially those with earlier priority wells."*

Response

The City will not pump its wells as alternate points of diversion at diversion rates that are greater than the rates claimed for the original water right(s) associated with each well.

Figure 1
Annual Depletions Resulting from Surface Water Diversions and Ground Water Pumping at Alternate Points of Diversion
City of Pocatello



7291

Spronk Water Engineers, Inc.

CITY OF POCATELLO

EXHIBIT 118

Summary of State-law SRBA Claims

Subcase Nos.

all 38

ADMITTED

29-271 et al.
(Subcase No.)
EXHIBIT
Poc. 118
Date: 3/1/07

City of Pocatello
Summary of State-law SRBA Claims

SRBA Claim No.	Claimed/Stipulated by Pocatello (1)		Historical Well No. or Source	AKA/Name
	Priority Date	Diversion Rate (cfs)		
29-271	2/26/1869	3.22	Mink Creek	
29-272	10/1/1901	0.58	Mink Creek	
29-273	10/1/1917	1.218	Mink Creek	
29-2274	6/15/1948	9.69	8	
			9	
			10	
29-2338	9/1/1953	9.53	12	
			13	17
			15	
29-2354	8/27/1954	0.28	Restlawn Cemetery	
29-2382	12/21/1956	3.82	17	Highland GC
29-2401	10/16/1958	13.02	13	17
			16	
			18	
29-2499	10/10/1964	4.10	27	
29-4221	6/1/1945	2.67	26	PIP
29-4222	6/16/1898	5.00	Gibson Jack Creek	
29-4223	10/1/1962	0.21	33	Call
29-4224	9/15/1955	3.89	21	Alameda 4
29-4225	8/15/1956	4.44	23	Alameda 5
29-4226	12/31/1955	0.22	14	Cree
29-7106	11/6/1972	3.90	29	
29-7118	4/11/1973	4.01	42	Airport 1
29-7119	4/11/1973	6.00	41	Airport 2
29-7222	8/22/1974	1.00	43	Ward Park
29-7322	4/25/1976	17.06	30	
			31	
			32	
29-7375	2/24/1977	2.23	15	
29-7431	12/29/1977	9.28	Wastewater	
29-7450	6/13/1978	3.34	35	Phillips 3
29-7502	7/6/1979	0.10	Restlawn Cemetery	
29-7770	5/21/1984	4.46	WPC	
29-7782	1/18/1985	7.00	34	
29-11339	1961	3.36	Alameda 6	
			Alameda 7	
29-11344	12/31/1942	1.92	40	Phillips 4
29-11348	Aug-51	4.90	28	20/Turner
29-13558	1905 *(7/16/1924)*	1.34	Alameda 1	
29-13559	1925	0.96	Alameda 2	
29-13560	12/31/1926	9.13	1	
			2	
			3	
29-13561	8/31/1931	4.23	4	
29-13562	1936	2.45	6	
29-13636	10/16/1958	0.80	19	
29-13637	12/31/1940	4.46	7	
29-13638	12/31/1940	2.20	39	Phillips 1
29-13639	12/31/1940 *(10/22/1955)*	3.68	22	Alameda 3

Notes:

(1) Pocatello and IDWR are in agreement on the priority and amount for all water rights except the priority dates for water rights 29-13558 and 29-13639. For those water rights, the priority date claimed by the City is shown in black and the priority date recommended by IDWR is shown in *(red)*.

City of Pocatello
Summary of State-law SRBA Claims

SRBA Claim No.	Claimed/Stipulated by Pocatello (1) Priority Date	Diversion Rate (cfs)	Historical Well No. or Source	AKA/Name
SURFACE WATER RIGHTS				
29-271	2/26/1869	3.22	Mink Creek	
29-272	10/1/1901	0.56	Mink Creek	
29-273	10/1/1917	1.218	Mink Creek	
29-4222	6/16/1898	5.00	Gibson Jack Creek	
CITY INTERCONNECTED WELLS AND WATER RIGHTS				
29-2274	6/15/1948	9.69	8	
			9	
			10	
29-2338	9/1/1953	9.53	12	
			13	17
			15	
29-2401	10/16/1958	12.22	13	17
			16	
			18	
29-2499	10/10/1964	4.10	27	
29-4221	6/1/1945	2.67	26	PIP
29-4223	10/1/1962	0.21	33	Call
29-4224	9/15/1955	3.89	21	Alameda 4
29-4225	8/15/1956	4.44	23	Alameda 5
29-4226	12/31/1955	0.22	14	Cree
29-7106	11/6/1972	3.90	29	
29-7322	4/25/1976	17.06	30	
			31	
			32	
29-7375	2/24/1977	2.23	15	
29-7782	1/18/1985	7.00	34	
29-11339	1961	3.36	Alameda 6	
			Alameda 7	
29-11348	Aug-51	4.90	28	20/Turner
29-13558	1905 *(7/16/1924)*	1.34	Alameda 1	
29-13559	1925	0.96	Alameda 2	
29-13560	12/31/1926	9.13	1	
			2	
			3	
29-13561	8/31/1931	4.23	4	
29-13562	1936	2.45	6	
29-13637	12/31/1940	4.46	7	
29-13639	12/31/1940 *(10/22/1952)*	3.68	22	Alameda 3
AIRPORT INTERCONNECTED WELLS AND WATER RIGHTS				
29-7450	6/13/1978	3.34	35	Phillips 3
29-13638	12/31/1940	2.20	39	Phillips 1
BIOSOLIDS PROGRAM WATER RIGHTS				
29-7118	4/11/1973	4.01	42	Airport 1
29-7119	4/11/1973	6.00	41	Airport 2
29-7770	5/21/1984	4.46	WPC	
29-11344	12/31/1942	1.92	40	Phillips 4
OTHER WATER RIGHTS				
29-2382	12/21/1956	3.82	17	Highland GC
29-2354	8/27/1954	0.28	Restlawn Cemetery	
29-7502	7/6/1979	0.10	Restlawn Cemetery	
29-7222	8/22/1974	1.00	43	Ward Park
29-13636	10/16/1958	0.80	19	
29-7431	12/29/1977	9.28	Wastewater	

Notes:

(1) Pocatello and IDWR are in agreement on the priority and amount for all water rights except the priority dates for water rights 29-13558 and 29-13639. For those water rights, the priority date claimed by the City is shown in black and the priority date recommended by IDWR is shown in *(red).*

City of Pocatello
Summary of State-law SRBA Claims

SRBA Claim No.	Claimed/Stipulated by Pocatello (1) Priority Date	Diversion Rate (cfs)	Historical Well No. or Source	AKA/Name
Surface Water Rights with Alternate Point of Diversion Issue				
29-271	2/26/1869	3.22	Mink Creek	
29-272	10/1/1901	0.56	Mink Creek	
29-273	10/1/1917	1.216	Mink Creek	
29-4222	6/16/1898	5.00	Gibson Jack Creek	
18 Interconnected City Wells and Water Rights with Remarks Issue				
29-2401	10/16/1958	12.22	13	17
			16	
			18	
29-2499	10/10/1964	4.10	27	
29-4221	6/1/1945	2.67	26	PIP
29-4223	10/1/1962	0.21	33	Call
29-4224	9/15/1955	3.69	21	Alameda 4
29-4225	8/15/1956	4.44	23	Alameda 5
29-4226	12/31/1955	0.22	14	Cree
29-7106	11/6/1972	3.90	29	
29-7322	4/25/1976	17.06	30	
			31	
			32	
29-11339	1961	3.36	Alameda 6	
			Alameda 7	
29-11348	Aug-51	4.90	28	20/Turner
29-13558	1905 *(7/16/1924)*	1.34	Alameda 1	
29-13559	1925	0.96	Alameda 2	
29-13560	12/31/1926	9.13	1	
			2	
			3	
29-13561	8/31/1931	4.23	4	
29-13562	1936	2.45	6	
29-13637	12/31/1940	4.46	7	
29-13639	12/31/1940 *(10/22/1952)*	3.68	22	Alameda 3
Ground Water Rights Involved in Transfer 5452 with Alternate Points of Dversion Issue				
29-2274	6/15/1948	9.69	8	
			9	
			10	
29-2338	9/1/1953	9.53	12	
			13	17
			15	
29-7375	2/24/1977	2.23	15	
Interconnected Airport Wells and Water Rights with Remarks Issue				
29-7450	6/13/1978	3.34	35	Phillips 3
29-13638	12/31/1940	2.20	39	Phillips 1
Biosolids Water Rights with Municipal Purpose of Use Issue				
29-7118	4/11/1973	4.01	42	Airport 1
29-7119	4/11/1973	6.00	41	Airport 2
29-7770	5/21/1984	4.46	WPC	
Water Rights with No Issues				
29-2382	12/21/1956	3.82	17	Highland GC
29-2354	8/27/1954	0.28	Restlawn Cemetery	
29-7502	7/6/1979	0.10	Restlawn Cemetery	
29-7222	8/22/1974	1.00	43	Ward Park
29-7782	1/18/1985	7.00	34	
29-11344	12/31/1942	1.92	40	Phillips 4
29-13636	10/16/1958	0.80	19	
29-7431	12/29/1977	9.26	Wastewater	

Notes:

(1) Pocatello and IDWR are in agreement on the priority and amount for all water rights except the priority dates for water rights 29-13558 and 29-13639. For those water rights, the priority date claimed by the City is shown in black and the priority date recommended by IDWR is shown in *(red)*.

City of Pocatello
Summary of State-law SRBA Claims

SRBA Claim No.	Claimed/Stipulated by Pocatello (1)		Historical Well No. or Source	AKA/Name
	Priority Date	Diversion Rate (cfs)		
Surface Water Rights with Alternate Point of Diversion Issue				
29-271	2/26/1869	3.22	Mink Creek	
29-272	10/1/1901	0.56	Mink Creek	
29-273	10/1/1917	1.218	Mink Creek	
29-4222	6/16/1898	5.00	Gibson Jack Creek	
18 Interconnected City Wells and Water Rights with Remarks Issue				
29-2401	10/16/1958	12.22	13	17
			16	
			18	
29-2499	10/10/1964	4.10	27	
29-4221	6/1/1945	2.67	26	PIP
29-4223	10/1/1962	0.21	33	Call
29-4224	9/15/1955	3.89	21	Alameda 4
29-4225	8/15/1956	4.44	23	Alameda 5
29-4226	12/31/1955	0.22	14	Cree
29-7106	11/6/1972	3.90	29	
29-7322	4/25/1976	17.06	30	
			31	
			32	
29-11339	1961	3.36	Alameda 6	
			Alameda 7	
29-11348	Aug-51	4.90	28	20/Turner
29-13558	1905 *(7/16/1924)*	1.34	Alameda 1	
29-13559	1925	0.96	Alameda 2	
29-13560	12/31/1926	9.13	1	
			2	
			3	
29-13561	8/31/1931	4.23	4	
29-13562	1936	2.45	6	
29-13637	12/31/1940	4.46	7	
29-13639	12/31/1940 *(10/22/1952)*	3.68	22	Alameda 3
Ground Water Rights Involved in Transfer 5452 with Alternate Points of Dversion Issue				
29-2274	6/15/1948	9.69	8	
			9	
			10	
29-2338	9/1/1953	9.53	12	
			13	17
			15	
29-7375	2/24/1977	2.23	15	
Transfer 5452 Replacement Well			44	
Interconnected Airport Wells and Water Rights with Remarks Issue				
29-7450	6/13/1978	3.34	35	Phillips 3
29-13638	12/31/1940	2.20	39	Phillips 1
Biosolids Water Rights with Municpal Purpose of Use Issue				
29-7118	4/11/1973	4.01	42	Airport 1
29-7119	4/11/1973	6.00	41	Airport 2
29-7770	5/21/1984	4.46	WPC	
Water Rights with No Issues				
29-2382	12/21/1956	3.82	17	Highland GC
29-2354	8/27/1954	0.28	Restlawn Cemetery	
29-7502	7/6/1979	0.10	Restlawn Cemetery	
29-7222	8/22/1974	1.00	43	Ward Park
29-7782	1/18/1985	7.00	34	
29-11344	12/31/1942	1.92	40	Phillips 4
29-13636	10/16/1958	0.80	19	
29-7431	12/29/1977	9.28	Wastewater	

Notes:

(1) Pocatello and IDWR are in agreement on the priority and amount for all water rights except the priority dates for water rights 29-13558 and 29-13639. For those water rights, the priority date claimed by the City is shown in black and the priority date recommended by IDWR is shown in *(red)*.

Interconnected "City" Wells claimed as alternate points of diversion for ground water rights and surface water rights.

7296

CITY OF POCATELLO

EXHIBIT 119

IDWR, Supplemental Director's Report, dated April 13, 2006, and list of exhibits

Subcase Nos.

all 38

Admitted

29-271 et al
(Subcase No.)
EXHIBIT
Poc. 119
Date: 3/2/07

SUPPLEMENTAL DIRECTOR'S REPORT REGARDING CITY OF POCATELLO'S BASIN 29 STATE-BASED WATER RIGHTS[1]

In Re SRBA
Twin Falls County Civil Case No. 39576

Report to the SRBA District Court

Prepared by the Idaho Department of Water Resources
Karl J. Dreher, Director
Donald V. Shaff, Adjudication Bureau Chief

April 13, 2006

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1 Subcase nos. 29-00271, 29-00272, 29-00273, 29-02274, 29-02338, 29-02354, 29-02382, 29-02401, 29-02499, 29-04221, 29-04222, 29-04223, 29-04224, 29-04225, 29-04226, 29-07106, 29-07118, 29-07119, 29-07222, 29-07322, 29-07375, 29-07431, 29-07450, 29-07502, 29-07770, 29-07782, 29-11339, 29-11344, 29-11348, 29-13558, 29-13559, 29-13560, 29-13561, 29-13562, 29-13636, 29-13637, 29-13638 and 29-13639

TABLE OF CONTENTS

I. INTRODUCTION

In accordance with Idaho Code § 42-1412(4), Administrative Order 1, and Special Master Bilyeu's November 2, 2005 *Fourth Amended Trial Scheduling Order,* the Director of the Idaho Department of Water Resources ("IDWR" or "Department") submits this Supplemental Director's Report ("Report") regarding subcase numbers 29-00271, 29-00272, 29-00273, 29-02274, 29-02338, 29-02354, 29-02382, 29-02401, 29-02499, 29-04221, 29-04222, 29-04223, 29-04224, 29-04225, 29-04226, 29-07106, 29-07118, 29-07119, 29-07222, 29-07322, 29-07375, 29-07431, 29-07450, 29-07502, 29-07770, 29-07782, 29-11339, 29-11344, 29-11348, 29-13558, 29-13559, 29-13560, 29-13561, 29-13562, 29-13636, 29-13637, 29-13638 and 29-13639. This Report sets forth the basis for the Department's recommendations for these state-based water rights. The Report was prepared under the supervision of Karl J. Dreher, Director, and Donald V. Shaff, Adjudication Bureau Chief.

The following Department employees have knowledge of the information contained in the Report. Carter Fritschle, Manager, Adjudication Technical Section was the primary investigator and has specific knowledge about the fact-specific issues relating to the water right elements. David R. Tuthill, Jr., Administrator, Water Management Division has knowledge about the more global issues.

II. SUMMARY OF THE ISSUES

The City of Pocatello ("City" or "Pocatello") filed objections to all 38 of its state-based water right recommendations contained in the Basin 29 Director's Report for Irrigation and Other Uses on November 18, 2003, and pursuant to direction by the SRBA Court, filed Amended Objections on November 19, 2003. At issue are the Department's recommendations of Pocatello's state-based water right claims. The general issues raised in the subcases are summarized in Figure 1, attached hereto. Figure 1 is a table that summarizes by water right number the global issues for each subcase and whether that subcase has fact-specific issues concerning a specific element of the water right, such as priority date. Pocatello's objections include objections that pertain generally to all of the recommendations to all 38 water rights and also include objections that pertain to specific fact-based elements on a small number of the 38 water rights. Figure 2 attached hereto is a detailed list of those subcase numbers that have objections to specific elements of the water right. Figure 2 also notes whether or not a stipulation to that specific element has been reached. The recommendations at issue contain water rights based on beneficial use, licenses and prior decrees.

In addition to the City, the parties to the 38 subcases are Respondents State of Idaho, and the United States on behalf of the Bureau of Indian Affairs, the Bureau of Reclamation, and Fish and Wildlife Services.[2] The Bureau of Land Management ("BLM") also remains a party as an objector.[3] Representatives from IDWR and the

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2 On April 12, 2006, the Special Master orally granted the Motion to Participate as Respondents filed by Milner Irrigation District, Northside Canal Company, Twin Falls Canal Company, American Falls Reservoir District #2, A&B Irrigation District, Burley Irrigation District and Minidoka Irrigation District.

3 The BLM filed Objections to the recommendations for 31 of the subcases primarily because of a concern over the place of use; however, the BLM also filed objections to other elements. These 31 subcases are: 29-271, 29-272, 29-273, 29-2274, 29-2338, 29-2382, 29-2401, 29-2499, 29-4221, 29-4222, 29-4223, 29-4224, 29-4225, 29-4226, 29-7106, 29-7322, 29-7375, 29-7450, 29-7782, 29-11339, 29-11344, 29-11348, 29-13558, 29-13559, 29-13560, 29-13561, 29-13562, 29-13637, 29-13638 and 29-13639). The BLM Objections to Pocatello's *place of use* were dismissed after the BLM and Pocatello reached a resolution. *See* Special Master Bilyeu's *Order on Joint Motion to Dismiss Objections* issued on November 22, 2004. The BLM still remains a party however, because its objections to other elements still remain.

parties met on August 11, 2005, to discuss the basis for IDWR's recommendations of Pocatello's water rights.

This report will first discuss a general overview of the City of Pocatello's water supply system. It will then discuss the issues relating to the broad, global issues raised by Pocatello's objections. Finally, the basis of the Department's recommendation of the individual fact-specific elements on individual water rights will be provided.

The more global issues can be summarized as follows.[4]

1) Issues relating to separate streams and separate administration of both surface and ground water rights;

2) Issues involving the inclusion of wells as alternative points of diversion for Pocatello's surface water rights;

3) Issues surrounding IDWR's "Other Provisions Necessary" condition relating to multiple, alternate points of diversion.

III. OVERVIEW OF CITY'S WATER SYSTEM

The City has two distinct service areas to which its supplies municipal water. The larger of the two service areas is for what one would consider in traditional terms the

[4] Pocatello filed an Objection to each of their 38 state-based recommendations stating that the water rights should contain a remark regarding Pocatello's water distribution facilities as follows:

> The City of Pocatello's water supply system for distribution of all of its ground water and surface water supplies includes various reservoir and tank storage, which are capable of being fully recharged by the quantity of water available in a 24-hour period from all of the city's sources of water. The right to use such storage facilities is therefore a part of each of the city's water rights.

In a letter from Jo Beeman to Dave Tuthill dated May 3, 2004 (Exhibit A), Pocatello reiterates the agreement that this storage remark is not necessary because the volume of Pocatello's storage facilities is less than the 24-hour diverted volume of Pocatello's surface and ground water rights, combined. Pursuant to this agreement, IDWR sent a Stipulation to Resolve Objection on May 13, 2004, (Exhibit B). The State of Idaho, as Respondent, returned signed Stipulations to IDWR. Those signed Stipulations were again sent to Pocatello on March 29, 2005 (Exhibit C). No signed Stipulations have been returned to IDWR, although IDWR believes this issue is resolved.

water system for the "city proper," which will be referred to as the "city system." The other service area is for the municipal use at the city-owned airport and will be referred to as the "airport system."

A. Wells Providing Potable Water

As of 1987, the City had 22 interconnected wells that provided municipal water to the city system service area. *See* Map 1. Pocatello also had three wells, two of which were interconnected, that provided municipal water to the airport system service area.[5] *See* Map 2. Maps 1 and 2 show all of the municipal wells supplying water for distribution through the two city municipal distribution systems, one serving the city proper and the other serving the airport area. These two city municipal distribution systems existed as of 1987 and are depicted on Maps 1 and 2.

B. Wells Located Within the City Proper, But Not Interconnected to Either Distribution System

The use of water from well 17, which is associated with the Highland Golf Course and located within the City proper, was converted from irrigation to municipal purposes prior to 1987. However, this well was not interconnected to the wells in the city system and can only be used to provide water for the Highland Golf Course. *See* Map 3.

Well 43 was developed as an irrigation well by Owen K. and Opal M. Ward for the irrigation of 50 acres of agricultural land. Mr. Ward passed away and Mrs. Ward donated the irrigated agricultural land in 1992 to the City for use as a public park in memory of Owen Ward. This park is now known as "Ward Park." *See* Map 3. This well was not interconnected with the city system prior to 1987.

[5] The Department recommended all three airport wells as interconnected, although, subsequent information was provided to show that only two of these wells are actually interconnected.

The well at the Restlawn Cemetery is used for the irrigation of the cemetery grounds and is not interconnected with the city system. The City acquired the cemetery and the associated well after 1987. *See* Map 3.

Well 19 is used at Pocatello's sewage disposal plant which is not actually located within the city proper but is located between the city proper and the airport so it has been included in this group for convenience. Well 19 was licensed for municipal purposes with a priority date of 1958. This well it is not interconnected to the wells in the city system. *See* Map 3.

Thus, these four wells were not recommended as interconnected and each of the rights to divert water from these wells is recommended with a single point of diversion.

C. Wells Located Outside the City Proper and Used for Irrigation of Agricultural Lands

The City also has three wells used for the irrigation of land used for growing crops. Wells 41 and 42 are used to irrigate 578.5 acres of crops near the western edge of the airport. *See* Map 4. The WPC Well is used to irrigate 280 acres of crops on the land where the city applies the solid waste (sludge) from its wastewater treatment facility. *See* Map 4. These wells were recommended as irrigation wells and not as part of the City's interconnected wells system or for municipal use.

D. Surface Water Diversion System

In addition to the ground water rights, Pocatello owns diversion works on Mink Creek and Gibson Jack Creek. However, water from these sources is no longer used for culinary purposes within any of the City's service area and thus, is not part of the City's interconnected system. *See* Exhibit D. It is not clear whether or not these surface water sources provide irrigation water to certain subdivisions within the service area, albeit from a separate, non-interconnected system. The points of diversion for these surface water rights are depicted on Map 5.

E. Wastewater Diversion System

Another water source claimed by Pocatello is the effluent from its wastewater treatment plant. This effluent is piped to an area north of the city and may be mixed with effluent from the Simplot plant at Don, Idaho for the irrigation of crops on 777 acres. *See* Map 6 for all points of diversion claimed by the City.

IV. DISCUSSION REGARDING GLOBAL ISSUES

A. Separate Sources

1. Surface Water Rights on Mink Creek and Gibson Jack Creek

Pocatello's objections state that its water rights should be decreed with the following general provision:

> For purposes of water distribution in the Portneuf River drainage basin, water rights from the following sources to the extent recommended herein, are not considered junior to water rights from the Portneuf River, and will be administered separately from all water rights in Basin 29:
> Mink Creek
> Gibson Jack Creek
> Ground water rights tributary to the Portneuf drainage.

The SRBA Court held that all sources tributary to the Snake River are connected. "At present, all water sources within the Snake River basin, unless otherwise recommended by IDWR are presumed to be from a common source". *Order on Cross Motions for Summary Judgment; Order on Motion to Strike Affidavits*, 5 SRBA 23, 23.16 (July 2, 2001). Through the advent of conjunctive management, specifically in the SRBA during Basin Wide Issue 5, the interconnected sources general provision and the findings of the court during those hearings, IDWR determines whether to recommend a water right as separate for administrative purposes in the SRBA. The third paragraph of the interconnected sources general provision sets forth the presumption that every water right is connected: " [A]ll other water rights within Basin 29 will be administered as connected sources of water in the Snake River Basin in accordance with the prior appropriation doctrine as established by Idaho law." For a water right to be listed as administered separately in the interconnected sources general provision, IDWR considers the following:

1) Was there a prior decree designating the source as separate?
2) Is the source in fact physically separate and not tributary to other water sources in the basin?

The Department has also looked at historical practice along with equitable and practical considerations when listing a water right as separate for administrative purposes. For example, Cassia Creek was in a separate active water district, included in the case *Albion Idaho Land Co. v. Adams*, Decree No. 992 (D. Idaho 1928) and downstream water rights had insufficient supplies of water. Given this history, the Department recommended Cassia Creek to be administered separately from other water rights in Basin 43. Also, as another example, Smith Creek was in a separate active water district and downstream water rights had insufficient supplies of water and thus, Smith Creek was recommended to be administered separately from other water rights in Basin 63.

Mink Creek and Gibson Jack Creek, however, are factually different from other streams that have been designated as separate by the Department in the SRBA. First, there is no prior decree designating either stream as separate. Second, each stream routinely flows into other water sources, in this case, the Portneuf River. Third, the facts do not warrant treating the sources as separate.

2. Ground Water Rights

With regard to administration of ground water rights separately from the Portneuf River Basin, ground water in this area is hydraulically connected to surface water. There are no instances in the SRBA where this is not the case. Importantly, Pocatello agrees with this fact. In its Amended Objection, Pocatello states:

> Point of Diversion: The City of Pocatello's municipal wells derive their supply from the Lower Portneuf River Valley Aquifer that underlies the Portneuf River as it flows through the City of Pocatello. Mink Creek and Gibson Jack Creek are connected to the Lower Portneuf River Valley Aquifer that underlies the Portneuf River as it flows through the City of Pocatello. Mink Creek and Gibson Jack Creek are connected to the Lower Portneuf River Valley Aquifer upstream of the City of Pocatello's municipal wells. Due to this interconnection these municipal wells divert these surface water priorities as they are legally and physically available.

This admission by Pocatello undermines Pocatello's request that the ground water rights in the area be administered separately from the surface water rights in Basin 29. As Pocatello acknowledges, the surface and ground water sources in Basin 29 are interconnected. It would not be appropriate to administer Pocatello's ground water rights separately from Basin 29 surface water rights or separately from other water rights within the Snake River Basin.

B. Inclusion of Wells as Alternate Points of Diversion for Surface Water Rights

Pocatello wants to include its wells as alternate points of diversion for the City's surface water rights. In essence, this would allow Pocatello to withdraw water from its wells under the priority dates associated with its surface water rights.[6] The facts simply do not support the inclusion of the wells as alternate points of diversion for Pocatello's surface water rights. For example, Mink Creek is the source of water right nos. 29-271, 29-272 and 29-273, and Pocatello's point of diversion from Mink Creek is approximately six miles away from the closest Pocatello well. *See* Map 5.[7] This fact is important when determining whether it is appropriate to treat points of diversion as alternate points of diversion for both a surface and a ground water right. The basis of the Department's refusal to recommend the wells as alternate points of diversion for rights is twofold: first, the change, if any, on how the water was diverted occurred after 1987 and second, there is no factual basis for recognizing the wells as alternate points of diversion for these surface water sources.

IDWR's Transfer Processing Memo No. 24 (October 30, 2002) provides guidance to agents when evaluating a request to change in source from surface water to ground water or to add a well as an alternate point of diversion for a surface water right. That memo provides:

> (6) <u>Change of Source.</u> Whether the source would be changed from ground water to surfacc water or from surface water to ground water, factual evidence is needed that illustrates there is an <u>immediate and direct connection between the surface source and the well.</u>

(emphasis added). Memo attached hereto as Exhibit E.

The memo further provides:

> An application for transfer proposing such a change in source is not approvable unless the ground water and surface water sources have a <u>direct and immediate hydraulic connection (at least 50 percent depletion in the original source from depletion</u> at a proposed point of diversion in one

[6] The City's surface water rights are: 29-271, 29-272, 29-273 and 29-4222.

[7] Water diverted under right no. 29-4222 from Gibson Jack Creek is being rented to a private user for irrigation and is not being used by the City for any of its municipal purposes.

> day). The existing point of diversion and proposed point of diversion must be proximate such that diversion and use of water from the proposed point of diversion would have substantially the same effect on the hydraulically connected source as diversion and use of water from the original point of diversion. If such application for transfer is approved, the changed water right shall be administered no differently than any other water right from the surface water source. If approved, the source for a change from a surface water source to a ground water source should be listed as ground water tributary to the surface water source.

(emphasis added)

The factual conditions necessary for including the wells as alternate points of diversion for Pocatello's surface water rights do not exist in Pocatello's case.[8]

C. "Other Provisions Necessary" Condition Regarding Multiple, Alternate Points of Diversion

In its claims, Pocatello claimed all of its points of diversion on all of its rights under the theory of an accomplished transfer. *See* Idaho Code § 42-1425. To support its claims, Pocatello provided a map showing the location of each point of diversion and the distribution system as it existed on November 19, 1987.[9] By listing all of its points of diversion for all of its water rights, the City would be allowed to withdraw water under its most senior priority water right from any well location. The Department, in order to recommend multiple, alternate points of diversion on the City's interconnected water rights under an accomplished transfer theory, included a condition to prevent injury that could result from allowing this practice. Without the condition, the Department would

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[8] Notably, the City continued to use the surface water rights after 1987. So, even if the City could show an immediate and direct connection between the surface sources and its wells, an accomplished transfer would not be appropriate because the change in practice did not occur prior to 1987. *See* I.C. § 42-1425. This fact is demonstrated by a letter from the Idaho Department of Environmental Quality that required the City to cease operation of its surface water sources for culinary purposes in 1998. *See* Exhibit D.

[9] The Department analyzed the map provided by the City of Pocatello and used it to conclude that there were only 22 interconnected wells within the city proper. This conclusion is discussed in more detail below. The map supplied by the City of Pocatello can be found in the claim file for claim nos. 29-2382 attached as Exhibit G hereto and discussed more fully below.

not have recommended the multiple, alternate points of diversion because injury to other water rights was likely.

1. Factual Background

The Department found that there were 22 interconnected wells that serve Pocatello for the "city proper" as depicted on Map 1 before November 19, 1987.[10] In addition to these 22 interconnected wells, there are four wells that serve other parts of the city proper or city-owned facilities. However, as discussed above, these are not interconnected to the City's water supply system and thus, the Department recommended them accordingly. Three water rights, 29-2274, 29-2338 and 29-7375, located within the city proper have 12 points of diversion recommended because transfer no. 5452 dated June 28, 1999, only recognized 12 points of diversion for those three water rights. Because there was a post-1987 final administrative action on these three water rights, the Department recommended them as transferred. However, water diverted by those three water rights comes from the interconnected well system.

In addition to the wells that serve the city proper, the City also owns three wells at its airport that are used for municipal purposes. IDWR recommended all three of these wells as interconnected for claim nos. 29-7450, 29-11344 and 29-11638.

2. "Other Provisions Necessary" Condition Basis

The condition recommended on the City's interconnected water rights says: "To the extent necessary for administration, water was first appropriated or used from:" followed by a listing of locations, priority dates and quantities. This condition is

[10] Water rights recommended with the 22 interconnected wells as the points of diversion are: 29-2401, 29-2499, 29-4221, 29-4223, 29-4224, 29-4225, 29-4226, 29-7106, 29-7322, 29-11339, 29-11348, 29-13558, 29-13559, 29-13560, 29-13561, 29-13562, 29-13637 and 29-13639.

necessary in order to avoid injury and to assist in the administration and definition of the water rights.

As an example, this condition would read:

> To the extent necessary for administration, water was first appropriated or used from: Pocatello Well No. 7 located in T06S, R34E, S35, NWSE, on 12/31/1940 in the amount of 4.46 cfs.

This remark can be broken down into three substantive parts as follows:

> Pocatello Well No. 7 located in T06S, R34E, S35, NWSE
>
> on 12/31/1940
>
> in the amount of 4.46 cfs.

The location of the well is the description by quarter-quarter where the well was drilled. This description is important because many other wells could have been drilled nearby before or after the City owned well was drilled or used.

The date associated with the well is the date water was first appropriated from that well. This date is important when addressing well-interference issues and mitigation requirements for aquifer-wide regulation. If at some time in the future, the City increases the pumping capacity of a well within the City's interconnected system, and it reduces the amount of water available to another water user, this condition preserves the ability of a water user to protect their water right. For example, if a well developed by Pocatello in 1990 causes interference with a neighbor's well that was drilled in 1960, the City's well will be treated as junior to the 1960 well even though the City, on occasion, could be diverting a quantity from that well that is associated with a 1950 well owned elsewhere by the City.

Finally, the amount of water listed for each well is the amount of water appropriated from that well under that date. This quantity is again a necessary parameter when evaluating possible well-interference issues. Allowing the City to increase the diversion rate withdrawn from any particular well by listing multiple, alternate points of diversion on its water rights could cause injury to other surface and ground water users. For example, if a senior surface water user makes a call and the Department determines that the City's use of ground water is causing injury to that senior surface water user from a certain well, the City has the flexibility to obtain that quantity from different well locations to supply its residents with water. However, the City is still responsible for mitigating any injury associated with the withdrawal of that quantity from its wells. In addition, when the City pumps water from a well at a different location, it may cause interference with a different surface water source, or another water user's well. Hence, an additional reason for describing the well with the quantity and date as it was originally appropriated is to maintain the historical relationship between various water users.

The "other provisions necessary condition" included on the Department's recommendations preserves the historical information necessary for administering the water rights as they were historically developed.

3. Revision

Finally, the Department has revised the condition from what it originally recommended to clarify the term "administration" and to account for replacement wells.

The Department refined the condition and revised the listing of well locations, quantities and dates.[11] The refined condition is:

> To the extent necessary for administration between points of diversion for ground water, and between points of diversion for ground water and hydraulically connected surface sources, water was first appropriated at or used from:

This revised remark has now become IDWR's standard condition for municipalities[12] that request multiple, alternate points of diversion on ground water rights under the accomplished transfer statute or Idaho Code § 42-222. IDWR believes this is the condition that should be on the City's water rights. *See* Exhibit F.

V. DISCUSSION REGARDING INDIVIDUAL WATER RIGHTS AND THEIR FACT-SPECIFIC ELEMENTS

In addition to the global matters discussed above, there are objections to specific elements on certain subcases that remain unresolved. The bases for the Department's recommendations to the elements objected to by the City on each individual subcase are described below.

A. Water Right No. 29-2382

This water right was recommended to the City with municipal as the purpose of use, but includes a limited season of use and a volume limitation. Certified copies of the license and claim files are attached hereto as Exhibit G. A private farmer originally developed this water right for the irrigation of cropland. Because the water right was developed as an irrigation water right, it, by its very nature had a season of use and a

[11] See Exhibit F for the water rights that should contain the revised remark and listing of well locations, quantities and dates.

[12] This condition would also apply to a non-municipal water right with multiple, alternate wells of varying priority located near a surface water source.

volume associated with it. The City acquired this water right from a private owner to use the water to irrigate the Highland Golf Course. *See* Map 4. The City wants to remove the volume limitation and expand the season of use to a year-round use. Removing these limitations would impermissibly enlarge the water right beyond its historical development and would violate the conditions set forth in Idaho Code § 42-1425. Therefore, although the Department recognizes that the nature of use has changed under the accomplished transfer theory from irrigation to a municipal use, the extent of beneficial use as the water right was historically developed cannot be enlarged.

B. Water Right No. 29-4222

This water right is based on a Posted Notice and is a surface water right for Gibson Jack Creek. A certified copy of the claim file is attached hereto as Exhibit H. The City has objected to the quantity of this right alleging that 7.00 cfs is the proper quantity consistent with the City's historical development of municipal water on Gibson Jack Creek. The Department recommended a quantity of 5.00 cfs. The quantity recommended by the Department was based on a Posted Notice filed by the Pocatello Water Company, Ltd. for the diversion of 5.00 cfs from Gibson Jack Creek. Another Posted Notice was filed by the Pocatello Water Company, Ltd. for the diversion of 2.00 cfs from the South Fork of Gibson Jack Creek. However, no information was supplied to document the development of the second Posted Notice, nor is there any evidence that a diversion system was ever constructed on the South Fork of Gibson Jack Creek. Also, the Department has not received any information from the City to establish the diversion rate from Gibson Jack Creek is higher than the 5.00 cfs claimed on the Posted Notice.

C. Water Right No. 29-4223

This water right is based on beneficial use and was developed from what is commonly referred to as the "Call Well." It was developed as a domestic water right for a subdivision by a private owner and acquired by the City in 1977. Attached hereto as Exhibit I is a certified copy of the claim file for this water right. According to the evidence provided to the Department, a 95 gallons per minute pump was installed in this well in 1962. This pump was still on the well when Pocatello acquired this water right in 1977.

Pocatello objects to the quantity recommended by the Department. The City wants to increase the quantity from 0.21 cfs to 2.67 cfs "pursuant to the doctrine of due diligence." The quantity of water recommended under this water right is the amount that can be historically justified. If Pocatello wants to have a water right for the quantity of water pumped from this well to match its current capacity, then the City needs to file an application for permit to account for the additional water.

D. Water Right No. 29-4226

This water right is also based on beneficial use, and it was developed from what is commonly referred to as the "Cree Well." It was developed as a domestic water right for a subdivision by a private owner and was later acquired by the City. The Department is not sure of the exact date when the larger pump was installed, but it appears to have occurred in the 1970s. A certified copy of the claim file for this water right is attached hereto as Exhibit J. Pocatello claimed a flow rate of 1.22 cfs for this water right, but the Department recommended 0.22 cfs. The Cree Well was drilled in 1955 with the intent to install a 100 gallons per minute pump for 29 residential lots. The quantity of water recommended is adequate for the number of homes located on the plat where this water was originally developed.

If the City wishes to have a water right for the quantity of water pumped from this well to match its current capacity, then an application for permit for the additional quantity must be filed with the Department.

E. Water Right Nos. 29-7118 and 29-7119

Pocatello objected to the Department's recommendations for the purpose of use element of these water rights. The two licensed water rights are used to irrigate cropland at the city-owned airport which is located northwest of the City. These wells are not the same wells that supply potable municipal water to the airport area. The Department recommended the purpose of use as "irrigation" as licensed. The City leases these lands to a local farmer who irrigates the ground. According to the Department's license files, the farmer, at the request of Pocatello, applied for the water rights for this property. A certified copy of the license and claim files for these licensed water rights is attached hereto as Exhibit K. Because the only purpose for these water rights is to irrigate cropland, the purpose of use for these water rights is properly irrigation, not municipal. Pocatello chose to allow the local farmer to develop water rights for an agricultural purpose and this purpose was properly addressed in the license as irrigation. The SRBA is not the proper forum for collaterally attacking a valid license. *See Order on Challenge (Consolidated Issues) of "Facility Volume" Issue and "Additional Evidence Issue ("Fish Facility Volume*"), 3 SRBA 18, 18.15 (December 29, 1999).

If the City wants to change the purpose of use, then it may file an application for transfer under Idaho Code § 42-222.

F. Water Right No. 29-7431

Pocatello objected to the source element of the Department's recommendation of this water right. Pocatello wishes to have the source of this water right changed from wastewater to ground water; however, the source of this water right is properly wastewater. Attached hereto as Exhibit L is a certified copy of the license and claim files for this water right.

This water right allows the City to apply effluent from its wastewater treatment plant to cropland located outside the city's corporate boundary. If the only water captured by the City were water from municipal wells, then this license would be unnecessary. However, what is more likely the case, is that the diversion under this license captures not only Pocatello wastewater, but also includes waste from water appropriated by others as well as some water from storm drains. This is akin to a farmer diverting water that runs off of his neighbor's field and collects in a waste ditch. The farmer who diverts the water from the waste ditch onto his own field would need a water right for wastewater. *See* I.C. § 42-201(2). Thus, it is appropriate for the source to remain as wastewater as recommended by the Department.

G. Water Right No. 29-7770

Pocatello objected to the Department's recommendation for the purpose of use element of this water right (commonly known as Pocatello's Biosolids Well). To aid in the understanding of the history of this water right, certified copies of the license and claim files are attached hereto as Exhibit M.

The City wants the licensed purpose of use to be changed from irrigation to municipal. Yet, when the City completed its application for permit for this license in

1984, the proposed use was irrigation from a ground water source. The remarks on the application indicate that the water is necessary for the irrigation of crops. On July 1, 1987, the City requested that the Department consider defining the purpose of use for this license as "DCMI" (domestic, commercial, municipal and industrial.) The Department responded by a letter dated July 28, 1987, that stated the use cannot be considered "DCMI" as requested.[13] Hence, the change from irrigation to a broader use was specifically addressed during the licensing process. License no. 29-7770 was issued in January 2003 with nothing further raised about irrigation as the purpose of use until an amended claim was filed in the SRBA after the license was issued.

Changing the purpose of use in the SRBA would be a collateral attack on the license which is prohibited by *Order on Challenge (Consolidated Issues) of "Facility Volume" Issue and "Additional Evidence Issue* (*"Fish Facility Volume"*), 3 SRBA 18, 18.15 (December 29, 1999). The City may file a transfer under Idaho Code § 42-222 to change the purpose of use under this license.

H. Water Right No. 29-7782

This water right was recommended as licensed. Attached hereto as Exhibit N is a certified copy of the license and claim files for this water right. Although there is evidence that the well described as the point of diversion for this water right became interconnected with the City's other municipal wells prior to 1987, when the City applied for this water right, it applied for only one well as if it was not interconnected. Thus, it was licensed with only one point of diversion and not multiple, alternate points of diversion as the City desires in its objection. Because the license was issued in 1998 and

[13] At the time, the Department had a policy that defined municipal use to include irrigation and other uses within the corporate limits of a municipality. In this case, the field that was irrigated was located outside the City's corporate boundaries (and still is).

no objection was filed to how the point of diversion element was described, the City must file an application for transfer under Idaho Code § 42-222 to change the point of diversion element.

I. Water Right No. 29-13558

This water right is based on beneficial use and is for the first well used by the City of Alameda and developed by the predecessor to the City of Alameda. A certified copy of the claim file is attached hereto as Exhibit O. Pocatello objected to the priority date recommended by the Department. Pocatello claimed a priority date of 1905 and states specifically in its objection that the date should be June 30, 1905. However, the supporting documentation provided by the City to the Department only supports a July 16, 1924 priority date. According to a newspaper article in the claim file the city of Alameda was founded on July 17, 1924. According to the article, the first well was dug to a depth of 65 feet. The article further states that the well was deepened to a depth of 100 feet during the term of Alameda's first mayor. The priority date recommended by the Department is one day before the City of Alameda was founded. The Department recommended this date because the well appeared to be in existence when the City was founded. The actual date the well was developed has not been documented.

J. Water Right No. 29-13639

The City of Pocatello claimed this water right as a beneficial use right from Alameda well no. 3. License no. 29-2324 which covered Alameda well nos. 1, 2 and 3 has a priority date of October 22, 1952. Certified copies of the license and claim files are attached hereto as Exhibit P. The City objected to the recommended priority date stating that the priority date should be December 31, 1940. The City has not provided any evidence to support the claimed priority date. Thus, the Department recommended this water right with the licensed priority date of October 22, 1952, because there was no evidence to support an earlier date.

K. Resolved Issues

Several of the issues raised by Pocatello's objections have reached resolution via stipulations sent to Pocatello. These resolutions relate to claim nos: 29-4221, 29-7450, 29-11344, 29-13636 and 29-13628. *See* Figure 2 and the stipulations attached hereto as Exhibit Q. The stipulations are descriptions of the elements of the individual water rights that have been agreed to. Because negotiations in good faith between the City and IDWR have resolved these issues, even though the City has not signed the stipulations, IDWR believes that the descriptions of the elements as attached hereto represent the agreed upon resolution. Thus, no further discussion regarding these specific elements is needed.

VI. CONCLUSION

The Department's recommendations of the City's water rights are based on historical evidence of beneficial use and reasonable conclusions were drawn from the evidence presented to the Department.

Submitted this 13th day of April, 2006.

David R. Tuthill, Jr.
David R. Tuthill, Jr.
Administrator, Water Management Division

Carter Fritschle
Carter Fritschle
Manager, Adjudication Technical Section

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that I served a true and correct copy of the following described document on the persons listed below by United States mail with the correct postage affixed thereto on this 14th day of April, 2006.

Document Served: **SUPPLEMENTAL DIRECTOR'S REPORT REGARDING CITY OF POCATELLO'S BASIN 29 STATE-BASED WATER RIGHTS**

Persons Served:

CITY OF POCATELLO - Hand Delivered
Represented by:
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SARAH A KLAHN
WHITE & JANKOWSKI LLP
KITTREDGE BUILDING
511 16TH ST STE 500
DENVER, CO 80202

MILNER IRRIGATION DISTRICT
NORTH SIDE CANAL COMPANY
TWIN FALLS CANAL COMPANY
Represented by:
TRAVIS L. THOMPSON
113 MAIN AVE. W., STE. 303
TWIN FALLS, ID 83301-6167

UNITED STATES OF AMERICA
Represented by:
US DEPARTMENT OF JUSTICE
ENVIRONMENT & NATL' RESOURCES
550 WEST FORT STREET, MSC 033
BOISE, ID 83724

DIRECTOR OF IDWR
PO BOX 83720
BOISE, ID 83720-0098

AMERICAN FALLS RESERVOIR DIST. #2
Represented by:
C. THOMAS ARKOOSH
301 MAIN STREET
P.O. BOX 32
GOODING, ID 83330

A & B IRRIGATION DISTRICT
BURLEY IRRIGATION DISTRICT
Represented by:
ROGER D. LING
615 H ST.
PO BOX 396
RUPERT, ID 83350-0396

MINIDOKA IRRIGATION DISTRICT
Represented by:
W. KENT FLETCHER
PO BOX 248
BURLEY, ID 83318

Gary Wells

INDEX OF ATTACHMENTS

[illegible]	[illegible]
1	Summary of the Global Issues Per Subcase
2	Summary of Subcases with Objections to Fact Specific Element
Map ID	[illegible]
1	Interconnected Wells in City Proper
2	Municipal Wells at the Airport
3	Other Wells in or Near City Proper
4	Agricultural Irrigation Wells
5	All Points of Diversions
6	All Points of Diversions Overlaying 2004 NAIP Photography
Exhibit No.	[illegible]
A	Letter from Beeman to Tuthill dated 5/3/2004
B	Letter from McHugh to Beeman dated 5/13/2004 with stipulations
C	Letter from Williams to Beeman dated 3/29/2005 with stipulations
D	Letter from DEQ dated 10/26/1998
E	IDWR's Transfer Processing Memo No. 24 (October 30, 2002)
F	Revised Remark
G	Certified Copies of License and Claim Files for Water Right Number 29-2382
H	Cetified Copy of Claim File for Water Right Number 29-4222
I	Certified Copy of Claim File for Water Right Number 29-4223
J	Certified Copy of Claim File for Water Right Number 29-4226
K	Certified Copies of License and Clain Files for Water Right Numbers 29-7118 and 29-7119
L	Certified Copies of License and Claim Files for Water Right Number 29-7431
M	Certified Copies of License and Claim Files for Water Right Number 29-7770
N	Certified Copies of License and Clain Files for Water Right 29-7782
O	Certified Copy of Claim File for Water Right 29-13558
P	Certified Copies of License and Claim Files for Water Right Number 29-13639
Q	Agreed Upon Stipulations

7323

Attachments can be viewed in the legal & repository files

CITY OF POCATELLO

EXHIBIT 122

Table – Ground Water and Surface Water Alternate Points of Diversion Claims

Subcase Nos. (27)

29-00271
29-00272
29-00273
29-02274
29-02338
29-02401
29-02499
29-04221
29-04222
29-04223
29-04224
29-04225
29-04226
29-07106
29-07322
29-07375
29-07450
29-11339
29-11348
29-13558
29-13559
29-13560
29-13561
29-13562
29-13637
29-13638
29-13639

Admitted

29-271 et al.
(Subcase No.)
EXHIBIT
Poc. 122
Date: 3/2/07

City of Pocatello
Ground Water and Surface Water Alternate Points of Diversion Claims

	Thirty-eight State-law SRBA Claims					Ground Water Claims with Alternate Points of Diversion				Surface Water Claims with Alternate Points of Diversion		
	SRBA Claim No.	Priority Date	Diversion Rate Claimed/ Stipulated (cfs)	Historical Well No./Source	AKA/Name	City Wells WR No.	City Wells APOD	Airport Wells WR No.	Airport Wells APOD	WR No.	APOD	
	29-271	2/26/1869	3.22	Mink Creek						29-271		
	29-272	10/1/1901	0.56	Mink Creek						29-272		
	29-273	10/1/1917	1.218	Mink Creek						29-273		
	29-2274	6/15/1948	9.69	8		29-2274						
				9								
				10			10				10	
	29-2338	9/1/1953	9.53	12		29-2338	12				12	
(1)				13	17		13				13	
(1)				15			15				15	
	29-2354	8/27/1954	0.28	Restlawn Cemetery							~~Restlawn Cemetery~~	GKS
	29-2382	12/21/1956	3.82	17	Highland GC						~~NA~~	GKS
(1)	29-2401	10/16/1958	12.22	13	17	29-2401	13				13	
				16			16				16	
				18			18				18	
	29-2499	10/10/1964	4.10	27		29-2499	27				27	
	29-4221	6/1/1945	2.67	26	PIP	29-4221	26				26	
	29-4222	6/16/1898	5.00	Gibson Jack Creek						29-4222		
	29-4223	10/1/1962	0.21	33	Call	29-4223	33				33	
	29-4224	9/15/1955	3.89	21	Alameda 4	29-4224	21				21	
	29-4225	8/15/1956	4.44	23	Alameda 5	29-4225	23				23	
	29-4226	10/1/1955	0.22	14	Cree	29-4226	14				14	
	29-7106	11/6/1972	3.90	29		29-7106	29				29	
	29-7118	4/11/1973	4.01	42	Airport 1							
	29-7119	4/11/1973	6.00	41	Airport 2							
	29-7222	8/22/1974	1.00	43	Ward Park							
	29-7322	4/25/1976	17.06	30		29-7322	30				30	
				31			31				31	
				32			32				32	
(1)	29-7375	2/24/1977	2.23	15		29-7375	15				15	
	29-7431	12/29/1977	9.28	Wastewater								
	29-7450	6/13/1978	3.34	35	Phillips 3			29-7450	35			
	29-7502	7/6/1979	0.10	Restlawn Cemetery								
	29-7770	5/21/1984	4.46	WPC								
	29-7782	1/18/1985	7.00	34			34				34	
	29-11339	1961	3.36	Alameda 6		29-11339						
				Alameda 7								
	29-11344	12/31/1942	1.92	40	Phillips 4							
	29-11348	Aug-51	4.90	28	20/Turner	29-11348	28				28	
	29-13558	1905	1.34	Alameda 1		29-13558						
	29-13559	1925	0.96	Alameda 2		29-13559						
	29-13560	12/31/1926	9.13	1		29-13560						
				2			2				2	
				3			3				3	
	29-13561	8/31/1931	4.23	4		29-13561						
	29-13562	1936	2.45	6		29-13562						
	29-13636	10/16/1958	0.80	19								
	29-13637	12/31/1940	4.46	7		29-13637	7				7	
	29-13638	12/31/1940	2.20	39	Phillips 1			29-13638	39			
	29-13639	12/31/1940	3.68	22	Alameda 3	29-13639	22				22	
(2)							44				44	
	Total					21	23	2	2	4	25	

Notes:

Yellow shading indicates water rights or points of diversion that are part of Pocatello's alternate point of diversion claims that was that were not recommended by IDWR.

(1) Wells 13 and 15 are listed twice because they are each points of diversion for two different water rights.

(2) Well 44 is a post-1987 interconnected City Well that is not recommended as an alternate point of diversion by IDWR. Well 44 was added as an alternate point of diversion for Water Rights 29-2274, 29-2338, and 29-7375 in Transfer 5452.

7326

Spronk Water Engineers, Inc.

CITY OF POCATELLO

EXHIBIT 124

Idaho Code Section 42-1425

Subcase Nos.

all 38

ADMITTED
29-271 et al
(Subcase No.)
EXHIBIT
Doc. 24
Date: 3/2/07

Idaho Code §42-1425 ("Accomplished Transfer Statute"). The following is an excerpt of the statute:

> Any change of place of use, **point of diversion**, nature or purpose of use or period of use of a water right by any person entitled to use of water or owning any land to which water has been made appurtenant either by decree of the court or under the provisions of the constitution and statutes of this state, prior to November 19, 1987, the date of commencement of the Snake River basin adjudication, may be claimed in a general adjudication even though the person has not complied with sections 42-108 and 42-222, Idaho Code, provided **no other water rights existing on the date of the change were injured** and the change did not result in an enlargement of the original right. (emphasis added). I.C. §42-1425(2).

CITY OF POCATELLO

EXHIBIT 125

Example – Ground Water Alternate Points of Diversion Claim (APOD), with Cumulative Rate of Diversion, Example Illustrating APOD Operation

Subcase Nos. (27)

29-00271
29-00272
29-00273
29-02274
29-02338
29-02401
29-02499
29-04221
29-04222
29-04223
29-04224
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29-07450
29-11339
29-11348
29-13558
29-13559
29-13560
29-13561
29-13562
29-13637
29-13638
29-13639

Admitted

29-271 etal
(Subcase No.)
EXHIBIT
Poc 125
Date: 3/2/07

City of Pocatello
Ground Water Alternate Points of Diversion Claim (APOD), with Cumulative Rate of Diversion
Example Illustrating APOD Operation

SRBA Claim No.	Priority Date	Diversion Rate Claimed/ Stipulated (cfs)	Cumulative Rate (cfs)	Historical Well No./Source	AKA/Name	APOD Well	Example Pumping Scenario (cfs)
29-13558	1905	1.34	1.34	Alameda 1			
29-13559	1925	0.96	2.30	Alameda 2			
29-13560	12/31/1926	9.13	11.43	1			
				2		2	2.20
				3		3	4.50
29-13561	8/31/1931	4.23	15.66	4			
29-13562	1936	2.45	18.11	6			
29-13637	12/31/1940	4.46	22.57	7		7	
29-13639	12/31/1940	3.68	26.25	22	Alameda 3	22	
29-4221	6/1/1945	2.67	28.92	26	PIP	26	
29-2274	6/15/1946	9.69	38.61	8			
				9			
				10		10	6.20
29-11348	Aug-51	4.90	43.51	28	20/Turner	28	4.90
29-2338	9/1/1953	9.53	53.04	12		12	5.60
				13	17	13	
				15		15	
29-4224	9/15/1955	3.89	56.93	21	Alameda 4	21	
29-4226	10/1/1955	0.22	57.15	14	Cree	14	
29-4225	8/15/1956	4.44	61.59	23	Alameda 5	23	
29-2401	10/16/1958	12.22	73.81	13	17	13	
				16		16	
				18		18	
29-11339	1961	3.36	77.17	Alameda 6			
				Alameda 7			
29-4223	10/1/1962	0.21	77.38	33	Cal	33	
29-2499	10/10/1964	4.10	81.48	27		27	
[redacted]							
29-7106	11/6/1972	3.90	85.38	29		29	
29-7322	4/25/1976	17.06	102.44	30		30	
				31		31	6.20
				32		32	2.20
29-7375	2/24/1977	2.23	104.67	15		15	
						34	7.00
						44	4.50
Total		104.67				23	43.30
Total pumping junior to 1970 curtailment date							19.9

(4.46) GKS

Most junior priority exercised WITH APOD operation. Pumping junior to curtailment date of 1970 = 0 cfs

Senior to curtailment date

Junior to curtailment date

(43.26) GKS.

Amount requiring mitigation WITHOUT APOD operation

Spronk Water Engineers, Inc.

CITY OF POCATELLO

EXHIBIT 126

Graphs - Measured Ground Water Levels for Interconnected Wells

Subcase Nos. (27)

29-00271
29-00272
29-00273
29-02274
29-02338
29-02401
29-02499
29-04221
29-04222
29-04223
29-04224
29-04225
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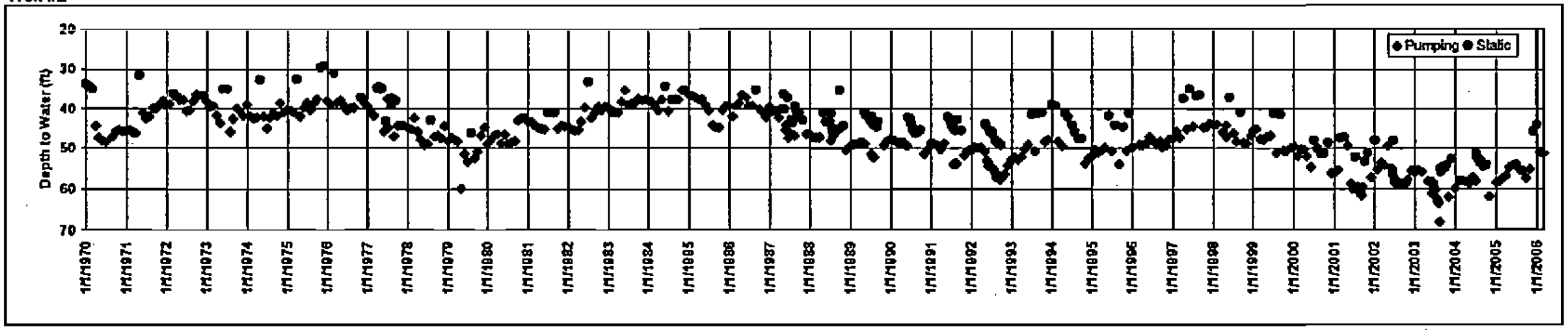
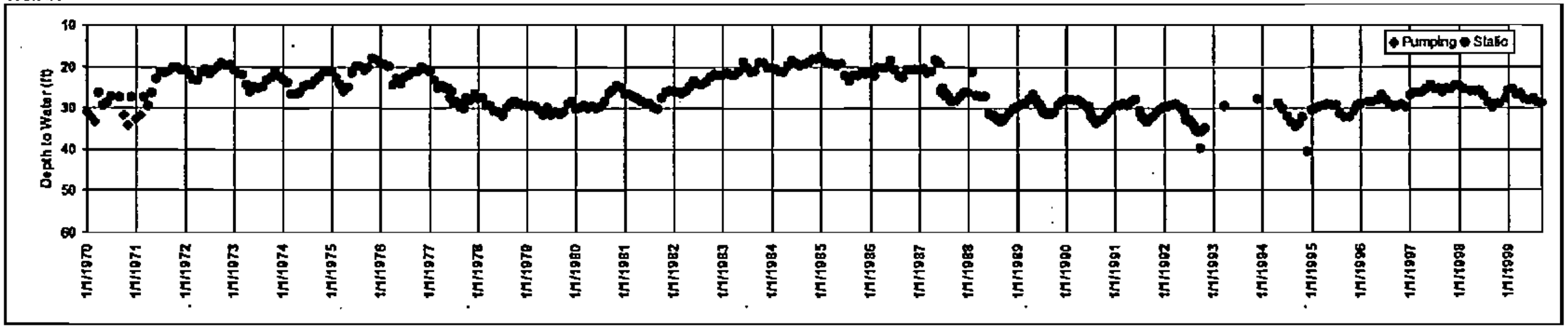
29-07106
29-07322
29-07375
29-07450
29-11339
29-11348
29-13558
29-13559
29-13560
29-13561
29-13562
29-13637
29-13638
29-13639

Figure 2
Measured Ground Water Levels for Interconnected Wells
City of Pocatello
(feet)

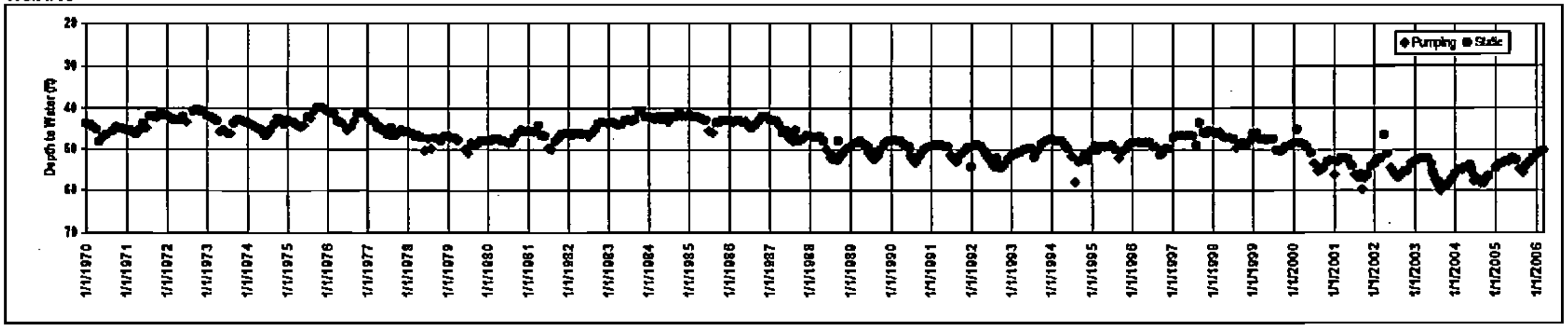
Well #2



Well #7



Well #10



Sprenk Water Engineers, Inc.

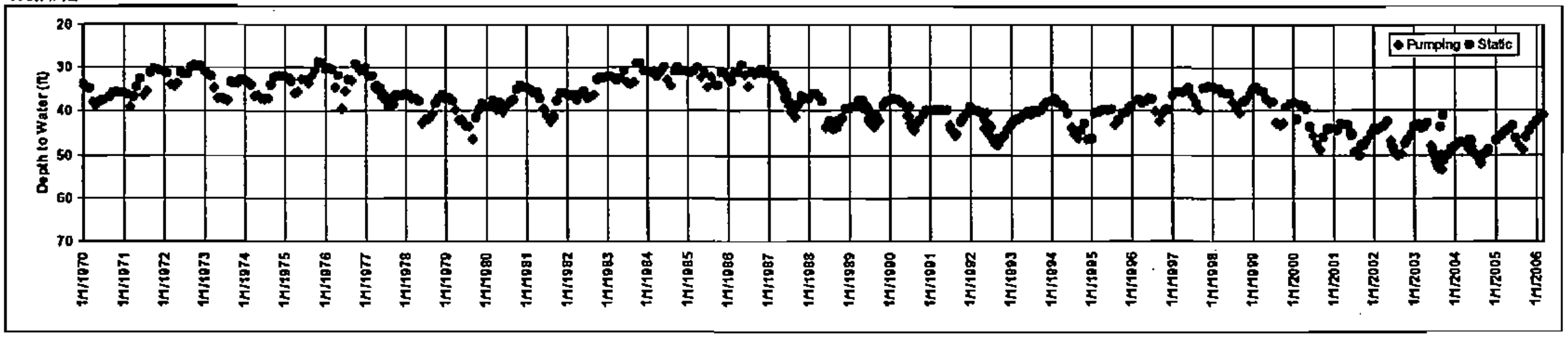
29-271 et al.
(Subcase No.)
EXHIBIT
Poc. 126
Date: 3/2/07
Admitted

7332

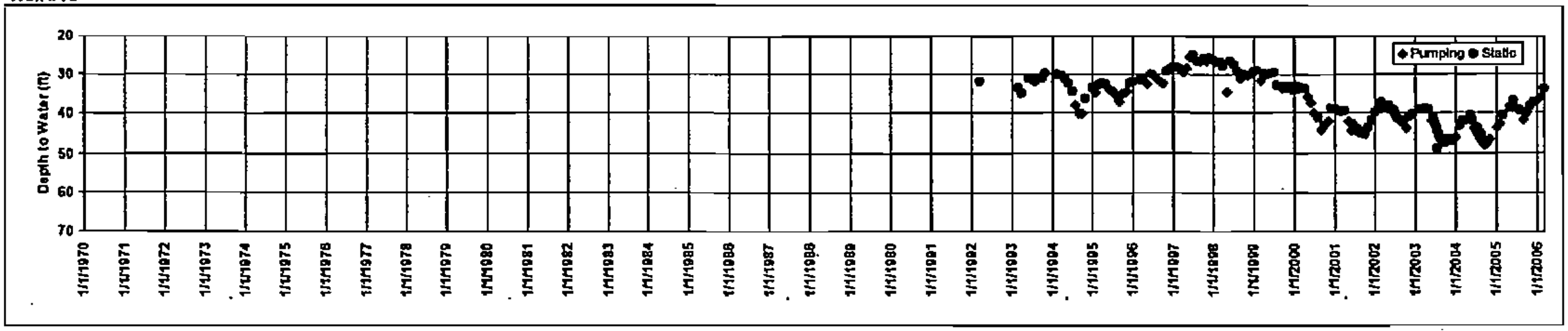
7333

Figure 2
Measured Ground Water Levels for Interconnected Wells
City of Pocatello
(feet)

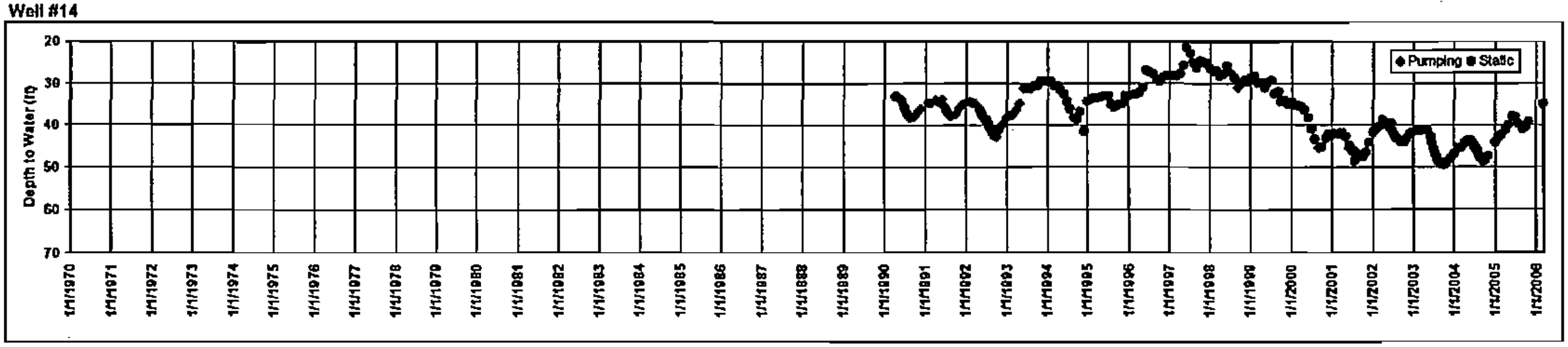
Well #12



Well #13



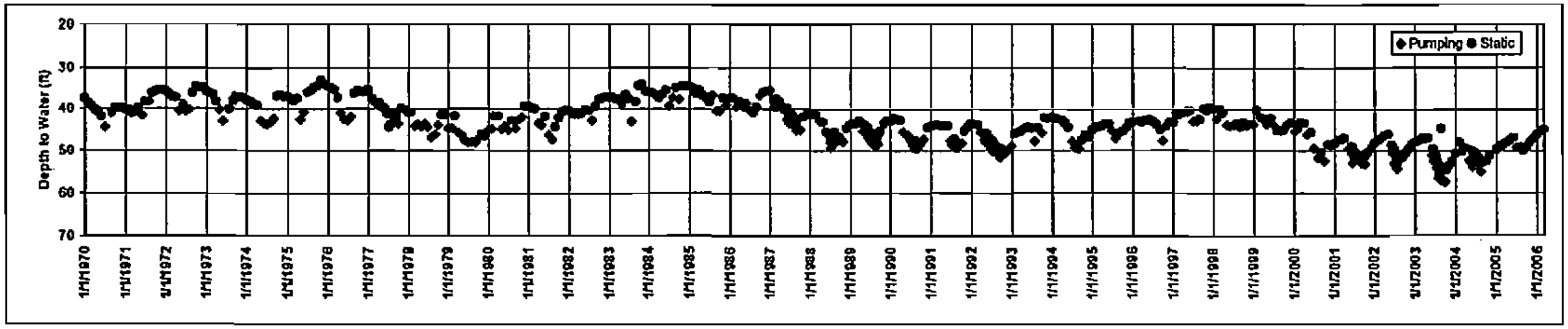
Well #14



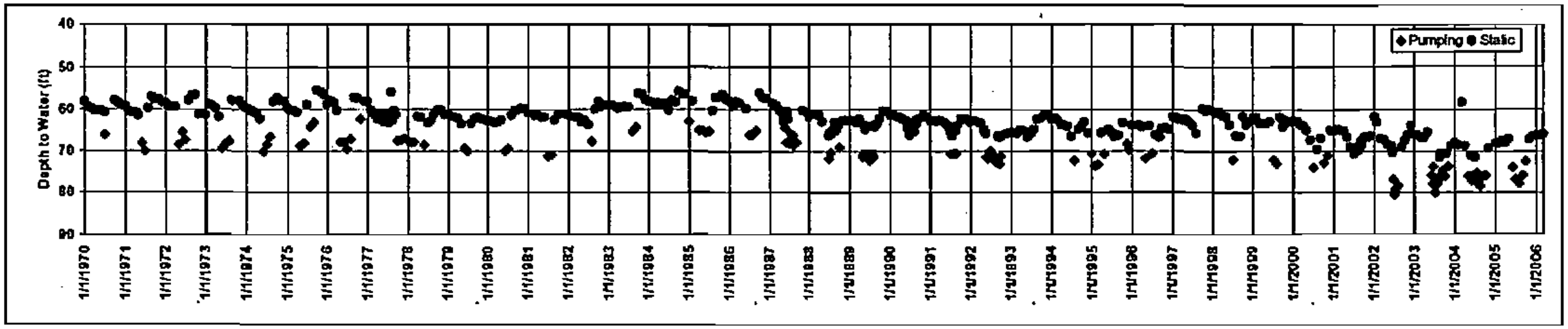
Spronk Water Engineers, Inc.

Figure 2
Measured Ground Water Levels for Interconnected Wells
City of Pocatello
(feet)

Well #16



Well #18



Well #21

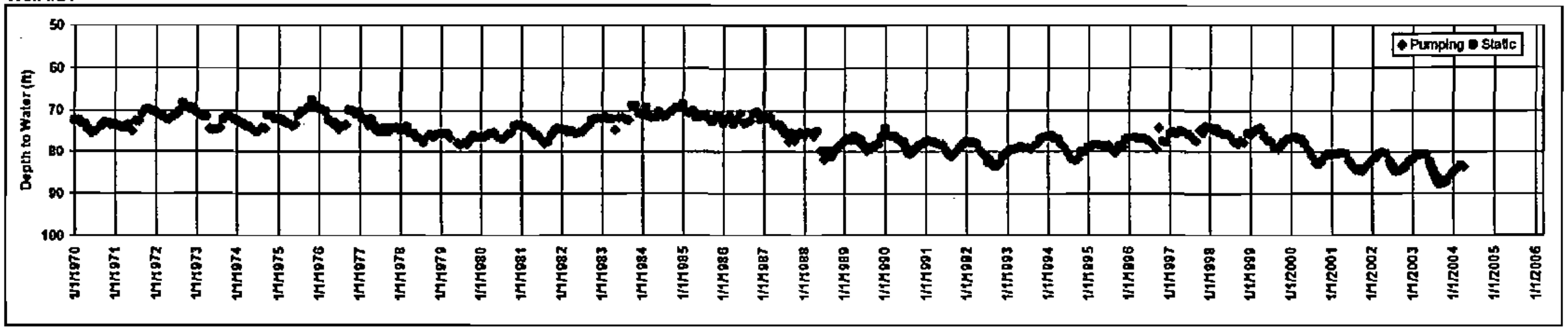
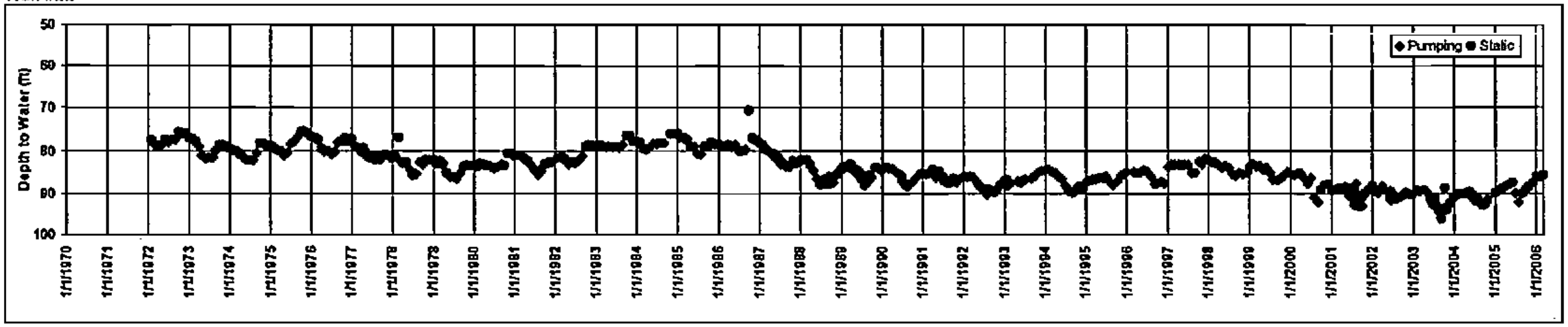
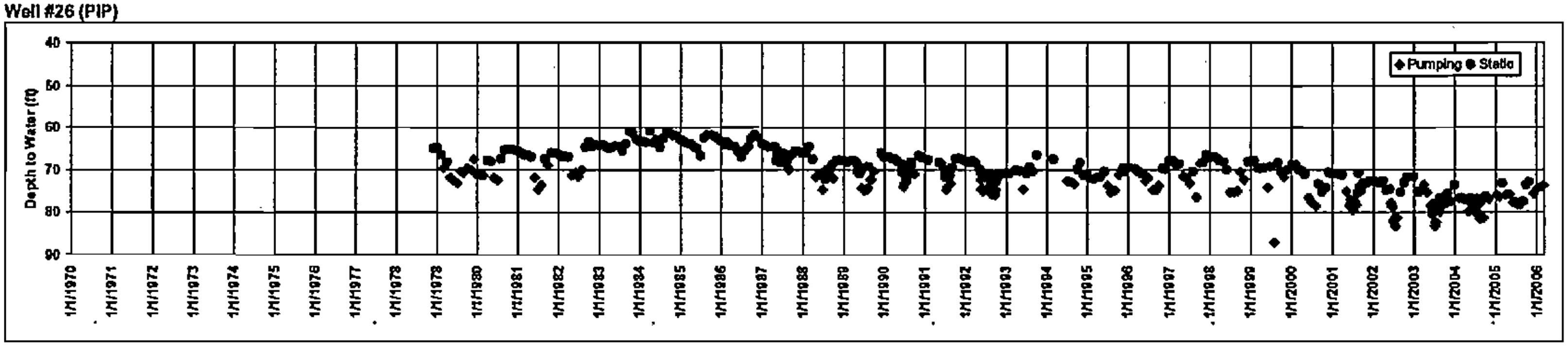


Figure 2
Measured Ground Water Levels for Interconnected Wells
City of Pocatello
(feet)

Well #22



Well #26 (PIP)



Well #27

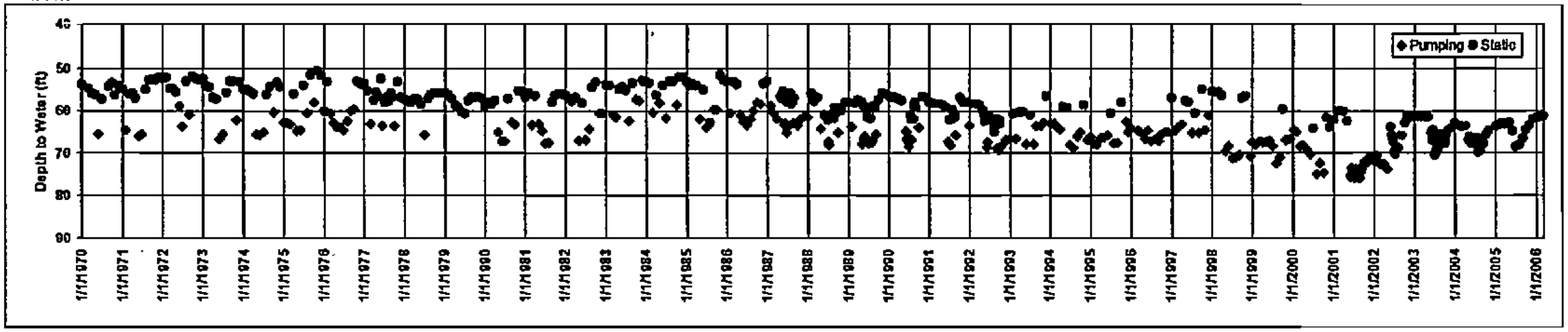
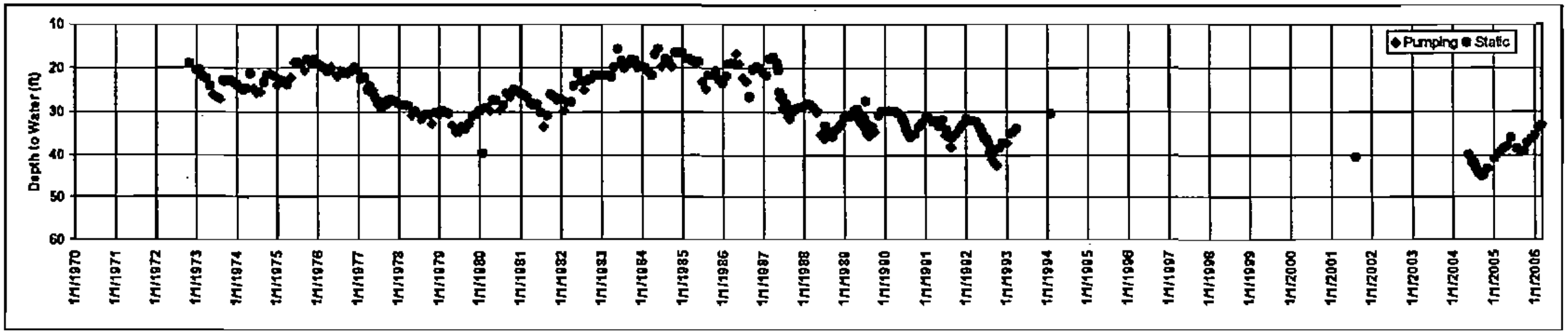
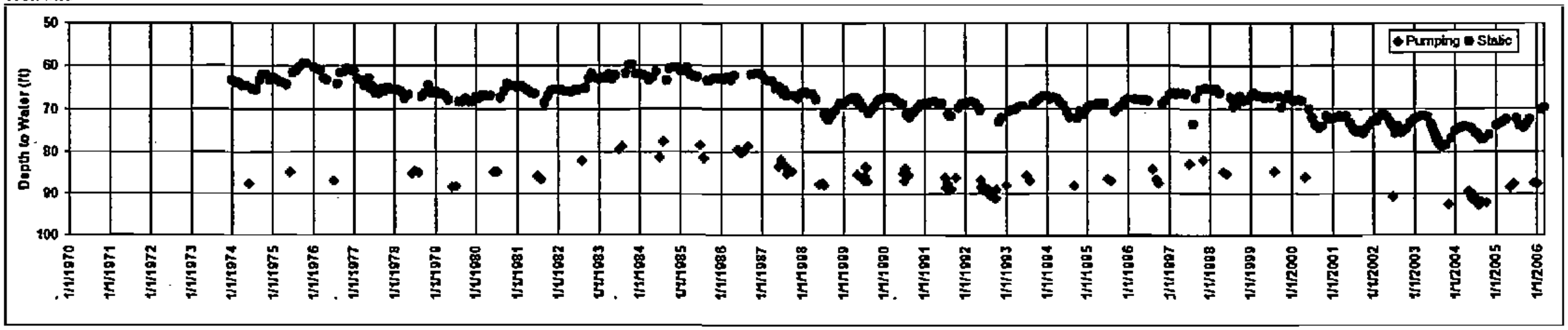


Figure 2
Measured Ground Water Levels for Interconnected Wells
City of Pocatello
(feet)

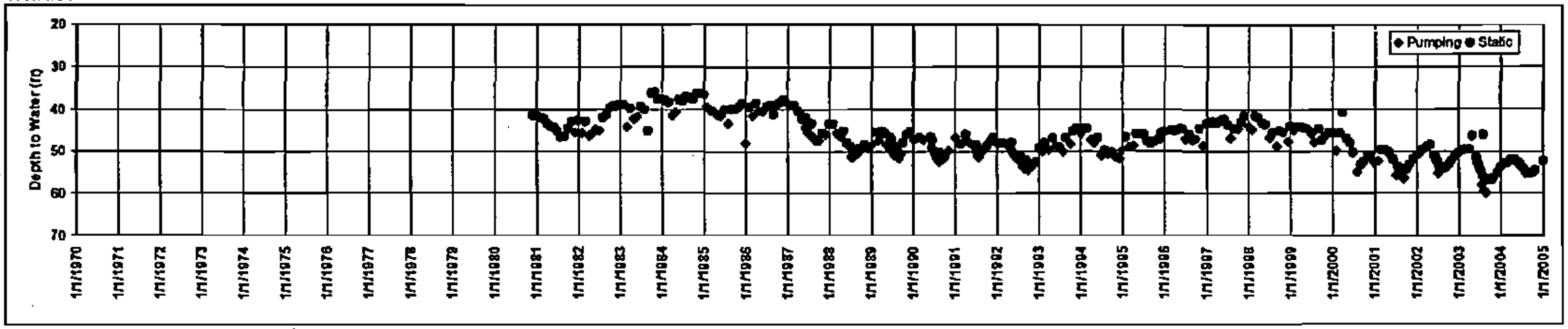
Well #28



Well #29



Well #30

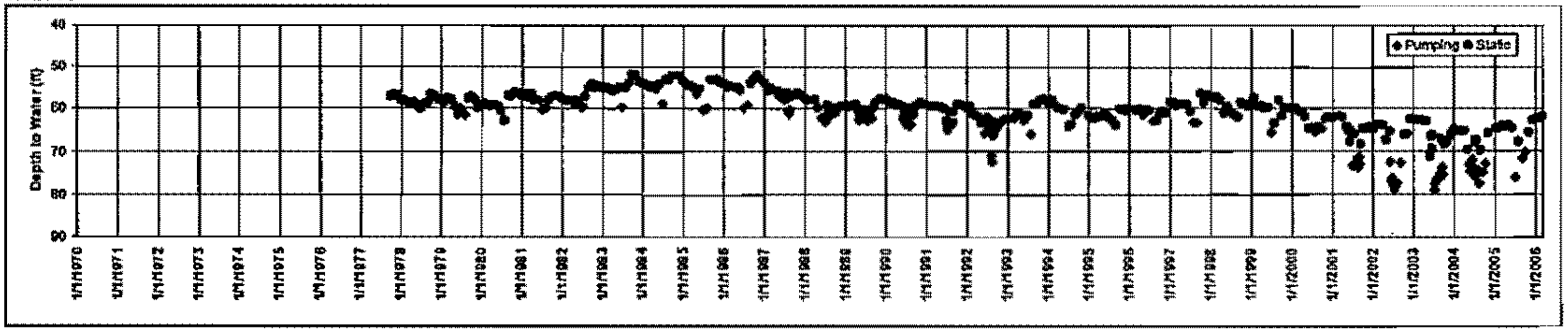


Sprenk Water Engineers, Inc.

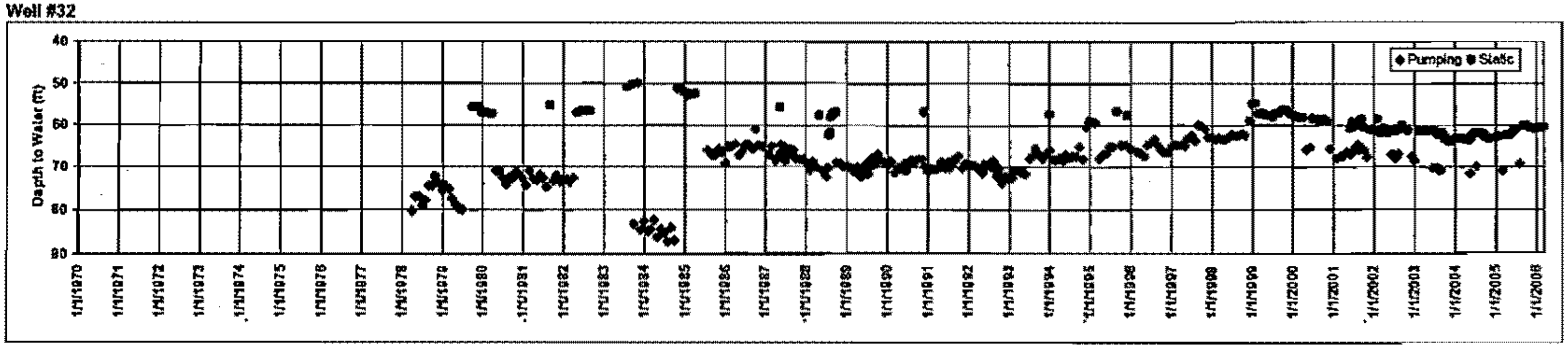
7330

Figure 2
Measured Ground Water Levels for Interconnected Wells
City of Pocatello
(feet)

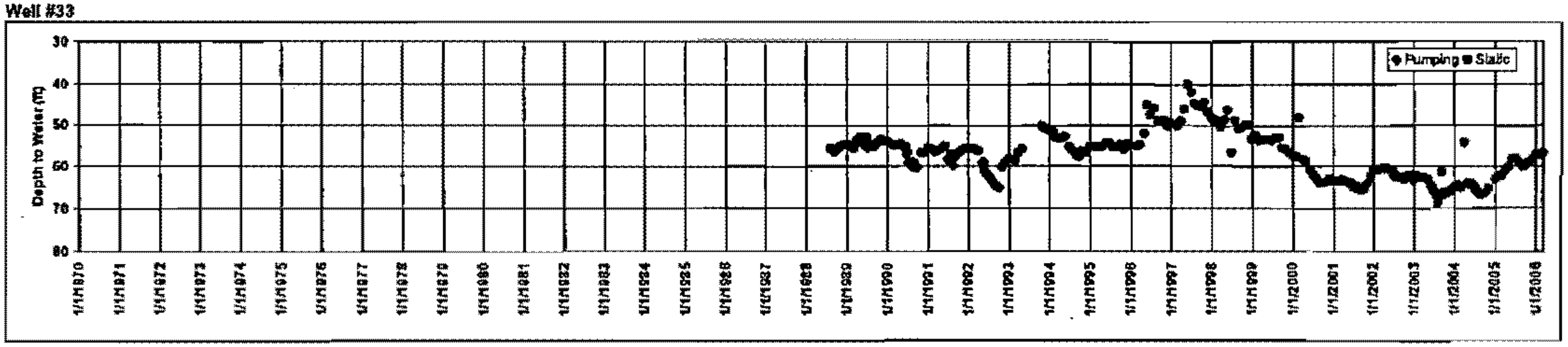
Well #31



Well #32



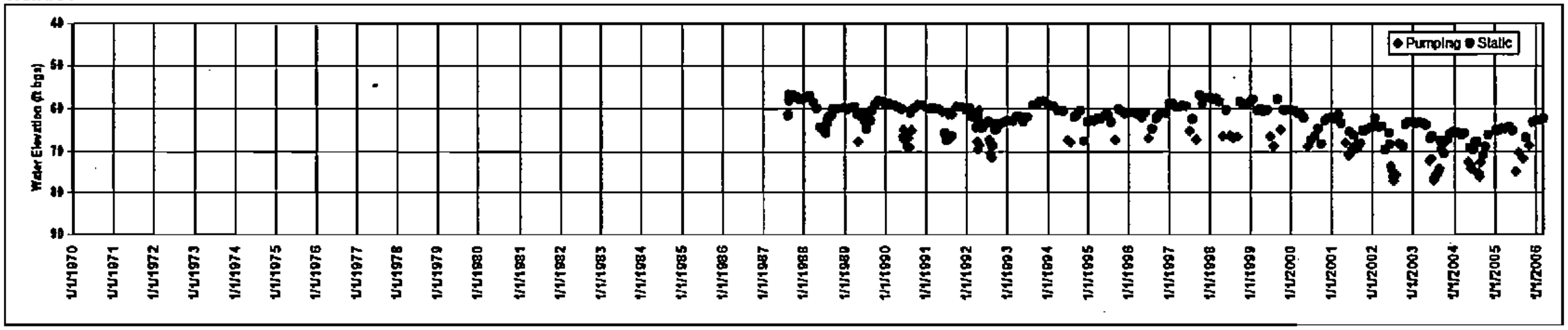
Well #33



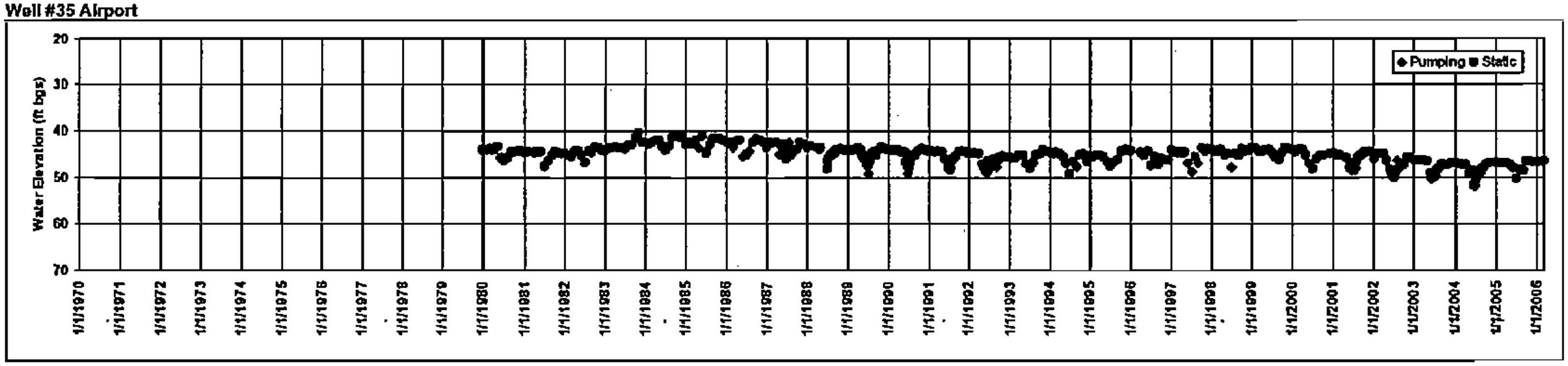
7337

Figure 2
Measured Ground Water Levels for Interconnected Wells
City of Pocatello
(feet)

Well #34



Well #35 Airport



CITY OF POCATELLO

EXHIBIT 127

Table - Average Measured Pumping Drawdown 1987, City of Pocatello Wells

Subcase Nos. (27)

29-00271
29-00272
29-00273
29-02274
29-02338
29-02401
29-02499
29-04221
29-04222
29-04223
29-04224
29-04225
29-04226
29-07106
29-07322
29-07375
29-07450
29-11339
29-11348
29-13558
29-13559
29-13560
29-13561
29-13562
29-13637
29-13638
29-13639

29-271dd
(Subcase No.)
EXHIBIT
Poc. 127
Date: 3/2/67
Admitted

Average Measured Pumping Drawdown
as of 1987
City of Pocatello Wells

0 - 4 feet	4 - 10 feet	10 - 19 feet	No Data
Well 10 Well 12 Well 21 Well 22 Well 28 Well 30 Well 31 Well 35	Well 2 Well 7 Well 16 Well 18 Well 26 Well 27	Well 29 Well 32	Well 13 Well 14 Well 15 Well 23 Well 33 Well 34 Well 39 Well 44

CITY OF POCATELLO

EXHIBIT 128

Figure - Interconnected Wells, Average Measured Ground Water Level Drawdown During Pumping, Beginning of Record to 1987

Subcase Nos. (27)

29-00271
29-00272
29-00273
29-02274
29-02338
29-02401
29-02499
29-04221
29-04222
29-04223
29-04224
29-04225
29-04226
29-07106
29-07322
29-07375
29-07450
29-11339
29-11348
29-13558
29-13559
29-13560
29-13561
29-13562
29-13637
29-13638
29-13639

Admitted
29-271 et al
(Subcase No.)
EXHIBIT
Poc. 128
Date: 3/2/07

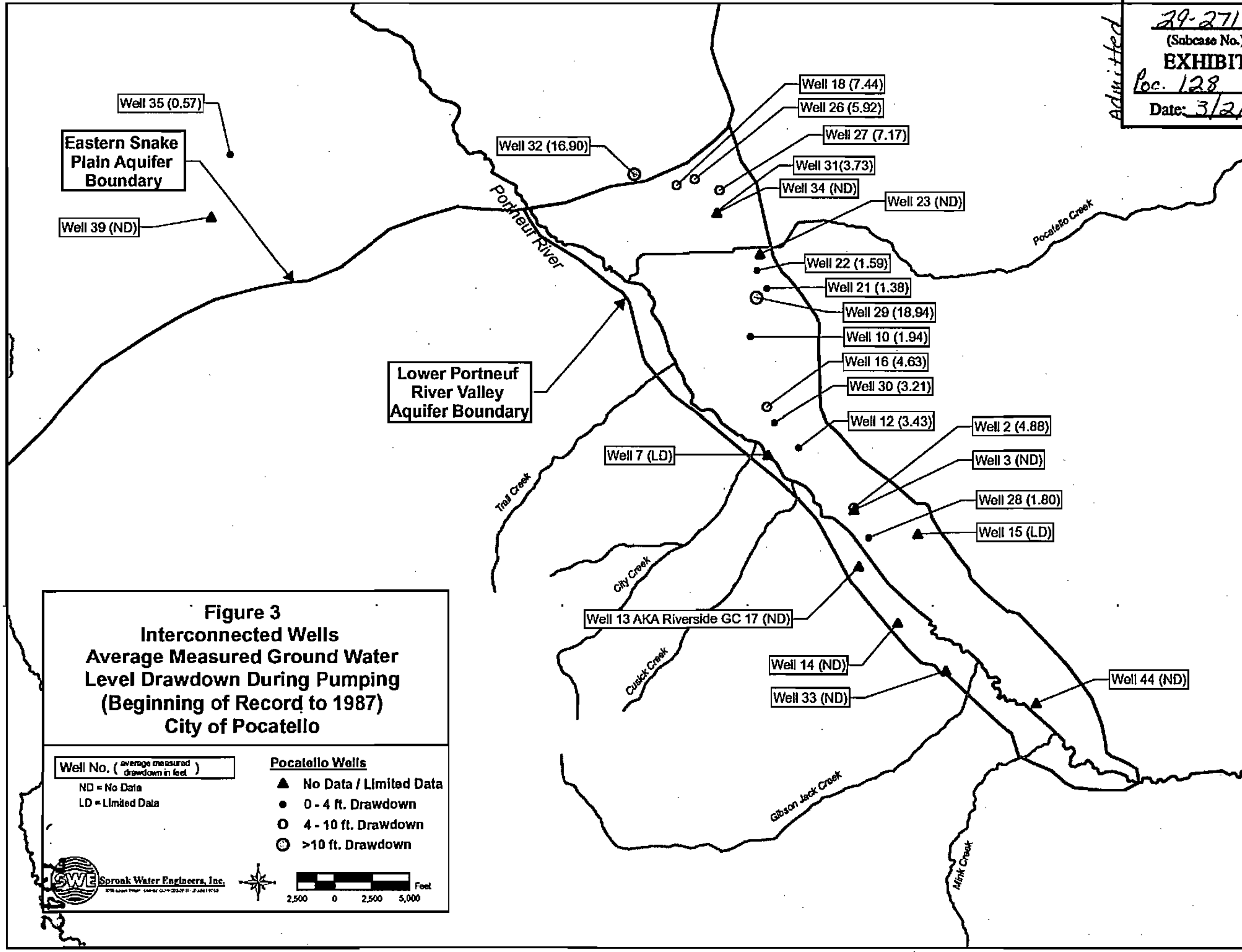


Figure 3
Interconnected Wells
Average Measured Ground Water Level Drawdown During Pumping
(Beginning of Record to 1987)
City of Pocatello

CITY OF POCATELLO

EXHIBIT 129

Decree, *Smith et al. vs. City of Pocatello et al.*, June 5, 1926

Subcase Nos.

29-00271
29-00272
29-00273
29-04222

Mink Creek
Water Rights

29-271 et al
(Subcase No.)
EXHIBIT
Doc. 129
Date: 3/8/07
Admitted

IN THE DISTRICT COURT OF THE FIFTH JUDICIAL
DISTRICT OF THE STATE OF IDAHO, IN AND
FOR THE COUNTY OF BANNOCK.

SAM B. SMITH, Administrator of the Estate of T. D. Smith, deceased, Elkhorn Livestock and DAIRY COMPANY, a corporation, JOSEPH HORN AND WILLIAM H. EDWARDS,

Plaintiffs,

-vs-

D E C R E E

\# 6669
June 5, 1926

CITY OF POCATELLO, a municipal corporation, ARTHUR SAY, J. A. McKINNON, H. F. GALLOWAY, JAMES A. CAMPBELL, JOHN PATTIS and JOHN COVISIS,

Defendants.

This cause came on regularly for trial on the 23rd day of June, 1925, before the court sitting without a jury, a jury having expressly waived by the respective parties; Messrs. McDougall, McDougall & McDougall appeared for the plaintiffs, Messrs. D. W. Standrod and Jones Bacon appeared for the defendants and cross-complainants, J. S. Campbell and J. A. McKinnon, Messrs. Peterson and Coffin appeared for Arthur Say and H. F. Galloway and no one appeared for John Pattis and John Covisis, and their default was duly entered and Jones, Pomeroy & Jones appeared for the defendant and cross-complainant, the City of Pocatello.

Thereupon witnesses were sworn and testified on behalf of the plaintiff and the several defendants and cross-complainants herein, and documentary evidence was offered and received by and on behalf of the respective parties and the testimony closed. Argument was submitted by the respective counsel on behalf of said parties and the cause was finally submitted to the Court for decision and the Court having duly considered the testimony, the argument of the counsel, and being fully advised in the premises, has made its finding of fact and conclusions of law and ordered judgment to be entered in accordance therewith.

That in the years 1917 and 1922, the Cross-complainant, the City of Pocatello, purchased 400 acres of land from certain tribal Indians who were occupying, irrigating and cultivating their said lands to the extent of 161.1 acres at the time of the sale; and that on October 1st, 1901, the predecessors of the City of Pocatello constructed a pipe line which diverted water from Mink Creek to the City of Pocatello for municipal purposes to the extent of 28 inches (.56 Co. feet);

That on September 1st, 1917, the City of Pocatello increased the size of the pipe line to a carrying capacity of 5 cubic feet per second of time and since said time has diverted said amount from the waters of Mink Creek for municipal purposes.

That on June 17th, 1902, the cross-complainant, James S. Campbell, appropriated and diverted 70 inches of the waters of Mink Creek and Campbell Creek and has used the same since said date.

That on September 7th, 1904, Arthur Say appropriated and diverted 75 inches of the waters of Mink Creek and used the same for irrigation purposes since said date.

That on August 20th, 1907, the predessors of H. F. Galloway appropriated and diverted 20 inched of the waters of Mink Creek and has since used the same for irrigation purposes.

That on July 5th, 1910, J. A. McKinnon appropriated and diverted 10 inches of the waters of Mink Creek and has since used the same for irrigation purposes.

IT IS FURTHER ORDERED, ADJUDGED AND DECREED; that the following named persons and corporation, defendants and cross-complainants in this action have the right to the use of said Mink Creek and the tributaries thereof, and springs, the sources of said tributaries, such amount and amounts of water, of the date of appropriation and priority, and for the uses and purposes and the point of diversion and means of diversion as set forth in the following schedule:

MINK CREEK

Name of Claimant and Date of Priority	Amount in Second Feet	Point of Diversion And Place of Use
1. Estate of T. B. Smith deceased:		Said water to be diverted from the said creek by means of a dam in said creek at or near the center of section 20, Twp. 7, South Range 35, E.B.M.
1869- -February 28,	10 inches	
1902- -July 21	44.65 inches	Said water to be used on the following described lands: Northeast Quarter of Section seventeen and Northwest Quarter of Southwest Quarter of Section 17, and Southwest Quarter of Southwest Quarter of Section 8, Twp. 7, South Range 35, E.B.M.

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MINK CREEK

Name of Claimant and Date of Priority	Amount in Second foot	Point of Diversion and Place of Use
2. Elkhorn Livestock and Dairy Company, a corporation. 1889- -February 26 1903- -July 21	[illegible] inches 47.22 inches	Said water to be diverted by means of a dam across said Mink Creek at or near the center of Section 20, Twp. 7, South Range 35, E.B.M. Said water to be used upon the following described lands: Southeast quarter of the Northwest quarter, and the East one-half of the Southwest quarter of Section 17, Twp. 7, South Range 35, E.B.M. City succeeded to ? - See Amended Complaint - Sherbone v Smith
3. Joseph Munn 1889- -February 26 1903- -July 21	5 inches 26.08 inches	Said water to be diverted by means of a dam across said Mink Creek at or near the center of Section 20, Twp. 7, South Range 35, E.B.M. Said water to be used upon the following described land: Southeast quarter of the Northeast quarter of Section 18, and the West eighteen acres of the Southwest quarter of the Northwest quarter of Section 17, Twp. 7, South Range 35, E.B.M.
4. William H. Edwards 1889- -February 26 1903- -July 21	20 inches 31.55 inches	Said water to be diverted by means of a dam across Mink Creek at or near the center of section 20, Twp., 7, South Range 35, E.B.M. Said Water to be used upon the following described land; North half of the Northeast quarter of section 18, Twp. 7, South Range 35, E.B.M.
5. City of Pocatello 1889- -February 26 1901- -October 1 1917- -October 1	161.1 inches 20 inches 60.0 inches	Said water to be diverted by means of a dam and head gate into a pipe line at a point 20 38' West 728.5 feet from the East quarter corner of section 12, Twp. 8, South Range 34, E.B.M. To be used for municipal purposes within the City of Pocatello, Bannock County, State of Idaho.
6. James S. Campbell 1903- -June 17	70 inches (From Mink Creek and Campbell Creek, the amount which he shall receive from Campbell Creek to be deducted from the 70 In. and the balance from Mink	Said water to be diverted near the Southeast corner of the Northwest quarter of the Northeast quarter of section 31, Twp. 7, South Range 35, E.B.M. Said water to be used upon the lands described as follows: Southeast quarter of the Northeast quarter, East half of the Southeast quarter of section 30, Northeast quarter of section 31, all in Twp. 7, South Range 35, E.B.M.
7. Arthur Say 1904- -September 7	75 inches	Said water to be diverted by means of a dam and head gate in the Southeast quarter of the Southeast quarter of Section 19, Twp. 7 South Range 35 E.B.M. Said water to be used upon the lands described as follows: The Southeast quarter of the Southeast quarter of Section 19, the Northeast quarter of the Northeast quarter of section 30, the Northwest quarter of the Northwest quarter of section 29, the Southwest quarter of the Southwest quarter of section 20, Twp. 7, South Range 35, E.B.M.

000435

ame of Claimant and date of Priority	Amount in Second Feet	Point of Diversion and Place of Use &
8. H. F. Galloway		
1907- -August 7 Want	20 inches	Said water to be diverted from the said creek in the Southwest quarter of section 20, Twp. 7, South Range 35, E.B.M. Said water to be used upon the lands described as follows: Northeast quarter of the Southwest quarter, the Northwest quarter of the Southeast quarter of Section 30, Twp. 7, South Range 35, E.B.M.
9. J. H. McKinnon		
1910- -July 10	12 inches	Said water to be diverted from the said creek through the ditch of James S. Campbell at a point near the Southeast corner or the Northwest quarter of the Northeast quarter of section 31, Twp. 7, South Range 35, E.B.M. Said water to be used upon the lands described as follows: South half of the Northeast quarter, the southeast quarter of the Northwest quarter and the Northeast quarter of the Southeast quarter of Section 31, Twp. 7, South Range 35, E.B.M.

IT IS FURTHER DECREED that the parties hereto shall permit sufficient water to flow through their respective headgates during the irrigation season to furnish 58.71 inches to Big Elk Allotment, and 57.46 to the Toane Allotment, with a priority of February 28, 1889, and an additional inch of water for each additional acre added to the present irrigated area while the same is in Indian ownership, which area at the date hereof is 87.17 acres.

The above provision regarding said Indian lands is made to avoid litigation with said Indians and to enjoin each of the parties hereto from preventing the said amount of water from flowing to said allotments while the same are in Indian ownership. Provided, however, in the event litigation shall be insituted to decree said Indian rights the profision herein regarding the same shall not be constructed as any waiver of the right of the parties hereto to question the amount, extent, or priority of the use of the waters to which said Indian allotments are entitled, and shall not bar or estop or limit the parties hereto from urging any matter that could have been raised had said provision not been included in this decree.

No costs or disbursements are allowed to any of the parties to this action, but each shall pay his, her or its own costs.

IT IS FURTHER ORDERED, ADJUDGED AND DECREED: that when the natural flow of the streams, the water of which is awarded by this decree, is not sufficient to furnish all parties claiming water therefrom with the full amount of water awarded to them, then such water shall be distributed in accordance with the priorities as hereinbefore decreed, and if the water is insufficient to furnish all rights which are of equal dignity, then the available supply of water shall be distributed pro rata among such rights.

IT IS FURTHER ORDERED, ADJUDGED AND DECREED: that the Irrigation Season mentioned in this judgment shall be that portion of the calendar year beginning on the 15th day of April and closing on the 15th day of September, being a total of five months, or 152 days; that the term Acre Foot, as used in this judgment, means and shall mean, 43,560 cubic feet of water, or the amount necessary to cover an acre of land one foot in depth;

That the inches referred to in this judgment is such an amount of water which will pass through an orifice one inch square under a four-inch pressure, each second of time, being 1-50 part of a cubic foot per second;

That the term Cubic Foot per second of time as used in this judgment, is and shall be one cubic foot of water passing a definite, fixed cross-section per second of time.

That all water awarded by this judgment shall be measured at the point of diversion, except where conditions make it impossible so to do. Where it is so impossible, measuring devices or measuring stations shall be located at the nearest feasible point below said point of diversion;

That all canals or pipe lines diverting in excess of 50 cubic feet of water per second, must install a standard type of automatic register to be passed upon by the Commissioner of Reclamations and subject to review by this court;

IT IS FURTHER ORDERED, ADJUDGED AND DECREED; That the later appropriators shall be entitled to the benefit of the return flow into the river and its tributaries, as against, prior, lower, or prior and lower appropriators, in computing the amount of water herein awarded to said prior, lower or said proir and lower appropriators.

IT IS FURTHER ORDERED, ADJUDGED AND DECREED: That the water hereby awarded has been applied to a beneficial use and that the parties to said action are the owners of the lands, reservoirs, dams and ditches, and ditches, which by the terms of this judgment are referred to respectively as the lands upon which the water awarded to them has been used by means of said dams, ditches, reservoirs and other works.

That all rights herein awarded to the plaintiff and several defendants and cross-complainants, are for the beneficial uses specified, and none of the parties hereto, or their successors in interest, whether heirs, executors, administrators, successors or assigns shall have the right to divert any of the waters of the said Mink Creek, its tributaries and sources, except for beneficial use, and whenever such use has ceased, such party or parties shall cease to divert, and shall have no right to divert, the said waters, or any part thereof, and each and every of the parties hereto, their servants, attorneys, employees and successors in interest as aforesaid, are hereby enjoined and restrained from any and all interference with or diversion or use of the said waters, except in the manner, and to the extent, and for the purposes provided in this judgment, whenever such interference, diversion or use would in any manner interfere with the diversion or use of the water awarded by this judgment to any of the other parties to this action;

That the parties hereto and their successors in interest shall install and maintain suitable and efficient headgates, controlling works and measuring devices at their respective points of diversion, and all water herein allotted and decreed shall be measured at said points of diversion. Said works and devices shall be built and installed in accordance with plans and specifications to be approved by the state official charged with the duty of supervising the distribution of water, (subject to review by this Court). All such devices shall be of such design as to accurately register the amount of water so diverted, and in case of ditches diverting more than 50 cubic feet per second, automatic measuring and registering devices shall be installed and shall at all times be subject to the inspection of any party to this action, or to any public officials or water masters having jurisdiction over the distribution and diversion of water, and no dam or other obstruction to the natural flow of the stream shall be maintained so as to divert water from the channell of the stream, except through ditches, canals or other works, provided with such headgates, control works and measuring devices, except as in this judgment provided; and each of the parties hereto shall be perpetually enjoined from diverting from the channel of the said Mink Creek, or its tributaries or sources, any water through any ditch, conduit, or other devices not provided with such headgates, control works and measuring device; provided, that in case of diversions through pipes for power purposes or otherwise, measuring devices may be dispensed with where the quantity of water diverted may be otherwise determined by other means of calculation.

That the City of Pocatello must install a Standard Weir and Stevens recording gauge or other similar standard device or devices that they may be readily read and may be located so that it is at all times subject to the inspection of the water users of Mink Creek and so located that ingress and egress is permitted thereto and therefrom. And the said City of Pocatello is required to submit to the Court plans for such devices for the approval of the Court.

The rights herein decreed and required are designated and classified as (municipal purposes and irrigation rights). Irrigation rights are defined as the right to divert from Mink Creek waters for the irrigation of the lands described in the decree belonging to the parties to this action. Domestic rights for municipal purposes are defined to be the right to divert from the waters of Mink Creek water through a pipeline to the City of Pocatello to be used by

000438

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and distributed to the inhabitants of the said City of Pocatello for domestic purposes, irrigation of lawns, sprinkling of streets, fire and the purposes to which water is usually required by its inhabitants.

That no party to this decree shall divert more water than can be beneficially used, and that the waste of water is prohibited and enjoined.

That the retention of jurisdiction by the Court shall be for the following purposes and the following purposes only:

(a) To make corrections for clerical errors, inadvertances and omissions in the rights decreed.

(b) To review and amend the provisions of the decree fixing, if necessary, different limits upon the irrigating season as above described, and for reducing the amount of water which may be shown during actual operation of the creek and its tributaries, to be in excess of the amount actually necessary for the successful raising of crops.

(c) To define more accurately, if necessary, the diversions of the water to the several users mentioned within the decree, with special reference to stipulated rights when one user secures the total amount, through several ditches enumerated opposite his name with no data submitted or available with reference to the capacity of the ditches supplying said lands of the user.

(d) To observe for a season or longer if necessary the operation of the creek in order that such additional provisions may be added to this decree to facilitate such operation in the field, but jurisdiction is not retained to operate the creek, under order of Court.

(e) Until the measuring devices and all diversions are installed and operating to the satisfaction of the Court, and the parties hereto are given sixty (60) days in which to install the same,

Done in open Court this the 5th day of June, A. D. 1926.

G. R. BAUM
DISTRICT JUDGE

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Alternate Typing

IN THE DISTRICT COURT OF THE FIFTH JUDICIAL DISTRICT OF THE STATE OF IDAHO, IN AND FOR THE COUNTY OF BANNOCK

SAM B. SMITH, Administrator of the Estate of T. .Smith, deceased, Elkhorn Livestock and DAIRY COMPANY, a corporation, JOSEPH HORN and WILLIAM H. EDWARDS, Plaintiffs, vs. CITY OF POCATELLO, a municipal corporation, ARTHUR SAY, J.A. McKINNON, H.F. GALLOWAY, JAMES A. CAMPBELL, JOHN PATTIS and JOHN CIVISIS, Defendants.	:	DECREE

This cause came on regularly for trial on the 23rd day of June, 1925, before the court sitting without a jury, a jury having expressly waived by the respective parties; Messrs. McDougall, McDougall & McDougall appeared for the plaintiffs, Messrs. D.W. Standrod and James Bacon appeared for the defendants and cross-complainants, J.S. Campbell and J.A. McKinnon, Messrs. Peterson and Coffin appeared for Arthur Say and H.F. Galloway and no one appeared for John Pattis and John Civisis, and their default was duly entered and Jones, Pomeroy & Jones appeared for the defendant and cross-complainant, the City of Pocatello.

Thereupon witnesses were sworn and testified on behalf of the plaintiff and the several defendants and cross-complainants herein, and documentary evidence was offered and received by and on behalf of the respective parties and the testimony closed. Argument was submitted by the respective counsel on behalf of said parties and the cause was finally submitted to the Court for decision and the court having duly considered the testimony, the argument of the counsel, and being fully advised in the premises, has made its finding of fact and conclusions of law and ordered judgment to be entered in accordance therewith.

That in the years 1917 and 1922, the Cross-complainant, the City of Pocatello, purchased 400 acres of land from certain tribal Indians who were occupying, irrigating and cultivating their said lands to the extent of 161.1 acres at the time of the same and that on October 1st, 1901, the predecessors of the City of Pocatello constructed a pipe line which diverted water from Mink Creek to the City of Pocatello for municipal purposes to the extent of 28 inches (.56 Cu. Feet);

That on September 1st, 1917, the City of Pocatello increased the size of the pipe line to a carrying capacity of 5 cubic feet per second of time and since said time has diverted said amount from the waters of Mink Creek for municipal purposes.

That on June 17th, 1902, the cross-complainant, James S. Campbell, appropriated and diverted 70 inches of the waters of Mink Creek and Campbell Creek and has used the same since said date.

That on September 7th, 1904, Arthur Day appropriated and diverted 75 inches of the waters of Mink Creek and used the same for irrigation purposes since said date.

That on August 20th, 1907, the predecessors of A.F. Galloway appropriated and diverted 20 inches of the waters of Mink Creek and has since used the same for irrigation purposes.

That on July 5th, 1910, J.A. McKinnon appropriated and diverted 10 inches of the waters of Mink Creek and has since used the same for irrigation purposes.

IT IS FURTHER ORDERED, ADJUDGED AND DECREED: that the following named persons and corporation, defendants and cross-complainants in this action have the right to the use of said Mink Creek and the tributaries thereof, and springs, the sources of said tributaries, such amount and amounts of water, of the date of appropriation and priority, and for the uses and purposes and the point of diversion and means of diversion as set forth in the following schedule:

MINK CREEK

Name of Claimant and Date of Priority	Amount in Second Feet	Point of Diversion And place of use
1. Estate of [illegible] Smith deceased:		Said water to be diverted from the said creek by means of a dam in said creek at or near the center of Section 20, Twp. 7, South Range 35, E.B.M. Said water to be used on the following described land: Northwest quarter of Section Seventeen and Northwest Quarter of Southwest Quarter of Section 17, and Southwest Quarter of Southwest Quarter of Section 8, Twp. 7, South Range 35, E.B.M.
1869- -February 26,	10 inches	
1902- -July 21	44.85 Inches	
2. Elkhorn Livestock and Dairy Company, a corporation.		Said water to be diverted by means of a dam across said Mink [illegible] or near the center of [illegible] Twp. 7, South Range 35, [illegible] water to be used upon the [illegible] described land: Southeast [illegible] of the Northwest quarter, and the East one-half of the Southwest quarter of Section 17, Twp. 7, South Range 35, E.B.M.
1869- -February 26	15 inches	
1902- -July 21	47.22 Inches	
3. Joseph [illegible]		Said water to be diverted by means of a dam across said Mink Creek at or near the center of Section 20, Twp. 7, South Range 35, E.B.M. Said water to be used upon the following described land: Southeast quarter of the Northeast quarter of Section 18, and the West eighteen acres of the Southwest quarter of the Northwest quarter of Section 17, Twp. 7, South Range 35, E.B.M.
1869- -February 26	5 inches	
1902- -July 21	26.98 inches	
4. William H. Edwards		Said water to be diverted by means of a dam across Mink Creek at or near the center of Section 20, Twp. 7 South Range 35, E.B.M. Said water to be used upon the following described land: North half of the Northeast quarter of Section 18, Twp. 7, South Range 35, E.B.M.
1869- -February 26	20 inches	
1902- -July 21	31.55 inches	
5. City of Pocatello		Said water to be diverted by means of a dam and head gate into a pipe line at a point 30 30' East 728.5 feet from the East quarter corner of Section 13, Twp. 8, South Range 34, E.B.M. To be used for municipal purposes within the City of Pocatello, Bannock County, State of Idaho.
1869- -February 26	161.1 inches	
1901- -October 1	25 inches	
1917- -October 1	60.9 inches	

[illegible]	Amount in Second Feet	Point of diversion and place of use
6. [illegible] S. Campbell [illegible] - June 17 — [illegible] inches (From Kirk Creek and Campbell Creek, the amount which he shall receive from Campbell Creek to be deducted from the [illegible] in. and the balance from Kirk Creek)		Said water to be diverted near the Southeast corner of the Northwest Quarter of the Northeast quarter of Section 31, Twp. 7 South Range 35, E.B.M. Said water to be used upon the lands described as follows: Southeast quarter of the Northeast Quarter, East half of the Southeast Quarter of Section 30, Northeast Quarter of Section 31, all in Twp. 7, South Range 35, E.B.M.
7. Arthur [illegible] [illegible] - September 7 — [illegible] inches		Said water to be diverted by means of a dam and head gate in the Southeast quarter of the Southeast Quarter of Section 19, Twp. 7 South Range 35, E.B.M. Said water to be used upon the lands described as follows: The Southeast quarter of the Southeast quarter of Section 19, the Northeast quarter of the Northeast quarter of Section 30, the Northwest quarter of the Northeast quarter of Section 30, the Southwest quarter of the Southwest quarter of Section 20, Twp. 7, South Range 35, E.B.M.
8. E.P. Galloway [illegible] - August 7 — [illegible] inches		Said water to be diverted from the said creek in the Southwest quarter of Section 30, Twp. 7, South Range 35, E.B.M. Said water to be used upon the lands described as follows: Northeast quarter of the Southwest quarter, the Northwest quarter of the Southeast quarter of Section 30, Twp. 7, South Range 35, E.B.M.
9. J.R. [illegible] 1910 - July [illegible] — 12 inches		Said water to be diverted from the said creek through the ditch of James S. Campbell at a point near the Southeast corner of the Northwest quarter of the Northeast quarter of Section 31, Twp. 7, South Range 35, E.B.M. Said water to be used upon the lands described as follows: South half of the Northeast quarter, the Southeast quarter of the Northwest quarter and the Northeast quarter of the Southeast quarter of Section 31, Twp. 7, So. Range 35, E.B.M.

IT IS FURTHER DECREED that the parties hereto shall permit sufficient water to flow through their respective headgates during the irrigation season [illegible] 58.71 inches to Big Elk Allotment, and 37.46 to the Toane[illegible], with a priority of February 26, 1869, and an additional inch of water for each additional acre added to the present irrigated area while the same is in Indian ownership, which area at the date hereof is 97.17 acres.

The above provision regarding said Indian lands is made to avoid litigation with said Indians and to enjoin each of the parties hereto from preventing the said amount of water from flowing to said allotments while the same are in Indian ownership. Provided, however, in the event litigation shall be instituted to decree said Indian rights the provision herein regarding the same shall not be construed as any waiver of the right of the parties hereto to question the amount, extent, or priority of the use of the waters to which said Indian allotments are entitled, and shall not bar or estop or limit the parties hereto from urging any matter that could have been raised had said provision not been included in this decree.

No costs or disbursements are allowed to any of the parties to this action, but each shall pay his, her or its own costs.

IT IS FURTHER ORDERED, ADJUDGED AND DECREED that when the natural flow of the streams, the water of which is awarded by this decree, is not sufficient to furnish all parties claiming water therefrom with the full amount of water awarded to them, then such water shall be distributed in accordance with the priorities as hereinbefore decreed, and if the water is insufficient to furnish all rights which are of equal dignity, then the available supply of water shall be distributed pro rata among such rights.

IT IS FURTHER ORDERED, ADJUDGED AND DECREED that the Irrigation Season mentioned in this judgment shall be that portion of the calendar year beginning on the 15th day of April and closing on the 15th day of September, being a total of five months, or 152 days; that the term Acre Feet, as used in this judgment, means and shall mean 43,560 cubic feet of water, or the amount necessary to cover an acre of land one foot in depth;

That the inches referred to in this judgment is such an amount of water which will pass through an orifice one inch square under a four-inch pressure, each second of time, using 1-50 part of a cubic foot per second.

That the term Cubic Foot per second of time as used in this judgment, is and shall be one cubic foot of water passing a definite, [illegible] cross-section per second of time.

000445

That all water awarded by this judgment shall be measured at the point of diversion, except where conditions make it impossible so to do. Where it is so impossible, measuring devices or measuring stations shall be located at the nearest feasible point below said point of diversion;

That all canals or pipe lines diverting in excess of 30 cubic feet of water per second, must install a standard type of automatic register to be passed upon by the Commissioner of Reclamations and subject to review by this court;

IT IS FURTHER ORDERED, ADJUDGED AND DECREED; that the later appropriators shall be entitled to the benefit of the return flow into the river and its tributaries, as against, prior, lower, or prior and lower appropriators, in computing the amount of water herein awarded to said prior, lower or said prior and lower appropriators.

IT IS FURTHER ORDERED, ADJUDGED AND DECREED; That the water hereby awarded has been applied to a beneficial use and that the parties to said action are the owners of the lands, reservoirs, dams and ditches, and ditches, which by the terms of this judgment are referred to respectively as the lands upon which the water awarded to them has been used by means of said dams, ditches, reservoirs and other works.

That all rights herein awarded to the plaintiff and several defendants and cross-complainants, are for the beneficial uses specified, and none of the parties hereto, or their successors in interest, whether heirs, executors, administrators, successors or assigns shall have the right to divert any of the waters of the said Mink Creek, its tributaries and sources, except for beneficial use, and whenever such use has ceased, such party or parties shall cease to divert, and shall have no right to divert, the said waters, or any part thereof, and each and every of the parties hereto, their servants, attorneys, employees and successors in interest as aforesaid, are hereby enjoined and restrained from any and all interference with or diversion or use of the said waters, except in the manner, and to the extent, and for the purposes provided in this judgment, whenever such interference, diversion or use would in any manner interfere with the diversion or use of the water awarded by this judgment to any of the other parties to this action;

That the parties hereto and their successors in interest shall install and maintain suitable and efficient headgates, controlling works and measuring devices at their respective points of diversion, and all water herein allotted and decreed shall be measured at said points of diversion. Said works and devices shall be built and installed in accordance with the plans and specifications to be approved by the state officials charged with the duty of supervising the distribution of water, (subject to review by this Court). All such devices shall be of such design as to accurately register the amount of water so diverted, and in case of ditches diverting more than 30 cubic feet per second, automatic measuring and registering devices shall be installed and shall at all times be subject to the inspection of any party to this action, or to any public officials or water masters having jurisdiction over the distribution and diversion of water, and no dam or other obstruction to the natural flow of the stream shall be maintained so as to divert water from the channell of the stream, except through ditches, canals or other works, provided with such headgates, control works and measuring devices, except as in this judgment provided; and each of the parties hereto shall be perpetually enjoined from diverting from the channel of the said Mink Creek, or its tributaries or sources, any water through any ditch, conduit, or other devices not provided with such headgates, control works and measuring device; provided, that in case of diversions through pipes for power purposes or otherwise, measuring devices may be dispensed with where the quantity of water diverted may be otherwise determined by other means of calculation.

That the City of Pocatello must install a Standard Fair and Stevens recording gage or other similar standard device or devices that they may be readily read and may be located so that it is at all times subject to the inspection of the water users of Mink Creek and so located that ingress and egress is permitted thereto and therefrom. And the said City of Pocatello is required to submit to the Court plans for such devices for the approval of the Court.

The rights herein decreed and required are designated and classified as (municipal purposes and irrigation rights). Irrigation rights are defined as the right to divert from Mink Creek waters for the irrigation of the lands described in the decree belonging to the parties to this

000447

mation. Domestic rights for municipal purposes are defined to be the right to divert from the waters of Mink Creek water through a pipe line to the City of Pocatello for domestic purposes, irrigation of lawns, sprinkling of streets, fire and the purposes to which water is usually required by its inhabitants.

That no party to this decree shall divert more water than can be beneficially used, and that the waste of water is prohibited and enjoined.

That the retention of jurisdiction by the Court shall be for the following purposes and the following purposes only:

(a) To make corrections for clerical errors, inadvertences and omissions in the rights decreed.

(b) To review and amend the provisions of the decree fixing, if necessary, different limits upon the irrigating season as above described, and for reducing the amount of water which may be shown during actual operation of the creek and its tributaries, to be in excess of the amount actually necessary for the successful raising of crops.

(c) To define more accurately, if necessary, the diversions of the water to the several users mentioned within the decree, with special reference to stipulated rights when one user secures the total amount through several ditches enumerated opposite his name with no data submitted or available with reference to the capacity of the ditches supplying said lands of the user.

(d) To observe for a season or longer if necessary the operation of the creek in order that such additional provisions may be added to this decree to facilitate such operation in the field, but jurisdiction is not retained to operate the creek, under order of the Court.

(e) Until the measuring devices and all diversions are installed and operating to the satisfaction of the Court, and the parties hereto are given sixty (60) days in which to install the same.

Done in Open Court this the 5th day of June, A.D., 1926.

[illegible]

DISTRICT JUDGE.

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CITY OF POCATELLO

EXHIBIT 131

Welhan, J.A., Meehan, C, and Reid, T., 1996, The Lower Portneuf River Valley Aquifer: A Geologic/Hydrologic model and Its Implications for Wellhead Protection Strategies

Subcase Nos. (27)

29-00271
29-00272
29-00273
29-02274
29-02338
29-02401
29-02499
29-04221
29-04222
29-04223
29-04224
29-04225
29-04226
29-07106
29-07322
29-07375
29-07450
29-11339
29-11348
29-13558
29-13559
29-13560
29-13561
29-13562
29-13637
29-13638
29-13639

ADMITTED
29-271 etal
(Subcase No.)
EXHIBIT
Poc. 131
Date: 3/1/07

(draft revision)

THE LOWER PORTNEUF RIVER VALLEY AQUIFER:
A GEOLOGIC / HYDROLOGIC MODEL
AND ITS IMPLICATIONS FOR
WELLHEAD PROTECTION STRATEGIES

FINAL REPORT
for the EPA Wellhead Protection Demonstration Project and
the City of Pocatello Aquifer Geologic Characterization Project

John Welhan
Idaho Geological Survey

Chris Meehan
Idaho State University

Ted Reid
Idaho State University

July, 1996

(draft revision)

(draft revision)

Table of Contents

(draft revision)

(draft revision)

EXECUTIVE SUMMARY

Scope

This report summarizes the findings of a multi-year study of the lower Portneuf River Valley (LPRV) aquifer system, funded by the EPA Wellhead Protection Demonstration Grant Program, the City of Pocatello Water Department, the Idaho Water Resources Research Institute and the Idaho Geological Survey with support from the U.S. Geological Survey. The EPA study concluded in January of 1995 and a Draft Final Report was issued at that time for review by the EPA and the City of Pocatello, but the final version of was delayed until gravity data collected from recent microgravity surveying in the northern and southern valley was available for inclusion.

The geographic scope of the report focuses on the southern portion of the LPRV aquifer system, comprising that portion of the Portneuf Valley between the Portneuf Gap and Red Hill and its principle recharge source areas, namely the southern Bannock Range and groundwater inflow through the Portneuf Gap. Available information on the northern portion, from Red Hill to Tyhee, is also included for completeness and to provide a regional context. Water balance calculations and recent water quality data are based on detailed hydrologic data collected between April, 1993 and October, 1994 with reference to historical data dating back to 1970.

The objective of the report is to summarize the best available information on the geohydrology of this aquifer system, to describe the current hydrogeologic conceptual model and to use this information to design a rational wellhead protection approach for management of the municipal water supply. Major findings of the report are summarized below.

Conceptual Hydrogeologic Model

The LPRV aquifer system is a unique ground water reservoir which is of critical importance to the cities of Pocatello and Chubbuck. The aquifer system comprises two very different sub-systems: the northern aquifer system and the southern aquifer. Based on recent gravity surveys, the northern aquifer sub-system appears to be several thousand feet deep, and is hydraulically confined by two or more aquitards. Unfortunately, the lack of subsurface information in this part of the system precludes an in-depth analysis of the northern system's hydrogeology. This is particularly frustrating because the northern aquifer system is potentially of the greatest importance to future water resource development in the LPRV because of its tremendous storage potential and because it is currently threatened by perchloroethylene (PCE) contamination and other urban/industrial land use impacts.

Ground water in the southern aquifer recharges most of the northern aquifer system. The southern aquifer is a narrow, relatively shallow strip aquifer hosted in very permeable, coarse gravels, characterized by high linear flow velocities and physically separated from the northern aquifer by a prominent subsurface bedrock high. It appears to be lithologically unconfined but shows hydraulic indications of semi-confinement. The mean hydraulic conductivity estimated from wells in the southern aquifer is 2400 ft/d , with a range of 200-8200 ft/d. Based on estimates of hydraulic conductivity, hydraulic gradient and cross-sectional flow area, the southern aquifer's ground water underflow is estimated at 23 ft^3/s (5.3 billion gallons/year). At an effective porosity of 0.3, ground water flow velocity is of the order of 5 - 25 ft/day.

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The eastern aquifer is a minor but important component of lower Portneuf Valley hydrogeology, separated from the southern aquifer by the Portneuf Basalt. It is of low to intermediate permeability and of small total saturated volume, so it does not directly contribute to the municipal water supply. Much of its ground water is contaminated and these contaminants are appearing in Pocatello's municipal production wells in the Ross Park area.

Ground Water Quality

The eastern aquifer is contaminated with relatively high concentrations of inorganic salts of chloride, sulfate and nitrate. High-volume pumping in the Ross Park area has created a chronic hydraulic sink that appears to be drawing contaminated water from the eastern aquifer under and/or through the Portneuf Basalt. Dissolved salt contamination is also present in the northern aquifer, possibly emanating from the mouth of Pocatello Creek. Ground water in the highly permeable southern aquifer suffers from trichloroethylene (TCE) contamination of uncertain origin. Localized salt contamination also exists around some private wells in the southern aquifer, indicating that contaminated surface water is communicating with the aquifer, probably along well casings that are improperly sealed.

Southern Aquifer Water Balance

Ground water flow from the Bannock Range and the Portneuf Gap are the principal sources of recharge to the LPRV aquifer system, with Bannock Range sources representing about 30% of the total recharge during 1994 (a dry year) and more than 50% during 1993 (an above-average water year). Aside from these sources, there is no verified evidence of substantial river recharge, and although the eastern aquifer may contribute some recharge, on chemical grounds it appears that leakage from the eastern aquifer represents less than 10% of the Bannock Range flux.

In terms of the magnitudes of water balance components, southern aquifer pumping needs were almost completely met by the amount of ground water that flowed into the LPRV through the Portneuf Gap during 1993/94. Similarly, water withdrawn in the northern well field represented 95% of the outflow from the southern aquifer. Total well field pumping withdrawal during the 1993/94 water balance accounting period represented about 90% of the total known recharge to the LPRV aquifer, suggesting that the aquifer system may be approaching its maximum safe yield during sustained drought conditions such as have existed for the past 8 years.

Implications for Wellhead Protection Strategies

Analytically-modeled capture zones defined for the southern aquifer production wells are considered to be very coarse approximations of true capture zone geometry. Effective delineation of capture zones should be accomplished with a numerical flow and particle-tracking model. Because of the uncertainties in the time-of-travel zones defined for production wells in the southern aquifer and their potential for extending well into the upper Portneuf basin and the Bannock Range recharge zones, the prospect for developing individual WHP areas for 5-year time of travel that are both manageable and technically defensible appears slim. It is recommended, instead, that emphasis be focused on defining basin-wide WHP Recharge Zones defined by hydrogeologic boundaries.

(draft revision)

The concentration of TCE in well PA-7, the only monitoring well in the southern aquifer which is completed solely in Tertiary sediments underlying the aquifer gravels, is as high as in other wells completed in the aquifer's Upper Gravel unit. This would suggest that part of the Tertiary section may be actively involved in transport and that the effective base of the southern aquifer may be deeper than that defined by the base of the Upper Gravel unit. If such is the case, the WHP areas defined in this report will need to be revised.

Contributions from the Bannock Range may occur from diffuse inflow along the entire length of the southern aquifer's western margin as well as from localized areas such as near the mouths of Mink Creek and Gibson Jack Creek. Capture wells have been designed for TCE plume interception utilizing capture zone geometries that are predicated on a single localized source of aquifer recharge originating from the Portneuf Gap. The impact on the effectiveness of plume capture due to diffuse sources of ground water inflow along the western valley margin and of localized sources at the mouths of Mink Creek and Gibson Jack Creek should be considered and design contingencies developed for plume control.

Of the aquifer's principle recharge source areas, the Bannock Range / Mink Creek Recharge Zone has the greatest potential for development of a workable, basin-wide WHP plan. The area is of manageable size, an historic precedent exists in the exclusion of part of the City Creek drainage for water supply protection, and land-use management guidelines can be developed more readily in this mostly unpopulated, forested area than in populated areas. Development of a cooperative plan with the US Forest Service for management of contiguous lands may provide mutual benefits to the participating agencies.

The eastern aquifer represents a WHP Recharge Zone that should be targeted for special monitoring. Leakage of contaminated waters into the southern aquifer is occurring in the Ross Park area and high concentrations of dissolved salts and nitrate in PMW-3 (on the Idaho State University campus) indicate that contaminated eastern aquifer water may be moving northwestward toward the central and southern well field. Ground water monitoring is considered the only feasible approach to management in this WHP area, at least into the near future. The goal of monitoring would be to identify current and future leakage and the types of contaminants, in order to be able to react effectively to future problems and to obtain the necessary data to design a specialized WHP plan for wells in the Ross Park area.

Ground water underflow through the Portneuf Gap originates from a huge recharge source area (i.e.. the upper Portneuf River basin) that is probably unmanageable because of its geographic size, the diversity of land uses within that area and the potential for political conflict between agricultural and urban water users. However, the Portneuf Gap is a highly manageable inflow zone, a geographically well-defined area through which all up-gradient flow passes. An area extending some 4.5 miles (7 km) up-gradient of the Portneuf Gap to the town of Inkom provides a significant buffer zone between upper basin inputs and the immediate jurisdictional boundaries of the LPRV aquifer. It could represent a useful monitoring zone in which observation wells could be installed to monitor the quality of upper basin water entering the LPRV which would provide early-warning capability for developing water quality problems.

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1. INTRODUCTION

1.1. OVERVIEW AND BACKGROUND

The lower Portneuf River valley (LPRV) aquifer supplies the entire water needs of the cities of Pocatello and Chubbuck. It is located in the lower drainage basin of the Portneuf River, one of the major tributaries of the upper Snake River watershed in southeastern Idaho. It drains an area of almost 1400 mi^2 (3600 km^2), consisting primarily of agricultural lowlands and forested highlands. Its watershed comprises an upper basin area of approximately 1160 mi^2 (2970 km^2) and a lower basin area of approximately 145 mi^2 (370 km^2) (**Figure 1a**). Less than 40 mi^2 (100 km^2) is urbanized or incorporated. The largest population center, located at Pocatello/Chubbuck, covers an area of approximately 28 mi^2 (70 km^2).

The entire surface drainage and an unknown portion of the subsurface drainage of the upper basin discharges through a narrow bedrock notch, known as the Portneuf Gap, southeast of Pocatello into the lower basin before flowing through the lower Portneuf River valley and joining the Snake River north of Chubbuck. The fluvial/alluvial gravel aquifer system which is referred to in this report as the lower Portneuf River valley aquifer, is situated in the lower basin, and underlies much of the cities of Pocatello and Chubbuck (**Figure 1b**).

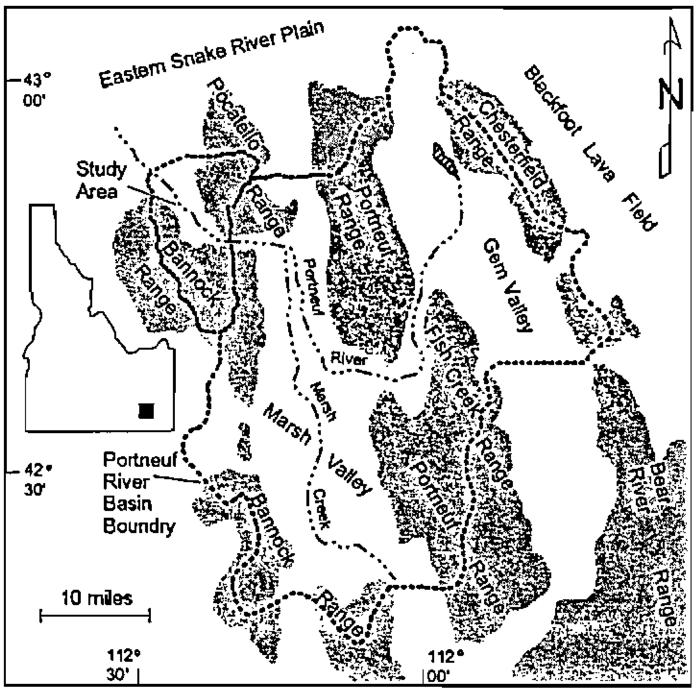

FIGURE 1a - Location map showing approximate extent of Upper Portneuf River Basin and Lower Basin study area. Total precipitation input to the basin is approximately 390 billion gallons per year, of which less than 3% exits to the lower Basin as streamflow. An unknown amount exits as ground water through the Portneuf Gap.

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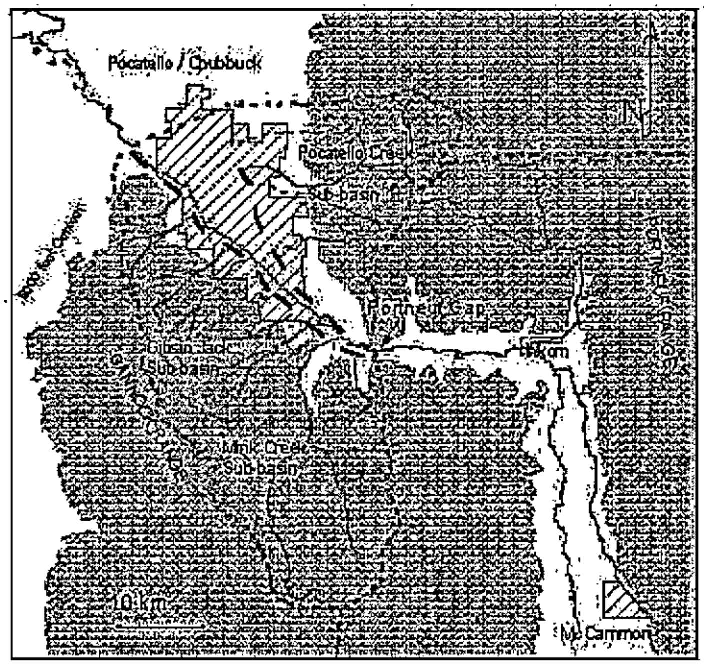

FIGURE 1b - Locations and sizes of sub-basin drainages in the Lower Basin, together with major streams, springs (dots) and geographic extent of Pocatello/Chubbuck municipal aquifer system. Approximate extent of aquifer shown by dashed lines over Pocatello/Chubbuck. Note the narrow, strip-like geometry of the southeastern portion of the aquifer.

Despite the importance of this aquifer system to northern Bannock County residents, a comprehensive analysis of its hydrology, recharge, subsurface geology and water quality was unavailable until very recently. Much of what was known of the system existed in scattered files of various local agencies in the form of water quality analyses, city water production and water level records and lithologic logs of production wells. The first formal investigation of the LPRV's hydrogeology was initiated in 1992 by the Idaho Geological Survey under a seed grant from the Idaho Water Resources Research Institute (IWRRI).

Although the cities of Pocatello and Chubbuck have had isolated incidences of ground water contamination for some time, production well contaminant concentrations were generally below maximum contaminant levels (MCLs) and, for the most part, did not generate significant concern. In 1991, however, the Idaho Water Resources Department's ground water monitoring program measured 15 parts per billion (ppb) of trichloroethylene (TCE) contamination in a domestic well in the southern LPRV aquifer, the first significant detection in the LPRV aquifer and well over the MCL of 5 ppb established by the Safe Drinking Water Act. The discovery of this TCE-tainted ground water upgradient of the Pocatello municipal well field raised official concern over future well head protection strategy for the well field, and precipitated the move to establish a formal well head protection (WHP) program with the aid of a grant from the Environmental Protection Agency. Through the efforts of the City's Community Development and Research department and the Idaho Geological Survey (IGS), work was begun on characterizing the LPRV's geohydrology and defining a WHP program. The timing of this work was fortunate for, in 1993, levels of TCE in two upgradient production wells rose above the MCL, forcing their closure and threatening the entire municipal well field. At the same time that Pocatello was struggling with its upgradient contaminant problems, the City of Chubbuck was confronting a serious perchloroethylene (PCE) contamination problem which forced closure action on three of its four production wells in the downgradient portion of the aquifer system.

Both problems were regional in scope, and remediation efforts in both suffered from the lack of a comprehensive geohydrologic model of the LPRV aquifer system. Through work initiated under funding from IWRRI and the EPA, a preliminary conceptual model of the system was developed to help guide remediation efforts (Welhan and Meehan, 1994). Through a subsequent contract with the City of Pocatello, this model has been refined with microgravity surveying and the development of an aquifer system-wide database for analyzing subsurface geology.

This report constitutes a summary of the current geohydrologic model of the system, as developed jointly through work funded by the EPA WHP Grant, the IWRRI seed grant, and City of Pocatello contract (the latter augmented with a funded extension in 1995). In order to generate the maximum benefit from related data, this report also draws on recent gravity survey data obtained under a U.S. Geological Survey-sponsored mapping program. All of this work has had the common goal of understanding the physical geology, aqueous chemistry and hydrology of the LPRV aquifer system and of developing a comprehensive conceptual geohydrologic model. Because the objectives of the IWRRI seed grant, the EPA WHP Demonstration Grant and the City of Pocatello contract are so intimately connected, and because all were intended to incorporate the best available information from all sources for the purposes of aquifer characterization, this report has been written as a summary of work performed under all three projects. A description of monitoring wells drilled under funding from IWRRI and EPA for this work is included in **Appendix I**. Data and preliminary results of the gravity survey work and a description of the aquifer-wide database are included in **Appendices II and III**, respectively. In addition, the report deals with the implications of the geohydrologic model for WHP capture zone modeling and the definition of WHP areas for the aquifer system.

1.2. FUNDING SOURCES

EPA funding provided for two-thirds of the monitoring well installation, water sampling and chemical analysis, well testing, and salary support for Idaho State University graduate geology student C. Meehan's M.S. thesis research. The IWRRI grant funded one-third of the well installation costs, seismic refraction surveying, chemical analyses and partial student salary support. The City contract (plus a funded extension) provided funding for development of a geohydrologic database and system-wide conceptual model and supported Idaho State University graduate geology student T. Reid's gravity survey work, which will constitute the major portion of an M.S. Geology thesis.

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1.3. OBJECTIVES

Work on the LPRV aquifer system was begun in 1992 by the IGS and ISU in a study funded by IWRRI. The primary objective of that work was to assemble all available background data on the aquifer system and to perform a preliminary geohydrologic characterization.This funding was partially responsible for the installation of the first monitoring wells in the LPRV aquifer and also led to the procurement of additional funding to expand on the scope of the initial work. The EPA WHP Demonstration Grant and the City of Pocatello contract were intended to extend and refine the preliminary hydrogeologic characterization work begun under the IWRRI seed grant.

The objectives of the WHP Demonstration Project were two-fold: 1) to characterize the geology and hydrology of the aquifer system and define WHP areas based on that data, and 2) to assess the types, nature and locations of potential contaminants on and near the municipal well field and the vulnerability of the aquifer to these potential ground water contaminants. The latter goal was addressed through a subcontract, with results summarized in a companion report (-Hill, 1994a).

The objectives of the City of Pocatello contract were also two-fold: 1) to conduct a detailed microgravity survey of the LPRV in order to provide additional subsurface control for the conceptual geologic model of the aquifer; and 2) to assemble all relevant suburface information in a system-wide database and, utilizing this information, to refine the existing geohydrologic model of the LPRV and its aquifer system.

1.4. SCOPE

Figure 2 shows the area of study included in this report for the EPA WHP grant and the City of Pocatello contract, as well as areas covered by other major remediation and data generation activities in the LPRV region. The LPRV aquifer system is comprised of two distinct subsystems: a deep, stratified northern aquifer system and a relatively shallow southern aquifer system, whose mutual boundary is defined by subsurface bedrock structure (Welhan and Meehan, 1994). The depth and geologic complexity of the northern aquifer system is poorly constrained by available well log data whereas the shallow southern aquifer is defined by numerous wells. An overview of the current state of knowledge of the northern aquifer system based on the well database is presented in Section 3.2.1.

Because of the size, complexity and data paucity of the northern aquifer system, work under the EPA WHP project and the city-funded gravity survey was focused on the southern system so that a subsurface model of the southern aquifer could be developed and tested; such work in the northern system will not be possible until significantly more subsurface data become available. In addition, existing and future ground water contamination in the southern aquifer has the potential to threaten the entire down-gradient well field, and so dictates a higher priority for subsurface characterization work in that area. Because of these considerations, the WHP Demonstration Project and the gravity survey portion of the City contract are focused on the southern aquifer system. In addition, the development and analysis of the comprehensive well database focused primarily on the southern system.

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Study area boundaries for the southern aquifer system were defined on the basis of hydrologic boundaries and on the immediate need to characterize the physical properties of the portion of the system from which originates. Water balance and recharge components of the study therefore focus on the high-precipitation region of the LPRV watershed south of the aquifer and an assessment of the relative contribution from the upper Portneuf watershed.

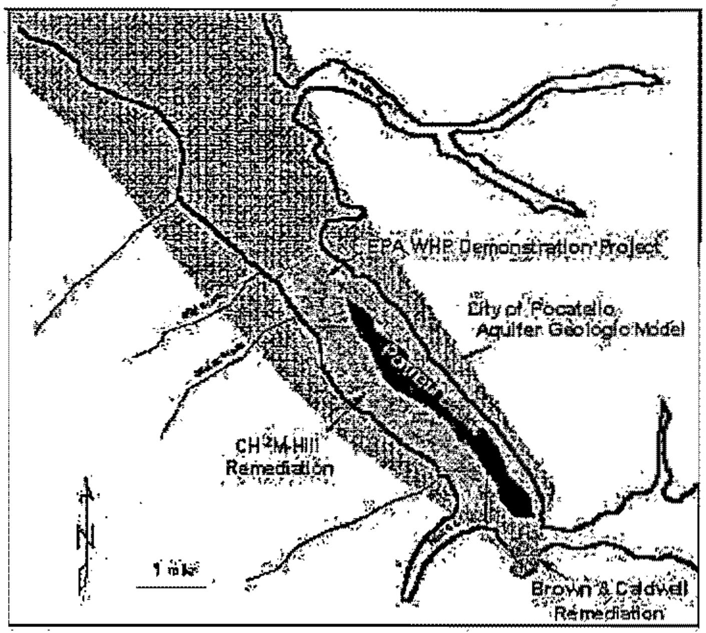

FIGURE 2. Study area for the EPA Wellhead Protection Demonstration Grant, the City of Pocatello aquifer geologic model contract and other major ongoing aquifer investigations in the southern valley.

7371

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2. PREVIOUS WORK AND DATA SOURCES

2.1. PUBLICATIONS AND REPORTS

2.1.1. Geology

Previous geologic descriptions of the area have been published by Ludlum (1943), Trimble (1976), Scott (1982), Scott et al.. (1982), LaPoint (1977), Rember and Bennett (1979), Ore (1982), Link et al. (1985), Burgel et al. (1987) and Houser (1992). McDole (1969), McDole et al. (1973) and Jasmer (1987) described and mapped surficial loess deposits in the area. Several M.S. geology theses have been done in and around the Pocatello area, including Muller (1978), LeFebre (1984) and Bush (1980). A wealth of unpublished bedrock and surficial geologic data have been made available by Idaho State University's Geology Department (D. Rodgers, pers. comm., 1994). The Idaho Geological Survey, in cooperation with Idaho State University, is nearing completion of a detailed 1:24000 map of surficial geology (including the Tertiary geology) of the Pocatello South 7.5 minute quadrangle (Osier and Othberg, in prep.). Surface geologic information in this report is based primarily on this mapping as well as on Trimble (1976) and unpublished maps at Idaho State University (D. Rodgers, unpubl. data). The basin's geologic history is based on an unpublished summary by Rodgers et al. (1994).

2.2.2. Hydrogeology

Hydrogeologic conditions in the northwestern portion of the basin have been described by Mansfield (1920), Stearns et al. (1938), Crosthwaite (1957) and West and Kilburn (1963). Those sources deal primarily with conditions in the Fort Hall Bottoms and Michaud Flats areas, as does work by Jacobsen (1982, 1984) and Goldstein (1981). Corbett et al. (1980) described the hydrogeology of the Tyhee area as it pertained to the geothermal resource potential of the area. The hydrogeology of a portion of the Pocatello Creek tributary drainage has been described by CH2M-Hill (1994b), as has the nature of inorganic salt contamination in that drainage. Geotechnical reports on spilled fuel remediation are available for several areas in the northern aquifer, but all deal with shallow subsurface characterization. Welhan and Meehan (1994) published a preliminary interpretation of the northern aquifer system' s geohydrology. Recently, the City of Chubbuck drilled three deep exploratory test wells in the northern aquifer (CH2M-Hill, 1994c).

Prior to this study, very little published hydrogeologic information existed on the aquifer beneath the Pocatello-Chubbuck city limits or that portion southeast of Pocatello to the Portneuf Gap. Norvitch and Larson (1970) and Seitz and Norvitch (1979) had published reconnaissance data on the hydrology and ground water chemistry, respectively, of the upper Portneuf River Valley drainage basin which provided some background data on the LPRV system. Kindel et al. (1991) and Brown and Caldwell (1994) reported on hydrogeologic work in the mouth of Fort Hall Canyon, a tributary valley aquifer at the south end of the valley. (Winter et al., 1994). The most comprehensive information on the hydrogeology of the southern aquifer is that of Welhan and Meehan (1994). Additional information on basin bedrock depth and subsurface boundaries derived from modeling of gravity data is available in Reid et al. (1995; Appendix II-A) and recent, unpublished data of Reid (Appendix II-B, -C). Results of seismic refraction work in a portion of the aquifer was reported by Pelton et al. (1994).

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Information on aquifer hydrochemistry was published by Meehan and Welhan (1994). Winter et al. (1994) published a valuable summary of nitrate and salt-contaminated groundwater in the eastern part of the southern LPRV system. Work on the remediation of TCE contamination in the southern Pocatello well field has provided much new information on the hydrogeologic characteristics of a portion of the southern aquifer system (CH2M-Hill, 1994d; Figure 2), and water quality surveys by the City of Pocatello (F. Ostler, pers. comm., 1995) have extended our knowledge of TCE plume dynamics and hence the dynamics of flow and transport in the southern aquifer. An unpublished internal report by IDEQ (1995) summarizes all ground water contamination problems in the LPRV.

2.2. SOURCES OF DATA

Meteorological data were obtained from the Department of Transportation's meteorological station located at the Pocatello airport, approximately 6 miles west of the city. The US Geological Survey has monitored ground water levels and water quality in selected domestic wells in the LPRV aquifer and maintains records of Portneuf River discharge which are published in annual state water summaries (Harenberg et al., 1993). The state Department of Water Resources maintains copies of domestic well logs filed by commercial drillers which, together with municipal and monitoring well logs, formed the basis of the system-wide database (Appendix III).

In addition to formal publications, this study has relied on a large amount of previously uncollated data on subsurface lithology, water level conditions and water quality that has been assembled from records of the City of Pocatello's Water Department, the City of Chubbuck's Public Works Department, the IDWR, and the Idaho Division of Environmental Quality.

2.3. WORK IN PROGRESS

Several projects are currently in progress which will provide additional valuable information for system characterization. Surficial geologic mapping of the Pocatello North quadrangle is being conducted by the IGS in collaboration with ISU under funding from the U.S. Geological Survey's Urban Mapping Program. As part of this work, gravity surveying in the northern aquifer is intended to help define depth to bedrock, and an updated surface bedrock geologic map is also expected to be produced as part of the IGS-ISU collaboration. Several ISU M.S. thesis research projects on aquifer chemistry and chemical mass balances, gravity modeling of subsurface basin lithology, the hydrogeology of the Mink Creek corridor, and the recharge characteristics and alpine basin hydrology of the Mink Creek watershed are either in progress or have been recently completed.

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3. GEOLOGY

3.1. REGIONAL GEOLOGY

Figure 3 summarizes the surface geology of the area. The sedimentary basin in which the LPRV is situated is defined by a Basin and Range half-graben structure, with a basin-bounding normal fault along its eastern margin dipping at 20-25° basinward and estimated to have at least 6 km of offset (D.W. Rodgers, pers. comm. 1990). Bedrock in the study area is of Late Proterozoic age, and is dominated by argillite and quartzite. Cambrian rocks, predominantly quartzite, argillite, and limestone, occur south of Cusick Creek and extend southward to Mink Creek, dipping to the east

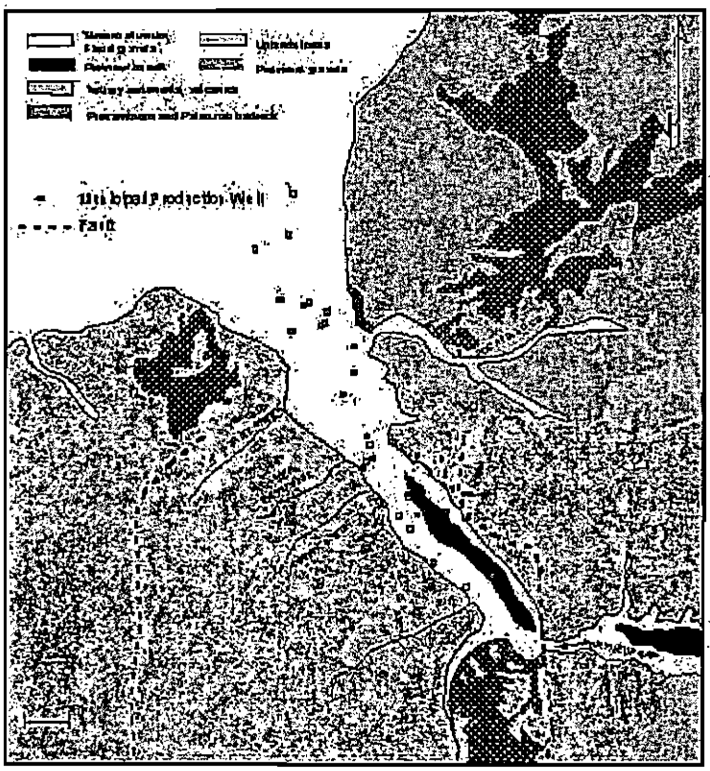

FIGURE 3 - Simplified geology of the lower Portneuf River valley, summarized from Trimble (1976) and Rodgers (unpubl. data).

and northeast, towards the Portneuf valley and Mink Creek. Tertiary sediments and volcanics of the Starlight Formation are exposed in the southern part of the graben, as well as in outcrop to the northeast and northwest of Pocatello. The Tertiary section in the southern part of the lower Portneuf valley is dominated by sedimentary materials, characterized by poorly sorted conglomerates, alluvial and colluvial bouldery gravel and sedimentary breccia (Trimble, 1976; Ore, 1982).

The Quaternary/Holocene geology of the lower Portneuf river valley is dominated by fluvial and alluvial gravels which occur over the valley floor which, in most areas, is blanketed by 5 to 20 feet of silt and loess. Along the eastern side of the southern part of the valley, two superimposed basalt flows form a 50 foot-high tableland on the eastern side of the valley which overlooks the floor of the western half of the valley. This basalt, known as the basalt of Portneuf Valley (or Portneuf Basalt, in this report), is of Pleistocene age (583,000 yrs BP, G.B. Dalrymple in Scott et al., 1982) and flowed into the lower Portneuf valley from vents in Gem Valley, 40 miles southeast, through the Portneuf Gap. As such, it predates the gravels and silts exposed on the floor of the western side of the valley which it overlooks.

The gravels on the valley floor northwest of City Creek are predominantly of fluvial and Bonneville flood origin. Gravel in this area was deposited 14,500 years BP and is known as the Michaud Gravel (Trimble, 1976). This unit fans out into the Snake River Plain and comprises a 40-60 foot thick layer of coarse gravel overlying the American Falls Lake clay unit (72 ± 14 kyr BP). The Michaud gravels are believed to have been deposited by the flood from pluvial Lake Bonneville as it debouched onto the Snake River Plain approximately 14,500 yrs BP (Scott et al., 1982; O'Conner, 1993). This event was responsible for scouring the surface of the Portneuf Basalt and the pre-existing valley fill along the western margin of the basalt and depositing extensive well-sorted, coarse gravels and sands along the lower Portneuf River valley. It is uncertain whether the coarse upper gravels of the southern aquifer southeast of City Creek are contemporaneous with the Michaud unit. At least part of the southern aquifer's gravels, which are covered by a continuous mantle of post-Bonneville Flood river silt and loess of variable thickness, were deposited during or shortly after the Bonneville Flood, but unknown portions of this lithologic assemblage may pre- and post-date the flood.

3.2. AQUIFER GEOLOGY

3.2.1. Descriptive Cross-Sections

Figure 4 shows the extents of the geographic areas used to subdivide the aquifer system and the locations of wells and cross-sections used to constrain subsurface geology. The geographic subdivision is partly arbitrary, reflecting a coarse categorization based on subsurface geology. The northern aquifer system comprises multiple, confined silty gravel and sand aquifers hosted in stratified sedimentary basin fill at least 500 feet thick; the central area is defines by a thin sedimentary portion overlying shallow bedrock; the southern aquifer system is characterized by very permeable, unconfined gravels overlying a much thicker section of low-permeability basin fill sediments; and the relatively small, unconfined eastern aquifer is comprised of silty gravels of low permeability.

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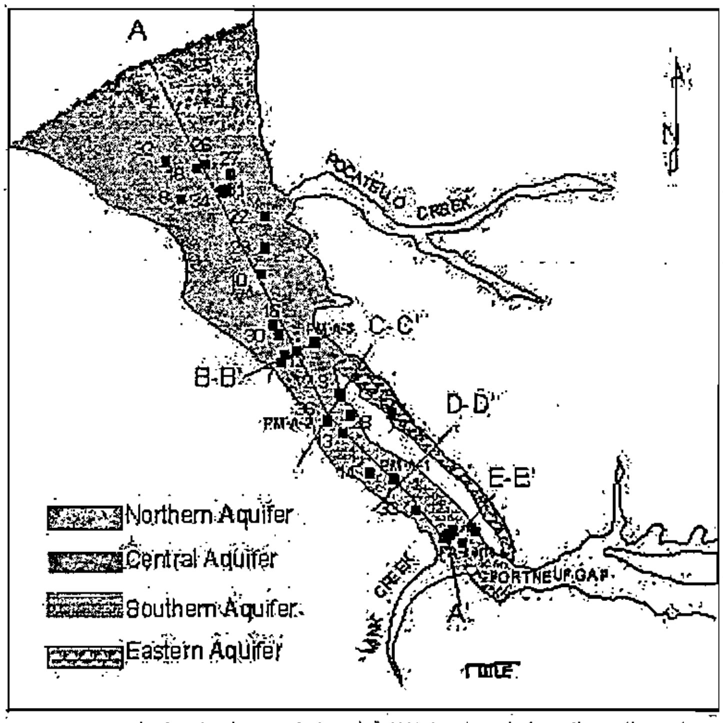

Figure 4 - Locations and numbering of Pocatello municipal production wells and monitoring wells; locations of geologic cross-sections and designation of major aquifer sub-divisions used in this study.

Geologic cross sections are shown in **Figures 5, 6** and **7**; Section E-E' was constructed in the location of the most recent test well drilling that was conducted during TCE remediation work (CH2M-Hill, 1994c).

Figure 5 represents a synthesis of subsurface geology along transect A-A', from northwest to southeast, based on key units. The lack of any borehole geophysical correlative control at this stage makes this interpretation necessarily tentative, particularly in the northern aquifer system. However, in creating the geologic interpretation of Figure 5, only those units that were considered to be consistently identifiable by a conscientious driller (namely: thick clay beds; basalt and basalt rubble units; and crystalline bedrock) were used for correlation purposes. In addition to the few modestly deep boreholes constraining minimum thicknesses of basin fill in the northern and southern aquifers, gravity data has provided clear evidence of at least 2500 feet of sediment thickness in the southern aquifer and over 4000 feet in the northern aquifer, separated by a bedrock high that is within 150 feet of the surface.

Perhaps the most striking feature of Figure 5 is the presence of the bedrock high which separates the aquifer into southern and northern portions. Henceforth, these portions of the aquifer system will be referred to as the southern and the northern aquifers. The bedrock high may be a

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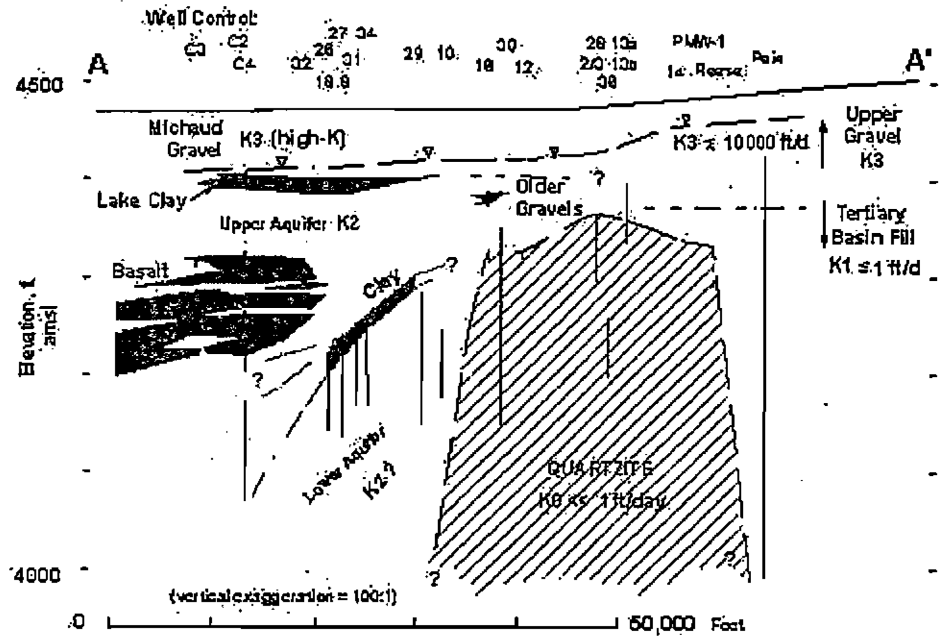

FIGURE 5 - Geologic cross section A-A' showing principle correlative features and structures inferred from well control. Data taken from Pocatello and Chubbuck production and monitoring wells and selected private wells on and near the section line A-A'. Note that Well #36 encountered bedrock deeper than other nearby wells, suggesting the existence of a possible notch across the bedrock high. Inferred relative hydraulio conductivities are shown for the major lithologies (Ko < K1 < K2 < K3).

manifestation of the splaying of the basin-bounding fault about mid-way down the lower Portneuf valley (Figure 3) which distributed the total fault offset over numerous subsidiary faults (D.W. Rodgers, pers. comm., 1992). Similar basement highs have been mapped in other Basin and Range valleys in eastern Idaho (Link et al., 1985; Rodgers, pers. comm., 1992).

In contrast to the southern aquifer, where excellent water yields historically have been derived from coarse, clean gravels at depths less than 100-150 feet below surface, the northern aquifer's stratigraphy is characterized by much more poorly-sorted sediments (silty and clay-rich gravels and sands) in which many more deep wells have been drilled to obtain adequate yields. Of the numerous silty and clayey zones described in various well logs, only three are considered to have been reliably described: a 5-10 ft thick clay (or mixed gravel and clay) bed at ca. 4380-4400 ft above mean sea level (amsl) elevation; and a light-colored clay unit 10-20 ft thick (possibly thickening to greater than 50 feet to the northwest), at elevations of ca. 4200 - 4300 ft amsl. In addition, several occurrences of basalt lava and/or volcanic rubble (cinders, scoria) between 4200 and 4400 ft amsl have been consistently identified.

Of these units, the upper clay is believed to represent the late Pleistocene American Falls Lake beds, exposed 2 miles WNW of Chubbuck Well C4, at a maximum elevation of 4400 ft (Trimble, 1976). The extent, thickness and attitude of the deep clay unit is far more tentative, as it has been variously logged as undifferentiated clay in excess of 90 feet thick (well 32); massive hard clay

7377

intercalated over 50 feet with thin gravel seams (well 26); sticky clay (wells C4, 27, 29); sticky yellow clay and sandy yellow clay (wells 18, 34); and sticky brown clay (well 31). It is shown in Figure 5 with a fairly uniform thickness, dipping at ca. 4°. Based on Chubbuck Wells C2 and C4, this clay unit may thicken northward, although the quality of the lithologic log information in deep well C4 is suspect; results of recent test well drilling in the vicinity of Chubbuck Well C2 (CH2M-Hill, 1995b) indicate that this clay unit is fairly thin and within 50 feet of the base of the basalt flows. This unit cannot be identified with any certainty in well 10 (although it may be present) since this well was logged as a series of sandy clays from 4300 ft down to 4113 ft amsl.

Correlations between the basalt occurrences identified in these wells has not been attempted. Discontinuous basalt flows intercalated with sediments are a characteristic feature of the subsurface lithology in the Snake River Plain (Corbett et al., 1980; Houser, 1992). It is not known whether the basalt logged in wells 16 and 30 is correlative with the basalt occurrences identified in Chubbuck wells to the north or even whether these scattered occurences high in the section represent basalt boulders rather than flow remnants.

Cross-section B-B' (**Figure 6a**) shows the inferred subsurface lithology of the section of the aquifer above the bedrock high. This section is based on five boreholes (four of which define bedrock depth), seismic refraction data on the east margin of the valley (Pelton et al., 1994), and a gravity transect across the aquifer at this location (do search and replace Appendix II with Reid, 1997). The upper part of the section is characterized by clean, well-sorted gravels and sands and is capped by 5-20 feet of silt. On the basis of one well log (Well 12), gravels and sands beneath 4360 ft amsl were originally interpreted to be less well-sorted and dominated by clay, possibly reflecting

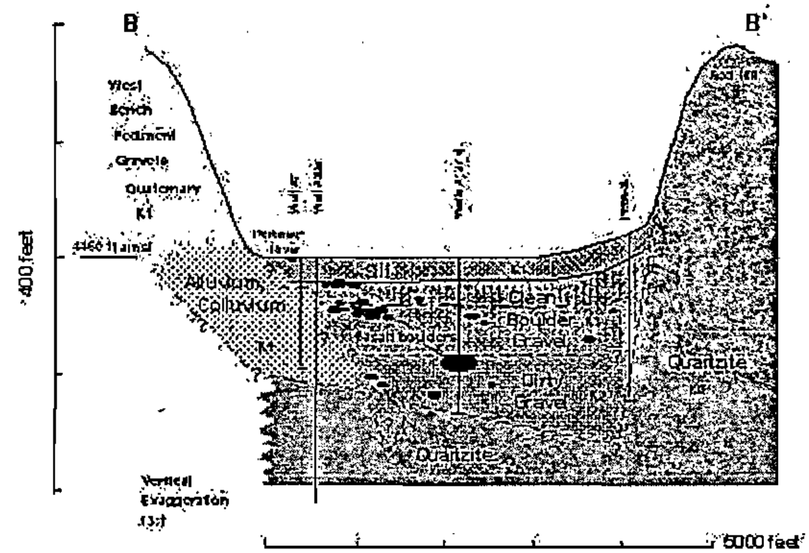

FIGURE 6a' - Geologic cross section B-B' across the narrowest portion of valley, over the Proterozoic bedrock high, Inferred relative hydraulic conductivities (K values) as in Figure 5; K0 = very low, K1, K2 = low to intermediate; K3 = high to very high. Boulder bars with clasts up to 10 feet are found in this area and are assumed to be ubiquitous in the section. The presence of a bedrock notch is inferred from gravity modeling (Appendix A2) and contaminant plume behavior.

a separate stratigraphic unit. However, recent indirect evidence from micro-gravity profiling of the bedrock along section B-B' and movement of the TCE contaminant plume away from the west argin of the Upper Gravel aquifer through the center of the valley at the location of Wells 12 and 16, suggests that a 60-80 ft deep notch in the bedrock sill exists almost exactly half-way between Wells 30a and 12 along section B-B'. Although the existence of such a notch has not been confirmed by gravity surveying for logistical reasons (this portion of the valley is underlain by the central rail yard of Union Pacific Railroad), its inferred depth and location are consistent with the bedrock configuration discussed below in Figure 6b.

Unlike the eastern margin of this section, which is defined by what appears to be a planar (possibly fault-controlled) bedrock scarp of dense, massive Proterozoic quartzite (Caddy Canyon), the western margin's bedrock limits are unknown at this location. Although inferred Caddy Canyon quartzite outcrops along the western valley margin immediately south of section B-B', the lateral extent, composition or thickness of the sedimentary section west of well 7 is not known, although the permeability of these materials is very probably low compared with that of the Upper Gravel so that the west margin of the Upper Gravel aquifer is considered well-defined in a hydraulic sense.

Sediments encountered in four wells clustered around well 7 are dominated by clay, silt and boulders, and are interpreted to represent fanglomerate derived from City Creek drainage. Based on well 7's specific capacity, the alluvial fan sediments appear to be one tenth to one hundreth as permeable as the clean gravels in the upper part of the section in the southern aquifer (see discussion of hydraulic data in a later section). The cross-sectional area available for ground water underflow through the portion of B-B' within the saturated gravels above the basalt is 2.0×10^5 ft^2. If the gravels below the basalt are included, the total potential cross-sectional area of flow is ca. 3.5×10^5 ft^2. The inferred bedrock notch would add an additional 0.2×10^5 ft^2 of saturated cross-sectional area, for a total of about 3.7×10^5 ft^2.

Cross-section C-C' (**Figure** 6b) was constructed near section B-B' because lithologic control and gravity data show that a quite different section exists at this location. As indicated in Figure 5, the bedrock high is defined for the most part by wells that intersect quartzite at depths of ca. 100 feet (30 m), except for Well 36 which intersects shale bedrock at almost twice the depth of nearby wells. This interpretation corroborates well with gravity data collected along this section (Reid, 1997). Section C-C' strengthens the hypothesis that a deep notch may exist in the bedrock high at this location, possibly representing an early analog of the Portneuf Gap, cut by a superposed stream flowing over the bedrock high. In conjunction with the well control, gravity data places very tight constraints on the geometry of the bedrock surface at this location (Appendix II). Of particular significance is the sharp, step-like nature of the bedrock surface in the center of the section, and a clear definition of the western bedrock margin, both identified in the gravity work. This, together with Caddy Canyon outcrop to the west, clearly constrains the western aquifer boundary at this location. However, the eastern margin of the aquifer gravels (beneath the Portneuf Basalt) is not defined.

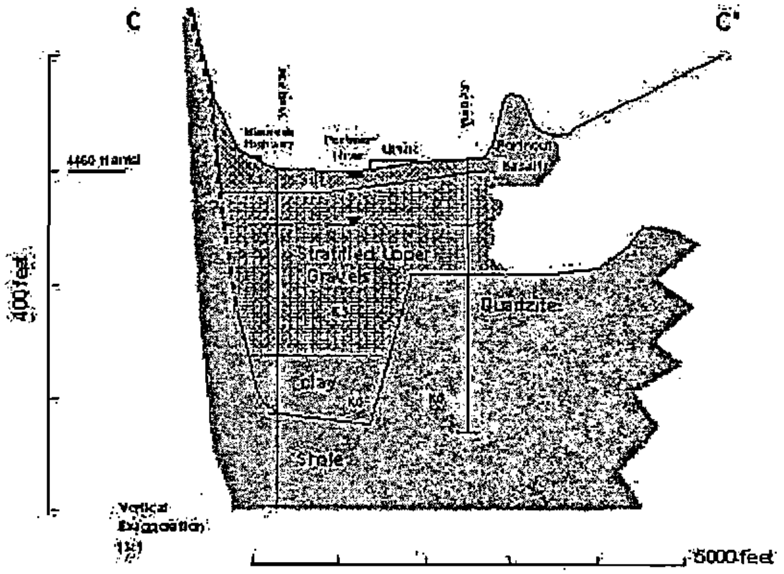

FIGURE 6b - Geologic cross section C-C' as inferred from gravity data (Appendix A2) and well control. Note the abrupt deepening of bedrock on the west side of the cross-section; the depth of the Upper Gravels here is comparable to the depth of the bedrock notch inferred in cross section B-B', suggestive of base-level fluvial control on paleo-valley morphology.

Unlike Section B-B', there is no indication of poorly sorted gravels overlying bedrock in the vicinity of either Well 36 or Well 3, although a thick (40 ft) section of brown clay underlies the Upper Gravel at Well 36. The entire gravel section, although smaller in area than that at B-B' (2.5 x 10^5 ft^2), is apparently uniformly coarse-grained and well-sorted. The hydraulic conductivity of these wells also is extremely high (Section 4.1.3), indicating that sediment sorting is enhanced, possibly because of the narrow, notch-like aspect of the paleovalley at this point.

Section D-D' (**Figure 7a**) is based on a composite of lithologic data from one monitoring well (PMW-1), an interpretation of bedrock information from domestic well logs (Appendix III), and a preliminary interpretation of microgravity survey data obtained over the southern aquifer (Appendix II). The depth of the contact between the upper, permeable gravels and the low-permeability Tertiary sediments is based on lithologic control provided by well PMW-1 and by the low-amplitude gravity high which is centered on PMW-1 and which has been tentatively interpreted as the expression of the Tertiary surface (Appendix III). The location of the basin-bounding fault inferred in the cross-section was estimated based on surface geologic information, fault plane attitude and consistency with lithology observed in city well #15 which is located approximately 1 mile northwest of D-D'.

A cross-section of the aquifer located at E-E' (**Figure 7b**) was recently constructed from lithologic data obtained from nine monitoring wells drilled across the valley at this location (CH2M-Hill, 1994d). This cross-section shows a much greater thickness of upper permeable

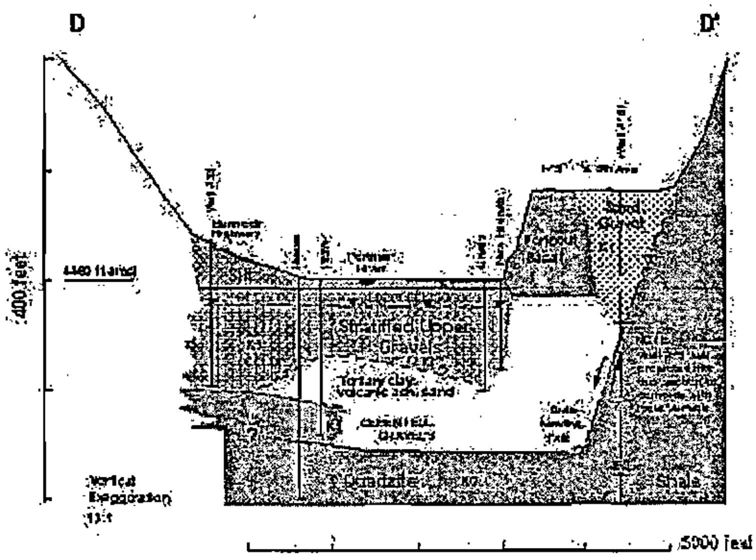

FIGURE 7a. Geologic cross section D-D'. The central "hump" in the Tertiary topography beneath PMW-1 is inferred on the basis of PMW-1's lithology and observed gravity variations across the valley at this location (Appendix A2). Note that the elevation of the Tertiary paleo-valley at this point is higher than the elevation of the bedrock notch in section B-B', suggesting that drainage at that time was already to the north (or, based on the interpretation of Mahoney et al., 1987, of Pleistocene age).

gravels than was encountered at D-D'. However, at both locations, the permeable upper gravels appear to be bounded along their base and western margin by cemented Tertiary gravels.

The Portneuf basalt is shown in cross-sections C-C', D-D' and E-E' as resting on a sedimentary section. These sediments are interpreted to represent valley fill that predates the Bonneville flood and, hence, the upper permeable gravels. Municipal well #15 provides the only reliable data on subsurface lithology east of the basalt, although a number of domestic well logs in the vicinity of D-D' and E-E' east of the basalt indicate either the absence of bedrock or indurated Tertiary material at shallow depth or their presence at greater depth (Appendix III). It is proposed that, east of the basalt, a shallow alluvial aquifer of relatively poorly sorted bouldery gravel and silty sand overlies Tertiary sediments of unknown thickness which, in turn, overlie shale bedrock.

3.2.2. Lithologic Units

On the basis of sharply contrasting lithologic and hydraulic properties, three lithologic groups are defined in the southern aquifer: 1) bedrock, of variable composition, but dominated by pink to white quartzite and varicolored shale or argillite, predominantly of Proterozoic age; 2) Middle to Late Tertiary basin-filling sediments and volcaniclastics of the Salt Lake Group, widely indurated to varying degree, and unindurated silty gravels of Pleistocene age; and 3) coarse, clean gravel in the uppermost part of the valley section, which constitutes the most important host for the southern

7382

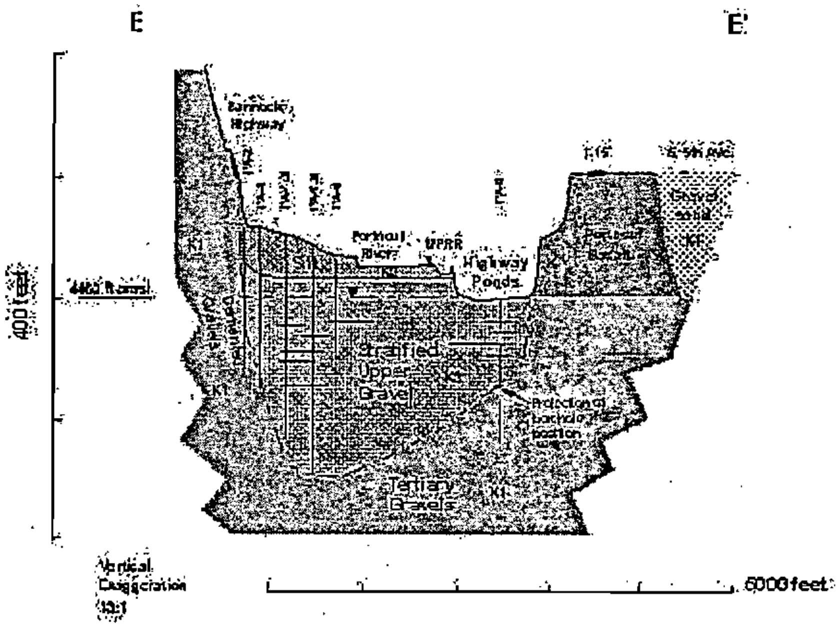

FIGURE 7b - Geologic cross section E-E', developed from well control and gravity data (Appendix A2). Note the deepening of the Upper Gravel here compared to section D-D' and the absence of any bedrock at depth.

aquifer, whose age is ambiguous but is believed to be predominantly Holocene. A fourth lithologic unit, the Portneuf Basalt, is important because it defines the eastern margin of the southern aquifer and effectively separates the southern aquifer from the salt and nitrate-contaminated eastern aquifer.

Upper Gravels

The well-sorted gravels in the upper portions of the sections shown in Figures 5, 6 and 7 (and which have been referred to as upper, permeable gravels) may be equivalent in age to the Michaud gravels exposed at the surface in the northern valley. However, there are problems with such a assumption. First, the progressive increase in boulder diameters mapped by Trimble (1976) from American Falls up to about Section B-B' abruptly ceases at that point. Boulders in excess of 10 feet (3m) diameter are commonly encountered in the shallow subsurface in the vicinity of Section B-B', but no evidence of either larger boulders or a continuation of the gradational size trend has been found in the southern aquifer. Boulders larger than 10 foot diameter should occur south of the bedrock high. Basalt was encountered in well PA-7 during test drilling (Figure 7b), which indicated either an intact lava flow or a very large boulder (CH^2M-Hill, 1994c), and indirect evidence from micro-gravity modeling of local-scale gravity anomalies suggests that large, high-density (basalt) boulders or boulder fields occur at the base of the Upper Gravel at several locations in the southern valley (Reid, 1997).

The southern valley may have been more deeply scoured by flood waters moving through the narrow, basalt-confined valley and any boulders deposited in the southern valley may have been subsequently buried in the waning flood stage or by fluvial depositional processes in the post-flood period. This suggestion is supported by modeling of gravity data which suggests that basalt occurs at the base of the Upper Gravels in four of six cross-valley gravity transects (Reid, 1997).

Secondly, although test well drilling with dual-wall air percussion methods conducted by CH2M-Hill near the west end of Section E-E' did not reveal evidence of sandy lenses within the gravel package, air rotary drilling at PMW-2 and recent test holes drilled by the City of Pocatello near the east end of Section E-E' produced clear indications of sandy lenses intermingled with the upper gravel (see monitoring well logs, Appendix I). Significant sand accumulations were also encountered during gravel excavation at the Highway Pond borrow pits (B. Brown, pers. comm., 1996), and have also been observed in recent excavations in the uppermost cross-bedded gravels exposed in the borrow pits, which also contain ostracod shells. In the city test holes, sand lenses shallower than than about 20 feet also contain ostracod shells; at this location the Upper Gravel was found to thin to less than 40 feet as far as 300 feet west of the Portneuf Basalt. This evidence suggests that flood gravels have been partially reworked by late-stage and post-flood fluvial processes. Finally, the hydraulic response of the upper gravel unit to pumping indicates that vertical hydraulic conductivity is significantly lower than the horizontal hydraulic conductivity (Section 4.2.2) and that significant permeability anisotropy also exists in the horizontal plane (CH2M-Hill, 1994d), both suggestive of facies development. These characteristics would be expected in a package of braided stream gravels, but are difficult to reconcile with the chaotic distribution of particle sizes expected during a single depositional event from coarse bedload in the recessional flood stage, as seen in the bouldery Michaud Gravel where it is exposed in the northern aquifer. This may indicate either that flood deposition occurred gradually rather than as a single brief event, or that some portion of the flood gravels were later reworked in a high-energy environment, possibly in the late flood stage or in the post-flood period.

For this reason, the permeable gravels that comprise the bulk of the southern aquifer are described here as the Upper Gravel unit, so as not to connote any genetic or age relationship with the Bonneville flood-derived Michaud gravel to the north.

Tertiary Basin Fill and Transitional Units

At an elevation ranging from about 4340 ft amsl in well #12 (Section B-B'; Figure 6a) to about 4325 ft amsl in monitoring well PA-7 (Section E-E'; Figure 7b), the Upper Gravels appear to transition abruptly into a much more silt- and clay-rich gravel unit. These sediments which may represent either Tertiary or Pleistocene material. An intact Tertiary section in the subsurface is best described in monitoring well PMW-1 where the base of the Upper Gravel occurs at a much higher elevation of about 4395 ft amsl (Section D-D'; Figure 7a). At this location the Upper Gravel rests directly on a series of partially indurated sands, silty sands and intercalated clays, including a thin, grey volcanic ash and a dense, white clay overlying very hard, cemented gravel that is lithologically indistinguishable from the cemented Starlight Formation outcropping on Bannock Highway at Gibson Jack Creek.

A simple structure contour interpretation, based on the average dip of the basin-bounding fault on the north side of the graben and the average stratigraphic dip of the Paleozoic bedrock units on the south side, suggests that the Tertiary sedimentary section in the southern aquifer may be as thick as 3000-4000 feet (D.W. Rodgers, pers. comm., 1993). Reid (1997) modeled several gravity transects in the southern valley and showed dramatic deepening of the bedrock basement southeast of Red Hill (Appendix II). The fact that well drillers have consistently encountered difficult drilling conditions throughout the LPRV (and have consistently described this lithology as bedrock-like in domestic well logs) at depths that correlate with cemented Tertiary sediments encountered in monitoring wells, supports the contention that partly indurated Tertiary sediments occur throughout the LPRV at depths below 100 - 200 feet (Appendix III).

Modeling of gravity data from the southern aquifer indicates that depth to bedrock (modeled density = 2.6 g/cm^3) is at least 2500 feet, with indurated Tertiary sediments (model density = 2.35 g/cm^3) filling the structural trough beneath the Upper Gravel section. Tertiary sediments exposed in outcrop are of intermediate density (ie. partly indurated). Reid's (1997) modeling of gravity profiles transverse to the valley axis define a paleovalley into which the Upper Gravel unit was deposited.

Cemented gravels have been identified in numerous wells in the southern aquifer; but rather than constituting a single, correlative unit, there appear to be multiple indurated zones in the Tertiary Starlight Formation (CH2M-Hill, 1994d). A hard clay or hardpan layer identified in several domestic wells in the vicinity of Well 13 and in production Well 14 (near PMW-1) may be a manifestation of this.

An effective regional base of the Upper Gravel/top of the intact Tertiary section can now be defined on the basis of the depth of occurrence of materials that are significantly harder to drill. From an analysis of the lithologic database (Appendix III) and comparison of known bedrock depths with what commercial water well drillers in the area have recorded as "bedrock" (under a variety of colorful descriptions!), it appears that difficult drilling conditions commonly encountered in the southern valley are due to the occurrence of indurated Tertiary sediments, rather than bedrock. On the assumption that these materials are as indurated as those outcropping along Bannock Highway immediately south of Gibson Jack Creek, their hydraulic conductivity should be quite low. An analysis of well development data from the deep Forsman/Pein well indicates that the bulk hydraulic conductivity of the 80-390 ft open interval (ie. that part of the section that is predominantly beneath the Upper Gravels) is several orders of magnitude lower than that of the upper gravel (Figure 5).

On the basis of the observed contrasts in lithology, bulk density and hydraulic conductivity, therefore, the effective base of the southern aquifer is provisionally defined as the top of the Tertiary section. Because the top of the Tertiary section appears to vary considerably in elevation, it is also proposed that the thickness of the Upper Gravel aquifer varies considerably, and possibly nonuniformly, over the length of the southern valley. Assuming that the lateral boundaries of the southern aquifer are defined on the west side by low permeability bedrock and indurated Tertiary sediments and to the east by clay-rich Tertiary sediments beneath the Portneuf basalt (cf. Figure 7a,b), the area available for ground water flow through the saturated Upper Gravel could vary widely from 4.5×10^5 ft^2 (Section E-E'; Figure 7b) to 2.5×10^5 ft^2 (Section C-C'; Figure 6b). (Check Q calc'n)

Bedrock

No direct measurements of the hydraulic conductivity of bedrock are available to constrain its permeability. Of 202 wells in the database (Appendix III), a number have specific capacity information for what appears to be "bedrock" completions. However, only three wells have open intervals deeper than reported "bedrock" depth, and all three of these were completed in what appears to be Tertiary indurated rocks. It can only be surmised that wells that are terminated, and perforated, in bedrock have such low yields that development tests were not attempted.

Based on outcrop exposures, the permeability of bedrock is assumed to be entirely due to fractures. A zone of fracturing was encountered in the uppermost 5 feet of the Caddy Canyon quartzite during the drilling of PMW-3 (Appendix I). The fractures were filled with white clay so that the rock mass likely has low permeability. If this is typical of fracture permeability throughout the area, then the hydraulic conductivity of bedrock can be assumed to be very low. A rough estimate of the bulk hydraulic conductivity of rocks on the western margin of the southern aquifer - many of which are fractured bedrock - is made at the end of Section 6, on the basis of the magnitude of the regional hydraulic gradient over the western aquifer margin (Appendix III; Figure A3.4) and the calculated annual inflow from the Bannock Range. The estimated value is 1 ft/day, which is in the mid-range of typical values for fractured rock (Freeze and Cherry, 1979), but appears to be of the same order of magnitude as indurated Tertiary sediments.

Portneuf Basalt

Based on radiocarbon dating of buried wood, the basalt of Portneuf Valley is believed to have filled the ancestral Portneuf River's channel at about 583,000 yr BP (T. Ore, pers. comm., 1995). This lava flow, which extends from the southern LPRV to its source in the Gem Valley, comprises at least three layered flow units in northern Marsh Valley and two identifiable units in the southern LPRV. Its western margin was eroded during the Bonneville Flood. Although its original width is unknown, it may not have extended much farther west than its present position. Some evidence of its original western margin is preserved at the base of an outcrop on Hildreth Road just north of the Highway Pond borrow pit. Over most of its outcrop in the LPRV, less than 100 feet of section is exposed, although in the northern Marsh Valley, its thickness is considerably greater. Its total thickness in the LPRV was unknown until microgravity data became available recently. A gravity profile across the basalt (Appendix II; Reid, 1997) indicates that the lava flow is no more than 50-70 feet thick near its northern terminus, indicating that its base does not extend to any significant depth beneath the level of the present valley floor.

3.2.3. Late Cenozoic Valley Evolution

In order to synthesize the subsurface information currently available, a geologic history of the southern valley is proposed in **Figure 8**. This Late Cenozoic historical interpretation is drawn partially from Rodgers et al. (1994) and H.T. Ore (pers. comm., 1994) and attempts to refine and reconcile existing geologic conceptual models with the observations and information obtained in this study. It incorporates new information, including lithologic logs, outcrop information, well hydraulic response, and micro-gravity profiling and modeling of the Upper Gravel.

(draft revision)

Deposition of the Upper Gravel during late Pleistocene-Holocene time may have occurred under two possible scenarios. In Scenario A (**Figures 8a**), a wholly stratified Upper Gravel unit was created in a paleovalley that was incised in pre-Bonneville time and filled with fluvial (and/or older glacial flood) deposits. During the Bonneville flood, this unit was only partially scoured. The portion of the section that was removed was subsequently refilled by more stratified fluvial deposits. In this scenario, tributary alluvial fans aggraded into the valley throughout the pre- and post-flood period (such as the poorly-sorted, bouldery gravels encountered in wells near the mouth of City Creek; Figure 6a). Part of the Upper Gravel unit would therefore predate the Michaud Gravels, but the entire thickness of the Upper Gravels would be characterized by vertically-stratified, heterogeneous fluvial channel and bar facies.

Alternatively, in Scenario B (Figure 8b) the Bonneville flood scoured the sediments of the paleovalley quite deeply and deposited a single, homogeneous basal gravel over which subsequent high-energy, fluvially-dominated sedimentation would have completed the formation of the Upper Gravel. Under this scenario, some portion of the Upper Gravel, probably the earlier stage rather than the later, would be correlative with the extensive Michaud Gravel unit that fans out north of Red Hill. At peak flood stage some tributary alluvial fans (such as the City Creek fan), their toes eroded away by flood waters, might have slumped or flowed into the main valley; similar, flood-induced destabilization of the western wall of the valley may have been responsible for the geomorphology of the Johnny Creek area, which has been mapped as a massive slump feature (Othberg and Rodgers, 2000).

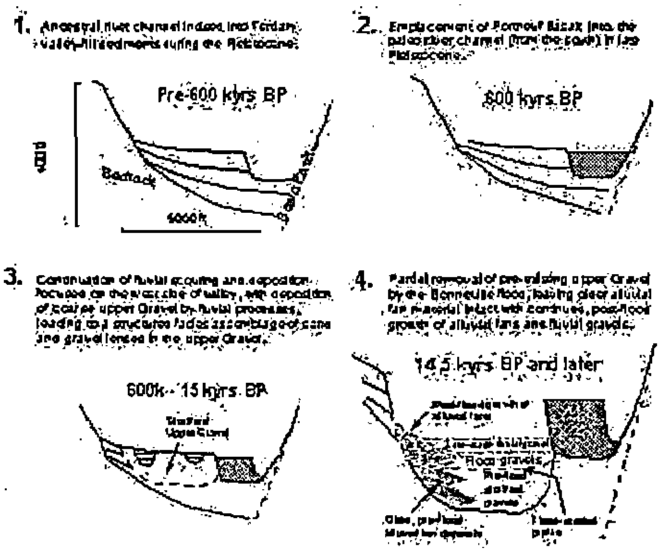

FIGURE 8a - Scenario A of a proposed geologic history of the lower Portneuf River valley, developed around a generalized cross section located between C-C' and D-D', looking northward. High-energy fluvial processes prior to the Bonneville flood (or possibly earlier glacial flood events) deposited what is described as the Upper Gravel (stage 3.). The Bonneville flood at 14.5 ka BP only removed some of these materials, subsequently depositing more stratified fluvial sediments (stage 4.), resulting in an Upper Gravel unit that is vertically stratified and heterogeneous throughout most of its thickness.

7387

(draft revision)

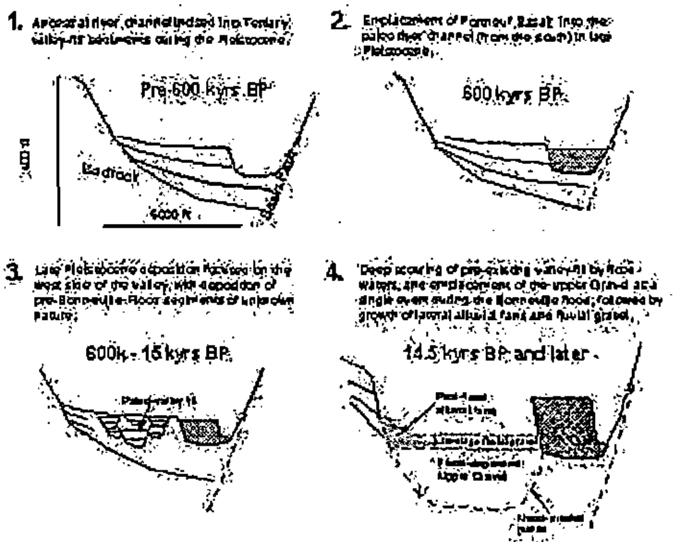

FIGURE 8b. In Scenario (B), the Bonneville event scoured all pre-flood valley fill and deposited a homogeneous package of Upper Gravels and some amount of late-stage, high-energy fluvial sands and gravels. Alluvial fans subsequently aggraded onto the Upper Gravels as late-stage fluvial portion of the Upper Gravel unit was deposited. In this scenario, the poorly-sorted material that is encountered below City Creek (Figure 8b) represents flood-induced slumping of alluvial facies that were destabilized by flood erosion. Sediments deposited during peak flood stage may be less well-sorted at Red Hill than elsewhere in the valley due to the abrupt hydraulic jump that was created by the bedrock lip.

Following the peak flood stage, tributary fans would have aggraded onto and interfingered with the fluvially-deposited portion of the Upper Gravel (as seen at Fort Hall Canyon, where wells on the lower quarter of the alluvial fan actually penetrate the fan deposits and are completed in the Upper Gravel; Brown and Caldwell, 199x). In either scenario, post-flood fluvial processes were responsible for the overbank deposits of fine, ostracod-rich silt that caps the Upper Gravel in the southern valley.

Scenario 8A seems incompatible with the magnitude of flood energy that was responsible for deposition of the huge boulders found in the Michaud Gravels. To expect that most of the pre-existing southern valley fill would resist scouring when 10-foot diameter boulders were transported over them seems implausible. Large basalt boulders and boulder bars encountered in foundation and street excavations from West Halliday to at least Carson Street, in drill holes at the base of the Upper Gravel, and also inferred from micro-gravity modeling (Reid, 1997; Appendix A2, Figure A2.5b) must have been deposited in the early, peak-flood stage of Upper Gravel formation.

In Scenario 8B, flood scouring must have removed extensive amounts of pre-existing valley fill, including sediment and rock, consistent with the inferred power of the flood (O'Conner, 1996). An event of this magnitude also could have induced large-scale erosion-induced slumping and little of the valley's pre-flood morphology would have remained intact.

The principal criterion for deciding among these competing scenarios hinges on whether the Upper Gravel is primarily stratified or homogeneous. As discussed in Section 4.2.2, pumping test results from Well 36 suggest that at least portions of this aquifer may behave in a semi-confined

7388

manner, possibly as a result of vertical stratification. Although grain size stratification and lenses of coarse sand were observed in the gravels at PMW-2 from 45 to approximately 100 feet (Appendix I), stratified material could have been deposited during the flood's recessional stage or during a post-flood fluvial stage.

Figure 8c summarizes lithologic descriptions from the PA-series monitoring wells (CH2M-Hill, 1994c). Lithologic descriptions for the wells closest to the middle of the valley (and least affected by valley-margin influences) have been grouped into four principle units: upper silt and clay; sandy gravel; coarse, clean gravel; and silty, clayey (pre-flood) gravel. From the log descriptions, the sandy gravels have the greatest variability in their proportions of sand, gravel, and fines. This ca. 50 foot-thick unit is interpreted to be equivalent to the stratified deposits between 50 and 100 feet in PMW-2 and to the stratified and cross-bedded fluvial deposits that have been observed in shallow test trenches immediately beneath the silt unit at the Highway Pond gravel pit.

The coarsest, cleanest and most well-sorted gravels in the section consistently comprise more than half of the Upper Gravels and were consistently described as "classic Michaud gravel;" this unit is the likeliest candidate for a single, homogeneous unit that was deposited at or immediately following peak flood stage. In the three deepest wells, the base of this unit grades into siltier gravel and, in the two deepest (PA-1 and 7), it bottoms in pre-flood silt- and clay-rich gravel.

The lithologic data from the PA-series wells represent the strongest direct evidence in support of Scenario 8B: a coarse, homogeneous flood gravel that underlies stratified fluvial gravels and that

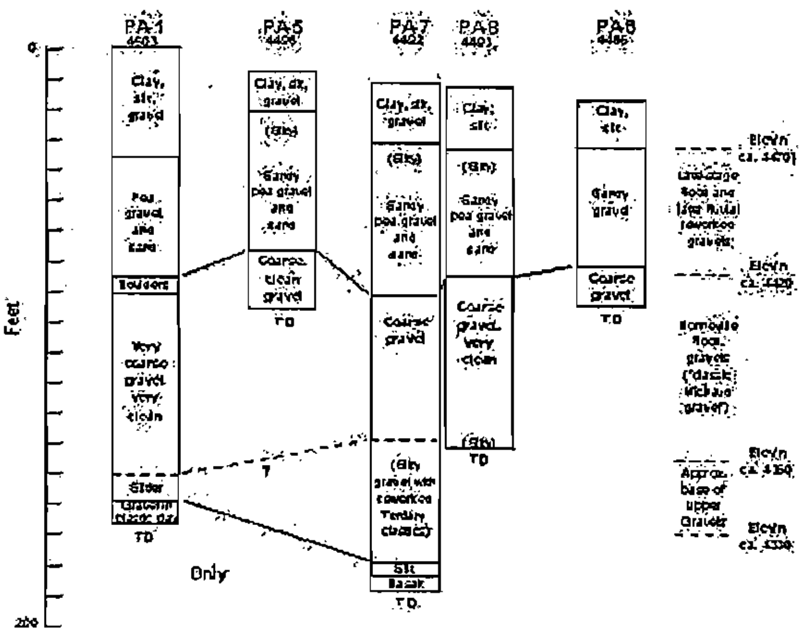

FIGURE 8c - Comparison and synthesis of lithologic information on the nature of the Upper Gravels, as described in geotechnical logs of the PA-series monitoring wells. Only those borings farthest from the valley margins (least influenced by slumping and localized sediment incursion) were examined.

7389

comprises more than half of the Upper Gravel section. Thus, the Upper Gravel aquifer of the southern valley could be described as a composite unit representing both flood and post-flood depositional processes.

The above interpretation may also explain the puzzling discontinuity in grain size distribution that is observed in the Red Hill cross section (B-B'; Figure 6b). As shown in Figure 6b, grain sizes ranging from clay and silt (in the "Dirty Gravel" unit) up to 10-foot and larger boulders and boulder bars occur from the vicinity of this cross-section northward for at least fifteen city blocks. The initial sediments deposited in this area during peak flood stage may have been less well-sorted than elsewhere in the valley due to the bedrock flow obstruction. At peak flood stage, a tremendous hydraulic jump would have existed across the bedrock lip as flood waters tumbled up and over it. At the same time that a thick bed load of coarse, well-sorted gravels was aggrading on the upstream side of the bedrock lip, a melange of boulders and finer material was dropping out of suspension at the point of the hydraulic jump and its low-pressure zone. This process continued until upstream gravel deposition eliminated the hydraulic jump, at which point the erosive power of the flood waters was in decline and the transition between peak-stage flood gravel deposition to late-stage, high-energy fluvial deposition and reworking began. The upper portion of the poorly sorted assemblage that had been deposited was subsequently reworked in the fluvial stage, leading to the sequence of clean, well-sorted bouldery gravels seen in the upper part of the section. This hypothesis is testable because the clean gravels in the upper part of the Red Hill cross section are predicted to be stratified and fluvially sorted but with the same volumetric proportion of proportion of larger clasts as the dirty gravels deeper in the section.

(draft revision)

4. HYDROLOGY

4.1. REGIONAL HYDROLOGY

The LPRV is located at the distal end of a large watershed (the upper Portneuf River basin), which receives an average of 52 x 10^9 ft^3/yr of precipitation (Norvitch and Larson, 1970), whose surface and subsurface discharge is focused through a narrow bedrock notch (the Portneuf Gap) into the LPRV. Discharge from the upper basin, together with recharge derived locally from the ca. 145 mi^2 lower basin, represents the only known sources of recharge for the LPRV.

Based on patterns of snowpack density and relative tributary valley catchment areas (Figure 1b), the principal sources of local recharge to the LPRV are believed to be (from southeast to northwest): underflow from Marsh Valley through the Portneuf Gap, Portneuf River seepage losses, Mink Creek/Gibson Jack underflow, and Pocatello Creek underflow. In addition, lateral ground water inflow to the valley through the pediment gravels along the southwest margin of the valley provides an unknown amount of recharge from the Bannock Range. Several flowing artesian wells and springs located on the pediment gravels south of Cusick Creek, some 40-80 feet above the valley floor, may be an indication that contributions from this area are significant. Their relative contribution is discussed in Section 5.2.

4.2. AQUIFER HYDROLOGY

4.2.1. Aquifer Water Levels and Hydraulic Gradients

Figure 9 summarizes historic "static" well water levels (measurements taken during non-pumping periods following variable recovery periods) over the past 20 years in Pocatello municipal wells. Despite the noise introduced by the measurement procedure, the data reveal a fairly regular hydraulic gradient along the length of the aquifer, with the overall gradient along the valley axis of the order of 0.0015, but varying significantly in places. As shown in Figure 5, the gradient appears to increase abruptly in the vicinity of the bedrock high (approximately mid-way between sections B-B' and C-C ') and then to return to close to average values on either side of the bedrock high. This has been corroborated by measurements of water levels in domestic wells during a domestic well survey performed in the southern municipal well field area (CH2M-Hill, 1994d) which showed a steepening of the gradient in the vicinity of PMW-1.

Figure 10 is a comparison of fluctuations in static well water levels over 22 years, with average snowfall amounts recorded at Pocatello airport. The data reveal that the uppermost sand/gravel aquifer is strongly influenced by long-term (5-10 year) variations in precipitation and basin recharge (superimposed on seasonal water level fluctuations of the order of 2-6 feet, due to seasonal imbalance between recharge and pumping). Water levels in wells completed in the Upper Gravel aquifer (eg: wells 28, 16 and 10) display pronounced secular variations of 10 feet or more between periods of normal and below-normal precipitation.

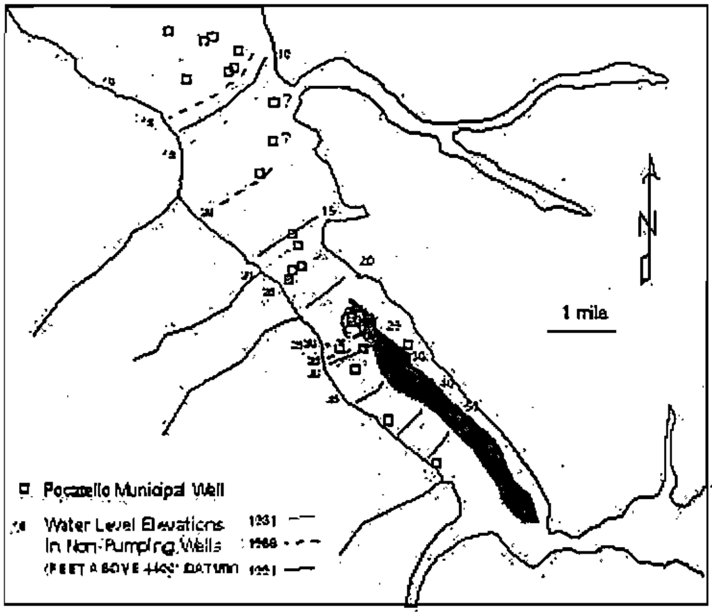

FIGURE 9 - Static water levels measured in Pocatello production wells during non-pumping periods in 1981, 1986, and 1991. Detailed water level measurements in the southern aquifer in 1994 corroborate the axial flow pattern indicated by these historical data (CH2M-Hill, 1994d).

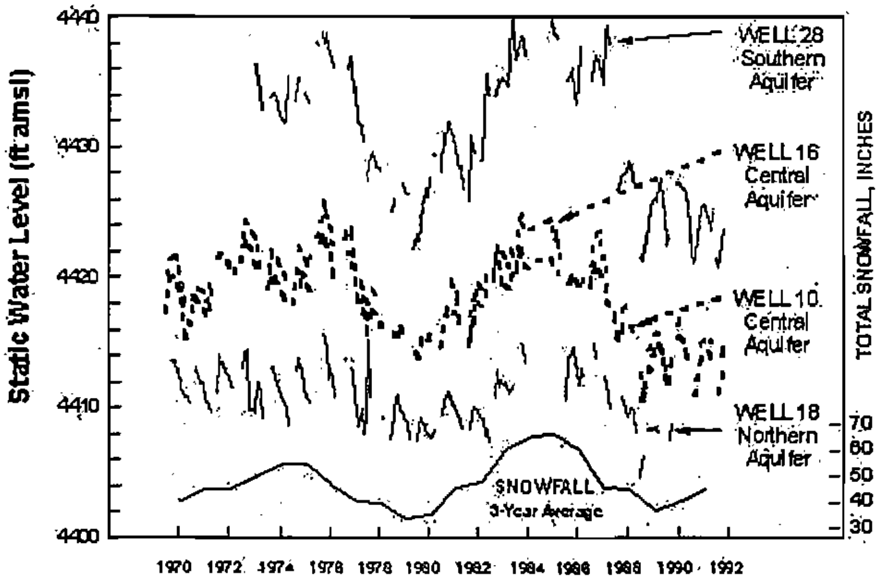

FIGURE 10 - Temporal trends in static water levels in selected Pocatello municipal wells from the southern aquifer (Well 28), central quifer (Well 10, 16) and the northern aquifer (Well 18), showing secular correlations with 3-year average snowfall amount as recorded at the weather station at Pocatello Airport.

(draft revision)

Well 18 is the only well known to be completed solely in the deep gravel aquifer (located beneath the deep clay unit shown in Figure 5). As shown in Figure 10, it displays a markedly subdued long-term hydrograph amplitude in comparison with wells completed in the shallow aquifer. The lower gravel aquifer is tapped by several deep wells, but all but well 18 are perforated in multiple aquifer zones. These wells are characterized by hydrograph amplitudes which are intermediate between those of the shallow aquifer and that of Well 18, indicating their water levels represent a weighted average of upper and lower aquifer hydraulic heads. Taken together with the stratigraphic interpretation discussed in the previous section, these data support the existence of a deep aquifer in the northern well field. On the basis of well 18's water level record, the hydraulic head of this deep unit appears to be significantly lower than that of the upper unit, with a downward vertical hydraulic gradient implied. This would be surprising if the deep aquifer were considered part of the valley hydrologic system, since upward hydraulic gradients are expected in valley discharge settings. Alternatively, the observed head in the deep gravel aquifer may reflect conditions in the regional Snake River Plain aquifer.

Figure 11a shows continuous water level variations recorded in several wells located in the central and southern aquifer areas, during the spring recharge period of 1993, together with Portneuf River discharge (plotted as approximate stage, in feet). Several features are noteworthy. First, hydrographs from wells over a large area track remarkably closely. Secondly, water levels in some wells display a pronounced diurnal oscillation, suggestive of a barometric response under confined or semi-confined aquifer conditions. Third and most significant, is the lack of evidence for direct forcing of aquifer storage changes by river leakage. This indicates that river losses may not be as significant a source of recharge in the Lower Portneuf aquifer's water budget as implied by the work of Norvitch and Larson (1970) in the upper Portneuf basin above the Portneuf Gap.

The water level record in **Figure 11b** is extended to include the water level data available on Well 28 and PMW-1 to August, 1994. As is apparent, normal to slightly above average spring, 1993 recharge had a noticeable effect on aquifer water levels, whereas the aquifer did not respond at all to the far below normal spring, 1994 recharge event. This figure again shows the lack of direct correlation between Portneuf River flow variations and aquifer storage. A much greater degree of (negative) correlation is seen between aquifer storage and pumping withdrawals, indicating that ground water exploitation has a major impact on the aquifer.

Figure 11c compares water level changes in the southern aquifer (Well 28, PMW-1), in Mink Creek (Marshall) and in the southern aquifer south of the mouth of Mink Creek (Bullock) and in the Portneuf Gap (Zahm). As is apparent from these data, aquifer storage began to decrease in the southernmost parts of the aquifer while water levels north of PMW-1 were maintaining a near steady-state. The record from the Mink Creek well indicates that water levels in this area started dropping about one month prior to the decrease in Well 28's water levels. These data indicate that ground water underflow through the Portneuf Gap is not a major source of recharge to the southern aquifer and that another major source of recharge must be responsible for maintaining aquifer storage near steady through to the beginning of summer, 1994. The response of the Marshall and other Mink Creek wells suggests that ground water underflow from this and possibly other areas on the Bannock Range may be responsible.

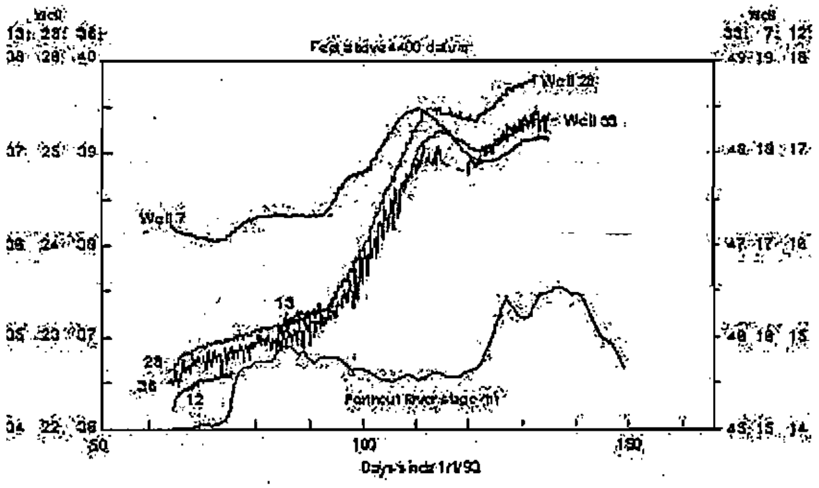

FIGURE 11a - Data from continuous water level measurements in wells completed in the Upper Gravels of the southern aquifer, during the recharge phase of the 1993 water year. Water levels shown as feet above 4400 ft datum. Note the rapid and synchronous rise in water levels in all wells in the southern aquifer and the lack of correlation with Portneuf River stage (expressed relative to an arbitrary datum). Data logger monitoring of Wells 13 and 38 also suggest the possibility of partial confining conditions in this part of the aquifer, giving rise to diurnal water-level fluctuations that respond to daily barometric pressure variations.

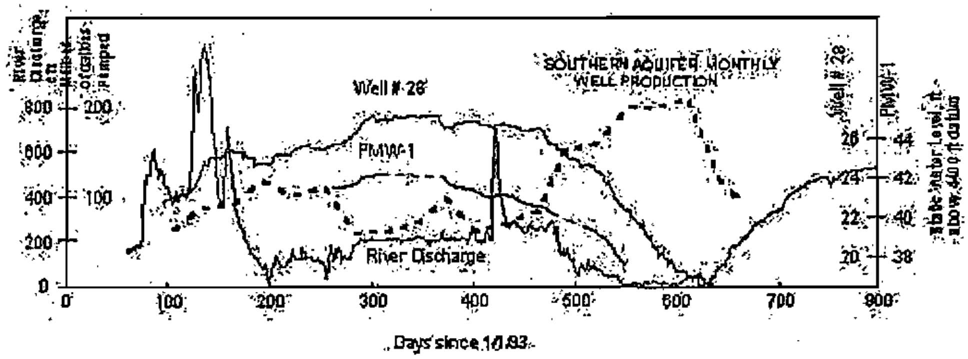

FIGURE 11b - Comparison between static water levels in the southern aquifer, monthly total well production from the southern aquifer, and Portneuf River discharge during 1993 and 1994. From these data, river discharge does not appear to be affect ground water levels, indicating that the river is not losing significantly along the LPRV, which is in keeping with the lack of evidence for a direct hydraulic connection between the river and pumped wells. A strong negative correlation between total southern aquifer production and ground water levels is apparent during 1994 when spring recharge was minimal. In contrast, good spring recharge (ca. day 70-150) in 1993 produced a large gain in aquifer storage.

7394

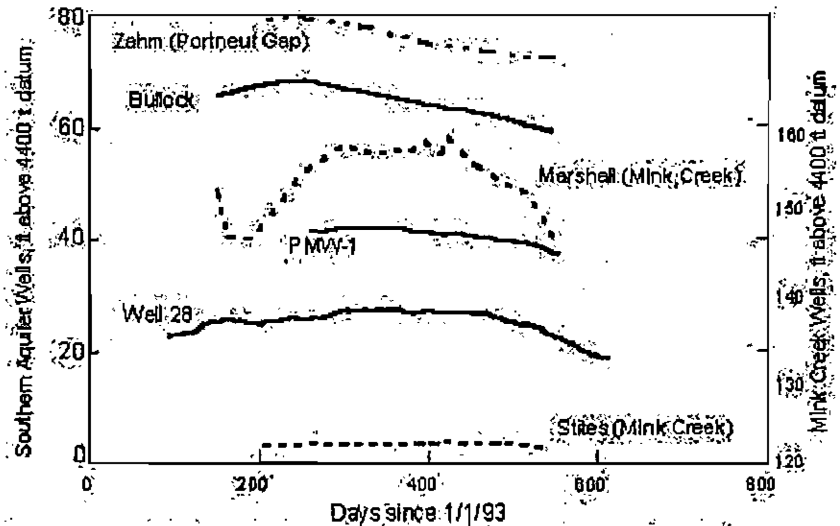

Figure 11c - Relative water levels and trends in the southern aquifer (northwest to southeast: Well 28, PMW-1, Bullock), in the Portneuf Gap (Zahm) and in the mouth of Mink Creek (north to south: Stites, Marshall). Note the pronounced water level decline beginning in the last quarter of 1993 in wells in and near the Portneuf Gap (Bullock, Zahm) while wells down-gradient of Mink Creek (Well 28, PMW-1) showed delayed recession curves. The Marshall hydrograph demonstrates that ground water recharge from the Bannock Range was supplying the aquifer into the summer of 1994.

4.2.2. Aquifer Hydraulic Characteristics

In this study, transmissivity (T) estimates for the aquifer system have been derived for the most part from specific capacity data on production wells. Data were interpreted using the methods of Walton (1988) and Bradbury and Rothschild (1985), with corrections for partial penetration effects. Pumping tests were conducted in two areas, one in each of the northern (wells 31-34 and 27) and southern aquifers (wells 36, 13, 28 and PMW-2). Two additional pumping tests were conducted in the southern aquifer in the vicinity of section D-D' by CH2M-HILL (1994d). The only estimates of porosity of the Upper Gravel are from bulk density measurements on a series of grab samples collected in the Highway Ponds borrow pits, which gave a mean value of 2.0 g/cc, and a total porosity estimated at 0.3.

Table 1 summarizes the estimates of transmissivity and hydraulic conductivity derived from well development data, specific capacity, and pumping tests. Comparison of T obtained from specific capacity (not corrected for well loss) and T derived from observation well response in pump tests indicates that the effects of well loss are appreciable, as expected with perforated well casings. Values of transmissivity estimated from specific capacity data therefore are expected to be low, by up to one In unit. Analysis of data from two controlled pumping tests in the vicinity of section E-E' (CH2M-Hill, 1994d) produced K estimates of 600 to 2800 ft/d (mean = 1150 ft/d), which fall into the midrange of values in Table 1 (mean = 900 ft/d).

(draft revision)

TABLE 1 - Transmissivity and hydraulic conductivity estimates for the Lower Portneuf River Valley aquifer from well development data, specific capacity estimates and aquifer pumping tests. Calculations incorporate partial penetration correction (Walton, 1988, p.18). Results flagged with asterisk for Katsilometes and LDS farm irrigation well pumping tests are from CH2M-Hill (1995). Bolded entries indicate most reliable data.

Well #	Test Date	Pump Rate (gpm)	Draw-down s(ft)	Well radius r(ft)	Screen Length Ls(ft)	Aquifer Thickness b(ft)	U/C	Q/s (raw)	Q/s corr'd	T,ft2/s	ln(T)	K (ft/day)
SOUTH AQUIFER:												
13	12/53, no info; 2 hr	450	0.67	0.58	35	80	U	672	458	1.05	0.053	1138
13	05/87, pump check	1150	2.2	0.58	35	80	U	523	357	0.82	-0.198	888
13	12/53, no info; 2 hr	525	0.75	0.58	35	80	U	700	478	1.10	0.094	1188
28	production 7/88	1200	1.25	0.75	50	60	U	960	1047	2.41	0.878	3465
28	1/21/71 const rate, 11 hr	2100	3	0.75	50	60	U	700	763	1.75	0.562	2527
28	1/21/71 const rate, 6 hr	2100	3	0.75	80	60	U	700	763	1.75	0.562	2527
28	production 7/91	856	1	0.75	50	80	U	856	933	2.15	0.763	3090
30	production 7/91	1400	1.5	0.83	50	65	U	933	991	2.28	0.823	3027
30	production 7/89	1400	2	0.83	50	65	U	700	743	1.71	0.535	2270
30	2/11/80 const rate, 3 hr	1000	2.3	0.83	80	65	U	435	461	1.06	0.059	1410
33	1965, no information	2000	53	0.5	50	70	U	61	57	0.13	-2.025	163
36	3/17/93 const rate, 29 hr	3000	1.15	0.83	50	100	U	2609	2004	4.61	1.527	3960
36	recovery test, 3/17/93	3000	NA	NA	NA	100	U	NA	NA	5.5	1.705	4752
36	pump test11/8/93, 3 obs.wells	1100	NA	NA	NA	100	U	NA	NA	7.50	2.015	6480
36	" " " underdamped analysis		NA	NA	NA	100	U	NA	NA	11.5	2.442	9936
Turner	8/20/52 no information	1415	1.14	0.67	50	60	U	1241	1336	3.07	1.122	4422
Katsilo	7/8/94, step drawdown tests*	1000	4.27	0.5	50	70	U	234	222	0.51	-0.673	629
Katsilo	" " "	1600	10.46	0.5	50	70	U	153	145	0.33	-1.099	411
Katsilo	" " "	2050	16.8	0.5	80	70	U	122	116	0.27	-1.325	328
Katsilo	7/8/94 pump test, 46 hr.*	2000	NA	0.5	50	70	U	NA	NA	0.67	-0.400	627
PA-9	" " "	obs well	NA	0.167	NA	70	U	NA	NA	2.29	0.829	2827
PA-8	" " "	obs well	NA	0.167	NA	70	U	NA	NA	0.67	-0.400	627
PA-10	" " "	obs well	NA	0.167	NA	70	U	NA	NA	0.68	-0.386	639
PA-8	6/14/94, 48 hr, pump test on	obs well	NA	0.167	NA	120	U	NA	NA	0.84	-0.174	605
PA-3	LDS Farm, north well*	obs well	NA	0.167	NA	120	U	NA	NA	0.93	-0.073	670
						Averages:				2.22	0.29	
						Std. Dev'n:				2.67	1.01	
CENTRAL AQUIFER:												
12	12/08/54 const rate, 11 hr	2075	1.9	0.83	55	90	U	1092	975	2.24	0.807	2151
12	production 7-8/89	2343	2	0.83	55	90	U	1172	1046	2.40	0.877	2308
12	12/07/54 const rate, 6 hr	2250	2	0.83	55	90	U	1125	1004	2.31	0.836	2216
12	production 8/90	2300	2	0.83	55	90	U	1150	1026	2.36	0.858	2265
12	5/06/38	2400	2.3	0.75	55	90	U	1043	917	2.11	0.748	2023
12	production 8/90	2600	2	0.83	55	90	U	1300	1160	2.67	0.981	2381
16	12/03/60 const rate, 2 hr	2170	3.7	0.83	33	90	U	586	370	0.85	-0.163	818
16	production 8/91	1250	3	0.83	33	60	U	417	263	0.60	-0.505	580
16	12/02/60 const rate, 1 hr	2790	8.2	0.83	33	90	U	340	214	0.49	-0.707	473
10	production 7/90	2336	1.2	0.83	78	120	U	1968	1705	3.92	1.368	2822
10	production 8/90	2142	1.2	0.83	75	120	U	1785	1549	3.56	1.270	2563
10	production 7-8/90	2172	1.25	0.83	75	120	U	1738	1507	3.47	1.243	2405
29	4/27/73 const rate, 72 hr	2500	35	0.83	190	200	C	71	74	0.23	-1.473	99
9	post-1948, no info, Q est'd	300	15	0.53	60	120		20	13	0.03	-3.508	22
						Averages:				1.95	0.19	
						Std. Dev'n:				1.24	1.31	
NORTHERN AQUIFER:												
26	4/23/92, production, 1 obs.well	2400	NA	NA	NA	60		NA	NA	4.7	1.848	6768
28	3/15/92, production, 2 obs.well	2400	NA	NA	NA	60		NA	NA	2.9	1.065	4176
27	" "	obs	NA	NA	NA	150		NA	NA	1.3	0.405	864
27	3/28/92, production, 1 obs.well	1200	NA	NA	NA	150		NA	NA	3.3	1.194	1901
31	4/06/77 const rate, >24 hr	3800	7	0.83	82	82	C	343	554	1.72	0.340	1805
34	5/21/93, pump test,1 obs.well	3100	NA	NA	NA	120		NA	NA	3	1.009	2160
34	4/26/93, pump test,1 obs.well	3190	NA	NA	NA	120		NA	NA	3.2	1.163	2304
34	4/14/93, pump test,1 obs.well	3100	NA	NA	NA	120		NA	NA	2.6	0.958	1872
34	5/02/93, pump test,1 obs.well	3100	NA	NA	NA	120		NA	NA	2.2	0.788	1584
8	4/19/53 const.rate, 8 hr	1700	86.4	0.67	135	250	C	20	14	0.04	-3.165	13
						Averages:				2.52	0.56	
						Std. Dev'n:				1.19	1.28	
EASTERN AQUIFER:												
15	10/18/77 const rate	3800	8	0.83	25	50	U	600	526	1.21	0.193	2098
						Number of Estimates:				56	38	
						Averages:				2.18	0.36	
						Std. Dev'n:				1.91	1.12	

7396

(draft revision)

Analysis of drawdown responses in wells 26, 27, 31 and 34 indicates an apparent T of 1.5 - 4.7 ft^2/sec (K = 860 - 6800 ft/d) with an apparent storativity of 0.000002-0.000009. This is consistent with the confined nature of the upper and lower water-bearing zones tapped by these wells (Figure 5). The mean T determined for these wells is approximately one ln unit higher than the mean of all available T estimates. Drawdown responses in wells 36, 13, 28 and PMW-2 indicated the highest transmissivities in the entire aquifer system. Using curve matching and Jacob straight-line analysis of data from the first four hours of the drawdown phase, values of T = 7.5 ft^2/sec (K = 6500 ft/d) and S = 0.005 were obtained.

As shown in **Figure 12**, the drawdown response of well PMW-2 at a distance of 45 ft from the pumping well demonstrated classic underdamped response, characteristic of porous media of very high-transmissivity (van der Kamp, 1976). Utilizing van der Kamp's equations and an iterative curve-fitting method to determine the frequency and damping constant of the well-aquifer oscillatory response, a value of T = 11.5 ft^2/s (K = 10000 ft/d) was obtained, which is in good agreement with the results from conventional methods of pumping test data analysis considering the differences in analysis methods and assumptions.

The results summarized in Table 1 indicate that the hydraulic conductivity in the vicinity of Well 36 is the highest in the entire aquifer. It is possible that the narrow, notch-like character of the paleovalley in this location (Figure 6b) served to focus fluvial energy and resulted in the deposition of generally coarser, better-sorted gravels. If so, a similar situation may exist in the modem Portneuf Gap, suggesting that higher-K gravels may exist in the Gap than are present in the bulk of the southern aquifer.

The pumping test on Well 36 (Figure 12) defined the presence of an impermeable flow boundary at a distance of 600-800 ft (183-244 m) from the pumping well that is consistent with the well's distamce from bedrock (cf. Figure 6b), but this test was of too short a duration to identify the influence of possible river recharge. However, pumping tests conducted in the vicinity of section E-E' have corroborated the limited hydraulic impact that the river has on the Upper Gravel aquifer (CH2M-Hill, 1994c *perform search-and-replace on "1994d", revise "1994c" where appropriate*).

The test on well 36 also indicated that the aquifer behaves in a confined or semi-confined manner, with observation wells 2500 ft away responding instantaneously to the start of pumping. In addition, the agreement between transmissivity estimates obtained with conventional analysis and with equations developed to describe the underdamped response in confined situations (van der Kamp, 1976) also suggests that the aquifer may partially confined in the vicintiy of Well 36; this would be consistent with the barometric responses observed in wells 36, 13 and, to a lesser degree, well 28 (Figure 11a).

Analysis of pumping test data near section E-E' suggested that substantial lateral hydraulic anisotropy (4:1) may exist in the Upper Gravels (CH2M-Hill, 1994c). That shallow, multi-well test, with the Katsilometes well pumping and the PA-series wells monitoring, was conducted in the interval between 30 and 66 ft bls. Wells PA-9 and 10 monitored the depth intervals 57-67/ 87-97 and 22-62, respectively. Because PA-9's completion spans two depth zones, its apparent response may have been damped due to interaction with the deeper, non-stressed zone, leading to a reduction in apparent drawdown unrelated to lateral hydraulic anisotropy.

Although that analysis assumed unconfined conditions in the aquifer, Jacob semi-log time-drawdown and distance-drawdown analysis methods for confined aquifers were applied (and internally consistent results obtained), suggesting that the distinction between confined and semi-confined conditions may be quite subtle. Indeed, given a vertical-to-horizontal permeability ratio of 0.001 or less, delayed gravity drainage in an unconfined situation with specific yield of 0.3 would be expected to last for more than 17 days (Walton, 1988), making direct hydraulic confirmation of an unconfined condition virtually impossible in pumping tests lasting only a few days. The proximity of valley boundaries in this strip aquifer further decreases the likelihood that an unconfined response could be detected prior to the impacts of the boundaries.

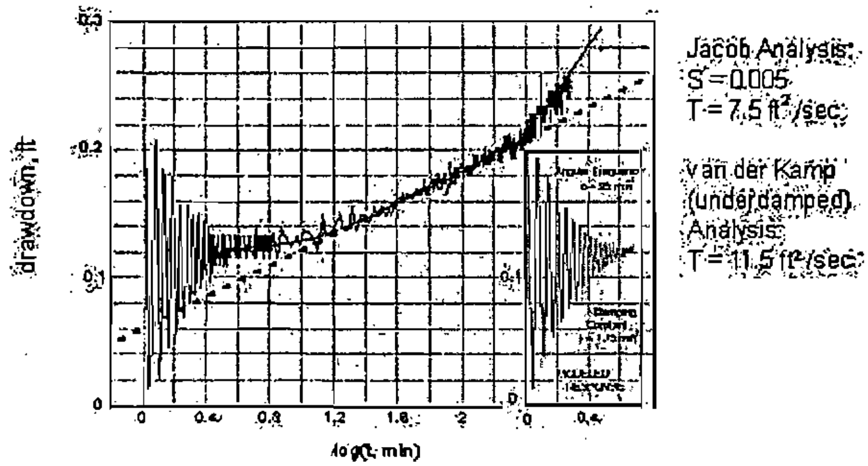

Figure 12 - Drawdown in observation well PMW-2, in response to Well 36 pumping at 1100 gpm. Note the sinusoidal response at early time, characteristic of highly transmissive (underdamped) conditions. Van der Kamp's (1976) harmonic analysis produces slightly higher but comparable transmissivity estimate than a conventional Jacob analysis. The effect of a nearby hydrologic barrier boundary is seen at 250 minutes, (consistent with a distance of ca. 700 feet to the western valley margin). Water levels in Wells 13 and 28 (across the river), at a distance of 2500 feet, responded instantaneously to the start of pumping, suggesting that a) the aquifer behaves as a partially confined system, at least on short time scales, and b) a hydraulic boundary due to river leakage to the water table does not exist.

Should the aquifer prove to be effectively semi-confined because of strong vertical/horizontal anisotropy, and if corroboration of the presence of sand lenses in the Upper Gravel is forthcoming, the depositional history of the valley's Upper Gravel will no longer be compatible with a singular Bonneville flood depositional episode. In that event, the Upper Gravel will have to be viewed as a series of glaciofluvial gravels, possibly deposited in the recessional flood stage or over a longer period of time following the flood (cf. Figure 8, scenario [c]). A small test pit excavation in the Highway Ponds gravel pit during the spring of 1996 revealed a 3-5 foot thick sequence of strongly cross-bedded, fluvial sand and gravel bar deposits at the top of the Upper Gravel section. Such evidence supports the view that some portion of the Upper Gravel is post-flood and may be far more heterogeneous and anisotropic than initially presumed.

Utilizing a K range of 1000 - 5000 ft/d, a hydraulic gradient of 0.0015, and a total cross-sectional area for underflow through the Upper Gravel in section C-C' of 2.5×10^5 ft^2, ground water underflow past C-C' is estimated to be between 4 and 22 ft^3/sec. Comparing this flux with the annual average continuous pumping rate from the entire well field of ca. 20 ft^3/sec indicates that pumping withdrawals have a major impact on the aquifer's water balance and storage potential. Assuming an effective porosity of 0.3, the linear flow velocity in the southern aquifer is in the range of 5-25 ft/day.

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5. GROUND WATER QUALITY

5.1. HISTORIC WATER QUALITY TRENDS

The City of Pocatello has maintained water quality records on its production wells since the mid-1960's. On the whole, inorganic water quality has been characteristically good, although the water is very hard and has a relatively high total dissolved solids (TDS) content. Closer examination of water quality records shows that ground water quality varies in a systematic manner that suggests that point and/or non-point sources are adding chloride and sulfate salts to the aquifer in a coupled fashion. In particular, the water quality of the eastern alluvial aquifer (east of the Portneuf Basalt; Figure 4) is poor and is characterized by high concentrations of chloride, sulfate and nitrate. However, because of the lack of production wells in this area and because the focus of this study has been on understanding the geohydrology of the main aquifer, relatively little water quality information on the eastern aquifer exists. A recent report documents some of the water quality problems that characterize the eastern system (Winter et al., 1994) and this, together with unpublished M.S. thesis research work by ISU Geology student C. Meehan, constitutes the bulk of our knowledge of the water quality of the eastern system.

5.1.1. Overview of Production Well Data

Figure 13 shows the overall composition of water from Pocatello production wells as Piper (trilinear) plots in selected years. Data are from water quality records on file with the City of Pocatello and the IDEQ. In general, the bulk composition of cationic constituents has remained fairly constant both spatially and temporally (with perhaps a slight tendency to increasing relative sodium content in latter years), while the proportion of sulfate and chloride has shown a pronounced variation spatially over the aquifer. In general, portions of the northern aquifer and the alluvial aquifer east of the Portneuf Basalt (Figure 4) have the highest concentrations of salts, including nitrate. Wells 2 and 3, at the northwest end of the basalt, also have had chronically higher salt and nitrate.

Figure 14 is a comparative plot of relative abundances of major anions, showing consistently increasing proportions of Cl and SO_4 in Pocatello production wells with time. As shown in **Figure 15**, these trends are mimicked by various other inorganic constituents, including TDS, major cations, hardness, alkalinity and nitrate. Such trends in the historical data can be observed back to 1966, at least, although the earliest records indicate that nitrate is neither significantly elevated nor correlated with chloride, and that the range in dissolved salt concentrations is much smaller than in recent times.

5.1.2. Temporal and Spatial Trends in Historic Data

Evidence for a temporal trend towards increasing salt concentrations is strikingly evident in the historical record, although only portions of the aquifer system have been significantly affected. **Figure 16** shows variations of chloride in selected Pocatello production wells from 1966, the earliest year of record, to the present. Although some of the earlier data's quality is suspect (as, for example, some analyses from 1974), the trends shown in Figure 16 are echoed in most major ionic constituents. Thus, the available data indicate that past variations of dissolved salt content in the

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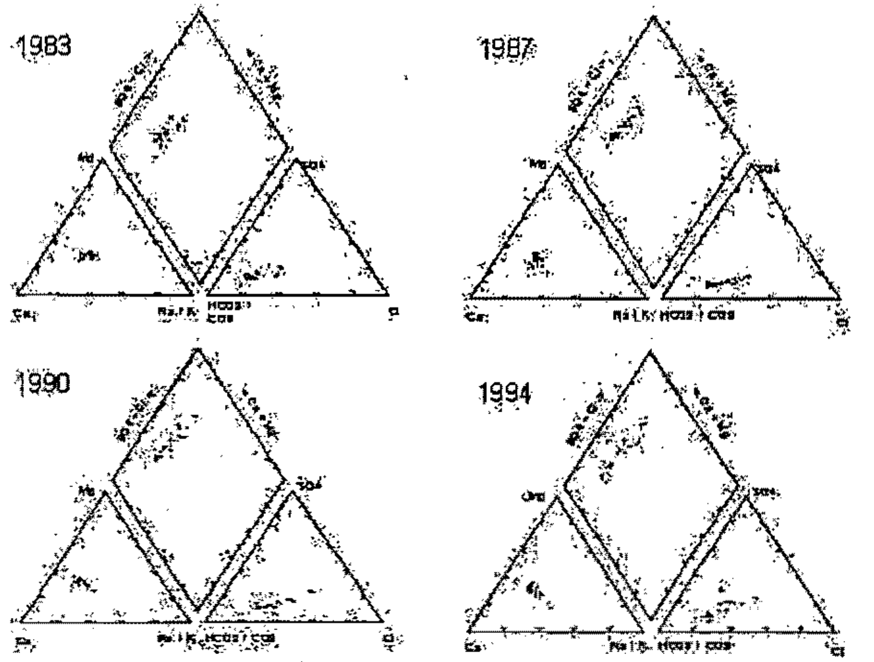

Figure 13. - Piper diagrams showing relative concentrations of major cationic and anionic constituents of groundwater in Pocatello municipal wells in selected years. Data from Pocatello municipal records.

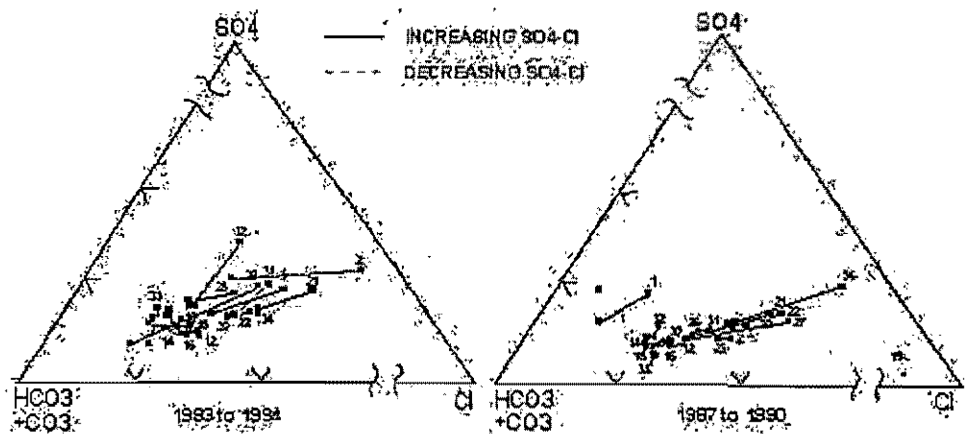

Figure 14 - Systematic temporal variations of major anion proportions in municipal wells, indicating a trend of increasing sulfate and chloride in the municipal aquifer.

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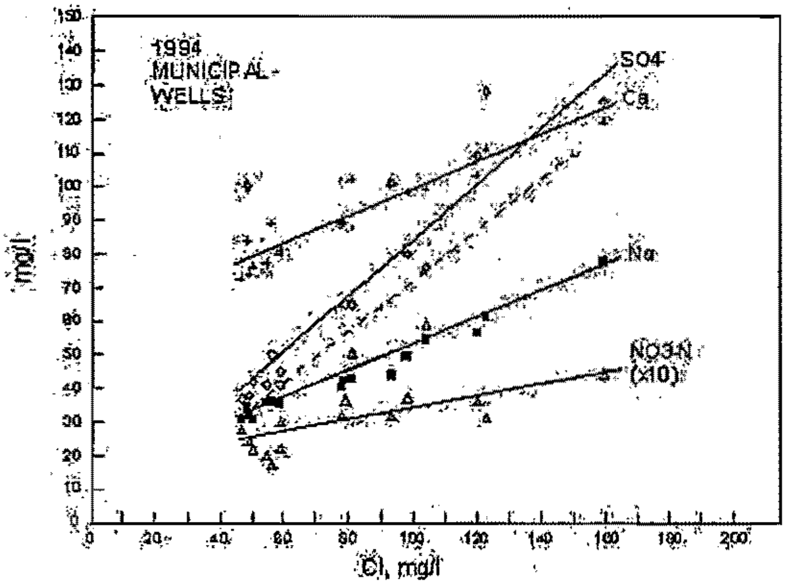

Figure 15 - Correlation of major ionic constituents in municipal well water based on 1994 data. A general shift to higher concentrations relative to 1983 data is evident for all ions, and the correlation of nitrate to other ions is much stronger. The dashed line represents the expected sodium trend for addition of pure NaCl salt, suggesting that cation exchange may responsible.

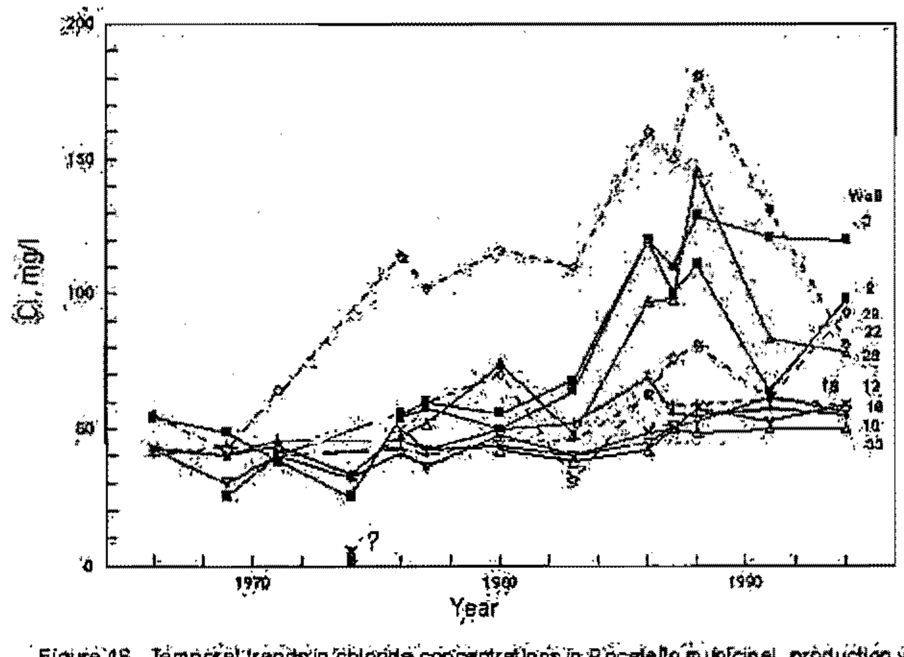

Figure 16 - Temporal trends in chloride concentrations in Pocatello municipal production wells, based on historic water quality records. Representative wells from the southern (2,3,28,33), central (12, 16, 10) and northern (18, 22, 26) areas of the aquifer are shown.

aquifer are real, that the variations are substantial and that the magnitude of variations in different portions of the aquifer system differs.

Of particular interest in Figure 16, is the identification of two geographic areas that appear to have had significantly greater dissolved salt impacts than most of the aquifer system. Much of the aquifer has shown little or no trend in dissolved salt (example: wells 33, 16, 12 and 10 from the southern and central portions of the aquifer system), suggesting that for the most part contaminant impacts are negligible. The single deep well (18) in the northern aquifer that is producing only from the deep, confined gravel unit (cf. Figure 5) also shows no trend in salt concentration with time, suggesting that the deep aquifers have not been impacted to the extent that some portions of the shallow system have been. One area displaying substantial shallow salt impacts (example: wells 22, 26) is located in the northern aquifer system, downgradient of the mouth of Pocatello Creek.

This area is shown in plan view in **Figure 17**, where the spatial concentration variations suggest that the mouth of Pocatello Creek is the source of the salt input. The temporal trends indicate that salt pollution in this area has been gradually increasing in severity since about 1970. The coupled increases of Cl, SO_4, Na, Ca, Mg and NO_3 suggests but does not prove that septic leachate may be a source of the degradation of ground water quality in this area. Alternatives include dissolved salt additions from road salting, nitrate and salt additions from leachate and runoff from small stock yards, and landfill-derived leachate. Of these sources, landfill-derived sources in the Pocatello Creek valley have been ruled out on the basis of site-specific ground water investigations (CH2M-Hill, 1994b).

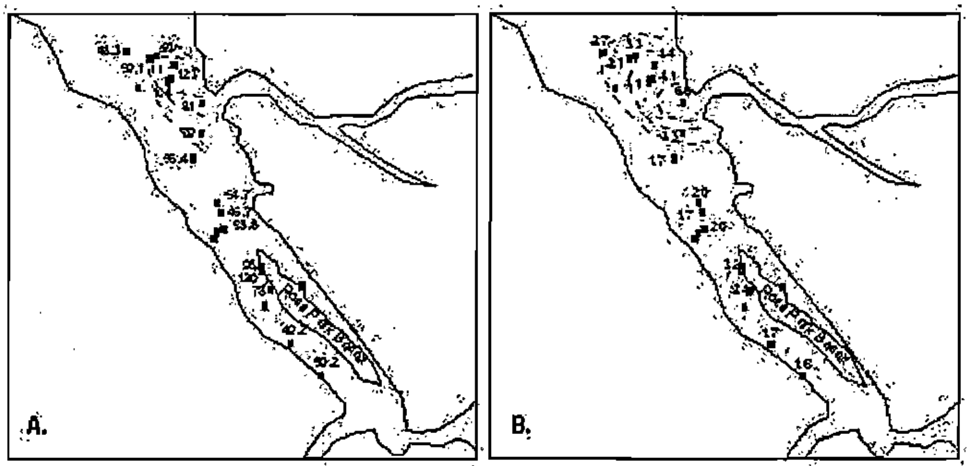

Figure 17 - Distribution of chloride and nitrate in ground water as measured in municipal wells. A) 1994 chloride distribution (20 mg/l contour interval); B) 1997 nitrate distribution (2 mg/l contour interval) Similar patterns are observed in other years. Note the influence of a contamination source apparently emanating from Pocatello Creek. Also note that chloride and nitrate are chronically elevated in Wells 2 and 3 in Ross Park. Among the wells in this area, one or more is always on-line, creating a year-round, localized water table depression (cf. Figure 9) which appears to draw these contaminants over from the eastern aquifer.

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The second area of substantial salt impact shown in Figure 17 (wells 2, 3, 28 in Figure 16) occurs near the northern end of the southern aquifer, where the Portneuf Basalt terminates. This area of the municipal aquifer may be affected by the capture of salt- and nitrate-contaminated ground water from the eastern alluvial aquifer, which is known to be heavily contaminated by these constituents (IDEQ, 1994). Wells 2 and 3 historically have maintained essentially year-round production from this area of the aquifer, and therefore may have created a chronic hydraulic sink which has created a substantial capture zone for upgradient salt contamination, particularly from areas east of the basalt. Municipal well 15, which is situated on the opposite side of the basalt from well 28, was abandoned in the early 1980's because of excessive nitrate; it has also had the highest chloride and sulfate concentrations of any Pocatello municipal well on record ($Cl = 732$ and $SO_4 = 2245$ mg/l in 1980).

From an examination of the historical data it is concluded that:

a) a large portion of the northern aquifer system is affected by salt pollution from an unidentified source but which apparently originates in the Pocatello Creek area;

b) most of this salt probably originates from shallow and/or surface sources, and that the deep portion of the aquifer system may yet be free of contaminants; and

c) for the most part, the southern aquifer appears not to have been substantially affected by the addition of chloride, sulfate and nitrate, except in localized areas along the eastern margin and in the vicinity of some private wells.

5.2. CURRENT WATER QUALITY TRENDS

5.2.1. Water Quality Trends in the Southern Aquifer

Figure 18 is a plot of all well locations in the southern aquifer study area that were sampled as part of C. Meehan's M.S. thesis research in support of the WHP aquifer characterization program. A large number of wells were sampled in order to identify, and to provide a representative number of analyses of, the different water sources that are potentially recharging the aquifer. Pending the identification of a sufficient spread of water compositions and concentrations, this information could be used to calculate independent chemical mass balances for the aquifer, and hence to solve for unknown water recharge fluxes.

Constituents that were analyzed include: field pH, specific conductance and temperature; total hardness by EDTA titration; total alkalinity by acid titration; Na and K by atomic absorption spectrophotometry; Mg, Cl, and NO_3 by spectrophotometry, and SO_4 by turbidimetry. All analytical methods are by Hach, Inc. analytical protocols, except for Na and K. Analytical methods, precision and detection limits are summarized in Meehan and Welhan (1994) and will be detailed in C. Meehan's thesis.

A Piper plot of the part of the major ion data acquired during 1993 and 1994 is shown in **Figure 19**. As is apparent from the plot, several different water types exist in the study area but, except for waters from the nitrate and salt-contaminated eastern aquifer, the compositional fields for these

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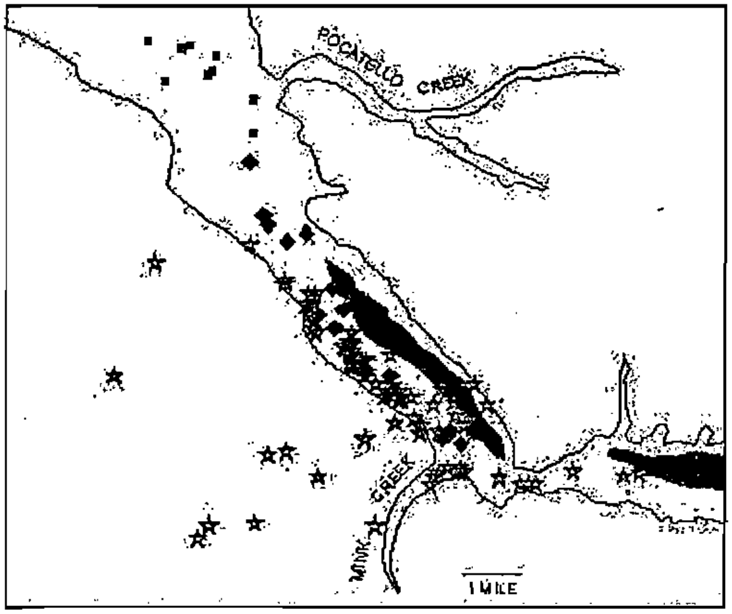

Figure 18 - Locations of all city wells (diamonds) and springs and domestic wells (stars) used to define water quality variations and recharge components.

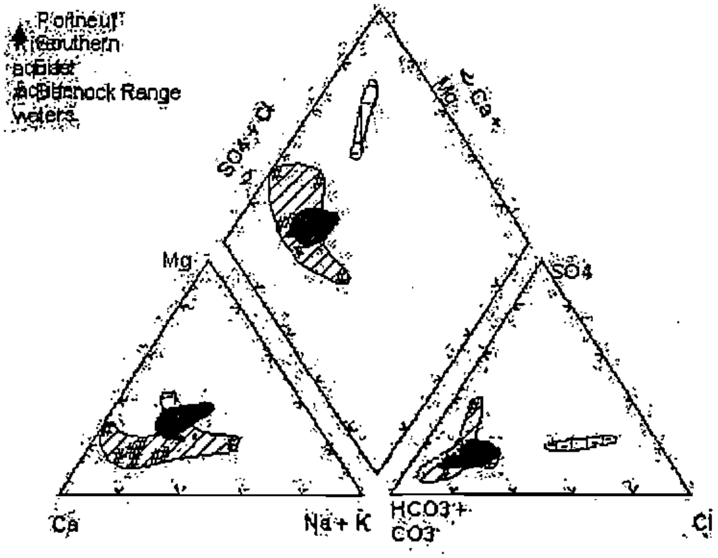

Figure 19 - Piper diagram showing compositional variations in ground waters of the southern aquifer. Although Bannock Range waters are compositionally similar, all are much more dilute than ground water in the southern aquifer. In contrast, ground waters from the alluvial aquifer east of the Portneuf Basalt are both very different compositionally and have much higher high total dissolved solids.

7405

waters overlap to a large extent. However, there are several notable features of this data set that can be exploited in a chemical mass balance approach.

First, there are only three distinctly different potential recharge water types associated with three different sources: Portneuf River water, the eastern aquifer, and waters of the Bannock Range (which includes Mink Creek, Gibson Jack, City and Cusick Creek drainages). The largest compositional variation is seen in the Bannock Range waters, probably reflecting a spectrum of different water-rock chemical exchange reactions that would be expected in the varied geologic setting of the Bannock Range, which includes such chemically diverse rock types as limestone, volcanic ash and quartzite.

Second, aside from this minor compositional diversity, essentially all Bannock Range waters are low in TDS and, therefore, are chemically distinct from the main aquifer's ground water. Because of the concentration contrast between Bannock Range waters, other potential recharge components, and southern aquifer water, their ionic contents are amenable to the development of independent chemical mass balance equations, which, together with the hydrologic mass balance equation, can be used to solve for unknown water flux terms in the hydrologic mass balance.

Third, the chemical composition and major ion concentrations of Portneuf River water are very similar to those of the southern aquifer, thus rendering the independent solution of a possible river recharge flux term impossible on the basis of chemical compositions, alone. However, the stable isotopic composition of surface water tends to be different from ground waters because of evaporation (Gat, 1970), particularly during the summer when upstream diversions and enhanced evaporation can produce a significant increase in a stream's stable oxygen-18 content. The oxygen isotope composition of a number of waters in the study area were analyzed as part of an NSF-sponsored research project investigating the hydrology of the Mink Creek watershed (Table 2). As is evident, the Portneuf River's composition is significantly different from other potential recharge sources. Since only one sample of river water has been analyzed (July, 1994 collection), it is not known whether the value shown in Table 2 is representative or anomalous. On the basis of this single sample, it would appear that river water contributed half of the total recharge to the aquifer, which contradicts several other lines of evidence (Section 6). More samples will be collected under winter baseflow and spring, 1995 runoff conditions. If the oxygen-18 composition of the river during spring runoff proves to be similar to that shown in Table 2, the contribution of river leakage to the water balance of the southern LPRV aquifer could be significant.

5.2.2. Chemical Mass Balance Approach

The chemical mass balance approach being taken by C. Meehan in his M.S. thesis research represents work in progress, and is summarized only briefly in this report. The method involves defining the following balance equations:

$$dV/dt = Qg + Qr + Qb + Qe - Qp - Qo$$

$$d(C^i_oV)/dt = C^i_gQg + C^i_rQr + C^i_eQe - C^i_oQp - C^i_oQo$$

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TABLE 2 - Stable oxygen isotope data on ground waters in the Lower Portneuf River Basin, collected June-July, 1994.

Sample ID	O-18, per mil	
Southern and Central Aquifer:		
Well 36	-16.8	
Well 12	-16.75	
Well 2	-16.8	
PA-4	-16.8	
Pa-7	-16.7	Average:
Pa-9	-16.9	-16.77
Bannock Range and Related Waters:		
Hayden/Stiles(composite	-17.4	
Pearson	-17.8	
Strawn	-18	
Kelley	-17.9	
City Creek (mouth)	-17.7	
Pein	-17.7	Average:
Bickley	-18	-17.78571
Portneuf Gap Ground Water Inflow:		
Zahm	-16.9	
Eastern Aquifer:		
Composite of three wells	-17.4	
Portneuf River	-15.7	

where V is the volume of the southern aquifer, the Q's are the rates of water inflow through the Portneuf Gap (g) and from the river (r), the Bannock Range (b), the eastern aquifer (e) and outflow from pumping (p) and underflow (o) across the bedrock high at Section B-B'; the C^i_j terms represent the concentrations of conservative chemical and isotopic species (i) of the various water inflow and outflow components (j). In the approach used in this study, these conservative species are considered to be Cl, SO_4, NO_3 and oxygen-18. Nitrate was included because all waters in the system are believed to be oxidizing and chemical or microbial nitrogen transformations are assumed to be negligible during the residence time of water and nitrate in the southern aquifer.

Preliminary interpretation of the chemical mass balance of the aquifer suggests that Bannock Range waters constitute a significant part of the overall recharge to the southern aquifer and that Portneuf River leakage is not a major contributor. If verified through more detailed modeling of the aquifer's chemical mass balance, these interpretations would be consistent with water level responses observed in the main aquifer and in Mink Creek valley, and with geohydrologic evidence obtained in aquifer pumping tests to date. However, the chemical balance approach should not be expected to provide a definitive quantification of aquifer recharge, because of the uncertainty in defining the average chemical concentrations of potential recharge sources that may originate over a wide area (eg: Bannock range waters) and sources whose chemistry varies widely and/or is poorly defined (eg: eastern aquifer contaminated waters). For example, the historical data examined in preceding sections indicate that Cl and SO_4 impacts from local contamination sources are significant in certain areas of the aquifer system, possibly rendering these tracers unsuitable for mass balance calculations in a simplified, regional recharge mass accounting.

5.2.3. Evidence for Local Contamination Sources in the Southern Aquifer

Figure 20 is a plot of chloride concentrations in the southern aquifer, as defined by C. Meehan's sampling in May-July, 1994. This sampling was intended to identify anomalous concentrations of conservative anions that were intended to be used as mass balance tracers and to define possible spatial variations in the southern aquifer, analogous to those observed on a regional scale (eg: Figure 17), which could deleteriously affect the mass balance interpretation.

Several localized high-Cl anomalies are observed (marked by dashed circles), including one which defines a small plume (in the vicinity of Tech Farm Road). These high-Cl occurrences are interpreted as localized sources of ground water contamination, originating at or near the surface. Possible sources of this contamination include salt runoff from road de-icing, septic field leachate, and agricultural (animal) waste. Chloride, sulfate and nitrate are all positively correlated which is suggestive of an anthropogenic. The point-source nature of the contamination suggests that surface-derived contaminants may be reaching the aquifer via leakage along poorly-sealed well casings or through abandoned, open wells. The former is known to be a chronic and wide-spread problem throughout southeastern Idaho, due to lack of sufficient enforcement of water well drilling and completion regulations, and the latter is suspected in at least one case (the Tech Farm Road plume) where anecdotal information is available regarding rapid, localized percolation of corral runoff which is suggestive of an abandoned well.

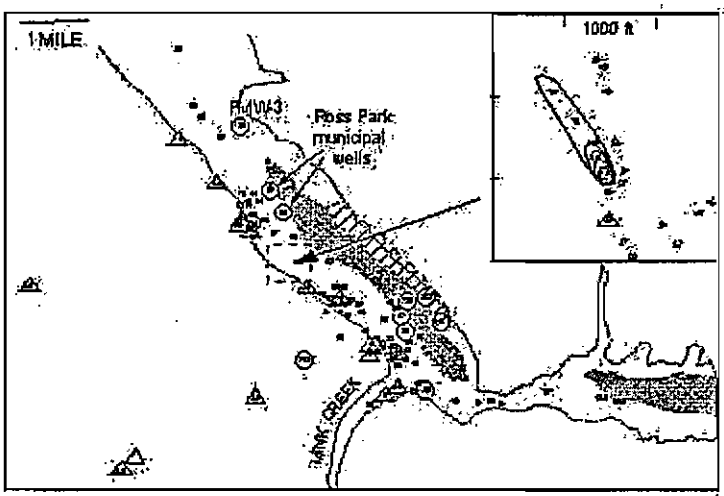

Figure 20.- Ground-water chloride concentrations in and around the southern aquifer, May and July, 1994. Triangles represent values less than 35 mg/l that are indicative of Bannock Range recharge; circles highlight values greater than 65 mg/l; except for the very high value observed in a spring northwest of Mink Creek, these occurrences represent isolated, local contamination (probably due to leaky well casings). The inset shows a chloride plume emanating from a location on Tech Farm Road that likely represents such a source. Three wells in the basalt and eastern aquifer have high chloride, as do wells in the eastern aquifer (shaded area, Baldwin et al., 1994). The eastern aquifer may be the source of elevated chloride, sulfate and nitrate seen in some wells along the western edge of the basalt and in Ross Park municipal wells. High chloride in monitoring well PMW-3 may also be derived from the contaminated eastern aquifer.

7408

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Since the high-Cl values (indicative of localized, point-source contamination) would tend to skew a natural, homogeneous aquifer Cl distribution, the normal Cl distribution observed in this system suggests that low-Cl waters must also be involved. This gives rise to two possibilities: 1) ground water chemical composition is spatially inhomogeneous over the southern aquifer or 2) the samples are drawn from more than one population or source water.

5.2.4. Evidence for Contribution of a Low-TDS Water to the Southern Aquifer

Figure 21 is a cross-plot of sulfate vs chloride concentrations in the southern aquifer, for the same wells plotted in Figure 20. Two features are noteworthy: a) 66% of the samples cluster relatively tightly about a mean chloride concentration of 58 mg/l, with a small number of samples showing much higher concentrations (representing those wells contaminated by leakage from near-surface sources); and b) a number of samples showing lower concentrations, with a few having very low Cl and SO_4 concentrations. The low-concentration samples are similar to waters sampled from the Bannock Range (Figure 19), which are low in Cl, SO_4 and NO_3, and indicate that these wells may be drawing their water from this type of source. In fact, of eight low-sulfate (<30 mg/l) wells completed in the southern aquifer proper, the well logs of at least four confirm that the wells are completed partially or fully in Tertiary Starlight Formation cemented gravels; in addition, several other wells with SO_4 < 30 mg/l on the west pediment gravels are also tapping Bannock Range water directly.

Nitrate is fully correlated with chloride in these wells, and provides further evidence that the low-Cl, SO_4 and low-NO_3 waters observed in the southern aquifer are due to mixing with a

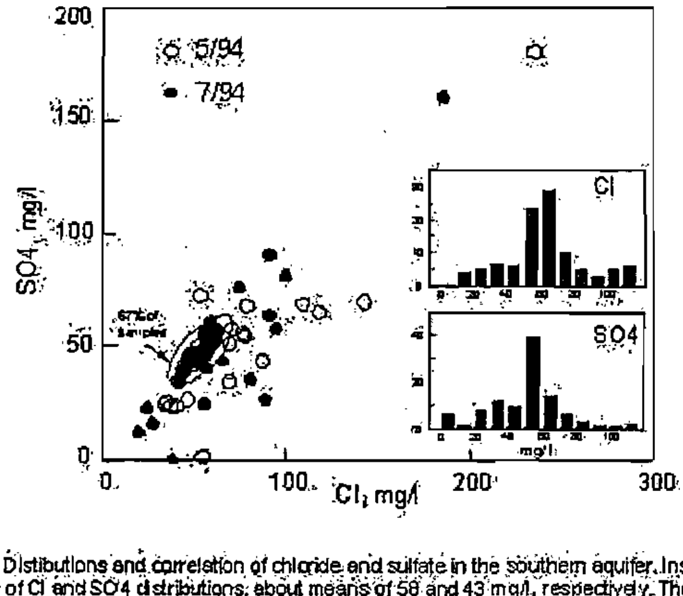

Figure 21 - Distibutions and correlation of chloride and sulfate in the southern aquifer. Insets show histograms of Cl and SO4 distributions, about means of 58 and 43 mg/l, respectively. The oval encompasses 67% of samples in the regression; higher values indicate contamination by localized point sources and leakage from the contaminated eastern aquifer; lower values represent Bannock Range recharge.

7409

low-nitrate source, such as the Bannock Range end-member, rather than to mixing with relatively low-TDS Portneuf River water which has appreciable nitrate.

On the basis of the above data, therefore, it is proposed that the aquifer is receiving recharge from Bannock Range sources, and that this recharge is entering the aquifer via lateral leakage. A paired set of shallow and deep observation wells in Section E-E' (Figure 7b) shows a small but significant upward vertical hydraulic gradient between the Tertiary sediments and the Upper Gravels (CH2M-Hill, 1994d). This same deep well contains low-TDS water which indicates that Bannock Range recharge is entering the aquifer from below as well as laterally.

5.2.5. Chemical Impacts of Chloride and Sulfate in the Southern Aquifer

The source(s) of the Cl and SO_4 contamination observed in isolated wells in the southern aquifer remains unknown, although leakage of surface waters contaminated by septic leachate, animal wastes and/or road salt have been proposed as possibilities. What is clear, is that some private wells have an unmistakable impact on the water quality of the aquifer, apparently by providing a conduit for leakage of contaminated surface waters to the aquifer. This may be through poor surface casing seals, improper pitless adapter wellhead completions and/or open, abandoned well bores.

High concentrations of Cl and SO_4 that have been recorded in domestic wells in the eastern aquifer (Cl to 490 mg/l, SO_4 to 220 mg/l) have also been seen in the Pocatello Creek valley (Cl to 1500 mg/l, SO_4 to 2000 mg/l), where they have been attributed to contamination by winter road salt runoff from Pocatello Creek Road (CH2M-Hill, 1994b). Coupled increases of Cl and SO_4 observed in parts of the southern aquifer have been proposed to be the result of a combination of road salt runoff and leaching of a soluble calcium-sulfate component in roadbed aggregate, which may also be a major factor in the Pocatello Creek area (Meehan and Welhan, 1994).

Meehan and Welhan's work has also suggested that other chemical effects due to the inputs of road salt and leachable sulfate, such as induced Ca-Na ion exchange, carbonate precipitation reactions and common-ion competition, may substantially alter the cationic abundances in these ground waters. For example, in Figure 15, where the Na-Cl trend is lower than that expected for the addition of pure NaCl, ion exchange may be responsible for Na removal from solution with an addition of Ca and Mg to maintain charge equilibrium. If NaCl were the sole salt source, the observed 110 mg/l increase in Cl in Figure 15 would result in a Na increase of about 72 mg/l. However, only a 42mg/l increase in Na is observed, leaving a deficit of 30 mg/l (1.30 meq/l). On a charge-equivalent basis, the increases in Ca (45 mg/l or 2.2 meq/l) and Mg (not shown in Figure 15; 8 mg/l or 0.67 meq/l) more than balance the Na deficit. Since the quality of the analytical data is unknown and since the use of mixed calcium-sodium chloride salts may be responsible for some of the "excess" Ca, the data are not inconsistent with the hypothesis that cation exchange is an important buffering process in this aquifer system.

6. AQUIFER WATER BALANCE

6.1. PRINCIPLE RECHARGE SOURCES

6.1.1. Precipitation

Table 3 summarizes mean annual temperature, humidity and precipitation as recorded at the Pocatello Airport meteorological station. The period encompassed by this study includes a year of above-average precipitation (1993) and one of below-average precipitation (1994). Precipitation in the lower basin varies from less than 15 inches (38 cm) in the Portneuf River valley to more than 30 inches (76 cm) in the Bannock Range (**Figure 22**). A precipitation station at Wild Horse Divide at an elevation of 6526 ft (1990 m) in the southern Bannock Range has averaged 29.7 inches (75.4 cm) over 11 years of record. As shown in Figure 22, precipitation over the Bannock Range is the nearest potential source of local recharge to the LPRV aquifer system, other than underflow from the upper Portneuf basin through the Portneuf Gap, and likely plays a significant role in the aquifer's water balance.

TABLE 3 - Summary of Meteorological Data, from National Weather Service, Pocatello Airport Weather Station. Years of historical record on which means are based are shown in parentheses.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Annual Mean	Annual 1993	Annual 1994
Mean Temperature, F (44 years):	24	29.3	37	46	54.4	62.81	71.4	69.6	59.7	48.8	36.1	26.6	47.2	43.2	48.4
Mean Snowfall, inches (44 years):	10	6.2	5.9	4.4	0.6	T	0	T	0.1	1.9	5.3	8.9	43.2	93.3	31.6
Mean Total Precipitation, inches (44 years):	1.18	1.01	1.23	1.27	1.36	1.05	0.65	0.7	0.81	0.98	1.03	1.06	12.32	17.88	9.08
Mean Daytime Relative Humidity, % (30 years):	73	66	56	43	39	37	30	29	33	42	63	73	49	53	
Mean Wind Speed, mph (44 years):	10.6	10.6	11.2	11.7	10.6	10.1	9.1	8.9	9.1	9.3	10.3	9.9	10.1	9.2	

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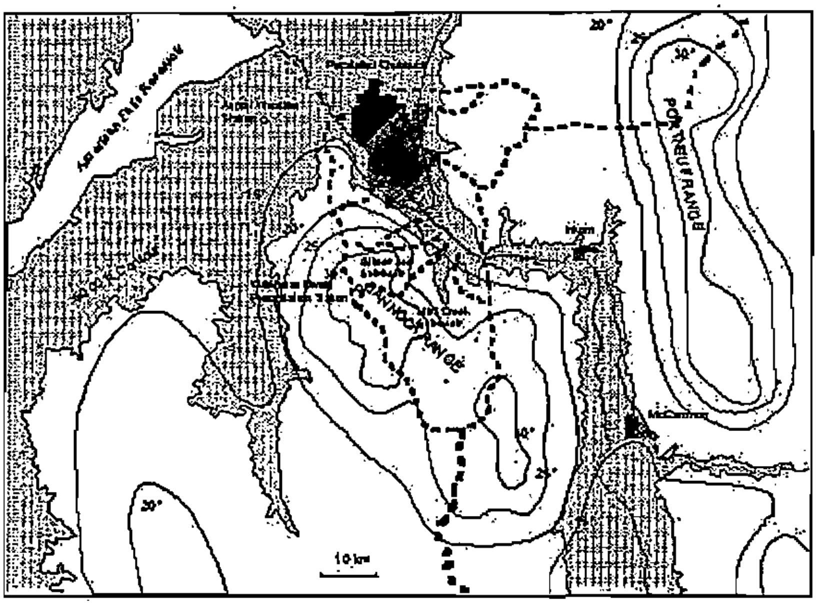

Figure 22 - Distribution of 30-year mean annual precipitation totals on a regional basis, over the Lower Portneuf River basin and surrounding highlands. Note that the greatest recharge potential occurs in the Bannock Range from about the northwestern limit of the Gibson Jack sub-basin to the southeastern limit of the Mink Creek sub-basin. Precipitation data are from University of Idaho State Climate Program (1993).

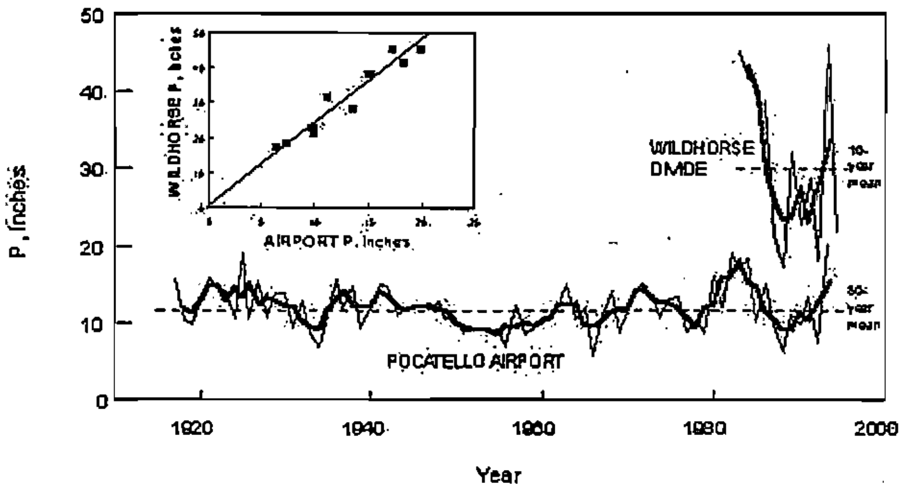

Figure 23 - Historic annual precipitation record at Pocatello Airport weather station and at the precipitation station on Wildhorse Divide, Bannock Range. Heavy dotted lines indicate 3-year moving averages and the inset shows the high degree of correlation between precipitation readings from the two stations.

Historic trends in precipitation at the Pocatello Airport weather station and at Wild Horse Divide are summarized in **Figure 23** showing that total precipitation on the Bannock Range is a little more than twice that at the Pocatello Airport. The 3-year moving average in total precipitation on

7413

the Bannock Range might be expected to mimic the aquifer system's storage variations, and the variation in Wildhorse Divide precipitation during the 1980s coincides with the high ground water levels seen in aquifer wells in Figure 10. The synchronicity between local potential recharge (in the form of Bannock Range precipitation) and aquifer storage suggests that an important part of the aquifer's recharge may be locally derived in the Bannock Range.

6.1.2. Other Potential or Suspected Recharge Sources

Besides runoff and ground water underflow from the high-precipitation region on the Bannock Range, the aquifer's other major potential recharge components are summarized in **Figure 24.** In this figure, Bannock Range recharge from Mink Creek, Gibson Jack Creek and the City-Cusick Creeks sub-basins has been defined as a single component, Qb, because of the chemical similarity of these waters and our inability to separate individual source areas or zones of contribution to the aquifer on a chemical basis at this time.

The second major potential recharge source is flow from the upper Portneuf basin through the Portneuf Gap. This source of recharge may be distributed as ground water underflow through the Portneuf Gap and as river losses directly to the LPRV aquifer. Recharge from the upper basin may be significant because of the size of the upper basin (1160 mi^2 or 2970 km^2) and the estimated amount of precipitation the upper basin receives (19.6 in or 50 cm; Norvitch and Larson, 1970).

On the basis of Norvitch and Larson's data, a crude estimate of the water balance of the upper basin can be made. Assuming a normal water year, an average basin-wide precipitation input of 1670 ft^3/s and an average discharge of the Portneuf River of 250 ft^3/s, the net evaporative and consumptive losses and ground water outflow from the upper basin would represent of the order of

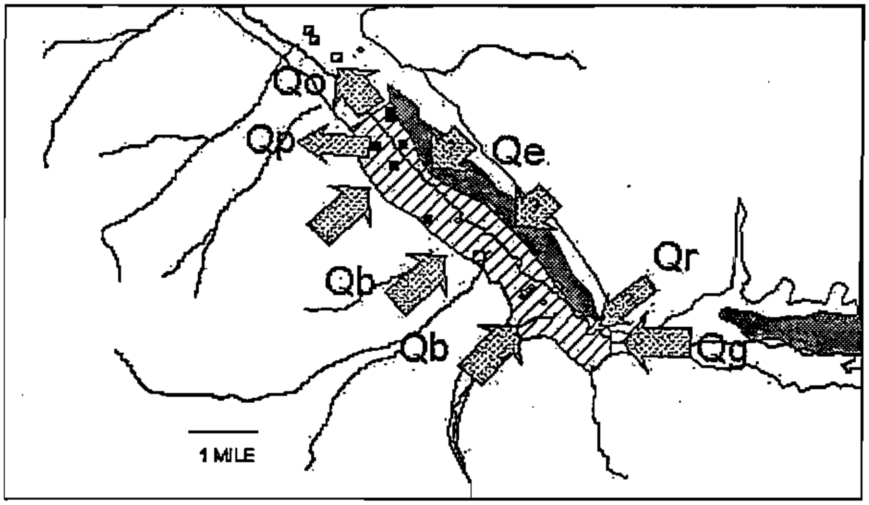

Figure 24 - Water balances were constructed for the periods 11/93 - 3/94 and 4/94 - 8/94 on the basis of major differences in aquifer storage during these periods. Principal components of the water balance for the southern LPRV aquifer within the hached area: Qg, Qb = recharge fluxes from the upper basin and the southern Bannock Range, respectively; Qo, Qp = outflow fluxes due to underflow past Red Hill and pumping withdrawals, respectively. Based on data in Norvitch and Larsen (1979), Portneuf River losses between the Portneuf Gap and Red Hill (Qr) appear not to be a significant factor and leakage inferred from the nitrate-contaminated eastern aquifer (Qe) is also inferred to be small relative to other recharge sources.

7415

85% of the total basin recharge. Since estimated potential evaporation in this region is of the order of 61 inches (155 cm) annually (CH2M-Hill, 1994d), or more than three times the mean annual basin precipitation, it is to be expected that evaporative losses, alone, would constitute the largest component of the net basin water loss and that ground water may not be a major component.

Of the potential for ground water outflow from the upper basin, Norvitch and Larson (1970) pointed out that annual mean discharge records on the Portneuf River indicated that approximately 12 ft^3/s was lost on an annual average basis to ground water underflow somewhere between the lower reach of the upper basin and in the LPRV. However, they believed that substantially more could be lost to ground water, and estimated that this could be as high as 87 ft^3/s.

Norvitch and Larson's adjusted estimate of apparent river loss hinged on an estimate of specific discharge per unit basin area that was derived for the upper reaches of the basin and which was applied *ad hoc* to the lower reaches without justification. On the other hand, utilizing river discharge measurements made by those authors during the 1968 baseflow study period (which, curiously, they did not utilize in their analysis), there is no evidence whatsoever for significant river losses between Inkom and Pocatello during baseflow times. Their measurements show that, at the confluence of Rapid Creek, Marsh Creek and the Portneuf River below Inkom, the total discharge of the Portneuf during December, 1968 was 245.5 ft^3/s. Approximately 5.5 miles downstream, immediately west of the Portneuf Gap, Portneuf River discharge was 247 cfs which, although slightly higher, is well within the uncertainties of the measurements. During the same time, discharge measured at the downtown Pocatello gauging station was 252 ft^3/s, again slightly higher because of Bannock Range tributary drainage contributions over the LPRV reach.

Norvitch and Larson did not measure the discharge of lower Portneuf basin tributary streams. We have measurements on Mink Creek, the largest lower Portneuf basin tributary, indicating a discharge of 1.65 ft^3/s during the July, 1994 baseflow period (S. Van Hoff, pers. comm., 1994). Although 1994 was a dry year, this measurement suggests that the 5 ft^3/s gain observed over the Portneuf's LPRV reach during baseflow of 1968 was due to tributary stream contributions, and reinforces the conclusion that Norvitch and Larson's measurements bear no indication of any significant river losses either above or below the Portneuf Gap.

The current mean annual discharge of the Portneuf River at Pocatello for the period of record is 279 ft^3/s (Harenberg et al., 1993), only slightly above the discharge regime that existed in December, 1968 when Norvitch and Larson made their stream discharge measurements. Since the Portneuf's mean discharge was near normal in 1993 (252 ft^3/s) and below normal in 1994 (Figure 11b), both years' mean discharges fall within a baseflow regime comparable to the measurements of Norvitch and Larson. Therefore, by analogy with Norvitch and Larson's discharge data it is concluded that 1) the Portneuf River was not losing significant amounts of water to leakage during 1993-94 and 2) that ground water underflow through the Portneuf Gap was not a large component of aquifer recharge during 1993-94.

The first conclusion is in keeping with the lack of hydraulic evidence for a substantial river-aquifer connection (Section 4.2.2). The second conclusion is consistent with ground water underflow estimates made in Section 6.2.1, below. Both, however, leave open the possibility that river losses to the LPRV aquifer and ground water underflow through the Portneuf Gap may be significant on a transient basis, such as during high river stage. In that case, the 12 ft^3/s estimate of Norvitch and Larson may reflect an approximate mean annual underflow through the Gap during normal or above-average water years.

Opinion regarding the Portneuf River as a losing stream is also shifting for other reasons. During the past several years, informal surveys of the river have suggested that the ubiquitous carbonate dams that occur along the river above Pocatello, and that have been thought to be predominantly of fossil hydrothermal origin, are actually actively growing algal reefs (J. Valcarce, pers. comm., 1993), whose existence may be closely tied to areas of inflow of carbonate-saturated ground water. In addition, the extent and location of ice-free areas on the river during winter cold spells lends support to the contention that the river may experience substantial ground water gains, rather than losses (J. Valcarce, pers. comm., 1995).

Besides recharge from the Bannock Range, underflow through the Portneuf Gap and river losses, a fourth potential recharge source is included in the provisional water balance formulation, primarily on the basis of chemical considerations. In Section 5.1.2, the chemical composition of the shallow alluvial aquifer east of the Portneuf Basalt (the eastern aquifer) was shown to be highly contaminated with chloride, sulfate and nitrate salts. The influx of dilute Bannock Range waters, which are low in these constituents, have to be balanced by leakage from the eastern aquifer or possibly another high-salt recharge source.

Although additional sources of recharge may also be involved, the current hydrogeologic model of the basin is incapable of explicitly identifying them. For example, low-temperature thermal water is known to occur in wells north of Pocatello Creek and in the Tyhee area north of Chubbuck and is likely an expression of fault-controlled deep circulation contributing small amounts of water to the shallow ground water regime in that area (Corbett et al., 1980). The Tyhee thermal waters are known to be elevated in sulfate and chloride relative to shallow ground water and therefore represent a potential source of salinity in the shallow ground water system. If similar thermal waters recharge the southern valley, they may be responsible for part or all of the salt added to the southern aquifer system, although their true contribution would be masked by leakage of shallow, contaminated water from the eastern aquifer.

6.2. WATER BALANCE

6.2.1. Physical Constraints

The physical water balance equation for the southern aquifer can be written as:

$$\Delta S = Qg + Qb + Qe + Qr - Qo - Qp$$

where the terms are as defined in Section 5.2.2 and Figure 24. Note that direct precipitation input on the surface of the LPRV is implicitly neglected in this water balance formulation because potential evapotranspiration is so much higher than precipitation. The magnitudes of several of these terms can be adequately calculated on the basis of physical considerations, whereas others cannot even be estimated (eg: Qb, Qe).

In contrast, well water level records in the southern aquifer permit a reasonably accurate estimate of storage change (ΔS). Likewise, pumping withdrawals (Qp) are well known from city production records. Of the remaining terms, quantitative estimates of Portneuf Gap underflow (Qg) and southern aquifer outflow (Qo) can be made on the basis of cross-sectional aquifer geometry, hydraulic conductivity, and gradient. During low-flow conditions, the arguments presented in Section 6.1.2 indicate that river losses in the LPRV are negligible, leaving only Bannock Range inflow (Qb) and possible eastern aquifer leakage (Qe) as significant unknown terms. During periods of high river discharge when river losses may be significant, Norvitch and Larson's (1970) estimate of 12 ft^3/s Portneuf River loss through the Portneuf Gap can be assumed to represent total underflow through the Gap as well as potential river losses in the LPRV (i.e. Qg + Qr).

Based on the timing of recharge events, variations in pumping withdrawals and aquifer storage changes shown in Figure 11b, three periods spanning some 17 months of available data were chosen for provisional water balance calculations. All are referred to subsequently in terms of "days since January 1, 1993" (as in Figure 11b). The first period, from Day 90-300 (April, 1993 - October, 1993) covers the only significant recharge event encountered during this study (the Spring, 1993 runoff) and also encompasses the peak well production period of 1993. The second water balance period, from Day 300- 450 (November, 1993 - March, 1994), encompasses a time in which Spring, 1994 runoff was dissapointingly low, southern aquifer production was low and aquifer water levels remained fairly constant or declined only slightly. The third, from Day 450-600 (April, 1994 - August, 1994), covers 1994's period of peak pumping withdrawal accompanied by a drastic aquifer storage decline, presumably because of the lack of significant recharge . During the latter two periods, mean river discharge was within the regime in which the data of Norvitch and Larson (1970) were interpreted as indicating negligible river losses in the LPRV (Section 6.1.2). Significant river losses are considered likely only in the first water balance period when river discharge exceeded 300 ft^3/s for about 100 days (Figure 11b).

Pumping Withdrawals

Of the terms in the water balance equation, four (Qp, Qg, Qo and ΔS) can be estimated independently. Pumping withdrawals were obtained from city Water Department records, and discharges of wells pumping in the southern aquifer during the provisional water balance period were summed over the individual periods of the water balance. For example, during the period Day 300-450, Qp was 0.353 billion gallons (Bgal) or 47.2×10^6 ft^3; for Day 450-600, Qp was 0.79 Bgal (105.6×10^6 ft^3).

Aquifer Outflow

From a comparison of the aquifer cross-sections B-B' and C-C' shown in Figure 6, it was concluded that the greatest confidence in a physical underflow calculation could be obtained with section C-C', because of the availability of hydraulic conductivity data for well 36 (obtained from pumping tests), a reasonable estimate of well 2's transmissivity (from specific capacity data; Table 1), and because the cross-sectional geometry of C-C' is better defined than in B-B'. Also, the apparent saturated cross-sectional areas available for flow in the two sections raises an interesting point. Assuming continuity of mass for ground water flow between sections C-C' and B-B' and a hydraulic conductivity in the upper gravels no higher than that measured in well 36, the hydraulic conductivity of the putative Tertiary gravels in the lower part of B-B' would have to be higher than that of the upper gravels. Since this is unlikely given the very high permeability of the Upper Gravel and the fact that the Tertiary gravels are characteristically silt and clay-rich, it follows that section B-B' must have a larger total saturated flow cross-section than is apparent in Figure 6.a. Furthermore, the western bedrock margin of the aquifer in Section C-C' is well-defined by gravity data but not in B-B'. Therefore, section C-C' is considered the best-constrained cross-section for southern aquifer underflow calculations.

The maximum saturated cross-sectional area of section C-C' is calculated to be 2.5 x 10^5 ft^2 during the second water balance period, with less than 4% variation during the lower water level periods. A hydraulic conductivity of 8000 ft/day (0.092 ft/s) and a hydraulic gradient of 0.001 (lower than the southern aquifer mean value of 0.0015-0.002, because of the higher hydraulic conductivity in the vicinity of well 36) were used for these calculations. The outflow rate through C-C' is therefore estimated at 2.0 x 10^6 ft^3/day (5.5 Bgal/year).

Portneuf Gap Underflow

Figure 25 shows a cross-section of the Portneuf Gap, looking west, derived from a simple projection of the slopes of the valley margins. Micro-gravity data obtained from a traverse across the Portneuf Gap corroborate this simple subsurface interpretation of bedrock-imposed flow boundaries (Appendix II; Reid, 1997). The saturated cross-sectional area was assumed to be 3 x 10^4 ft^2. Based on four wells whose water levels were monitored during 1994, the mean hydraulic gradient through the Gap is 0.0013. The hydraulic conductivity of gravels in this narrow notch was assumed to be comparable to the high values seen at well 36 (also in a bedrock notch; see section C-C') and a value of 10,000 ft/day was assumed for calculations. The estimated underflow through the Gap is therefore 3.9 x 10^5 ft^3/day (1.1 Bgal/year). Note that this is approximately 38% of the 12 ft^3/s value that is considered to be a justifiable estimate of total Portneuf Gap underflow and potential river losses as inferred from Norvitch and Larson's (1970) data (Section 6.1.2). The similarity between these values suggests that Portneuf Gap underflow is not much larger even during normal water years. The magnitude of this recharge term was assumed to be invariant in the water balance calculations, since changes in saturated cross-sectional area during the three water balance periods were far less than the uncertainty in hydraulic properties.

Aquifer Storage Change

Figure 26 shows monthly water levels measured in southern aquifer production wells during 1993 and 1994, as derived from Pocatello Water Department records, together with continuous water level records from well 28 and PMW-2 and monthly water levels from a typical domestic well in the southernmost part of the aquifer near the Portneuf Gap. Water levels are shown as feet above the 4400 ft datum; wells with lowest hydraulic heads are farthest north in the aquifer. Changes in water level between the beginning and end of each the water balance periods is shown on the figure.

During Day 90-300, storage increased over the length of the aquifer but was greatest in the southernmost area, suggesting that a large part of the system's recharge originated from southern sources, such as the Portneuf Gap and the Mink Creek/Gibson Jack sub-basins. During Day

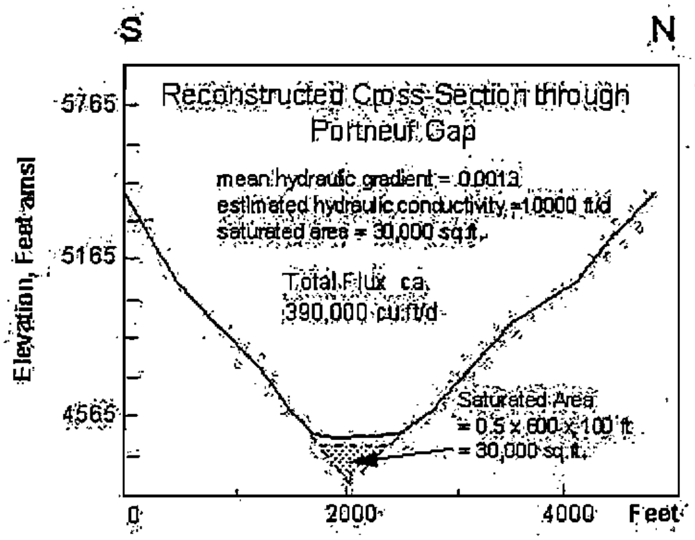

Figure 25 - Cross section of Portneuf Gap, looking west toward the southern aquifer, reconstructed from geologic and gravity data. The mean hydraulic gradient was estimated from four wells located in and immediately west of the Gap. Hydraulic conductivity was estimated as similar or higher to Well 36's, on the assumption that the effect of the narrow notch has been to enhance sorting of fluvially-deposited gravels.

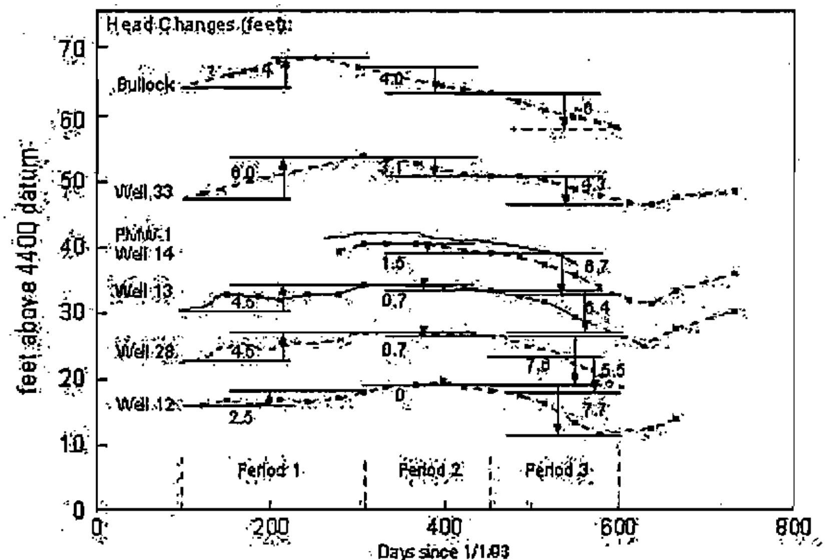

Figure 26 - Water level data in southern aquifer wells used to estimate changes in aquifer storage during the provisional water balance periods. During the 300-450 day period, mean head decline was 1.0 ft and during the 450-600 day period, mean head decline was 6.4 ft. During the 90-300 day period, heads increased on average by 6 feet. Note that the largest increase occurred at Well 33, suggesting that the Mink Creek/Gibson Jack Creek area contributed the most recharge. On the other hand, the southern area showed the largest decline during the 300-450 day period, suggesting that recharge from Mink Creek had waned by this time.

7420

300-450, aquifer storage in the vicinity of sections B-B' and C-C' showed a slight decline, whereas storage appeared to decline about 2-3 times as much south of well 14. This suggests that most of the recharge during this period entered the aquifer north of well 14. During the third period (Day 450-600), storage declines were approximately uniform in all parts of the southern aquifer, possibly indicating that the rates of recharge from the Bannock Range had, for the most part, achieved minimum baseflow values along the length of the aquifer.

If the Bannock Range were the most important source of recharge, the differential responses observed during the first two water balance periods suggests that differential ground water flow rates and residence times may characterize different areas of the Bannock Range. This hypothesis is consistent with the varied geology of the Bannock Range, and the fact that areas of limestone, many containing evidence of karstification (J. Valcarce, pers. comm., 1993), exist in both the Mink Creek and Gibson Jack watersheds. Substantial areas of karst limestone have been identified in mapping work conducted in the Mink Creek basin (S. Van Hoff, unpubl. data), and a large area of limestone has been mapped over the middle and lower reaches of the Gibson Jack watershed (D. Rodgers, unpubl. data).

Utilizing the average of water level changes shown in Figure 26, an aquifer area of 88 x 10^6 ft^2, and a mean porosity of 0.3, storage increase during Day 90-300 was 132 x 10^6 ft^3 (0.99 Bgal) and storage decline during Day 450-600 was 168 x 10^6 ft^3 (1.26 Bgal).

Water Balance Residual

The "residual" term in this water balance accounting represents the sum (Qb + Qe + Qr) of unknown recharge inputs from the Bannock Range, the eastern aquifer, and possible river losses in the LPRV. As discussed below, and in Section 6.1.2, river losses are believed to be small, so that the water balance residual computed here essentially represents the sum of all Bannock Range inflows and leakage from the eastern aquifer. Part of C. Meehan's thesis research is directed toward evaluating the relative importance of eastern aquifer vs Bannock Range inflows on the basis of the chemical mass balance approach.

6.2.2. Implications and Discussion of Water Balance Results

Figure 27 summarize the results of the provisional water balance for the three water balance periods during 1993-94. **Figure 28** and **Table 4** summarize the annual water balance by normalizing the 510-day water balance totals to 365 days. As would be expected, recharge from these sources peaked during the first water balance period during which time the system received its largest spring runoff pulse. The magnitude of recharge subsequently declined through the winter, spring and summer of 1994. The water balance calculations indicate that the entire aquifer system is heavily dependent on recharge from the Bannock Range (Qb) during the winter and spring to replenish storage lost during peak pumping periods, and that pumping has a significant impact on the aquifer's water balance during drought periods such as were encountered during 1994.

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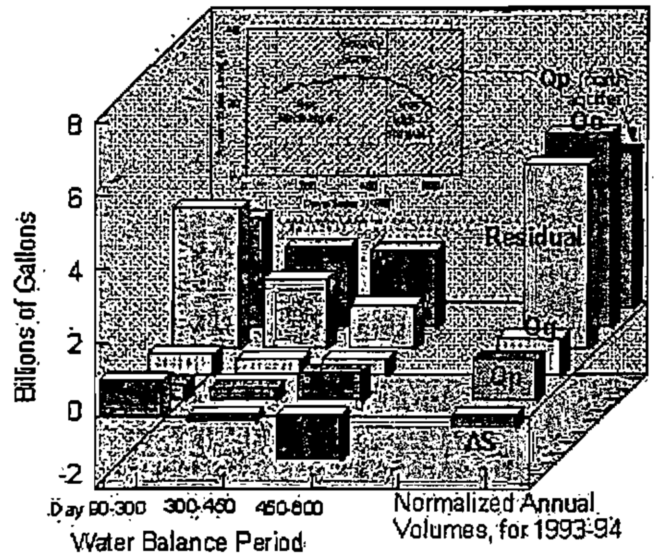
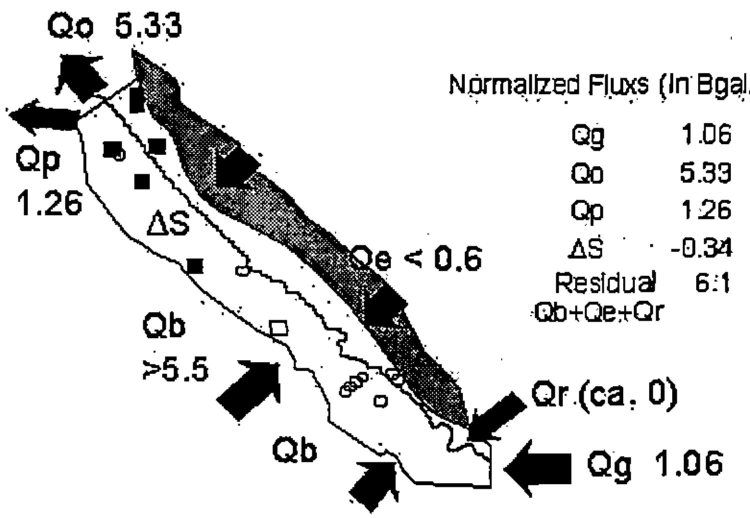


Revise to Include Q of Non-Municipal Wells

Figure 27 - Water balance of the southern aquifer for the three periods shown in the inset and for thecombined period April, 1993 to August, 1994. The calculated water balance residual represents recharge from Bannock Range as well as minor leakage from the eastern aquifer and the Portneuf River. Total pumpage from wells in northern part of municipal well field is shown for comparison, to highlight the fact that the municipal well field essentially relies entirely on Bannock Range recharge and flowthrough the southern aquifer.

$$\Delta S = Qg + Qb + Qe + Qr - Qo - Qp$$



Normalized Fluxs (In Bgal/year)

Qg	1.06
Qo	5.33
Qp	1.26
ΔS	-0.34
Residual Qb+Qe+Qr	6.1

Revise to Include Q of Non-Municipal Wells

Figure 28 - Water balance results, normalized to an annual basis, for the 1993-94 period of investigation. Best available estimates for inflow through Portneuf Gap (Qg), outflow through Section C-C' (Qo), pumpage (Qp), and storage change (ΔS) are expressed in billions of gallons per year. The water balance residual Qb + Qe + Qr -- the sum of recharge from the Bannock Range, the eastern aquifer and Portneuf River losses, repectively -- is dominated by Bannock Range recharge (Qb), with negligible contribution from the river. Chemical mass balance arguments suggest that recharge from the eastern aquifer (Qe) represents less than 10% of the Bannock Range recharge flux.

7422

When pumpage from wells in the north and central parts of the aquifer system is considered together, the impact of pumping on the aquifer system is seen to be tremendous. For example, over the entire 510-day period of the water balance, pumpage from north and central aquifer Pocatello municipal wells was 6.5 Bgal compared to 1.8 Bgal for the southern aquifer wells. Net storage decline in the north and central aquifer is difficult to estimate with the available knowledge of northern aquifer geology but appears to have been comparable to that in the southern aquifer (ca. 0.1 vs. 0.5 Bgal, respectively). Since storage supplied less than 2% of the northern aquifer's well production during this period, the remainder had to originate from tributary recharge inflow. Calculated total outflow from the southern aquifer, Qo, during the 510-day water balance period was 7.5 Bgal. Since most of this water probably recharged the uppermost aquifer of the northern system (cf. Figure 5) and since most of the northern wells are preferentially perforated in the upper aquifer, it is suggested that outflow from the southern aquifer supplies most, if not all, of the pumping withdrawal of the northern well field.

If the northern aquifer system receives only small amounts of recharge from sources other than southern aquifer outflow, the implications for maximum pumping capacity of the aquifer system will need to be examined. Total pumpage from all Pocatello wells in the northern and southern well fields during the 510-day water balance accounting was 8.3 Bgal. In comparison, total known recharge to the system (Qg + residual) comprised 10 Bgal. Thus, essentially 85% of available recharge for that period was withdrawn through pumping and effectively consumed (except for storm drain return which flows into the Portneuf River, all municipal waste water is discharged to the municipal sewage treatment facility northwest of Chubbuck, well outside of the northern aquifer's boundary). This coincided with a net reduction in aquifer storage of approximately 0.6 Bgal, most of which occurred in the southern aquifer. Because a complete accounting of the northern aquifer's water balance is not possible, it can only be speculated that the net storage deficit is due to ground water outflow from the northern aquifer and that tributary inflows, such as from Pocatello Creek underflow, contribute only a small amount to the northern aquifer's water balance. If safe yield is defined as the annual extraction of ground water that does not exceed average annual recharge (Conkling, 1946), then the safe yield of the LPRV aquifer system may be close to being realized under current pumping conditions and during the extended drought period that has existed for seven of the past eight years.

The calculated residuals during the latter two water balance periods average 3.0 Bgal per 150-day period, or 2.7×10^6 ft^3/day. This is approximately twice the flux calculated from a preliminary ground water flow model calibration performed for capture zone analysis in the southern aquifer, for the same time period (CH^2M-Hill, 1994d). However, the flow model assumed recharge only at the up-gradient end of the aquifer, and was calibrated only to hydraulic head data in a very limited area of the southern aquifer.

If river losses are indeed negligible during low-flow periods, then the relative proportion of eastern aquifer recharge that may have contributed to the southern aquifer during 1994 may be discernible on the basis of chemical mass balance. M.S. thesis work of C. Meehan is partly devoted to determining whether independent estimates on recharge fluxes can be derived from chemical mass balance considerations, utilizing the approach in Section 5.2.2. For example, preliminary indications are that, on purely chemical grounds, the eastern aquifer's contribution to the southern aquifer is less than 10% of the Bannock Range's contribution (Figure 28).

An estimate of the regional hydraulic gradient responsible for lateral flow of ground water from the Bannock Range was made in Appendix III (Figure A3.4). Using a hydraulic gradient of 0.1 for ground water flow across the aquifer's western margin, the amount of Bannock Range inflow can be used to estimate an effective hydraulic conductivity for the western margin. Assuming that the calculated inflow (Qb) takes place uniformly over the length of the southern aquifer (16000 ft; 4.8 km), and over a cross-sectional thickness of the order of 1000 ft, the apparent hydraulic conductivity of the western margin is found to be of the order of 1 ft/day. This suggests that much of Bannock Range recharge enters the aquifer through low-permeability sediments comprising the base of the aquifer and the western gravel terraces.

TABLE 4 - Water balance summary for the southern aquifer, April, 1993 to August, 1994.

Water Balance Period (Days since Jan.1, 1993)	North Wells	Prod'n Totals South Wells	All Wells	Storage Change in N. Aquifer	S. Aquifer
90-300 (Wet Year)	2.81E+009	6.24E+008	3.44E+009	-2.45E+009	9.87E+008
300-450	8.75E+008	3.53E+008	1.23E+009	1.54E+009	-1.97E+008
450-600 (Dry Year)	2.85E+009	7.81E+008	3.63E+009	7.85E+008	-1.26E+009
510day Totals:	-6.54E+009	-1.76E+009	-8.29E+009	-1.22E+008	-4.74E+008
Normalized Annual	**-4.68E+009**	**-1.26E+009**	**-5.94E+009**	**-8.70E+007**	**-3.39E+008**

Water Balance Period (Days since Jan.1, 1993)	Red Hill Outflow Qo	Portneuf Gap Inflow Qg	S. Aquifer Residual (Qb+Qe+Qr)
90-300 (Wet Year)	3.05E+009	6.13E+008	2.47E+009
300-450	2.24E+009	4.38E+008	2.35E+009
450-600 (Dry Year)	2.16E+009	4.38E+008	3.77E+009
510day Totals:	-7.45E+009	1.49E+009	8.59E+009
Normalized Annual	**-5.33E+009**	**1.06E+009**	**6.14E+009**

7424

(draft revision)

7. WELLHEAD PROTECTION

7.1. OBJECTIVES

The objectives of the EPA-funded WHP Demonstration Grant study were 1) characterize the hydrogeology of the southern municipal aquifer; 2) define time-of-travel (TOT) zones for wells that could be compared with State of Idaho WHP guidelines (IDEQ, 1994); 3) identify alternative approaches to WHP capture zone delineation in similar aquifers; and 4) outline a methodology for delineating refined WHP zones in municipal well fields utilizing commonly available municipal production well records. The first objective has been the focus of the preceding sections: that is, defining a working conceptual hydrogeologic model of the aquifer system that can form the basis for quantitative modeling. The presentation and discussion of historic water level, specific capacity and chemical data in Sections 4 and 5, and the use of municipal production well water level data in Section 6.2, was intended to address the fourth objective: namely, the use of existing information to provide reasonable, site-specific estimates of aquifer properties for capture zone modeling. The approach used in foregoing sections of this report can thus serve as a model for assembling and analyzing such data in other municipal aquifer situations where water production records are available.

Objectives 2) and 3) constitute the focus of this section, namely, utilizing the information obtained through aquifer characterization (or through the synthesis of existing records) to delineate WHP area(s) and a management strategy. Figure 29 defines basic WHP terminology used in this report (EPA, 1987). The simplest approach to implementation of a WHP plan is to define a zone of contribution to individual pumping wells or to an entire well field (capture zone), where the extent of the zone is defined by the minimum time required for ground water (or a non-reactive contaminant carried by the water) to move that distance (TOT zone). This zone, or a combination of multiple zones for all wells in a well field, defines a WHP area within which contaminant sources and land use activities can be managed and controlled. The definition of this zone can be accomplished by extremely simplistic means (arbitrary or calculated fixed radial zones) or more refined techniques (simplified shapes; analytical, semi-analytical or numerical flow modeling). The most general and potentially most conservative approach to implementation of a WHP plan is to identify and map the boundaries of the system where recharge originates and within which a WHP area can be defined.

Because of the amount of geologic and hydrologic information that has been assembled, the simplest approaches are considered inadequate to define realistic WHP areas. On the other hand, insufficient information about the nature of Bannock Range recharge is currently available to justify development of a numerical flow model. Therefore, a 2-dimensional, semi-analytical modeling approach was initially chosen. However, the identification of possible diffuse recharge from the Bannock Range along the entire western margin (and possibly through the base of the aquifer, as well) has raised serious questions about the validity of 2-dimensional models in this situation and how to assign and verify realistic boundary conditions to a 3-dimensional model. Because of these concerns, a reasonable alternative seems to be hydrogeologic mapping of recharge zones and system boundaries. These two alternatives are examined below.

7.2. IMPLICATIONS OF THE AQUIFER MODEL FOR WHP

The southern LPRV aquifer is a narrow, relatively thin, strip aquifer, characterized by high linear flow velocity and high specific flux, and lateral impermeable or low-permeability boundaries which are relatively close to (within 1 km) all production wells. The influence of the Portneuf River is minor and is assumed not to act as a significant recharge boundary. Lithologically, the aquifer appears to be unconfined but, over short pumping periods (several days), behaves hydraulically as a semi-confined system. This is interpreted to be because its lateral hydraulic conductivity is several orders of magnitude higher than its vertical hydraulic conductivity, leading to delayed and relatively prolonged vertical drainage during pumping, and hence to the effectively semi-confined nature of the observed short-term well response.

These constraints naturally lend themselves to limiting the transverse spreading of flow lines, and hence of the capture zone, of a pumping well relative to axially-directed regional flow lines. The result is that capture zones should tend to be elongated in the direction of the valley axis, with the degree of elongation increasing with horizontal hydraulic conductivity and regional flow velocity.

On the other hand, the geometry of the southern aquifer (see cross-sections shown in Figures 6, 7), observed storage changes and the results of water balance calculations create a more complex picture. The principal source of aquifer recharge was determined to be from the Bannock Range, but the area of ingress of Bannock Range recharge may vary temporally along the aquifer's western margin. For example, during the spring, 1994 runoff period, most recharge appeared to originate from the Mink Creek/Gibson Jack drainages (cf. Figure 26). Later in the 1994 water year, relative aquifer water level changes indicated that recharge from the Mink Creek area declined and appeared to enter the aquifer northwest of Mink Creek. Chemical survey data indicate that Bannock Range water also enters the aquifer through its base (cf. Figure 20).

These findings suggest that well capture zones in this aquifer are far more complex than the commonly assumed, geometrically-simple shapes commonly associated with pumping wells in a homogeneous aquifer characterized by uniform flow boundaries and recharge characteristics. Furthermore, because all of the southern production wells are close to the aquifer's margins, any fluctuations in boundary input fluxes will have a proportionately greater effect on capture zone shape.

7.3. CAPTURE ZONE MODELING

Because of the problems outlined in the preceding section, discrete capture zone modeling as originally conceived within the scope of this study (utilizing simple, 2-dimensional, semi-analytical models), has become less relevant to the definition of a meaningful WHP strategy for the southern LPRV aquifer than alternative methods. Results of southern aquifer capture zone and TOT modeling using this approach have been reported by Welhan and Meehan (1994). Capture zone modeling performed by CH2M-Hill (1994d) in the southern aquifer, utilizing 2-dimensional numerical flow and particle-tracking models (MODFLOW and MODPATH), has demonstrated that capture zones are significantly narrower than those calculated via the semi-analytical approach. This difference is attributed to the use of variable aquifer thickness in the CH2M-Hill model (in an attempt to incorporate 3-dimensional aquifer geometry) versus a constant-thickness aquifer in the semi-analytical approach used by Welhan and Meehan (1994). In the MODFLOW model developed by CH2M-Hill, the aquifer was assumed to thicken inward from its margins towards its axis, with the effect that flow lines were more constricted than in the semi-analytical model which assumed a constant aquifer thickness.

However, since details of the semi-analytical approach utilized by Welhan and Meehan (1994) were not provided in that communication, and because the capture zones and TOT zones so defined are useful in comparing WHP delineation methods, this sub-section describes the modeling approach used and summarizes the principal results.

The modeling software used in the semi-analytical approach was the GPTRAC option of the EPA's WHPA code (EPA, 1991). The semi-analytical option in GPTRAC was used, wherein pumping well capture and TOT zones in a homogeneous aquifer with simple, linear boundaries, are modeled by forward- or reverse-pathline analysis. Details of the model's assumptions, calculation algorithms and limitations are summarized in EPA (1991).

The model domain was chosen to cover the area influenced by municipal production wells 2, 3, 13, 14, 28 and 36 (**Figure 30**). The Portneuf River was assumed not to act as a hydrologic boundary, and the model was run as a strip aquifer with two impermeable lateral boundaries. The position of the western boundary was fixed by the results of well 36's pumping test analysis, which identified the location of an impermeable barrier at a distance of ca. 600-800 feet (Figure 12; Section 4.1.2). The position of the eastern boundary was varied to simulate two scenarios: a) a maximum model width of 3000 ft (915 m), where the Portneuf Basalt and underlying sediments are assumed to define the eastern aquifer boundary; and b) a maximum model width of 6000 ft (1.83 km), where the sediments beneath the basalt do not impede lateral flow. The model was run in both unconfined and confined modes, with the radii of influence of all pumping wells set at 2500 ft (762 m) for the unconfined case.

Aquifer thickness was set at either 65 ft (19.8 m) or 100 ft (30.5 m), to model the range of variations seen between wells east and west of the river at Section C-C' (see Figure 6b). Hydraulic conductivity was varied between 1000-5000 ft/d (305-1524 m/s). Effective porosity was set at 0.3, hydraulic gradient at 0.0015 and pumping rates were set at the maximum summer, 1994 values for individual wells (1.5-5.8 ft^3/s; 700-2600 gpm; 44-164 l/s). Well radii are taken from Table 1. A summary of parameter values is given in **Appendix IV**.

Figure 31a shows the results of one model run, where the eastern boundary is defined by the western margin of the Portneuf Basalt and underlying sediments; **Figure 31b** shows the extent of one-year TOT zones for identical conditions when the eastern boundary is moved 3000 feet (915 m) east. In both model runs, aquifer thickness was maintained constant at 65 feet, and the effects of pumping at wells 2 and 3 were described by a single pumping center located midway between the two wells and pumping at their combined rate. The effect of nearby boundaries on capture zone geometry is obvious in comparing the two figures. Note that in Figure 31b the capture zones of wells 2 and 3 extend beneath the basalt into the eastern aquifer. This provides an explanation for the high-chloride and nitrate values observed in Ross Park wells (Figures 16, 17): contaminated eastern aquifer water is being drawn into these wells due to their high pumping rates. Such an interpretation casts doubt on the supposition that the eastern margin of the southern aquifer is defined by the edge of the Portneuf Basalt (CH2M-Hill, 1994d). It also suggests that leakage of high-Cl and -SO_4 water from the eastern aquifer may be occurring elsewhere along the margin of the basalt, giving rise to local, high-salt contents in southern aquifer water (Figure 20).

Figure 31c shows the extent of one-year TOT zones for conditions identical to Figures 31b, except that the model was run in unconfined aquifer mode. The differences between confined and unconfined responses under these conditions is minimal.

Figure 31d shows the tremendous difference that hydraulic conductivity makes in the geometry of capture zones. In this model run, only wells 13 and 36 are pumping and aquifer thickness is set at 100 feet (30.5 m). Note that the TOT zones shown are for 2-month travel times.

These model runs indicate that pumping wells in the southern aquifer are capable of intercepting up-gradient sources over essentially the entire width of the aquifer in those areas where aquifer hydraulic conductivity is near 1000 ft/d. Thus, the use of fixed-radius capture zones in a narrow, strip aquifer such as the southern aquifer of the LPRV could be an effective means of delineating a WHP area which encompasses several pumping wells whose combined capture areas effectively span the width of the strip aquifer. However, such a method may lead to considerable under-estimation of the true capture zone area in cases where the boundaries of the aquifer are inadequately defined. Thus, in the case of Wells 2,3 and 28, the assumption that the Portneuf Basalt and underlying sediments formed an effective barrier boundary (Figure 31a) for the high-permeability Upper Gravel aquifer leads to a serious misrepresentation of the actual well capture zones.

Under these conditions, two-year TOT zones are of the order of 2 miles (3.2 km) long. For the high-K range (5000 ft/d), capture zones are very narrow and elongated, and two-year TOT distances of the order of 6 miles (10 km) result under these conditions. Welhan and Meehan's (1994) model runs included the extreme case of high-K (5000 ft/d) and low porosity (0.1), which give rise to even more elongated capture and TOT zones.

Comparison with numerically-modeled capture zones in which aquifer thickness can vary (CH2M-Hill, 1994d), shows that the analytical capture zone shapes are considerably wider for the same hydraulic conductivity ranges used. Sensitivity runs with the GPTRAC model indicate that the modeled TOT distance is inversely proportional to the aquifer thickness assigned, all other parameters remaining constant. This indicates that the extent to which the aquifer thickness deviates from a uniform slab of equivalent average thickness will determine how representative the TOT distances determined from analytical modeling will be, compared to the actual TOT distances. From what is known of the southern LPRV aquifer's basal geometry (eg: Appendix II), it is clear that analytically-defined TOT zones may be a poor representation of actual WHP areas.

Assuming that average aquifer hydraulic conductivity is closer to the low range used in these calculations, 5-year TOT zones for wells in the central aquifer and in the northern end of the southern aquifer will be manageable, since the WHP areas so defined would be confined within the boundaries of the aquifer. However, for wells south of PMW-1 and Well 14, or for longer travel times, calculated TOT zones will extend outside of the aquifer boundaries in a direction dependent on the locations of principal recharge inflow (**Figure 32**). For example, if the Mink Creek or Gibson Jack valley were the location of major recharge to the southern aquifer, semi-analytical methods would be hard-pressed to define WHP zones where flow diverged from the main aquifer and extended into complex boundary geology. Similarly, if diffuse recharge to the southern aquifer proved to be important along the western margin, then semi-analytical TOT zones would overestimate the travel distance in the up-gradient direction and WHP areas would be quite different than those depicted here.

7.4. HYDROGEOLOGIC MAPPING AND RECHARGE ZONE DELINEATION

On the basis of our work on the water balance of the southern aquifer, it is clear that the southern aquifer's outflow is the source of much if not most of the northern aquifer's recharge. Therefore, by defining and managing the southern aquifer's WHP areas, much will be accomplished in the northern area, as well. In the southern aquifer, it is possible to identify three principle recharge source areas for WHP management. These are: a) the recharge areas in the Bannock Range that are responsible for supplying high quality, pristine recharge to the aquifer system; b) recharge from the upper Portneuf River basin via the Portneuf Gap, whose quality is good but subject to up-gradient influences; and c) the area known as the eastern aquifer, which appears to be supplying a relatively small quantity of water to the southern aquifer, but whose water quality is poor.

Of these areas, the Bannock Range/Mink Creek/Gibson Jack recharge zone is the most important in terms of quantity and perhaps the easiest to manage from a WHP standpoint. It comprises a well-defined geographic area, of low population, low current land-use impacts and is potentially the most manageable area. Because of its low population, future growth and development can be most easily controlled. A large part of this recharge zone is U.S. Forest Service-managed timber land, which provides excellent snowpack retention and moisture infiltration capability (unpubl. data). A hydrologic study of the Mink Creek watershed, which was begun in 1994, has provided data on snowpack accumulation, recharge processes and sub-basin water balance which is in the process of being evaluated.

Evidence for leakage of contaminated water from the eastern aquifer has been documented in this report and will be dealt with further in C. Meehan's M.S. thesis. This area is not denoted as a recharge zone *per se* for the LPRV although it does contribute recharge to the southern aquifer. Little is known of the source(s) of water or of solute in this subsystem, or of the relative importance of leakage from this aquifer into the southern aquifer during wet vs dry years. However, several factors including historically heavy land use in this area, the identification of numerous threats to ground water quality from industrial, small business and domestic sources (CH2M-Hill, 1994a), and the continuing potential for development in this area, will make it a difficult area to manage. From the WHP viewpoint, it is also unclear what the benefits of monitoring leakage from the eastern aquifer would be.

The upper basin source area will undoubtedly be the most difficult recharge area to manage, because of its sheer size, the diversity of land uses in the upper basin, and the potential for conflicts with upper basin water users over water quantity and quality. However, its point of impact on the LPRV aquifer is also the most well-defined of the principle recharge sources, so that monitoring and management of the point of ingress will be perhaps the easiest.

(draft revision)

8. CONCLUSIONS

8.1. MAJOR FEATURES OF THE HYDROGEOLOGIC MODEL

The LPRV aquifer system is a unique ground water reservoir which is of critical importance to the cities of Pocatello and Chubbuck. The aquifer system comprises two very different sub-systems. The northern aquifer sub-system is several hundred feet deep, hydraulically confined by two or more aquitards, and suffers from a variety of water quality problems. Unfortunately, the lack of subsurface information in this part of the system precludes an in-depth analysis of the northern system's hydrogeology. This is particularly frustrating because the northern aquifer system is potentially of the greatest importance to future water resource development in the LPRV because of its tremendous storage potential.

The southern aquifer is a narrow, relatively shallow strip aquifer hosted in very permeable, coarse gravels, characterized by high linear flow velocities and suffering from serious TCE contamination. This aquifer appears to be lithologically unconfined but shows hydraulic indications of semi-confinement. The mean hydraulic conductivity of all wells with test data in the southern aquifer is 2400 ft/d , with a range of 200-8200 ft/d. Based on estimates of hydraulic conductivity, hydraulic gradient and cross-sectional flow area, the southern aquifer's ground water underflow is estimated at 23ft^3/s (5.3 Bgal/year). At an effective porosity of 0.3, ground water flow velocity is of the order of 5 - 25 ft/day.

8.2. INORGANIC SALT CONTAMINATION

A third significant hydrogeologic system, the eastern aquifer, is not important as a municipal production source because of its small size and low permeability. However, it is contaminated with relatively high concentrations of inorganic salts of chloride, sulfate and nitrate. These contaminants have been appearing in Pocatello production wells in the Ross Park area for years and indicate that the eastern and southern aquifers are in hydraulic communication. Nitrate and salt contamination is also present in the northern aquifer, apparently emanating from the mouth of Pocatello Creek. Localized salt contamination also exists around some private wells in the southern aquifer, indicating that contaminated surface water is communicating with the aquifer, probably along well casings that are improperly sealed.

8.3. AQUIFER WATER BALANCE

Ground water flow from the Bannock Range and the Portneuf Gap are the principal sources of recharge to the LPRV aquifer system, with Bannock Range sources representing about 30% of the total recharge during 1994 (a dry year) and more than 50% during 1993 (an above-average water year). Aside from these sources, there is no verified evidence of substantial river recharge, and although the eastern aquifer may contribute some recharge, on chemical grounds it appears that leakage from the eastern aquifer represents less than 10% of the Bannock Range flux.

In terms of the magnitudes of water balance components, southern aquifer pumping needs were almost completely met by the amount of ground water that flowed into the LPRV through the

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Portneuf Gap during 1993/94. Similarly, the northern well field relied on outflow from the southern aquifer for 80% of water withdrawn in the northern aquifer. Total well field pumping withdrawal during the 1993/94 water balance accounting period represented 90% of the total known recharge to the LPRV aquifer, suggesting that the aquifer system may be approaching its maximum safe yield during sustained drought conditions such as during the period 1986-1993.

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9. RECOMMENDATIONS

9.1. IMPLICATIONS FOR CONTAMINANT REMEDIATION

1) Bannock Range ground water inflow and Portneuf Gap underflow appear to be the most important sources of recharge to the southern aquifer system, but contributions from the Bannock Range may occur from diffuse inflow along the entire length of the southern aquifer's western margin as well as from localized areas such as near the mouths of Mink Creek and Gibson Jack Creek. Pumping wells have been designed for TCE plume capture utilizing capture zone geometries that are predicated on a single localized source of aquifer recharge originating from the Portneuf Gap. The effects of differences in the relative magnitude and location of ground water inflow along the western valley margin should be considered and design contingencies developed.

2) The shape of TCE contaminant plume and ground water isopotential lines near the mouth of Mink Creek (as defined in the CH2M-Hill Phase I TCE plume study), as well as the water level data available for wells in the Gibson Jack-Mink Creek area for the Spring, 1993 recharge event suggests that this may be the location of the largest volume of inflow from Bannock Range sources during spring recharge in normal water years. The impacts of this type of episodic, high-volume input on TCE plume capture should be investigated as one of the design contingencies in (1).

3) Capture zone modeling for Wells 2,3 and 28 suggests that chronically elevated levels of dissolved salts and nitrate in Ross Park production wells may be due to the capture of contaminated ground water from the eastern aquifer, leaking into the southern aquifer under or through the Portneuf Basalt. Although knowledge of both the eastern aquifer's and the Portneuf Basalt's geometry and geology is crucial to understanding the cross-communication between the eastern and southern aquifers, and in predicting the future water quality of production wells located near the Portneuf Basalt (eg: Ross Park wells, Katsilometes well), the subsurface geology of this area is basically unknown. It is recommended that several of the gravity survey lines completed across the southern aquifer in 1994 should be extended across the Portneuf Basalt and the eastern aquifer in order to help define the subsurface geology of this area.

4) The deepest part of the LPRV's bedrock basin and the thickest section of Tertiary sedimentary basin-fill exist in the area where Mink Creek enters the southern aquifer. This area is also where least is known of the TCE contaminant plume's geometry, source(s) and vertical distribution in the Tertiary vs Upper Gravel sediments. TCE concentrations (CH2M-Hill, 1994d) in well PA-7, the only well completed solely in Tertiary (or Pleistocene?) sediments, were as high as in wells completed in the Upper Gravel, suggesting that the Tertiary section here may be playing a role in transporting the contaminant. A deep test well (to at least 250 feet should be completed in the Tertiary section, to permit hydraulic testing and determination of hydraulic parameters.

9.2. DELINEATION OF WHP AREAS AND WHP MANAGEMENT

1) Fixed-radius capture zones in a narrow, strip aquifer such as the southern aquifer of the LPRV should be applied with caution, as the method may lead to under-estimation of the true capture zone area in cases where the boundaries of the aquifer are inadequately defined.

2) The analytically-defined capture zones modeled for the southern LPRV aquifer are considered to be very coarse approximations of true capture zone geometry because of the failure of simplified analytical models' boundary conditions to adequately represent the actual boundary conditions. Effective delineation of capture and TOT zones should be accomplished with a numerical flow and particle-tracking model.

3) Assuming that TOT zones calculated in this study underestimate travel distances because the assumed average aquifer thickness does not adequately represent the effective aquifer thickness, then actual TOT zones will be longer and may extend outside of the aquifer boundaries for many of the southern aquifer's production wells. Conversely, if diffuse recharge to the southern aquifer proves to be important, then TOT zones modeled under the assumption of uniform axial flow would overestimate the travel distance in the up-gradient direction and WHP areas would be too long. In either case, the prospect for developing manageable and technically defensible WHP areas for 5- and 10-year times of travel appears grim. It is recommended, therefore, that emphasis be focused on defining basin-wide WHP Recharge Zones defined by hydrogeologic boundaries.

4) The LPRV geohydrologic model indicates the existence of three principal areas of aquifer recharge. Of these, the Bannock Range / Mink Creek Recharge Zone has the greatest potential for development of a workable, basin-wide WHP plan. The area is of manageable size, an historic precedent exists in the exclusion of part of the City Creek drainage for water supply protection, and land-use management guidelines can be developed more readily in this mostly unpopulated, forested area than in populated areas. Furthermore, by developing a plan in cooperation with the U.S. Forest Service (who administers much of this watershed area), shared enforcement of contiguous lands may provide mutual benefits to the participating agencies.

5) The eastern aquifer represents a potentially important WHP Recharge Zone that should be singled early out for special monitoring. Leakage of contaminated waters into the southern aquifer is occurring in the Ross Park area and high concentrations of dissolved salts and nitrate in PMW-3 (on the Idaho State University campus) indicate that contaminated eastern aquifer water may be moving northwestward toward the central and southern well field. Because the hydraulics and interconnection between the eastern and southern aquifer is unknown and because of the widespread occurrence of existing and potential contaminants in this area (IDEQ, 1994; CH2M-Hill, 1994a) and the difficulty in developing a WHP plan in a heavily developed area, ground water monitoring is considered the only feasible approach to management in this WHP area, at least into the near future. The goal of monitoring would be to identify current and future leakage and the types of contaminants, in order to be able to react effectively to future problems and to obtain the necessary data to design a formal WHP plan for this area.

6) Ground water underflow through the Portneuf Gap originates from a huge recharge source area (ie. the upper Portneuf River basin) that is probably unmanageable because of its geographic size, the diversity of land uses within that area and the potential for political conflict between agricultural and urban water users. However, the Portneuf Gap is a highly manageable <u>inflow zone</u>, a geographically well-defined area through which all up-gradient flow passes. An area

extending some 4.5 miles (7 km) up-gradient of the Portneuf Gap to the town of Inkom provides a significant buffer zone between upper basin factors affecting up-gradient water quality and the immediate jurisdictional boundaries of the LPRV aquifer. The corridor itself could be justifiably included as part of the southern aquifer (because, geologically, its valley filling sediment represents an eastward extension of the Upper Gravel aquifer), in which case, a formal WHP area that extended into that area could be designated. Alternatively, it could be considered a buffer zone, only, in which case, the city could install and maintain up-gradient observation wells to monitor the quality of upper basin water entering the LPRV which would provide early-warning capability for developing water quality problems.

10. REFERENCES

Bradbury, K.R. and Rothschild, E.R. 1985. A computerized technique for estimating the hydraulic conductivity of aquifers from specific capacity data; Ground Water, 23, pp. 240-246.

Brown and Caldwell 1994. Phase II Hydrogeologic assessment draft report, Bannock County, Idaho.

Burgel, W.D., Rodgers, D.W. and Link, P.K. (1987). Mesozoic and Cenozoic structures of the Pocatello Region, Southeastern Idaho; in W.R. Miller (ed.), The Thrust Belt Revisited, Wyoming Geol. Assoc., 38th Field Conference Guidebook, pp. 91-100.

Bush, R.R. 1980. Gravity survey of the Tyhee area, Bannock Co., Idaho; M.S. thesis, Idaho State University, 33 pp.

CH²M-Hill 1994a. Contaminant source inventory and groundwater threat characterization report, City of Pocatello Well Head Demonstration Project, 57 pp..

CH²M-Hill 1994b. Final site assessment report, Pocatello Creek landfill hydrogeologic investigation, Pocatello, Idaho, 85 pp.

CH²M-Hill 1994c. Hydrogeology and assessment of TCE contamination in the southern portion of the Pocatello aquifer - Phase I Aquifer Managament Plan final report, 100 pp.

CH²M-Hill 1994d. Results of the test drilling program for the City of Chubbuck, Idaho - Final Report, 26 pp.

Conkling, H. 1946. Utilization of groundwater storage in stream system development; Trans. Am. Soc. Civil Engrs., 111, pp. 275-305.

Corbett, M.K., Anderson, J.E. and Mitchell, J.C. 1980. An evaluation of thermal water occurrences in the Tyhee Area, Bannock County, Idaho; Idaho Department of Water Resources, Water Information Bulletin N. 30, Geothermal Investigations in Idaho, Part 10, 67 pp.

Crosthwaite, E.G. 1957. Ground water possibilities south of the Snake River between Twin Falls and Pocatello, ID; USGS Water Supply Paper 1460-C.

Environmental Protection Agency 1987. Guidelines for delineation of wellhead protection areas; Office of Ground-Water Protection.

Environmental Protection Agency 1991. WHPA: a modular semi-analytical model for the delineation of wellhead protection areas, Version 2.0; Office of Ground-Water Protection.

Freeze, R.A. and Cherry, J.A. 1979. Groundwater; Prentice-Hall, New Jersey; 604 pp.

Gat, J.R. 1971. Comments on the stable isotope method in regional groundwater investigations; Water Resources Research, 7, pp. 980-990.

Goldstein, F.J. 1981. Hydrogeology and water quality of Michaud Flats, Southeast Idaho; Idaho State Univ., M.S. thesis, 80 pp.

Harenberg, W.A., Jones, M.L., O'Dell, I., Brennan, T.S., Lehmann, A.K. and Tungate, A.M. 1993. Water resources data, Idaho, Water Year 1993; USGS Water Data Report ID-93-1.

Houser, B. 1992. Quaternary stratigraphy of an area northeast of American Falls in the eastern Snake River Plain; Geol. Soc. America Memmoir 179, pp. 269-288.

IDEQ 1994. Idaho Wellhead Protection Plan, Draft, prepared for Idaho Dept. Health and Welfare, Division of Environmental Quality in cooperation with the Idaho WHP Workgroup.

IDEQ (in prep). Comprehensive review of groundwater contaminants impacting the lower Portneuf aquifer, Pocatello, Idaho; Idaho Dept. Health and Welfare, Div. Environmental

Quality, Southeastern Idaho Regional Office.

Jacobsen, N.D. 1982. Ground water conditions in the eastern part of Michaud Flats, Fort Hall Indian Reservation; USGS Open File Rept. 82-570, 35 pp.

Jacobsen, N.D. 1984. Hydrogeology of eastern Michaud Flats, Fort Hall Indian Reservation; USGS Water Resources Investigations Rept. 84-4201, 31 pp.

Jasmer, R.M. 1987. Hydrocompaction hazards due to collapsible loess in Southeastern Idaho; M.S. thesis, Idaho State University, 129 pp.

Kindel, G. and others 1991. Geological and hydrogeological characterization of the Fort Hall Canyon landfill site, Bannock County, Idaho; Proc., 27th Engineering Geology and Geological Engineering Symp., Logan, Utah, pp. 33-1 to 33-8.

LaPoint, P.J. 1977. Preliminary photogeological map of the eastern Snake River Plain; USGS Misc. Field Studies Map MF-850, 1:250000.

LeFebre, G.B. 1984. Geology of the Chinks Peak area, Pocatello Range, Bannock County, Idaho; Idaho State Univ., M.S. thesis, 61 pp.

Link, P.K., LeFebre, G.B, Pogue, K.R. and Burgel, W.D. (1985). Structural geology between the Putnam Thrust and tghe Snake River Plain, Southeastern Idaho; in Utah Geol. Assoc. Publ. 14, Orogenic Patterns and Stratigraphy of North-Central Utah and southeastern Idaho, pp. 97-117.

Ludlum, J.C. 1943. Structure and stratigraphy of part of the Bannock Range, Idaho; Geol. Soc. America Bull. 54.

Mansfield, G.R. 1920. Geography, geology and mineral resources of the Fort Hall Indian Reservation; USGS Bull. 713.

McDole, R.E. 1969. Loess deposits adjacent to the Snake River Plain in the vicinity of Pocatello; Univ. Idaho, Ph.D. dissertation, 231 pp.

McDole, R. and others 1973. Identification of paleosols and the Fort Hall geosol in Southeast Idaho loess deposits; Soil Sci. Soc. Am. 37, 611-616.

Meehan, C. and Welhan, J.A. 1994. Impact of leachable sulfate on the quality of groundwater in the Pocatello aquifer; Proc. 30th Symp. Engineering Geology and Geotechnical Engineering, Boise, ID; pp.19-35.

Muller, S.C. 1978. The geology and distribution of base-metal deposits in the Fort Hall mining district, Bannock County, Idaho; M.S. thesis, Idaho State University, 194 pp.

Norvitch, R.F. and Larson, A.L. 1970. A reconnaissance of the water resources in the Portneuf River Basin; Idaho Dept. Water Resources, Water Information Bull 16, 58pp.

O'Conner, 1990. Hydrology, hydraulics and sediment transport of Pleistocene Lake Bonneville flooding on the Snake River, Idaho; Ph.D. diss., Univ. Arizona, Tucson, 192 pp.

Ore, H.T. 1982. Tertiary and Quaternary evolution of the landscape in the Pocatello, Idaho, area; Northwest Geology 11, pp. 31-36.

Parliman, D.J. 1982. Ground water quality in east-central Idaho valleys; USGS Open File Rept. 81-1011, 55pp.

Parliman, D.J. 1987. Hydrogeology and water quality of areas with persistent ground water contamination near Blackfoot, Bingham County, Idaho; USGS Water Res. Investigations Rept. 87-4150, 102 pp.

Pelton, J.R. , Dougherty, M.E. and Welhan, J.A. 1994. Interpretation of shallow seismic refraction data using raytracing inversion: a simple example from a groundwater resource study in Pocatello, Idaho; Proc. 30th Symp. Engineering Geology and Geotechnical

Engineering, Boise, ID; pp.37-43.
Reid, T.V., 1997, Gravity-defined subsurface paleomorphology and structure of the lower Portneuf River valley, Pocatello, Idaho; M.S. thesis, Idaho State University, 72 pp.
Reid, T.V., Welhan, J.A. and Pelton, J.R. 1995. Gravity-defined subsurface structure and geometry of the lower Portneuf River Aquifer; Proc. 31th Symp. Engineering Geology and Geotechnical Engineering, Logan, Utah; pp. 429-442.
Rember, W.C. and Bennett, E.H. 1979. Geologic map of the Pocatello quadrangle, Idaho; Idaho Bur. Mines Geology, Geologic Map Series, Pocatello 2 deg quadrangle, 1:250000.
Rodgers, D.W., Ore, H.T. and Link, P.K. 1994. Geologic history of the Pocatello area; unpubl. manuscript, 12 pp.
Scott, W.E. 1982. Surficial geology map of the eastern Snake River Plain and adjacent areas; USGS Misc. Investigations Series. Map I - 1372.
Scott, W.E., Pierce, K.L., Bradbury, J.P. and Forester, R.M. 1982. Revised Quaternary stratigraphy and chronology in the American Falls Area, southeastern Idaho; in Cenozoic Geology in Idaho, B. Bonnichsen and R.M. Breckenridge, eds., Idaho Bureau of Mines and Geology Bull. 26, pp. 581-595.
Seitz, H. and Norvitch, R. 1979. Ground water quality in Bannock, Bear Lake, Caribou and part of Power Counties, Southeast Idaho; USGS Water Resources Investigations 79-14, 51 pp.
Stearns, H.T. and others 1938. Geology and water resources in the Snake River Plain in Southeast Idaho; USGS Water Supply Paper 774.
Trimble, D.E. 1976. Geology of the Michaud and Pocatello quadrangles; USGS Bull.1400, 88pp.
University of Idaho, 1993, State of Idaho Mean Annual Precipitation, 1961-1990; U. Idaho, State Climate Program, 1:250,000 GIS coverage.
Walton, W.C. 1988. Groundwater pumping tests: design and analysis; Lewis Publ., Michigan, 201 pp.
Welhan, J.A. and Meehan, C. 1994. Hydrogeology of the Pocatello aquifer: implications for wellhead protection strategies; Proc. 30th Symp. Engineering Geology and Geotechnical Engineering, Boise, ID; pp. 1-18.
West, S.W. and Kilburn, C. 1963. Ground water for irrigation in part of the Fort Hall Indian Reservation; USGS Water Supply Paper 1576-D.
Winter, G., Baldwin, J., Wicherski, B. and Richlen, S. 1994. Black Cliffs ground water quality study: nitrate impact; IDEQ Ground Water Quality Technical Report No. 4; 23 pp.

APPENDIX I

Monitoring Well Logs

Wells Installed Under the EPA Well Head Protection and IWRRI Grants

A summary description of monitoring wells installed during August, 1993 is provided. These wells were funded jointly under the EPA Well Head Protection Demonstration Grant and a research grant awarded to the IGS and Idaho State University from the Idaho Water Resources Research Institute. Costs for the drilling project are shared between the EPA WHP grant and .

All wells were drilled and completed by Cushman Pump and Drilling, Inc. under the direct supervision of the Idaho Geological Survey. Drilling was performed at three locations in the southern portion of the aquifer at a total cost of approximately $35/ft (for drilling, materials and installation, not including time donated by Welhan and student C. Meehan for well logging and completion). All three wells were drilled with direct air-rotary methods, utilizing an eccentric bit to over-ream the borehole for continuous casing advancement and for maintaining good control on the depths of lithologic variations in the subsurface and obtaining clean, representative samples of subsurface materials. Legal descriptions of well locations are attached below.

Well PMW-1 was sited to provide stratigraphic data, water level monitoring control and water quality information in the vicinity of Wells #14 and 33, which were closed in 1993 due to TCE contamination. Of the three wells drilled, this one has proved to be of greatest interest, geologically. The highly permeable, unconsolidated sedimentary aquifer from which producing wells 14 and 33 draw their water is now known to be less than 100 ft thick and underlain by a section of Tertiary sedimentary rocks which are much less permeable.

Well PMW-2 was sited 45 feet south of the city's new production well, #36, in order to afford a hydraulic monitoring point during testing of the new production well. In addition, the monitoring well was used as a water quality sampling point to test the quality of water in Well 36, in order to satisfy DEQ regulatory conditions for bringing well 36 on-line.

Monitoring well PMW-3 was drilled in the important "neck" of the aquifer, adjacent to Red Hill, to provide a check on the estimate of depth to bedrock obtained from geophysical seismic sounding performed in the spring of 1993, to identify the sedimentary stratigraphy and saturated thickness available for aquifer underflow at that point, and to permit hydraulic testing and water quality sampling to be done in this area of the aquifer.

Detailed descriptions of lithology and completion information is provided below, and a graphical summary of the monitoring wells' physical characteristics and lithology encountered is given in **Figure A1.1.**

Monitoring Well Locations - Legal Description:

PMW-1: T 7 S ; R 35 E ; Sec. 7 ; SW 1/4 of SE 1/4 sec.
in Bannock County ; Pocatello City property;
approximately 800 feet due north and 900 feet due east of
the intersection of Cheyenne Ave. and Bannock Highway

PMW-2: T 7 S ; R 34 E ; Sec. 1 ; NW 1/4 of SE 1/4 sec.
in Bannock County ; Pocatello City vacant property;
approximately 400 feet due south of the intersection of Bannock
Highway and South Grant Ave., approximately 100 feet due east of
the highway.

PMW-3: T 6 S ; R 34 E ; Sec. 36 ; NW 1/4 of NW 1/4 sec.
in Bannock County ; Idaho State University Campus;
at east end of Sutter Street, between Mechanical Shop and
Museum storage buildings

Materials Used in Well Completion:

330 ft of 4" ID PVC flush-thread riser pipe

60 ft of 4" ID 'V-wire', 0.020"-slot, flush-thread PVC well screen

30 bags of 8/14 mesh Colorado silica sand

3 bags of 16/40 mesh Colorado silica sand

3 pails of 1/4" Baroid bentonite pellets

Lithologic and Well Completion Descriptions:

PMW-1 (depths referenced to top of steel casing, 28" above ground)

0-10 ft: silt, clay (brown river floodplain sediment)

10-20 ft:	fine/med. gravel, silt-rich with abundant sand-size grains.
20-22 ft:	pea gravel
22-30 ft:	coarse sand and boulders (slow drilling)
30-35 ft:	coarse sand
35-40 ft:	coarse, slightly silty gravel, first identified water ca. 38'
40-70 ft:	medium to coarse, slightly silty gravel
68-75 ft:	fine-grained partially indurated brown sand
75-88 ft:	silty fine sand and medium gravel, low permeability
88-90 ft:	clay seam
90-100:	some pea gravel but mostly gravel with sticky clay
100-107:	hard drilling in grey, homogeneous volcanic ash
107-112:	white, sticky clay; slow drilling
112-121:	brown, silty, medium gravel, hard drilling
121-140:	very slow drilling in cemented gravel; clasts identical to cemented Tertiary gravels exposed on Gibson Jack terrace

FINAL COMPLETION CONFIGURATION:

total depth = 140 ft btc
pulled casing back to 80 ft btc
backfilled to 83 ft btc with cuttings and puddling clay
backfilled to 87 ft btc with 8/14 mesh silica sand base
bottom cap, 20 ft sump and screen installed, centralized 67 ft
bottom of 0.020 v-wire screen at 67 ft btc; top at 57 ft btc
top of 8/14 mesh sand pack at 47 ft btc
total of 11 bags 8/14 sand, 1 bag 16/40 sand used
60 ft of riser pipe installed, cut flush at top of casing
riser pipe centralized at 47 ft btc
after sand packing, steel casing pulled back
bottom of steel casing 42'2 1/2" bls
bentonite pellets added to 25 ft btc
cement-bentonite grout pumped in from 25 ft btc to 4 ft btc
top of PVC casing at 23" above ground
top of steel casing at 28" above ground

PMW-2 (depths referenced to top of steel casing, 24" above ground)

0-23 ft:	brown, moist river silt; cobbles hit at ca. 6 ft
23-35 ft:	med-coarse gravel, silty
35-120:	medium to coarse, clean gravel, very little silt. with several thin coarse sand lenses at below about 45 ft. First water at identified ca. 49 ft. Water flow rate increased gradually down to ca. 100 ft then remained very high and continuous
120-133:	hard, slow drilling in coarse gravel and cobbles; largest clasts >5 cm
133-140:	medium gravel, rapid drilling
140-160:	medium gravel, slow drilling

FINAL COMPLETION CONFIGURATION:

total depth = 160 ft btc
pulled casing back to 120 ft btc
cap and 20 ft sump, centralized at 140 ft btc
bottom of 0.020 v-wire screen at 140 ft btc, top at 120 ft.
top of sand pack at 103 ft btc (8/14 mesh with 2 ft 16/40) total of 6 bags sand used (5 of 8/14 mesh, 1 of 16/40 mesh)
120 ft of riser pipe terminating 16" above ground
riser pipe centralized at 110 ft btc
after sand packing, casing pulled back to 100 ft btc
bottom of steel casing at 98.5 ft below ground surface
bentonite pellets added to 89 ft btc
bentonite slurry injected from 89 to ca. 55 ft btc
bentonite/cement grout injected from 55 ft to 4 ft btc
top of PVC casing at 16" above ground
top of steel casing at 24" above ground

PMW-3 (depths referenced to top of steel casing, 32" above ground)

0-4 ft: silt/gravel (disturbed zone)

4-24 ft: dry brown silt

24-85 ft:	medium to coarse gravel with occasional coarse sand lenses (max. clasts ca. 2 cm)
85-102:	coarse gravels (clasts 2-5 cm); some intervals cobble-rich. Below 90 ft, water inflow rate increased substantially. Below ca. 100 ft, water flow estimated in excess of 40-50 gpm and steady.
102-122:	fine to coarse gravel, no major lithologic changes; clast assemblage still very similar to PMW-1,-2. Numerous basalt pebbles and pebble fragments appear to have come from one relatively narrow interval, ca. 110-120 ft.
122-128:	red quartzite (Caddy Canyon) with white, milky water; soft, white material found on several cuttings appears to be fracture filling
128-138:	red quartzite lacking any white fracture fill material = massive, unfractured?

FINAL COMPLETION CONFIGURATION:

total depth = 140 ft btc
pulled casing back to 60 ft btc
cap and 20 ft sump installed, centralized at 120 ft btc
two screen sections installed:
bottom of 0.020 v-wire screen at 120 ft btc, top at 110 ft;
bottom of 0.020 v-wire screen at 100 ft btc, top at 80 ft.
ten foot riser section installed between screened sections
80 ft of riser pipe above screen, centralized at 70 ft btc
top of sand pack at 63 ft btc (8/14 mesh with 4 ft 16/40) total of 11 bags sand (10 of 8/14 mesh, 1 of 16/40 mesh)
after sand packing, casing pulled back to 60 ft btc
bottom of steel casing at 57 ft below ground surface
bentonite pellets added to 55 ft btc
bentonite/cement grout injected from 55 ft to 4 ft btc
top of PVC casing 28" above ground
top of steel casing 32" above ground

Wells Installed by City of Pocatello and Mr. Bud Hildreth

The City of Pocatello sought to locate a new production well near Century High School in July, 1999. On the basis of the conceptual geologic model available at the time (Chapter 3), a cable tool rig was used to drill a 24" well just south of the existing Katsilometes well, south of the Highway Pond gravel pit. Very little thickness of Upper Gravel was encountered in this hole. The City used a water dowser to relocate the well, and a subsequent cable tool hole was drilled where "good water" was indicated. This too proved to have inadequate capacity, with the result that both wells were plugged and abandoned without testing in favor of drilling several test holes with an 6" air rotary rig to locate an adequate thickness of Upper Gravel for production.

Several test holes were drilled, stepping westward away from the dry hole, as well as two holes farther south, until adequate saturated thickness of Upper Gravel unit was eventually located near the railroad mainline. A second cable tool well was installed and completed as Municipal Well 44. All but two of the test holes were plugged with bentonite and abandoned; two, near Well 44, were completed as 4" PVC monitoring wells.

Lithology was described by J. Kaser and J. Welhan for several of the test holes. Lithologic summaries are provided below.

In addition to these, a new domestic well was drilled by Mr. Bud Hildreth at the north end of the Highway Pond gravel pit, and at the same time that the city was test drilling. This well was drilled through the Upper Gravel and into the low-permeability clay and silt-rich gravels (Tetiary?) beneath. This well's lithology was described by J. Welhan at the time of drilling and its lithologic summary is included below.

Well Logs for Pocatello City Test Holes
Depth given in feet; samples were taken every 5 feet or where a significant lithologic change. was noticed; driller: Vollmer Inc., Ivan on site; geologist: John Kaser
Bolded italics are comments and verification of lithology in bagged samples, by J. Welhan

<u>Test Hole 1</u> (TH1); 7/2/99
0-10: Dark brown silt, silt clasts, dark brown silt loam
10-11: Dark sand
11-12: Dark gravel (rounded quartzite)
12-12.5:Dark gravel and sand
14-17: Dark gravel, found a white mollusk shell (fresh water oyster)
17-17.5: Dark sand and gravel, complete white grastropod shells
17.5-18.5: Dark gravel
Stopped at 10 AM – driller had work to do at Island Park
Incomplete well log, John Welhan logged the rest on 7/5/99
Resumed drilling @ 12:50, 7/5/99
20-29: med.-coarse gravel, less silty
Base of "Bonneville Flood" and/or Quaternary-Holocene fluvial gravels
29-30: very sudden transition into **silt-rich**, coarse gravel
30-32: **silt-rich**, med.-coarse gravel
32-35: cleaner, still silty, coarse gravel (again, with sudden transition)
35-38: coarse, clean gravel, with some med.-coarse sand
38-40: thin clay seam
40-45: silty med. gravel
45-55: relatively clean, med.-coarse gravel, with sand
57: another silt layer, some clay, no sand or gravel
57-60: grading back into silty, med.-coarse gravel
60: silty med.-fine gravel, some sand

<u>Test Hole 2</u> (TH2); Start: 3:15 PM
0-12: Dark brown silt
12-15: Dark gravel and sand
15-19: Dark gravel
(casing change) 4 PM
21-22: Brown silt and dark gravel
22-32: Dark gravel
Base of "Bonneville Flood" and/or Quaternary-Holocene fluvial gravels
32-36: **Brown clay** and sand
36-36.5: Dark sand
36.5-38: Gray clay and gravel
38-39: Clay color change to a deep brown, dark gravel
(casing change)

start: 4:57 PM

39-40: sand, silty, clayey

40-43: Dark sand and gravel, some brown clay

***NOTE:** all gravel/coarse sand clasts look to be of similar composition in all six test holes (mixed qtzite, meta-sediments; colors: pink, purple, green, white)*

43-47: **Brown clay** and gravel layers

47-49: **Brown clay** and dark gravel

49-51: **Brown clay**

51-53: Dark gravel and brown clay

53-55: Dark gravel and sand

55-56.5: **Brown clay**

56.5-57: Dark gravel

57-58: Dark sand with some gravel

58-58.5: Mostly dark sand and some dark gravel

(casing change) 5:45 PM

start: 6:04 PM

59-59.5: Dark sand

59.5-60: Dark gravel and sand – water encountered

60-62: **Brown clay**. No water

62-63: Dark sand

63: Encountered an obstruction, probably a well-cemented conglomerate boulder. Cuttings contain various rounded rock lithologies (i.e. gray mudstone, yellow quartz, red-brown quartzite) mixed with sand. The casing could not be hammered any further into the ground, past the obstruction.

Stopped at 6:45

<u>Test Hole 3</u> (TH3); 7/7/99; Start: 2:45 PM

0-2: Dark brown topsoil

2-5: Brown clay and dark gravel, white gastropod shells

5-10: Dark gravel, some complete white gastropod shells

10-13: Dark gravel and sand, white gastropod shells

13-14: Mostly dark sand with some dark gravel

Note: casing and drill moving easily, did not use hammer on casing until 13-15-ft

14-18: Dark gravel and sand, white gastropod shells

18-19: Dark gravel and sand

(addition of 3-ft and 20-ft casing sections) 3 PM

19-23: Dark gravel and sand, white gastropod shells

23: Drill casing getting stuck, probably due to large rocks, hammer is used often

23-25.5: Dark gravel, drill moving slowly through

25.5: Brown clay, dark gravel and sand

25.5-28: Mostly dark gravel with brown clay and some sand

28-29: Brown clay with gravel and sand

29-29.5: Brown clay

29.5-30: Brown clay, gravel and sand

30-31: conspicuous **brown silt, some clay**

31-33: brown clay and dark gravel

33-35: brown clay and dark sand
35-38: brown clay with some dark sand
38-38.5: brown clay (some clay chips found)
38.5-39: dark sand with some dark gravel, sand is brown to dark red
(casing change) 4:22 PM
start: 4:45 PM
Note: casing is filled with water when starting
39-41: brown clay, brown to dark red sand, and dark gravel
41-43: gravel – pink and dark red quartzites or granite with black basalt or mudstone
43-46: brown clay, pink to dark red sand and dark gravel
46-49: brown silt/clay, dark sand and dark gravel, several thin layers of brown clay
49-50.5: gravel
50.5-51.5: brown clay and dark gravel
51.5-52: dark gravel and dark sand
52-53: brown clay, dark gravel and dark sand
53-55: brown clay, dark sand and dark gravel
55-57: brown clay, dark gravel and dark sand
57-59: brown clay with minor amounts of dark sand
(casing change) 5:30 PM
Started: 5:55 PM
Note: casing filled with ground water
59-62: brown clay, dark sand and dark gravel
62-63: brown clay
63-68: brown clay, dark gravel and dark sand
Note: drill and casing is moving slower starting at 65-ft
Base of "Bonneville Flood" and/or Quaternary-Holocene fluvial gravels
69: Drilling halted due to obstruction. Hit a boulder or bedrock. Cuttings of the boulder or bedrock in the sample bag marked 'TH3, 7/7/99, Clay/gravel/sand, 68-69'
Note: Ivan agreed to drill further in the morning, to obtain cuttings of the bedrock or boulder obstruction.
Stopped: 6:25 PM
Continued 7/7/99
Start: 9 AM
69-71: Sample taken of obstruction. Driller was able to drill through. Obstruction is not a boulder as previously thought, but possibly a layer of hardpan containing gravel and sticky clay, which is probably the same type of obstruction encountered for TH2. The driller, Ivan, put all the weight of the truck onto the drill and hammered through the hard clay a gravel layer.
71-72: dark gravel
72-74: brown clay and dark gravel
74-75: brown clay and sand with minor amounts of gravel
75-77: pink gravel (pink to red quartzites, some gray and black slate or mudstone) and coarse sand
77-79: Pink gravel and sand
Stopped to change casing 9:50 AM ***NOTE: Gravel from 75-100' looks clean, low silt/clay***
Start: 10 AM

Note: groundwater has filled the casing.
79-99: pink gravel and coarse sand
Stopped at about 100-ft. No significant amounts of water found.

<u>Test hole 4</u> (TH4) 7/8/99
0-3: Dark brown topsoil
3-8: Brown topsoil
8-10: Brown clay, and dark gravel
10-16: Dark gravel and sand, white shell fragments
Note: Drill and drill casing went down too for me to get a sample between 5 to 10-ft
16-20: Dark gravel and sand with white shell fragments
20-21: Dark gravel and sand with little amounts of clay
21-23: Dark gravel and sand
22-24: Brown clay, dark gravel and sand
24-26: Pink and red gravel
26-30: Pink and red gravel, pink and red coarse sand
30-30.6: Brown clay, pink-red gravel and sand
30.6-35: Pink and red gravel, pink and red coarse sand
35-36: Cobble or boulder obstruction. Drill hammered through obstruction; gray slate- or mudstone-like cuttings.
36-37: pink and red gravel, pink and red coarse sand.
37-38: Pink and red sand mostly, with minor amounts of pink and red gravel
38-39.6: Pink and red gravel, pink and red coarse sand, and **brown water.**
39.6-45: Pink-red, white, gray, and black gravel
45-47: Pink-red, white, gray, and black gravel and coarse sand
47-48: Dark brown clay, pink-red, white, gray, and black gravel and coarse sand
48-54: Pink-red, white, gray, and black gravel and coarse sand. Higher volume of dark brown water
54-55: Light brown-dark orange **silt, some clay** layer mixed with fine to coarse sand. This clay/silt layer almost ***<u>felt dry</u>***, and is impermeable, i.e. no water flowed into the casing
55-55.5: Pink-red gravel and sand.
55.5-56: Some brown-orange clay stuck to pink-red gravel and coarse sand
56-59: Pink-red, white, and gray-black gravel (mostly quartzites) and coarse sand
Stopped to change casing
Note: Dark brown groundwater between 55-59-ft
Start: 11:45 AM
59-62: Mostly coarse sand with some pink-red, white, and gray-black gravel
62-62.5: Orange-brown clay, coarse sand and some pink-red, white, and gray-black gravel, no water
62.5-64: Pink-red, white, and gray-black gravel and coarse sand (mostly pink-red quartzites)
64-65: Mostly coarse sand and some pink-red, white, and gray-black gravel
65-70: Pink-red, white, and gray-black gravel and coarse sand.
70-71: Brown clay, pink-red, white, and gray-black gravel and coarse sand; less water
71-72: Pink-red, white, and gray-black gravel and coarse sand; less water

72-74: Pink-red, white, and gray-black gravel and coarse sand; water (dark brown) is less dirty
74-74.5: Coarse dark sand
Base of "Bonneville Flood" and/or Quaternary-Holocene fluvial gravels
74.5-75: Brown clay and sand, no water
75-75.5: Pink-red, white, and gray-black gravel and coarse sand, some water
75.5-75.6: Brown clay, pink-red, white, and gray-black gravel and coarse sand
76-77: Pink-red, white, and gray-black gravel and coarse sand, some water
77-78: Brown clay, and coarse sand
78-79: Pink-red, white, and gray-black gravel and coarse sand
Stopped; 12:36 PM, casing change
Start: 2:15 PM
79-81: Brown clay, fine gravel and coarse sand, no water
81-84: Brown clay and gravel, no water
84-89: Pink-red, white, and gray-black gravel and coarse sand, no water
89-93: Brown clay, pink-red, white, and gray-black gravel and coarse sand
93-95: Brown clay and coarse sand, no water
95-99: Mostly coarse sand with some brown clay, and pink-red, white, and gray-black gravel
Stopped: 2:54 PM`
Started: 3:15 PM ***NOTE: 105-115 interval looks clean***
99-107: Some brown clay, fine pink-red, white, and gray-black gravel and coarse sand, no water
107-115: Pink-red, white, and gray-black gravel and coarse sand, no water
115-118: Fine pink-red, white, and gray-black gravel and coarse sand
118-119: More clay with mostly coarse sand and some fine pink-red, white, and gray-black gravel, no water
Stopped: 4:20 PM

Test Hole 5 (TH5) 7/13/99
Ivan began this test hole on 7/12/99. JK was not informed of the additional test well, thus, did not log this well until 59-ft. A sample was taken from the top of the cutting pile. Ivan stated that topsoil extended to 10-ft and the cuttings were the same from 10-ft to 59-ft (composed of silt/clay gravel and ***lots of water*** (driller's description; previous descriptions of water availability are JK's). It appears that there are less pink and red gravels than TH4.

59-61: A lot of dark brown groundwater, lit/clay, dark gravel
Note: Ivan is driving the casing as far as it will go without drilling to prevent the gravel from filling in between the casing and drill shaft, and binding the drill bit.
61-64: Pink-red, gray-black fine gravel and coarse sand
Base of "Bonneville Flood" and/or Quaternary-Holocene fluvial gravels
64-65: Brown clay and coarse sand
65-67: Appearance of more pink-red gravel
67-69: Mostly coarse sand with some fine gravel and a little brown clay. Sample bag 67-70 contains the fraction.
69-71: Coarse dark sand and brown clay. ***No water***
71-72: Brown clay and dark gravel. ***No water***

Stopped drilling at 72-ft., 10:30 AM

<u>Test Hole 6</u> (TH6) 7/13/99; Start: 1:30 PM
0-10: Dark brown topsoil
10-12: Dark gravel
12-16.5: Sand and brown clay, white shell fragments.
Note: drilling is rapid to this point.
16.5-17: Brown clay and dark gravel
Stopped ant 4 PM to add 3-ft and 20-ft casing extensions.
17-18: Dark brown clay and dark gravel.
18-19: Dark gravel.
19-23: Fine dark gravel and coarse sand.
23-24: Water and rock debris spraying up from the outside of the casing due to reaching a water-bearing layer. Not much water. Cuttings are mostly coarse sand but appear to be chips from gravel. Pink-red (quartzites), gray to black gravel (slate or mudstone), with some white gravel (quartz).
24-29: Dark gravel and sand. No water
29-30: Dark gravel coarse to fine sànd. Some water.
30-40; Pink-red, gray-black, and white gravel.
40-47: Mostly red-pink gravel and coarse sand. Little water.
47-55: Mostly coarse sand and fine red-pink, black-gray, and some white gravel.
55-65: Mostly coarse sand and fine red-pink, black-gray, and some white gravel, with some brown clay.
65-66: Mostly coarse sand and fine red-pink, black-gray, and some white gravel., with some hard brown clay clasts.
66-68: Mostly coarse sand and fine red-pink, black-gray, and some white gravel, and brown clay.
68-69: Mostly fine red-pink, black-gray, and some white gravel, with some coarse sand.
Base of "Bonneville Flood" and/or Quaternary-Holocene fluvial gravels
69-70: Mostly coarse sand and fine red-pink, black-gray, and some white gravel, and brown clay.
70-72: Mostly fine red-pink, black-gray, and some white gravel, with some coarse sand.
72-74: Mostly coarse sànd and fine red-pink, black-gray gravel with some white gravel, and brown clay.
74-76: Fine red-pink, black-gray, and some white gravel, with some coarse sand. Some brown clay and hard dark brown fine gravel clay balls.
76-79: Red-pink, black-gray, and some white gravel, with some coarse sand. Little water.
Stopped to change casing: 5 PM
Start: 5:18 PM ***NOTE: 80-100 interval looks clean***
79-92: Red-pink, black-gray, and some white gravel, with some coarse sand. No water.
92-98: Mostly coarse sand and fine red-pink, black-gray gravel with some white gravel.
98-99: Red-pink, black-gray, and some white gravel, with some coarse sand, with a minor layer of brown clay.
99-103: Red-pink, black-gray, and some white gravel, with some coarse sand and some brown clay.
Stopped drilling at 6:30 PM

Bud Hildreth Well

Drilled 7/21/99, Cushman Drilling Inc.; samples were collected by Monty Staples every 5 ft, as requested; JW arrived when drill bit was at 165' bls; log reconstructed from examination of bagged samples and Monty's description of lithology and zones encountered

1-7ft: silt, topsoil
7-45: fine-med. sand and gravel — NOTE: 10 bags bentonite used in sealing casing-hole annulus
45-55: med.-coarse sand and gravel — Monty: water table at about 30' bls
55-75: fine-med. sand and gravel

Base of "Bonneville Flood" and/or Quaternary-Holocene fluvial gravels

75: hard drilling, clay zone, possibly indurated — NOTE: 10' discrepancy between bags and Monty's notes, depth of contact is approximate

75-90: transition
Hole stayed open below 90' overnight
90-120: silt-rich, fine-med. sand and gravel — NOTE: Monty encountered several clay zones 90-145

120-145: med.-coarse gravel, silt-rich
145-165: med.-coarse gravel with sand, much less silt and clay
165-215: same, +/- silt — NOTE: open hole 90-200' remained open overnight

Estimates of Aquifer Permeability in Vicinity of City Test Well and Hildeth Well:

City Well 44

Drawdown measurements were made on a test run of Well 44 to determine its capacity. Water level was monitored in TH-5, 40 feet south of the production well. Flow sensor problems precluded an accurate measurement of discharge; Harold Hargraves indicated it was determined after the test to be in the range of 1600-1800 gpm.

Drawdown response fit a Neuman unconfined aquifer type curve, although the test was interrupted at 30 minutes by a temporary motor shutdown, so the amount of useable data is small. Two possible fits to the delayed-drainage portion and the late-time portion of the type curves resulted in slightly more than a factor of two difference in the calculated transmissivity and a beta factor of 0.06 - 0.2. Average transmissivity was determined to be 33,408 ft^2/day, with K = 742 ft/day for a 45-ft saturated aquifer thickness.

Hildreth Well

A crude water level recovery test was conducted on Hildreth's well after drilling stopped: 6" ID casing, filled with drill pipe of 4.5" OD / 3.75"ID

3:38:00	102.5' btc
3:38:20	100.2
3:38:50	97.5
3:39:30	94.1
3:47:30	58.4
3:53:40	48.4

Assuming that the formation head was in equilibrium with the removal of water from the bottom of the hole during drilling (by air flow), this recovery can be analyzed approximately as a slug-test (instantaneous release of slug = stoppage of air flow); using Hvorslev and Bouwer-Rice methods, and an estimated h^o value of 177' btc at t^o = 3:30, a good straight line semi-log slug recovery response was obtained, with K = 4.46-4.96 x 10^{-4} ft/min (ca. 0.5 ft/day).

An accurate recovery test conducted on the well after it had been pumping continuously for 3 days at 27 gpm corroborated the estimated permeability (0.7 ft/day). The actual drawdown during the pumping phase was much lower than predicted (35 ft vs. 100 ft), suggesting that the well-aquifer is behaving like a leaky system: the aquifer may be leaking or the well casing may not provide an adequate seal.

Maurice Grady Well (Anecdotal information)

100 ft TD, 12" casing, bottom of casing driven into clay zone; capacity was tested when drilled in 1961: 1900 gpm with 7 ft drawdown, static water level at 23 ft.

APPENDIX II

Results of the Pocatello Southern Aquifer 1994 Gravity Survey

A detailed gravity survey of the LPRV's southern aquifer was performed during 1994, under contract funding from the City of Pocatello with additional surveying funded a funded extension in 1995. The objective of this work was to extend the knowledge of subsurface geology over the entire area of the southern basin, utilizing existing well lithologic control to constrain the gravity interpretation, and to better define the basal geometry of the southern aquifer and its boundaries.

The project was conceived on the basis of existing knowledge and hypotheses regarding the extent of the southern aquifer and tentative subsurface geologic interpretations (Welhan and Meehan, 1994). The scope of the work was designed to focus on providing a regional geologic context for existing lithologic data and to help interpret subsurface information from domestic well logs in the comprehensive well database (Appendix III).

The gravity work comprises the bulk of the M.S. thesis research of T. Reid. The work includes heoretical design of survey lines, conducting precise elevation measurements at the locations of gravity stations in traverses along the southern aquifer's axis and normal to the axis, acquisition of gravity measurements at 234 individual stations, reduction of the raw data to final form and modeling and geologic interpretation of the data. Since this work is part of T. Reid's M.S. thesis, it represents work in progress and only the final corrected data and preliminary interpretations are presented here. Data collected recently under an IGS sub-contract sponsored by the U.S. Geological Survey as part of its Urban Mapping Program is included, with preliminary interpretations to provide constraints on depth of the northern aquifer system.

Plots of all southern aquifer gravity profiles are included below, together with a description of measurement and interpretational methods used in the southern aquifer survey work. Copies of preliminary reports prepared by T. Reid detailing salient interpretational aspects of the southern aquifer data are attached as Appendices II-A and II-B. Preliminary data acquired form the northern aquifer and preliminary interpretations are presented as a preliminary report in Appendix II-C.

Methods

The strength of the earth's gravitational field, as measured at a point on the surface, is determined by the thicknesses and densities of all the rock types beneath that point. The interpretation of such a varied assortment of rocks in the subsurface from minute variations in the gravitational field would be impossible were it not for the fact that gravitational attraction induced by subsurface masses decreases as the square of the separation distance between a rock mass at depth and the surface. Thus, variations in gravity at the surface indicate the most about the distribution of rocks of different densities nearer the surface than those at greater depths. Conversely, larger differences in density between rock types at greater depth can be observed more readily than small density differences at shallow depth.

In practice, rather than the absolute value of the earth's gravitational field at a single point, it is the variation of gravity from point to point at the surface which provides information on the distribution of rocks in the subsurface. The interpretation of gravity data therefore depends on quantitative models to identify the various possible combinations of depth and density variations that can produce the observed gravity variations across the surface and on the availability of subsurface lithologic information to constrain the various possible combinations to those that are consistent with known subsurface geology.

The physical nature of the Upper Gravel aquifer in the southern LPRV, comprised as it is of porous gravels with a bulk density of ca. 2.0 g/cc (T. Reid and C. Meehan, unpubl. data), and the indurated nature and hence higher bulk density of much of the Tertiary Starlight Formation in the southern valley, suggests that density contrasts as low as 0.2 g/cc should be identifiable at depths of up to 200 feet (61 m). The larger density contrast between sedimentary basin fill and bedrock should be measurable over significantly larger depths.

In order to define and interpret variations in the depth of the top of Tertiary basin fill at minimum depths of the order of 200 feet by means of gravity variations at the surface, the spacing between individual gravity measurements should be no greater than the depth to the expected density contrast (Dobrin, 1960). In this case, the density contrast expected between the Upper Gravels and the underlying indurated Tertiary sediments is assumed to be in the range of 0.2 - 0.3 g/cc. Variations in depth of this density contrast are expected to occur over relatively short distances, since the base of the Upper Gravel unit defines a pre-existing paleovalley topographic surface whose relief is likely comparable to the modern valley's. Hence, traverses across the aquifer's axis are expected to provide the most information about this topography.

The larger density contrast between sedimentary basin fill and the underlying bedrock (0.4-0.5 g/cc) would be expected to produce a less ambiguous interpretation of depth. However, the depth to this density contrast is expected to vary across the basin (D. Rodgers, pers. comm, 1993) from about a hundred feet in the area of Section B-B' and C-C' (Figure 6a, b) to several thousand feet in the central part of the Tertiery graben (in the vicinity of Section E-E'; Figure 7b). Thus, traverses along the axis of the valley, in which depth-to-bedrock is expected to vary the most, are expected to provide the most information about bedrock structure. In order to define bedrock depth variations of this magnitude, spacing between gravity stations need only be of the order of 1000-1500 feet.

Figure A2.1 shows the locations of the gravity stations in the southern LPRV that were measured during 1994 and 1995. The 1994 stations were located primarily to provide detailed information on subsurface variations in Tertiary topography and the depth of the Upper Gravel aquifer. The 1995 stations were located for similar reasons as well as to define the nature of the bedrock profile across the valley. The stations located along the southern axis also were used to tie the transverse profiles to a common, local gravity datum.

All station locations were surveyed and tied to local bench marks to provide a high degree of precision in elevation positioning within an individual traverse of better than 0.1 foot. Northing-easting position control at each station was obtained from detailed, digitally-produced topographic maps made available by the City of Pocatello that are based on the city's GIS (geographic information system) terrain database. These maps were constructed from an extremely detailed multi-base station Global Positioning System (GPS) survey (0.1 foot vertical accuracy) and digital reduction of a dedicated, low-altitude aerial photographic survey. The maps have two-foot contour spacing.

Elevation control was attained by careful surveying with a self-level-correcting digital theodolite and an infrared Electronic Distance Measuring Instrument utilizing a triple mirror reflector. The technique used was the trigonometric profile leveling method, wherein the slope distance is measured over a series of backsights and foresights, and elevation is calculated. After each traverse was laid out and gravity station locations were marked with stakes, instrument elevation was determined from a backsight to a benchmark reference. A series of foresights was shot at each station marker up to a distance of 600-1000 feet, with the slope distance and sight angle recorded. The instrument was moved along the survey line, with a backsight shot on the last foresight position. Closure to 0.1 foot elevation was accomplished by concluding the survey line with a foresight to another benchmark. If the closure criterion was not met, the line was re-surveyed until 0.1 foot closure was attained.

Measurements were made with a Worden Prospector gravity meter capable of resolving variations of the order of ten parts per billion in the strength of the earth's gavitational field as measured by the gravitational acceleration, $g = 9.8\ m/sec^2$. This meter is designed around a quartz spring element designed to be self-compensating for thermal changes and is housed in a hermetically-sealed vacuum flask for further insulation against thermal and barometric pressure variations.

On each gravity measurement traverse, an arbitrary base station was chosen at which readings were made during the course of the day to determine meter drift and diurnal variations. Replicate readings taken with the instrument at each station were corrected for instrument and diurnal drift; free-air elevation differences; local topography, using the method of Hammer (1939); and latitude. All measurements are expressed in milligals, where a gal represents one percent of the gravitational acceleration constant, g, or $1\ cm/sec^2$. The readings are considered significant to, and are reported as, $\pm$ 0.02 milligal. Thus, variations in g of the order of 1 part in 50 million are considered significant.

Results and Interpretation

Figure A2.2 provides a review of the final, corrected gravity data along the valley axis and along each of the profiles in Figure A2.1. As discussed in Appendix II-A and -B, the data indicate that, in those profiles in which subsurface geologic control is available, the gravity data are quite consistent with known geology and provide very important constraints on bedrock depth, aquifer boundaries and subsurface interconnection between aquifers.

The valley axis profile (Figure A2.2a) shows a much larger gravity anomaly (> 10 mgals) than is observed in any of the transverse profiles; these variations are totally consistent with a structural half-graben bedrock surface that plunges to more than 1500 feet below the surface. The apparent depth-to-bedrock indicated by the gravity data decreases at both ends of the traverse, because of the bedrock high at the Red Hill end and because the axial traverse obliquely crosses the north-south trend of the graben axis, giving rise to shallowing bedrock as the basin-bounding fault is approached in the vicinity of the Portneuf Gap. Thus, in the area where the Tertiary paleo-valley is known to be the shallowest (at monitoring well PMW-1, on the Indian Hills traverse), the Tertiary sedimentary basin fill appears to be the thickest of anywhere in the entire valley.

In Figure A2.2a, the Red Hill and Ross Park profiles were used to constrain the interpretation of geologic Sections B-B' and C-C'; the dashed lines in these figures indicate the relative variation of bedrock topography responsible for the observed gravity variations. Similarly, in Figure A2.2b, the sole location of lithologic control (PMW-1) fortuitously coincides with the gravity high, and indicates that the Tertiary paleovalley topography has more than 60 feet (18 m) of relief at this locale.

The area with the most complete subsurface lithologic control for evaluating the effects of Tertiary paleo-topography on observed gravity is the Ball Park traverse (Figure A2.2c), where four wells intersected the Tertiary surface. As defined by drilling, the paleovalley here appears to be nearly symmetrical, and this is supported by the gravity data, assuming a bulk density of the Tertiary materials of 2.3 g/cc. In the vicinity of PA-7, the gravity data appears to deviate from the symmetry dictated by the geometry of the Tertiary valley. Since PA-7 bottomed in several feet of basalt (CH2M-Hill, 1995) at a depth of 170 ft (CH2M-Hill, 1995), the local gravity anomaly at this location indicates the presence of a fairly large body of basalt below 170 feet.

On the assumption that the underlying Tertiary topography at this location is a smoothly varying surface, the gravity anomaly beneath PA-7 can be explained by the presence of basalt body with a cross-sectional shape of ca. 100 ft thick by 1000 ft wide. This may represent either a field of large (ca. 100 ft diameter) boulders or an in-place lava flow. A small but sharp positive anomaly at ca. 2400 ft along the traverse (Figure A2.2c) is inconsistent with a basalt fragment at the base of the Upper Gravel and, aside from a very large (> 5 x 5 ft) piece of iron buried a few feet below the surface, the only reasonable interpretation is that a large basalt boulder exists at mid-depth in the Upper Gravel at this location. This, together with the interpretation of a very large basalt boulder field, provides evidence that the Upper Gravel post-dates the Bonneville flood, and that the flood was responsible for deeply scouring the southern valley and depositing a boulder field whose maximum clast size ranged from ca. 100 feet in the scoured southern LPRV, to 10 feet in the central aquifer area, to melon-size near American Falls reservoir.

In Figure A2.2d, two profiles are shown from the 1995 survey data. A third, the Fort Hall traverse, was chosen to coincide with seismic data generated by Brown and Caldwell's (1994) study of the Fort Hall alluvial fan area in which indurated Tertiary gravels were encountered in drilling and which may also have contributed to the observed seismic velocity profiles. However, since the gravity traverse crossed local bedrock structure at a high oblique angle, and no subsurface lithologic control on bedrock depth was available, the gravity data yielded no useful information.

The Portneuf Gap profile, shown in Figure A2.2d, indicates a simple V-shaped geometry of the sedimentary valley fill and indicates that the depth of sedimentray valley fill can be approximated by extrapolating the valley walls into the subsurface (see Figure 25 in text) and that no unusually deep bedrock notch or fault gouge exists. The Riverside profile provides the clearest evidence yet obtained that the LPRV bedrock structure approximates a half-graben, down-dropped on the east along the range-bounding valley fault with a tilted western graben floor.

APPENDIX II-A

Paper presented at 31st Engineering Geology and Geotechnical Engineering Symposium

Logan, Utah

March 29-31, 1995

APPENDIX II-B

<u>Results of the Pocatello Southern Aquifer 1995 Gravity Survey</u>

APPENDIX II-C

Preliminary Results of the Pocatello Northern Aquifer 1996 Gravity Snrvey

Figure A2.3 shows locations of all gravity survey stations measured during the U.S. Geological Survey-sponsored mapping of the Pocatello North quadrangle during 1996. **Figure A2.4** shows the magnitude of the gravity anomalies observed in the northern valley along the south-to-north (North Valley Axis) transect and the west-to-east (North Transverse) transect. In the North Valley Axis profile, the 15 mgal anomaly is the largest observed in the entire study area. Preliminary modeling of this anomaly, assuming it is due only to a bedrock - sediment density contrast, indicates a sedimentary basin deepening from less than 200 feet over the Red Hill bedrock high to over 4000 feet beneath Chubbuck. If substantial basalt is intercalated within the sedimentary section, the maximum depth would be greater still.

The North Transverse profile also shows a substantial anomaly, indicating an eastward-deepening bedrock valley that is consistent with a half-graben structural basin as inferred from the Riverside profile in the southern aquifer (Figure A2.2d) but sloping much more steeply to the east.

Although the nature of the basin-filling sediments in this deep structural trough remain conjectural, the results of the gravity profiling and modeling underscore the tremendous potential of the northern aquifer system for future ground water development.

APPENDIX III

Aquifer System-Wide Well Database: Well Completion, Subsurface Lithology, Water Quality and Water Level Data

The creation of a regional hydrogeologic conceptual model of the current aquifer system has benefited enormously from the wealth of information available in the form of drillers' logs (municipal and domestic/irrigation wells), municipal records on aquifer water levels and production well pumpage, and water quality data on municipal production wells. Much of this data has been transcribed into digital spreadsheet and database form and has formed the cornerstone of the IGS' effort to develop a comprehensive understanding of the aquifer system.

Methods

The comprehensive well database was created from all available well logs in the southern and central aquifer and the surrounding areas. Because of the depth of the northern aquifer system, well logs that were included in the database were selected on the basis of depth and lithologic information. Since the northern aquifer system is much more complex geologically and deep drilling has not been extensive, the subsurface information that is available for the northern system is necessarily much less complete than in the case of the southern aquifer. For this reason, most of the modelling and data interpretation effort has been focused on the southern aquifer and its well database. Figure 5 of the report was constructed on the basis of the lithologic information available in the well database. Newly acquired data from Chubbuck deep test well drilling has not been incorporated into the database at the time of this writing (CH2M-Hill, 1995b).

Of the well logs that were available from the northern and southern/central areas, the well database contains 202 entries that provide either lithologic or ground water level information. Of these, only 50 contain what is considered to be the best quality lithologic data; the remaining lithologic information from domestic, irrigation and industrial wells was considered to be potentially useful but of unkown accuracy.

All available well reports have been compiled in hard copy form, and sorted by township, range and section. Information from the original well logs was transcribed and entered into two types of databases: a well completion database (**Table A3.1a,b**), containing basic information on well location, collar elevation, depth, perforation (or screen) depth(s); water level at the time of completion and specific capacity information; and a lithologic database (**Table A3.2a,b**), from which information on the elevation of possibly correlative lithologic units can be extracted. The latter's information is admittedly subjective to the extent that an interpretation of the lithologic nature of the units described in individual drillers' reports was required prior to database entry, and that this information was subject to re-examination and modification once the database was analyzed.

The lithologic data in Table A3.2 includes depths logged to "bedrock", the thickness of the surface silt unit, and depths to the top (and bottom, if known) of various lithologic marker units, which were chosen tentatively on the basis of their potential to be consistently described by a variety of drillers and that could be potentially correlated to provide useful stratigraphic information.

Well locations and collar elevations were perhaps the most difficult pieces of supporting data to assemble. For wells whose location was known (eg: municipal wells, monitoring wells, identified domestic wells), spatial coordinates were obtained from detailed, 2-foot contour maps produced by the City of Pocatello (see Appendix II). The coordinate values given in Table A3.1a,b are considered accurate to within $\pm$ 20 feet. These values are designated in the "Locating" column of Tables A3.1a and A3.1b as "GPS" entries. Those designated "SRV" represent X-Y values obtained in essentially the same manner, but were transcribed from the domestic well survey information given in CH2M-Hill (1995). Finally, entries designated as "T&R" indicate approximate coordinates for wells that were located on the basis of township, range, and quarter-quarter section, and converted to local coordinates using a conversion routine written by Welhan (unpubl.). In some cases, where wells could be located to the nearest quarter-quarter-quarter-quarter section, this conversion method places an absolute uncertainty on the reported coordinates of $\pm$ 170 feet.

Results and Discussion

In order to place the data from the subsurface into a regional perspective and to permit the use of automated surface analysis methods, a digital terrain model of the southern LPRV was created. This model was created at the IGS's Moscow CAD mapping laboratory, with detailed topographic data obtained from the city's GIS database (Appendix II) and with contour information digitized from topographic maps. The GIS contour data was partially stripped to retain only 10-foot contour information from areas on the valley floor; 40-foot contours above the valley floor were digitized from USGS 7.5-minute quadrangle topographic maps. These data sets were then melded into a single file of elevation points. The points were then interpolated on a grid with 30 foot spacing and contoured with QuickSurf surface contouring software to produce a 3-D surface that could be mated with other surfaces created from the well database. A coarse-grid model derived from the full topographic surface model is shown in **Figure A3.1.** This model was created with a coarse grid of 200 foot spacing, simply to represent the features of the model. Even so, subtle features of the valley floor, such as the margin of the Portneuf Basalt and the Highway Ponds gravel pit are visible.

The lithologic database was intended to be used to construct a surface model of the regional bedrock trends beneath and in the vicinity of the LPRV. As shown in Table A3.2a,b, the type of bedrock logged by individual drillers is quite variable, but the entries are dominated by two descriptions: "red rock" or quartzite, quite likely representing Proterozoic bedrock (for exampleWell 3, Section C-C'); and variously colored "shale", which may be true bedrock or an inaccurate classification denoting a change to harder drilling conditions. **Figure A3.2** shows a contour map of the elevation of this "bedrock" surface (together with locations of streams and the southern aquifer boundary for reference). Individual well locations that were used to constrain the surface are also shown; additional elevation control was provided on the margins of the valley with digitized bedrock outcrop elevations. This "bedrock" surface defines a fairly symmetrical trough, distorted primarily by the Mink Creek/Gibson Jack drainage and the sharp bend taken by the Portneuf drainage through the Portneuf Gap at the lower right hand side of the figure.

The most surprising feature of this map is the relatively shallow depth of "bedrock" beneath the floor of the southern valley. As discussed in Appendix II, gravity data defines the thickness of basin fill beneath the southernmost part of the aquifer as in excess of 2000 feet, or more than 10 times the depth to bedrock indicated in drillers' logs. As defined by gravity, the bedrock surface appears to drop sharply southeast of the bedrock high (at the northern end of the southern aquifer), and raches its maximum depth in the vicinity of Section E-E'.

Two cross-sections shown in Figure A3.2 were constructed to examine the types of "bedrock" found in different parts of the southern aquifer relative to the "bedrock" surface constructed from all well data and the lithologies encountered in control wells whose accuracy is not in question. **Figure A3.3a** shows the longitudinal cross-section from the bedrock high at city Well 12 to the southernmost part of the aquifer, depicting the topographic surface (upper line) and the modelled "bedrock" surface (lower line) constrained by those wells that encountered "bedrock", as well as the locations of control wells and their simplified lithology (heavy vertical lines indicate Upper Gravel, solid and dotted horizontal lines indicate depths of true bedrock and Tertiary sediments, respectively).

The bedrock surface along this section undulates markedly due to the use of wells that are near the margin of the valley (where bedrock is at shallow depth; eg: Well 17) and others that are located closer to the center of the valley where bedrock would be expected to be deeper (eg: PMW-1). Of the wells shown in Figure A3.3a, 12, 36 and 17 are known to encounter true, Proterozoic quartzitic bedrock and thus are the only wells shown in this cross-section that actually were used in constraining the "bedrock" surface shown. Southeast of Well 17, however, true bedrock has not been encountered in any control wells, and the "bedrock" surface there as defined by domestic well drillers' logs must represent a lithologic discontinuity other than the change from Upper Gravel to true bedrock.

Monitoring wells PMW-1 and PA-7 did not encounter bedrock and thus were not used to constrain the modelled "bedrock" surface. However, PMW-1 encountered hard, cemented Tertiary gravels at the depth indicated by the dotted line; PA-7 encountered a transitional, silty gravel immediately prior to terminating in basalt. As discussed in Appendix II and Section 3.2.4, this basalt appears to represent a ca. 100 ft-thick boulder field or lava flow which is inferred to rest on the floor of the paleovalley incised in Tertiary sediments. At both locations, the depth of the Tertiary material is within 75 feet of the "bedrock" surface defined on the basis of other wells in the vicinity in which drillers encountered drilling conditions and/or lithologies that were "bedrock-like". The deep Forsman (Pein) well was one of the 25% of the non-municipal wells in the database that were drilled with cable tool methods. This fact may explain why the operator did not distinguish between indurated and non-indurated sedimentary material. This well penetrates 580 feet of sand, gravel and clay, which is almost certainly representative of Tertiary basin fill, and terminates in sedimentary rock 255 feet below the depth of the "bedrock" surface, with no indication that bedrock is nearby.

Figure A3.3b shows the cross-section through the PA-series of monitoring wells (at Section E-E') which provide the best control that we have on the shape of the paleovalley profile incised in Tertiary sediments. In this cross-section, three wells, PA-2, PA-4 and PA-7, define the paleovalley floor. As is apparent, the modelled "bedrock" surface defined by other wells in the vicinity (eg: the Madsen well on the bench) is in very close agreement with the depths of the Tertiary sedimentary surface that is interpreted here to define the paleovalley topography.

It appears from the foregoing discussion that a true bedrock surface cannot be defined on the basis of the well data, alone, and that what drillers have consistently labelled as "bedrock" beneath the valley floor probably represents a discernible change in the rate or difficulty of drilling that coincides with a marked change in the degree of induration in Tertiary sedimentary basin fill. A comparison of the depths to this material indicated in drilling logs (Figure A3.2) and the depth of total sedimentary basin fill indicated by gravity modelling (Appendix II) support the interpretation based on geologic structural models that the graben contains several thousand feet of sedimentary basin fill (D. Rodgers, pers. comm., 1993).

Figure A3.4 shows a plan view of the regional water table, as defined by "static" water levels measured in wells at the time of well completion (Table A3.1a,b) and extended in geographic scope with data from a July, 1994 water level survey (C. Meehan, unpubl. data). Because these water levels represent various times and seasons, this map is intended as no more than a general representation of the regional water table and as a means of assessing the magnitude of the hydraulic gradient that is responsible for moving Bannock Range ground water laterally into the southern aquifer. Based on Figure A3.4, the hydraulic gradients along the western margin of the aquifer range from 0.08 to 0.3, or 50 to 200 times larger than gradients in the southern aquifer.

ADD: RGI Well Database Update

APPENDIX IV

Table A4.1 - WHP Area Modeling Conditions Used in GPTRAC

Units: feet, days

Grid area:

x = 0-1800 (for river boundary only)
y = 0-3000 (for southern aquifer)
x = 0-6000 (for eastern aquifer)
y = 0-8000

Maximum step length = 300

Transmissivity:

Well 36 = 500,000 ft^2/d (K_h = 5000 ft/d)
Well 2, 3, 28, 13 = 85,000 ft^2/d (K_h = 1000 ft/d)

For semi-confined cases: K_v' = 1 ft/day, b' = 50 ft

For unconfined cases: set radii of influence at 2500 feet

Aquifer properties:

b = 100 feet
n = 0.30
i = 0.0015
theta = 90 degrees

Times of travel: for low-T cases, use 365 days; for high-T cases, use 60 days

Well coordinates:			Discharge (gpm, max. daily 1994 values):
Well 36	x = 800	y = 7040	Q = 1400 gpm
Well 13	x = 800	y = 4720	Q = 1200
Well 2+3	x = 2740	y = 7900	Q = 2600 (combined)
Well 28	x = 2400	y = 5440	Q = 700

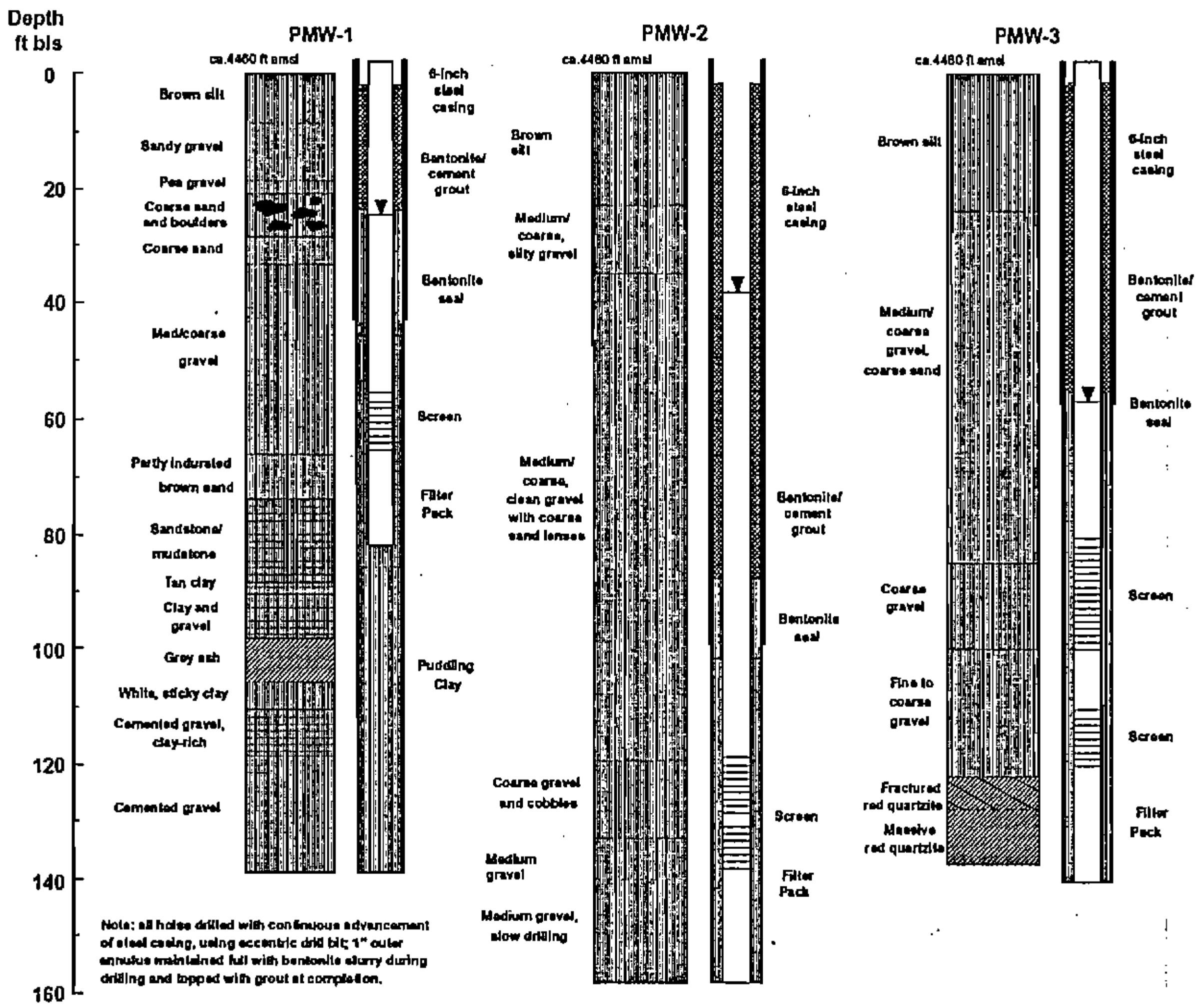

Figure A1.1 - Details of monitoring wells installed during the WHP Demonstaration Grant project.

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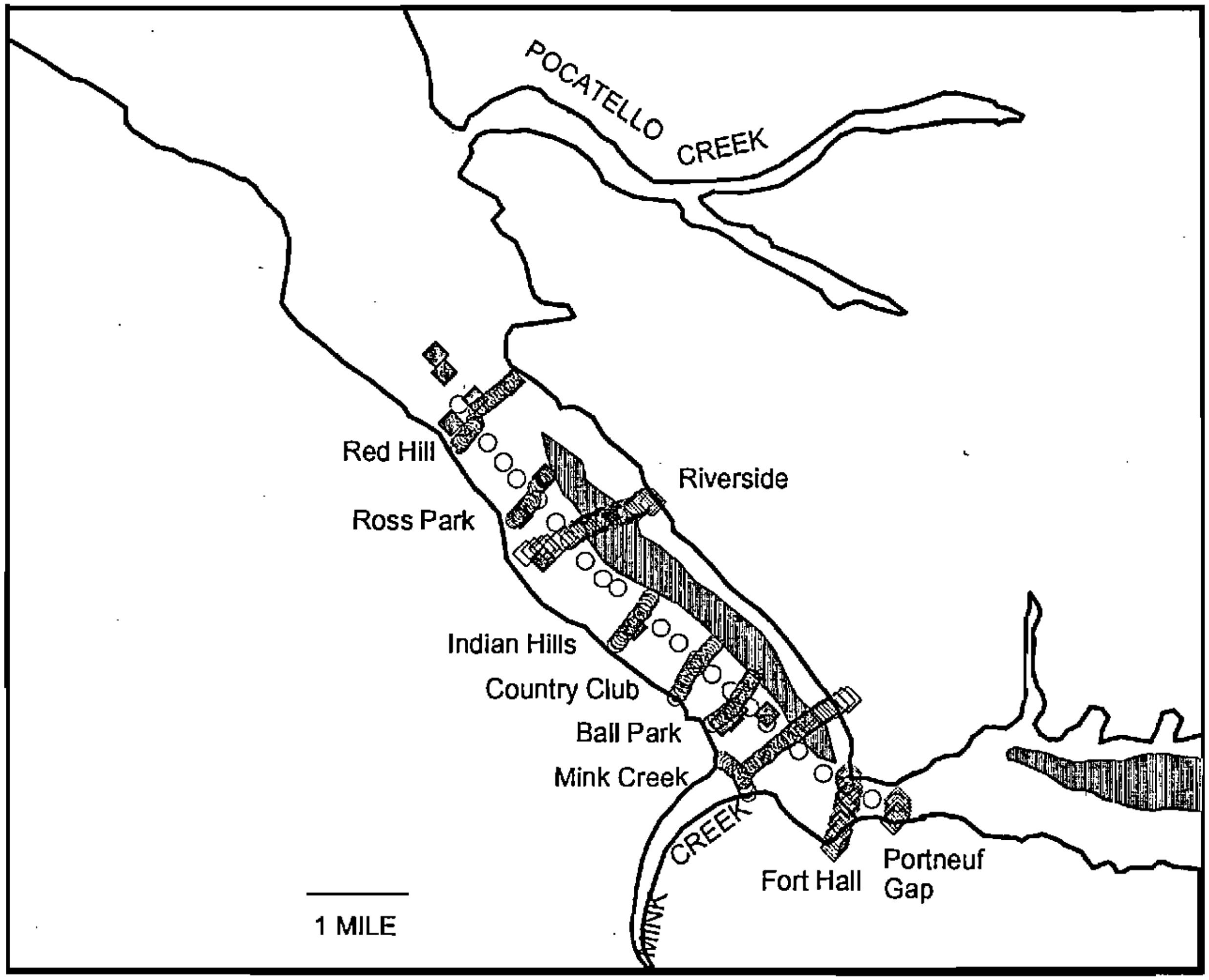

Figure A2.1 - Locations of stations in the microgravity survey of the southern aquifer (circles 1994; diamonds 1995). Names identify traverses and profiles that are presented in succeeding figures. Also shown are locations of some of the municipal and monitoring wells (filled diamonds) that provided lithologic control in gravity-based model interpretations of subsurface geology.

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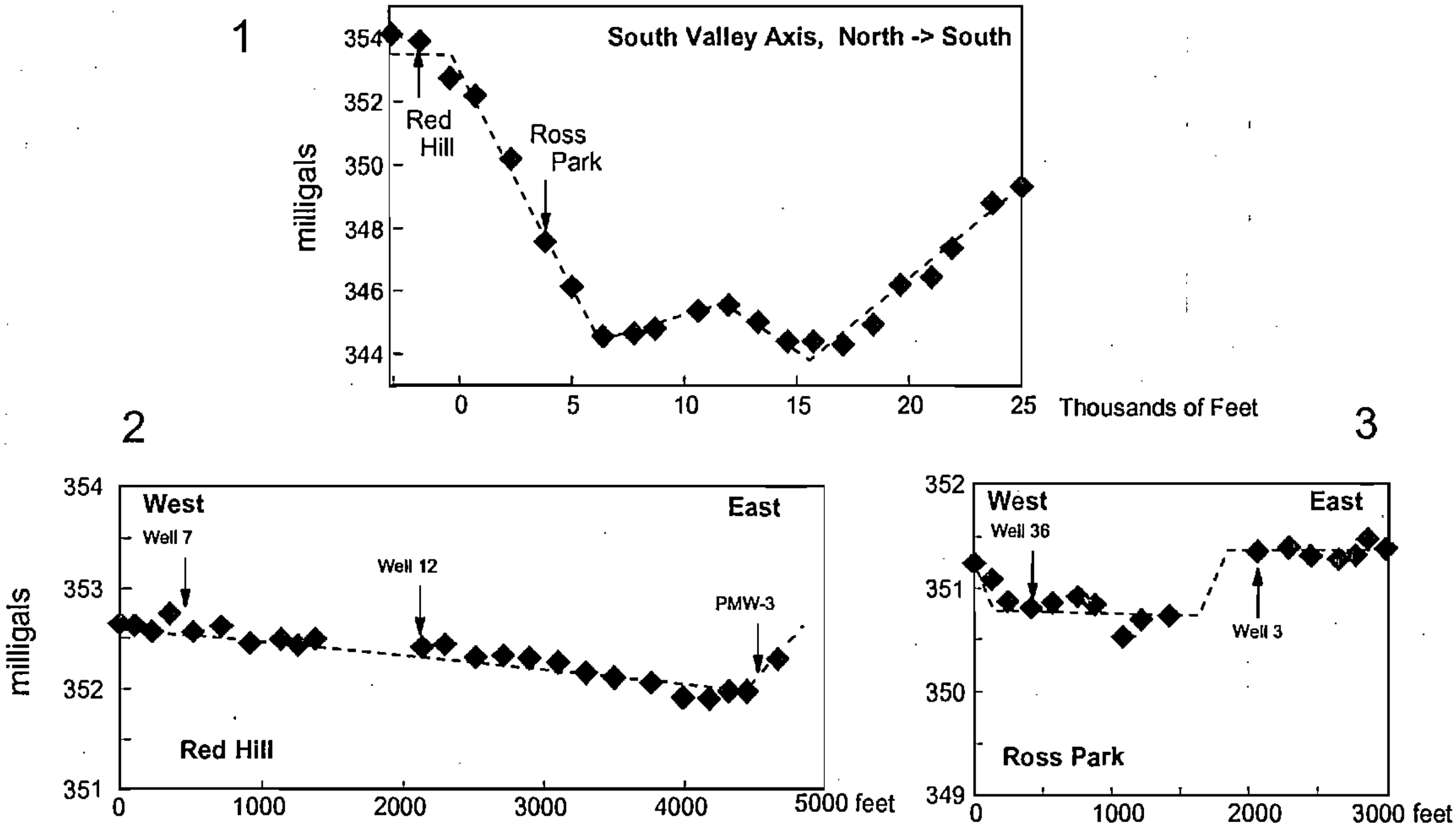

Figure A2.2a - Bouguer gravity profiles, in mgals, for the longitudinal valley axis profile (1) and transverse profiles at Red Hill (2) and Ross Park (3). Dotted arrows indicate projections onto the plane of the profile. Inferred trends in bedrock topography are indicated by dashed lines.

7468

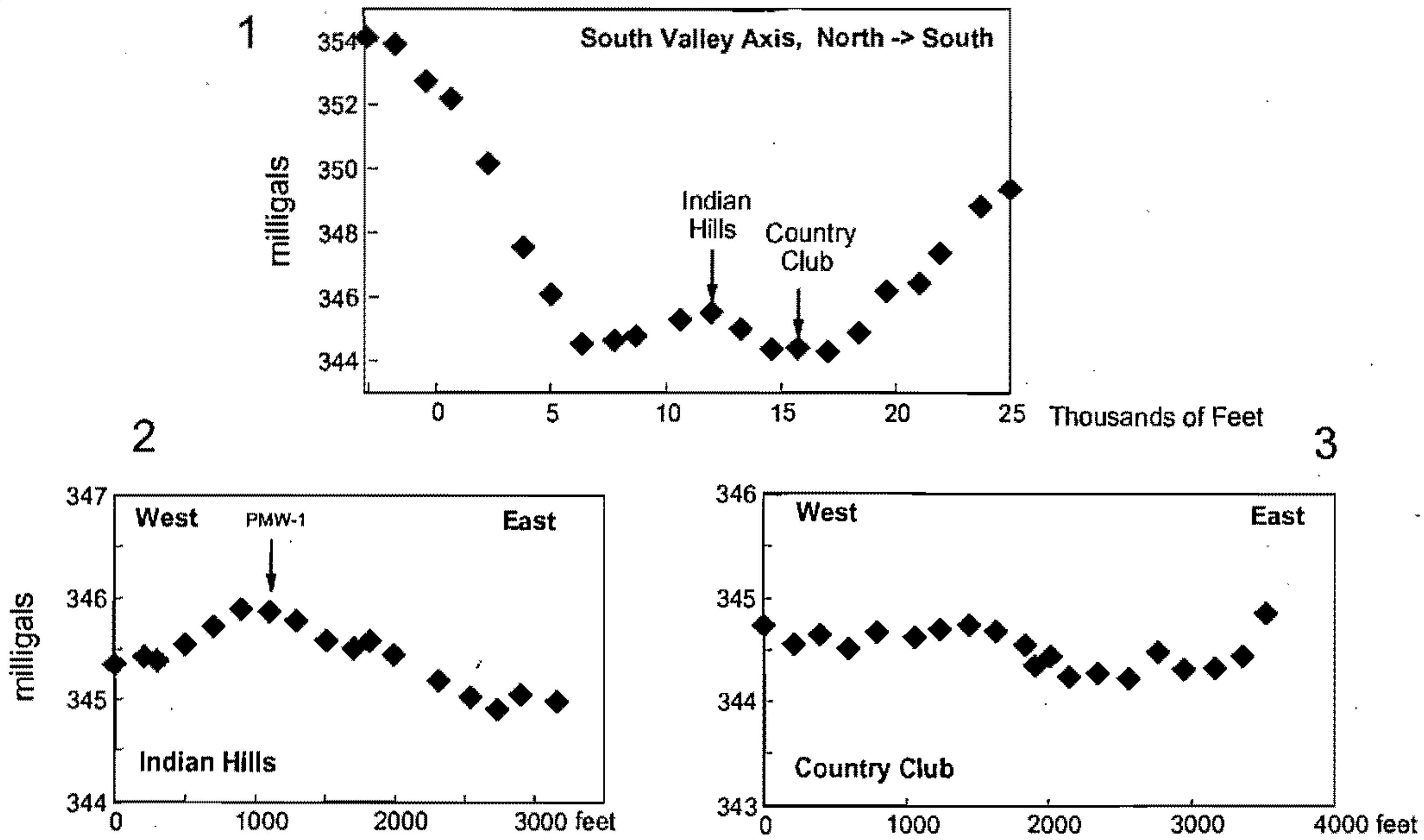

Figure A2.2b - The Indian Hills Bouguer gravity anomaly at test well PMW-1 (2) suggests that the Upper Gravel aquifer at that location is thinner; Tertiary sediments were encountered in PMW-1 at their highest elevation beneath the valley floor (see lithologic log). Since neither gravity profile (2) or (3) is influenced by near-surface bedrock, these microgravity variations reflect the subtle density contrast (2.0 vs. 2.55 g/cm^3) between the Upper Gravels and underlying, partly-indurated Tertiary sediments, and can be used to model the base of the Upper Gravel aquifer.

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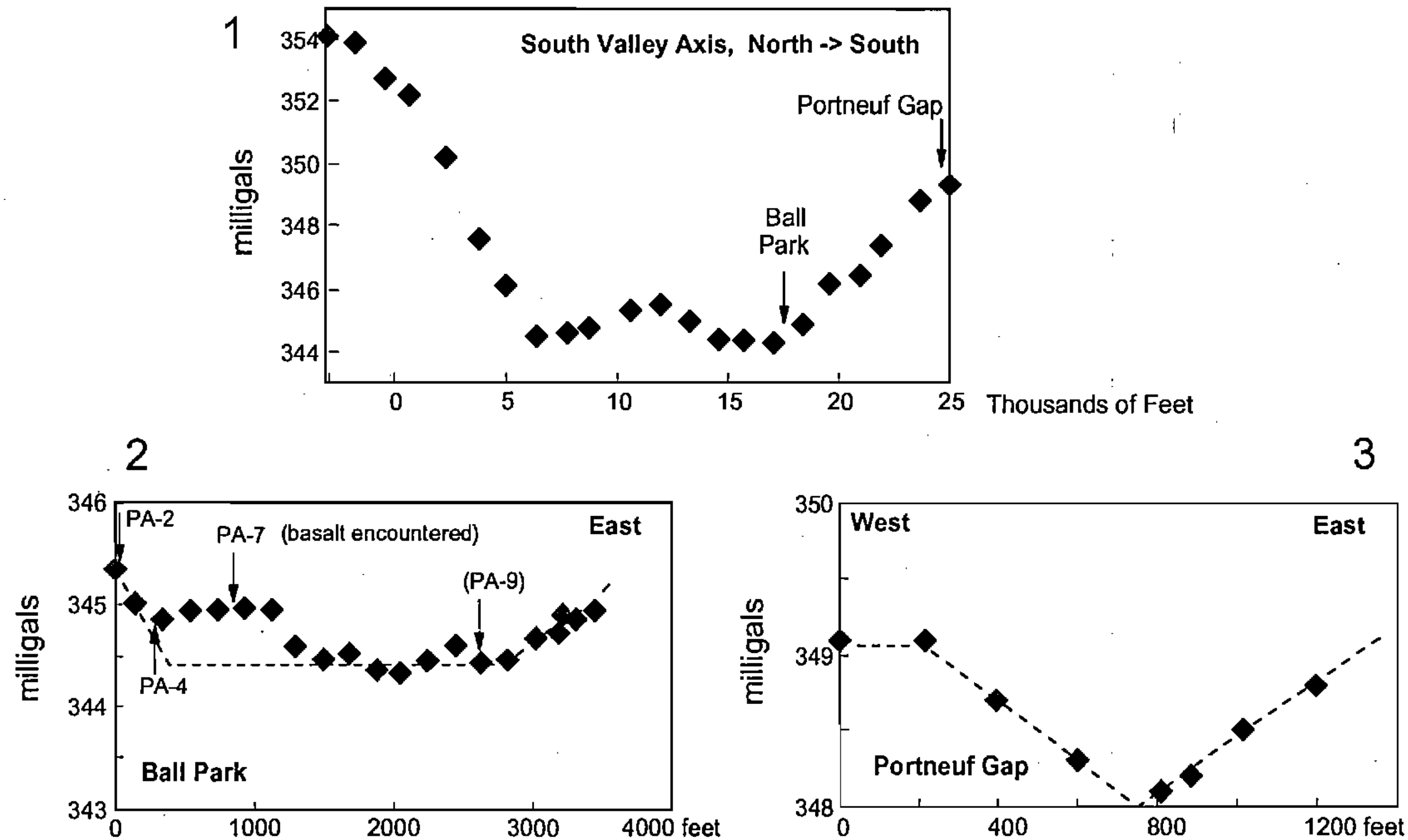

Figure A2.2c - Transverse gravity profile through the PA-series of monitoring wells (2) reveals a near-symmetrical paleovalley profile (dashed line), corroborated by lithologic control at wells PA-2, 4, and 9. The high gravity values at PA-7 reflect the presence of basalt that was encountered at the bottom of that well. The Portneuf Gap gravity transect (3) describes an relatively simple, bedrock-controlled geometry that is consistent with the size and shape of the Portneuf Gap.

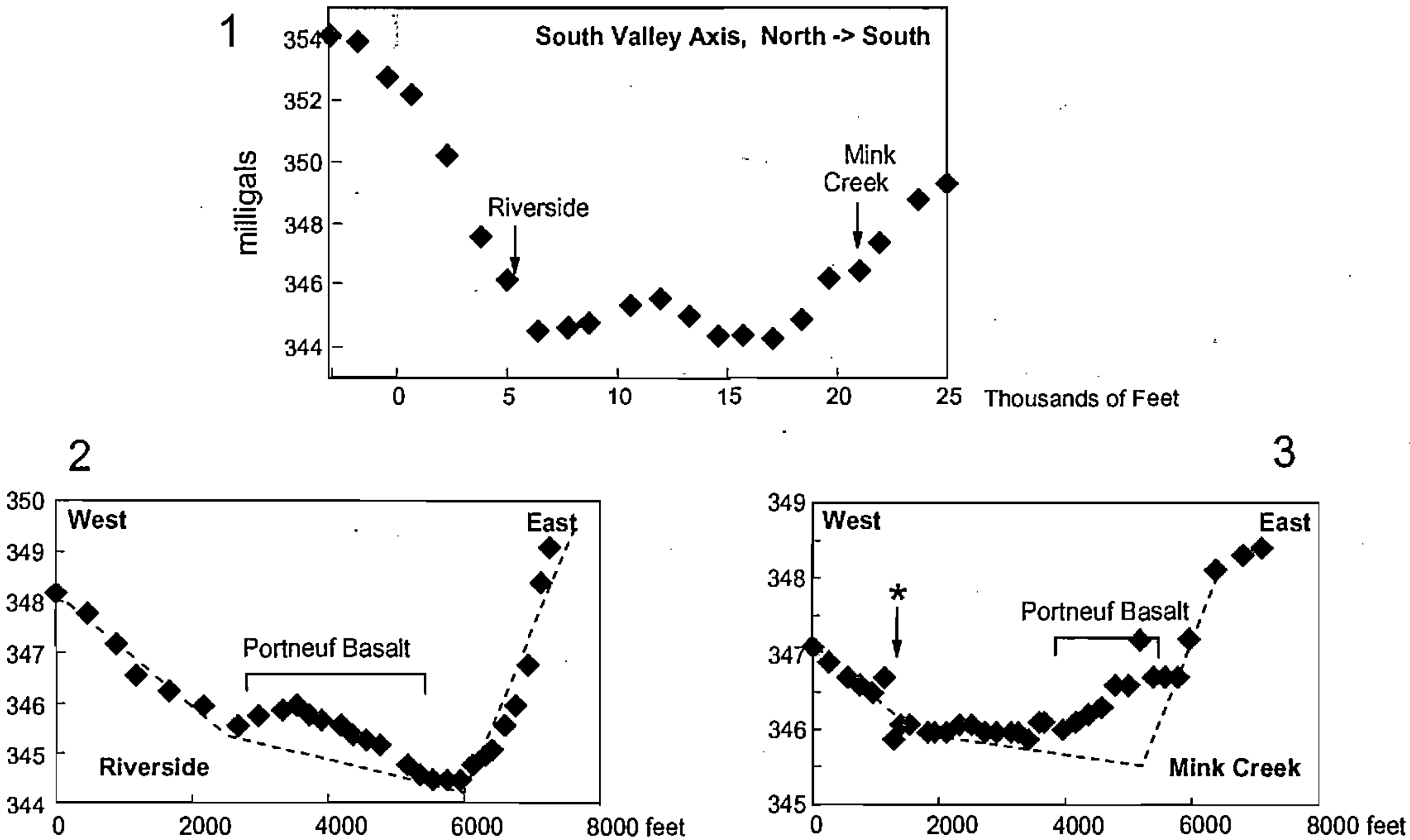

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Figure A2.2d - Bouguer gravity profiles across the entire width of the valley at Riverside golf course (2) and Mink Creek (3) are consistent with an asymmetri, fault-bounded half-graben (dashed line), with superimposed anomalies corresponding to the Portneuf Basalt lava flow. The increase in the gravity field at the east end of the Mink Creek profile (3) reflects near-surface bedrock on the foot wall of the basin-bounding normal fault. The sharp jump in the gravity field near the west end of the Mink Creek profile (indicated as *) may reflect a buried fault beneath the mouth of Mink Creek.

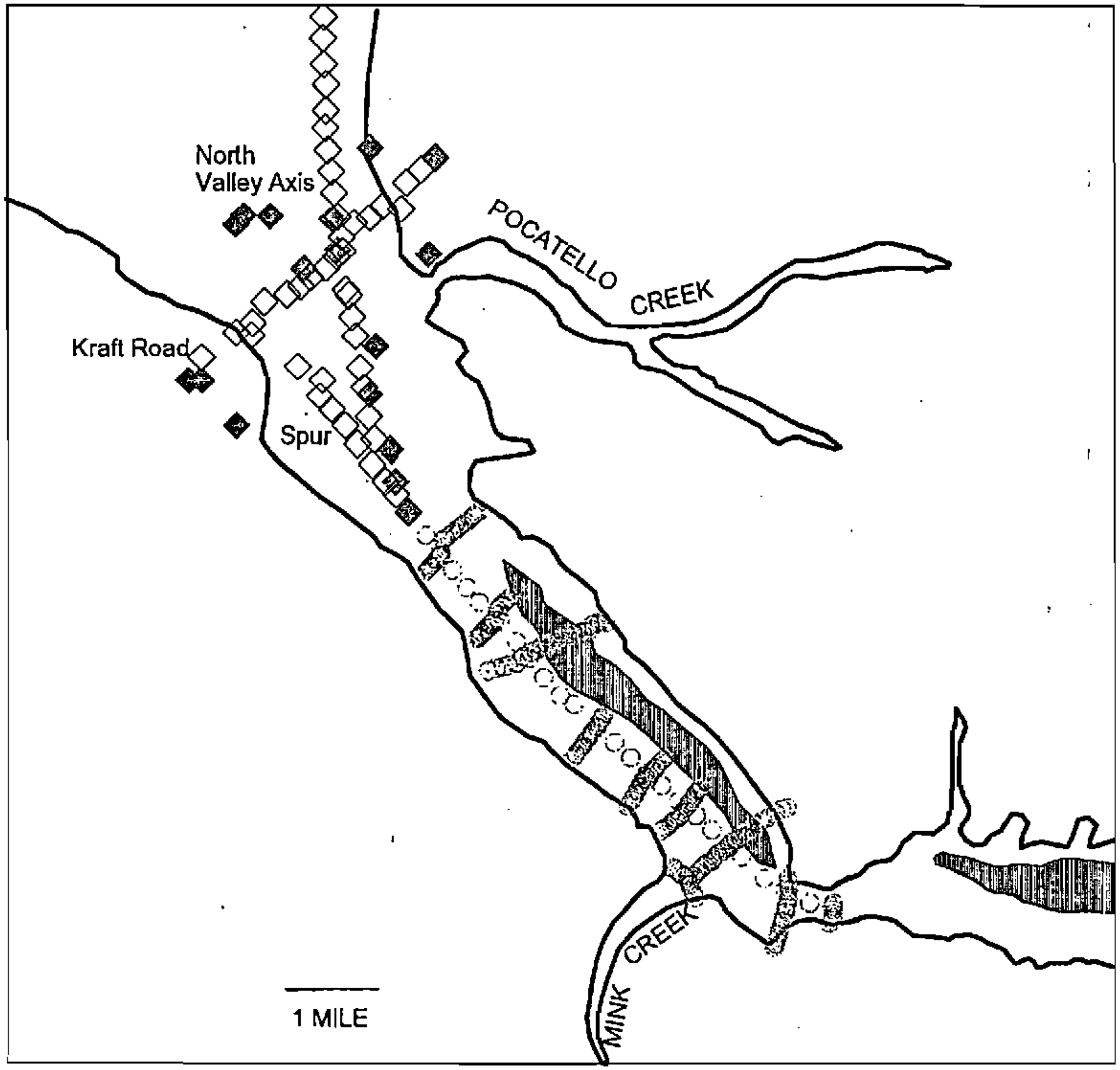

Figure A2.3 - Locations of stations in the gravity survey of the northern aquifer (diamonds). Names identify individual traverses in Figure A2.4. Also shown are locations of some of the municipal and monitoring wells (filled diamonds) that provided lithologic control in gravity-based model interpretations of subsurface geology.

7472

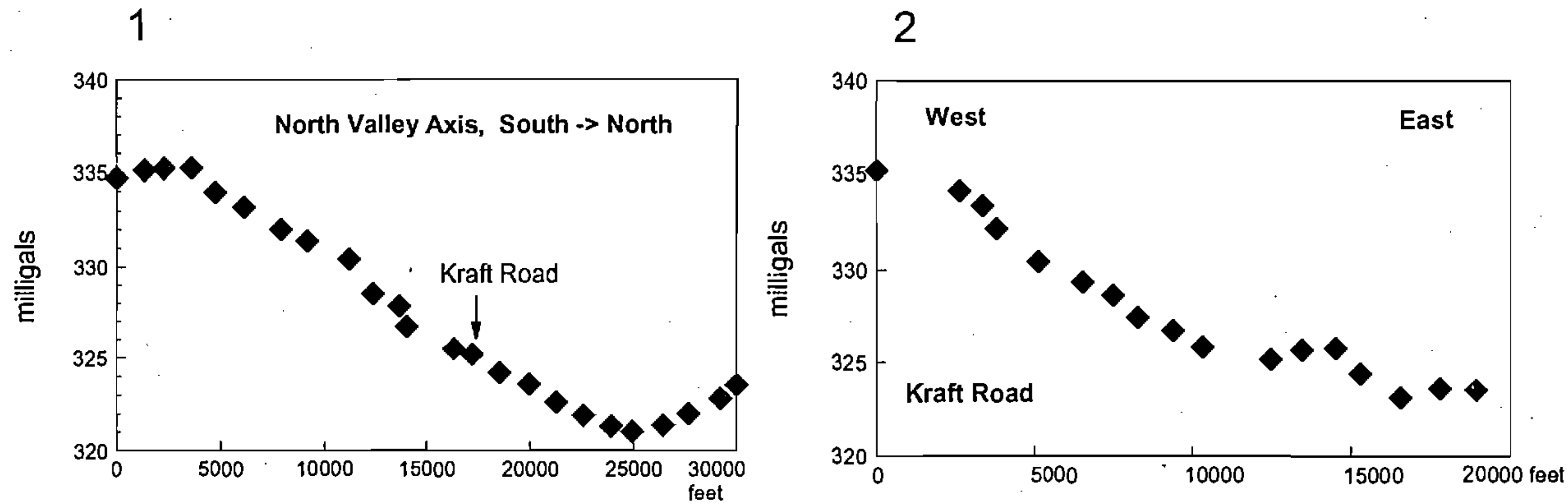

Figure A2.4 - Bouguer gravity profile along North Valley Axis (1) and Kraft road traverses (2), showing decreases of 10-15 mgal to the north and east. The magnitude of the variation indicates that depth to bedrock beneath Chubbuck is greater than 4000 feet. The Kraft Road profile also is consistent with a half-graben bedrock valley geometry.

7473

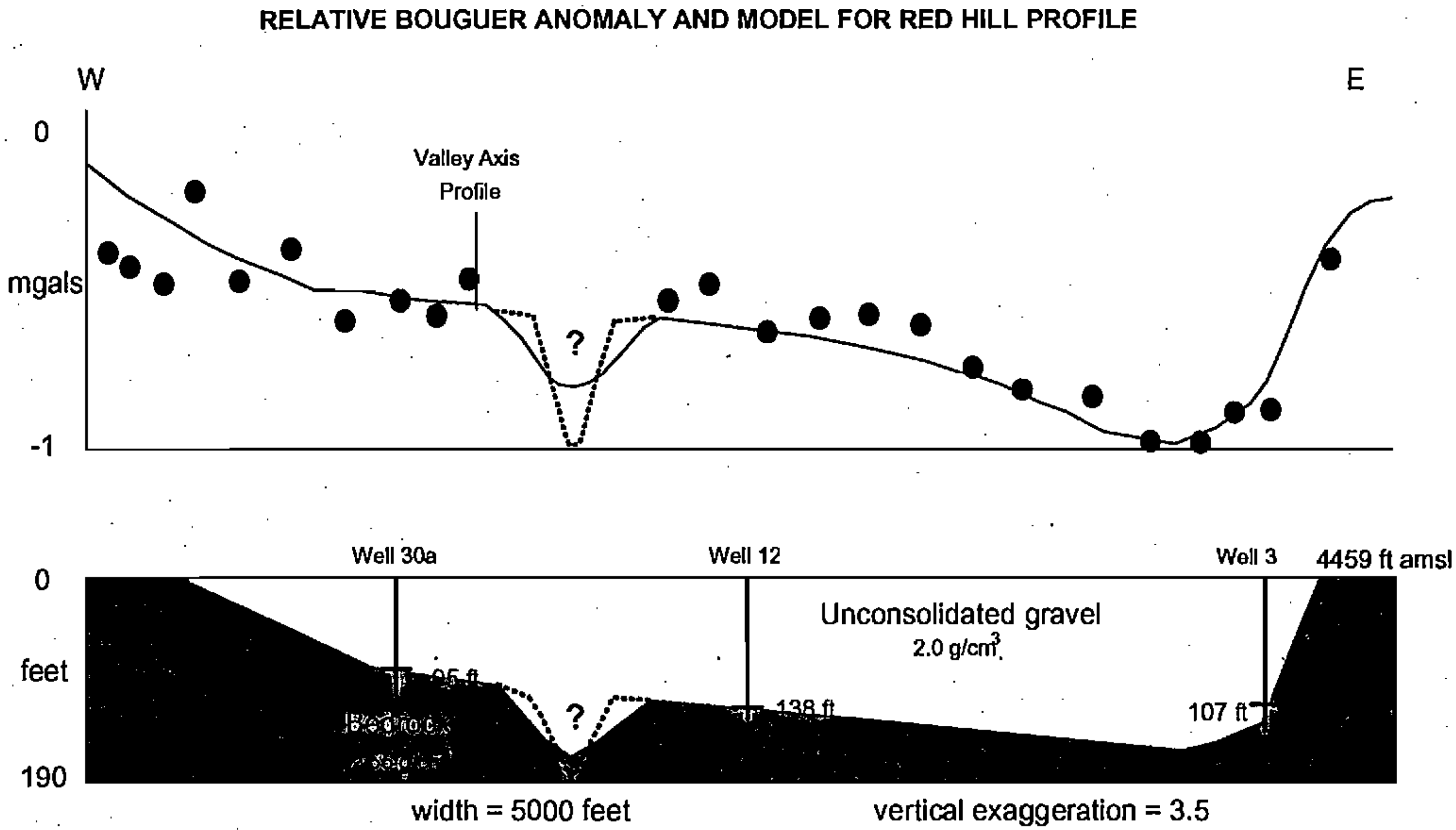

Figure A2.5a - Modeled geologic profile along the Red Hill traverse, based on assumed rock densities and available well control. Reference elevation for the 2D model is given at the upper right corner of the model (4450 ft amsl). The gap in gravity data in the left-center of the traverse is wide enough to accomodate a bedrock notch with a range of geometries (width: 300- 600 ft; depth: 350-200 ft, respectively), whose existence is consistent with, and possibly controls, contaminant plume behavior.

7474

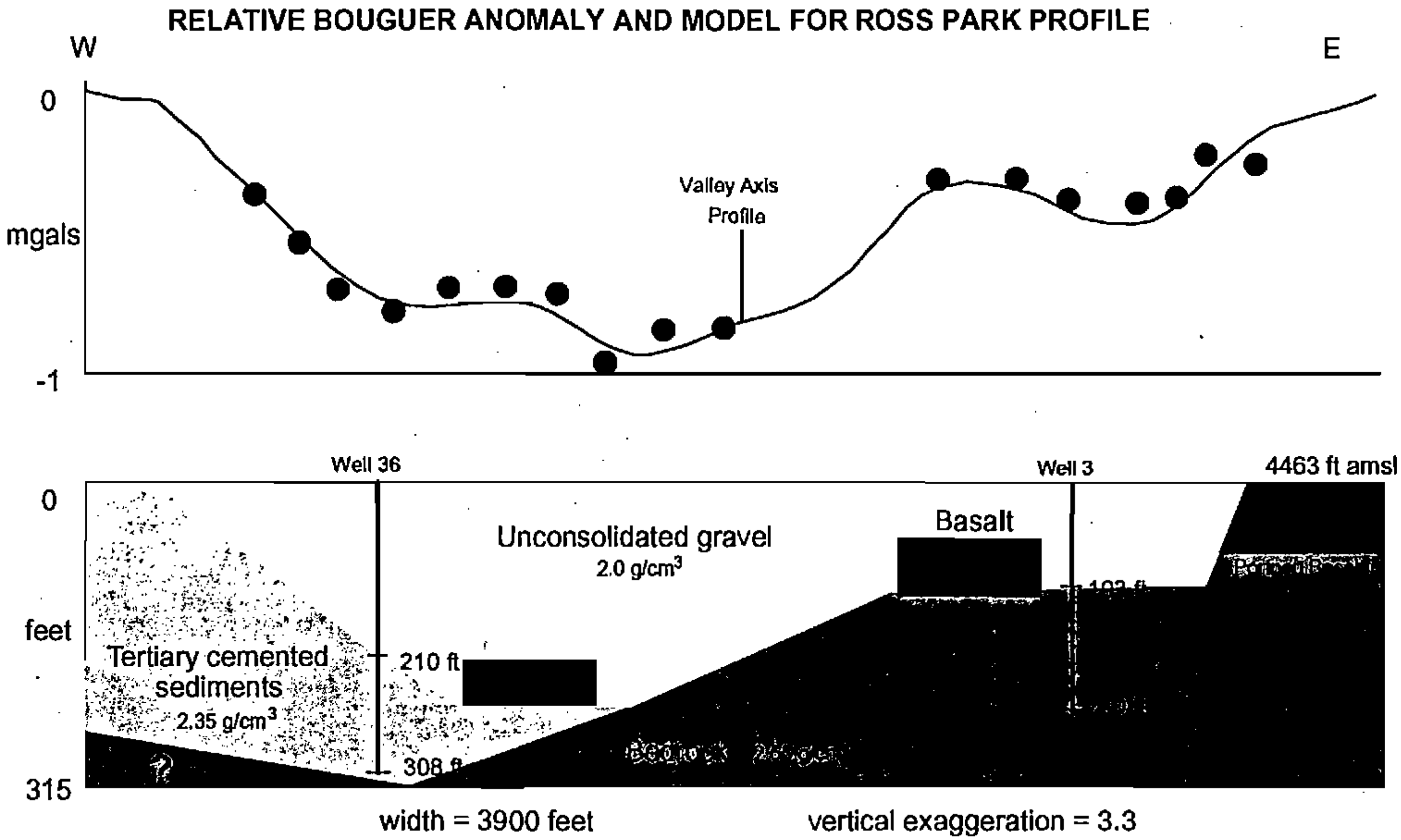

Figure A2.5b - Modeled geologic profile along the Ross Park traverse, based on assumed rock densities and available well control. Bedrock is modeled as homogeneous in density, although quartzite was encountered in well #3 and Well 36 terminated in highly-altered black shale, possibly of the Proterozoic Brigham Group. The two basalt blocks to center-left and -right reflect buried boulder bars or slabs detached from the Portneuf lava flow (far right) during the Bonneville Flood.

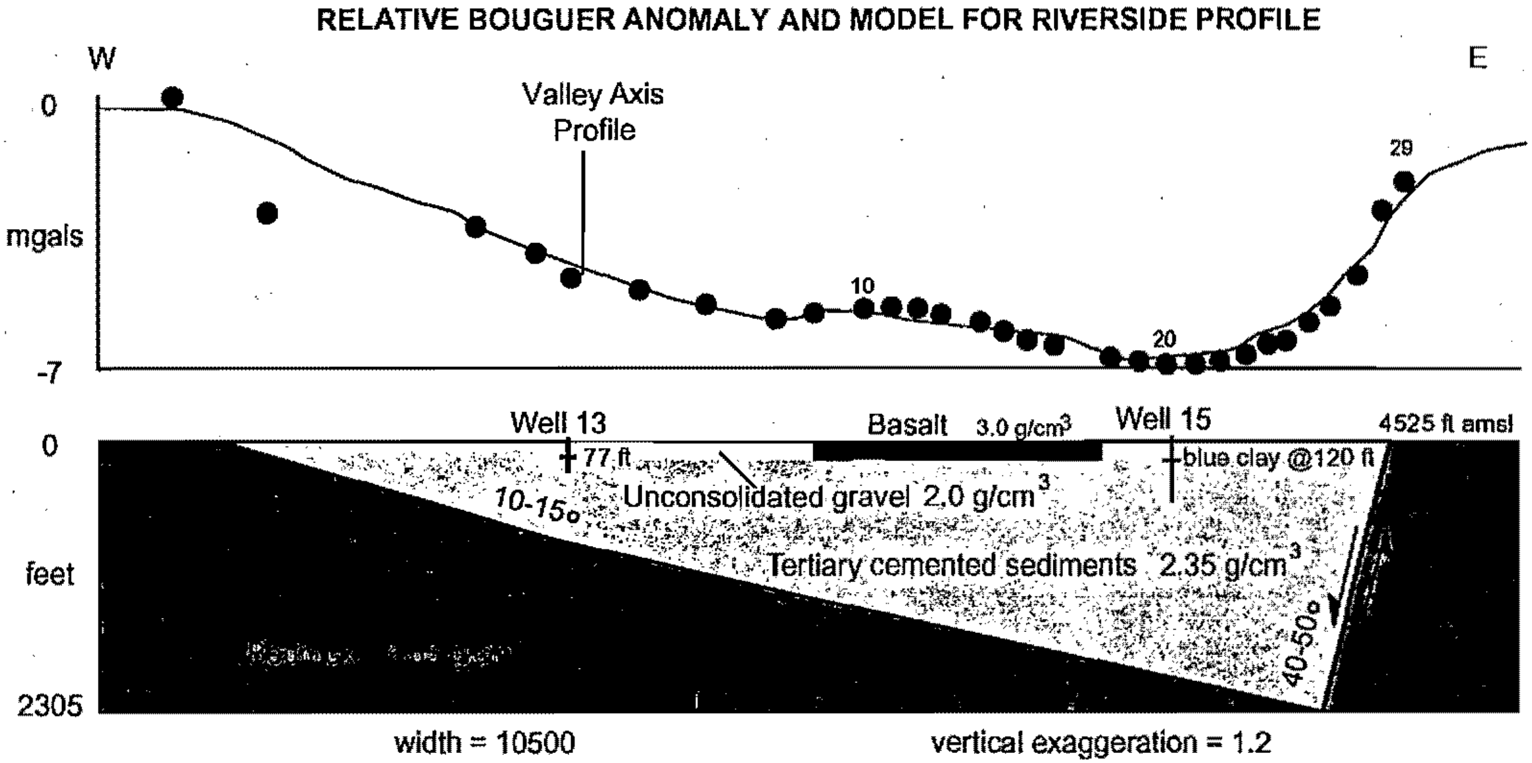

Figure A2.5c - Modeled geologic profile along the valley-wide Riverside traverse, modeled as a bedrock half-graben dominated by Tertiary valley fill. Well control constrains the Upper Gravel aquifer thickness to a minimum of about 100 - 200 feet.

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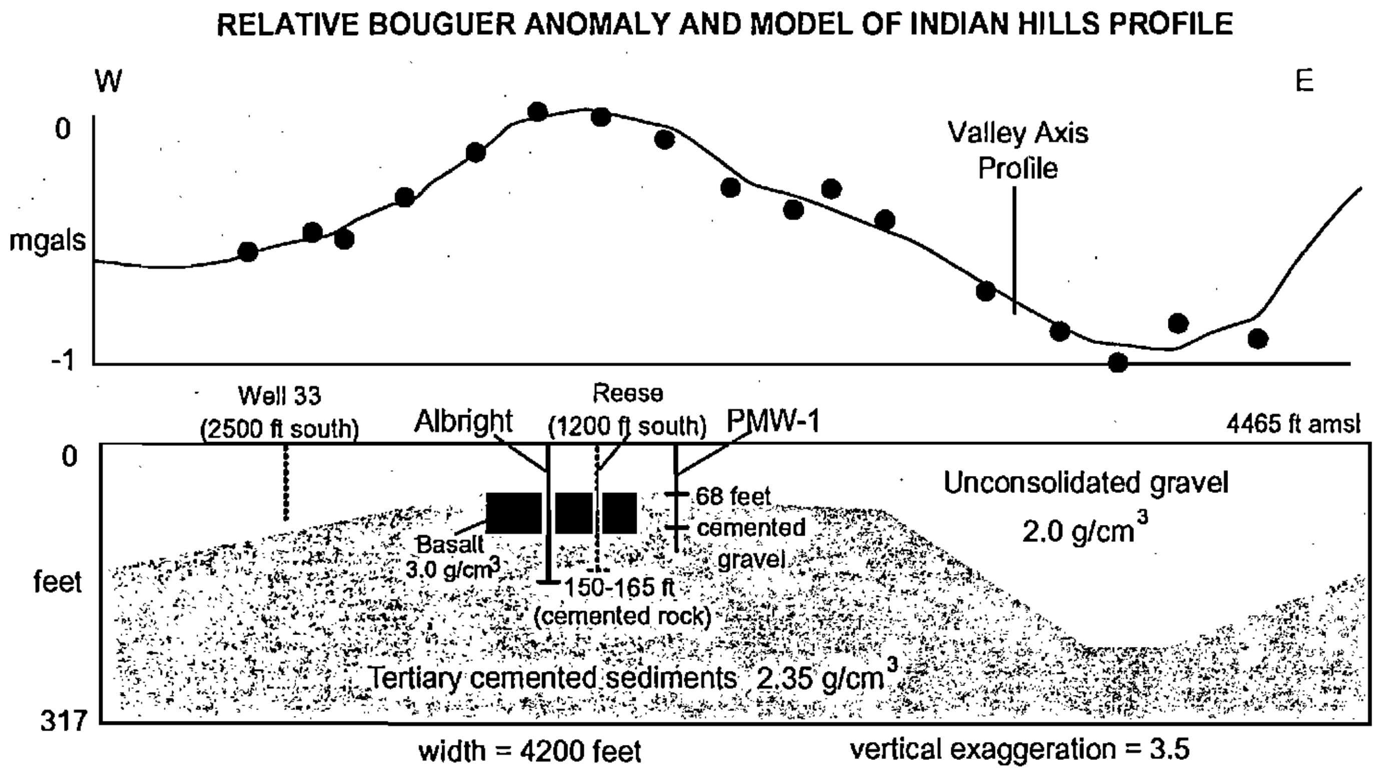

Figure A2.5d - Modeled geologic profile along the Indian Hills traverse. The principal feature at this location is the substantial relief of the Tertiary paleo-valley (and/or Bonneville flood-scouring) and the thinning of the Upper Gravels, a feature that is corroborated by steeper and divergent water table gradients in this area (CH2M-Hill, 1995). The magnitude of the gravity high reflects not only paleo-valley topography but also the presence of shallow basalt. Basalt was not noted in nearby drillers' logs (Albright and Reese well), so it is assumed to be a flood-deposited boulder bar or a discontinuous remnant of an older, possibly Tertiary-age basalt lava flow.

7477

RELATIVE BOUGUER ANOMALY AND MODEL OF COUNTRY CLUB PROFILE

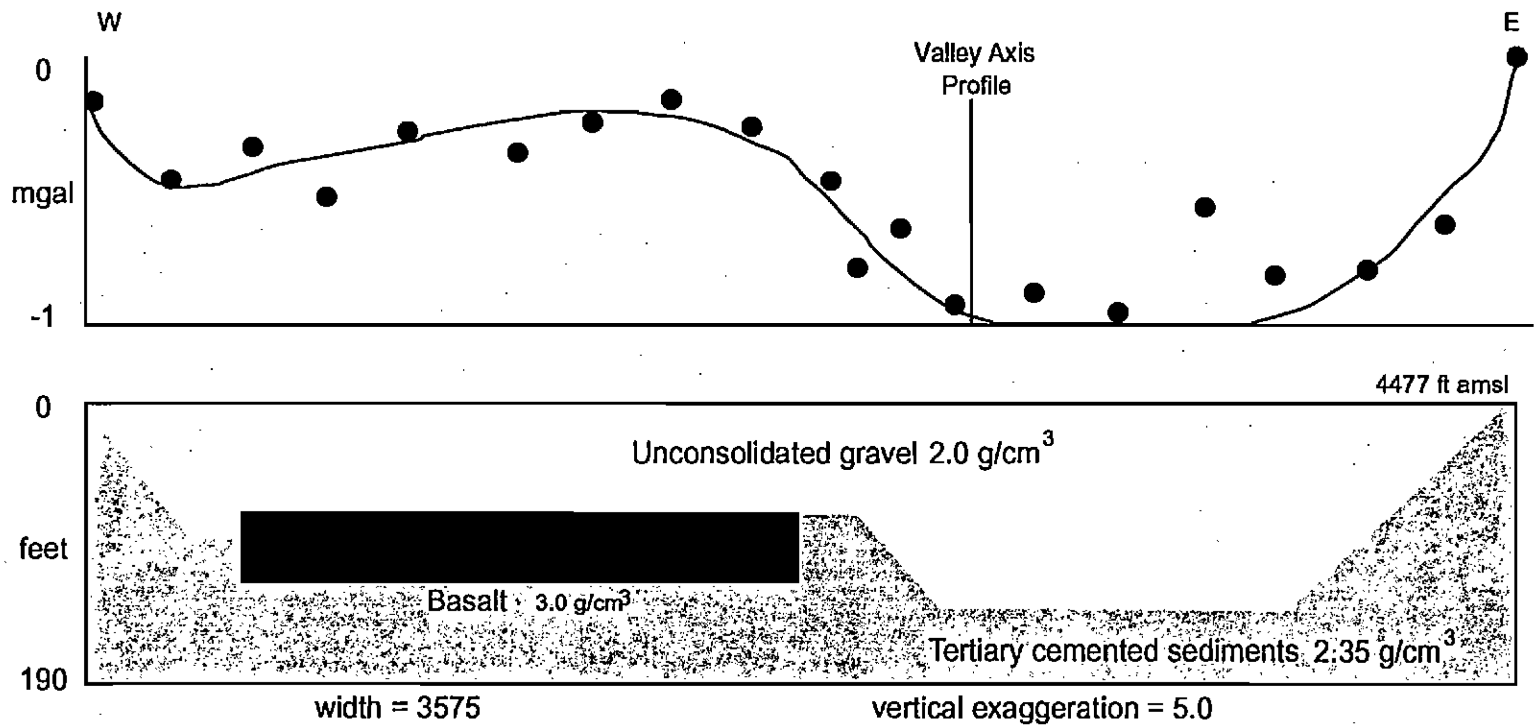

Figure A2.5e - Modeled profile along the Country Club traverse. Lacking nearby wells, the sole "control" on the model interpretation is the absence of known shallow bedrock and the occurrence of shallow basalt as modeled in the Indian Hills section (Fig. A2.5d). The elevation and thickness of the modeled basalt at this location are very similar to those invoked at Indian Hills. The modeled basalt could be interpreted as either a large boulder bar or a remnant of an older, buried lava flow; if the latter, it could explain the asymmetric nature of the Upper Gravel fill at this location by having armored the Tertiary paleo-valley sediments against Bonnevile flood scour.

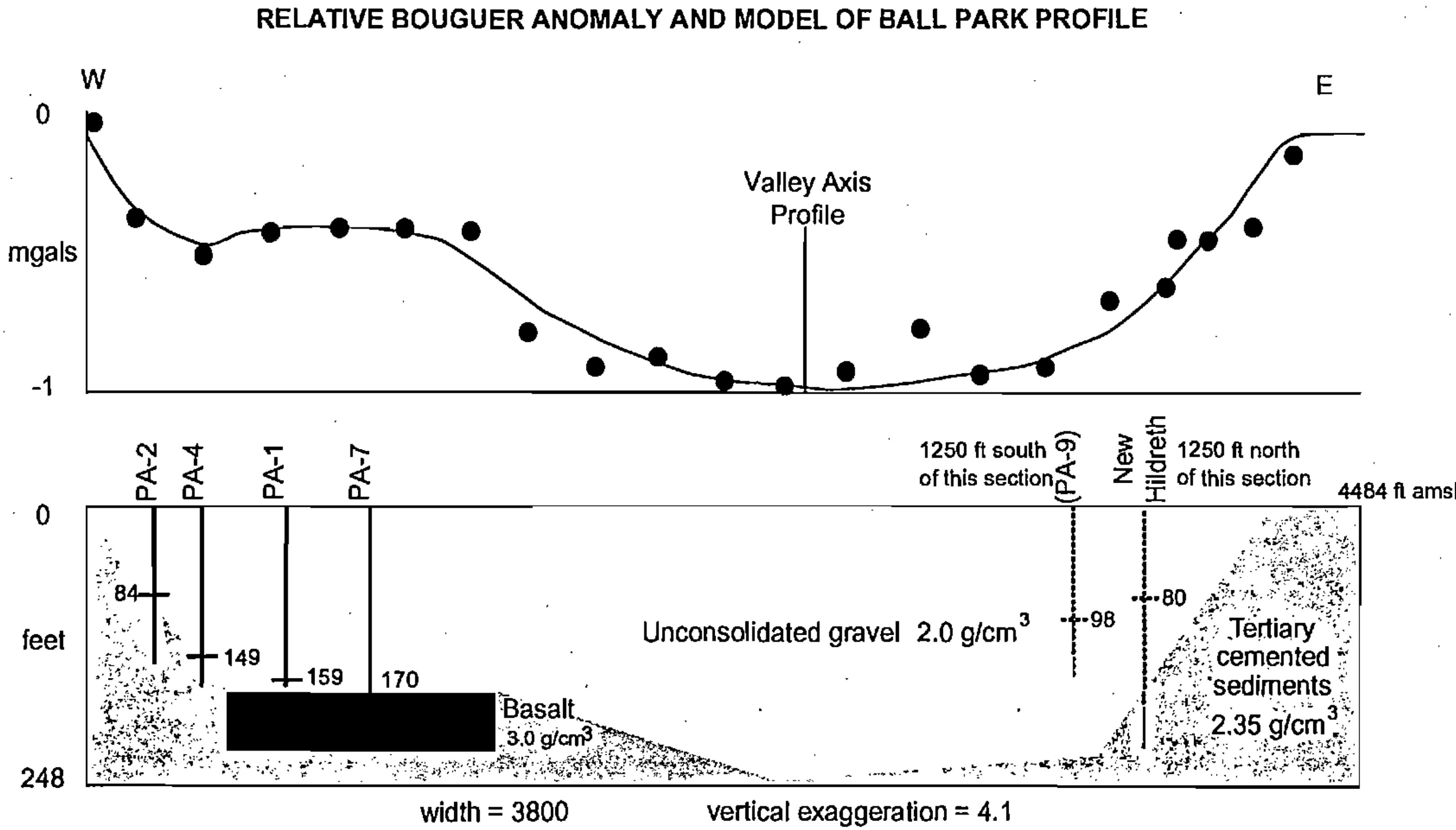

Figure A2.5f - Modeled geologic profile along the Ball Park traverse, constrained by depths to the base of the Upper Gravel in test wells PA-1, 2, 4, and 9 and the new Hildreth domestic well. PA-7 bottomed in 5 ft of basalt beneath several feet of silty gravels comprising reworked Tertiary clasts (ash, breccia, mudstone). Although the modeled lava thickness is similar to that in Figures A2.5d and e, its surface is approximately 100 feet lower. Plastic clay encountered in PA-1, just a few feet above the basalt, suggests that it may be an older lava flow than those modeled in Figures A2.5d and e.

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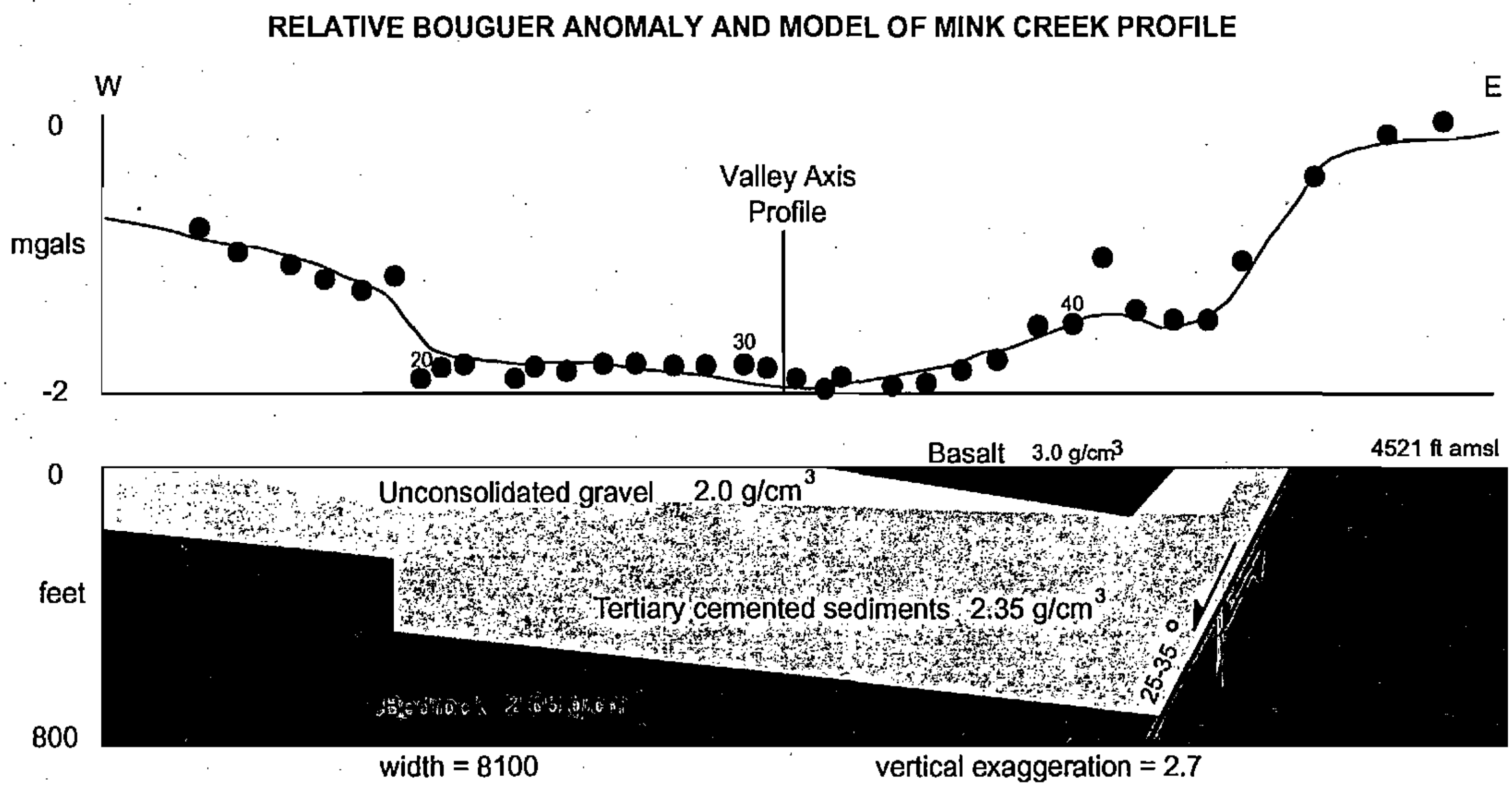

Figure A2.5g - Modeled geologic profile along the Mink Creek traverse. Despite the lack of well control, all four rock densities were incorporated here on the basis of the geologic conceptual model. As in the Riverside section, the gravity data were modeled as a bedrock half-graben. The unconsolidated gravels at the top of the section are equivalent to the Upper Gravel (Bonneville flood deposits) west of, and the clayey/silty alluvial gravels east of, the Portneuf Basalt lava fow, respectively.

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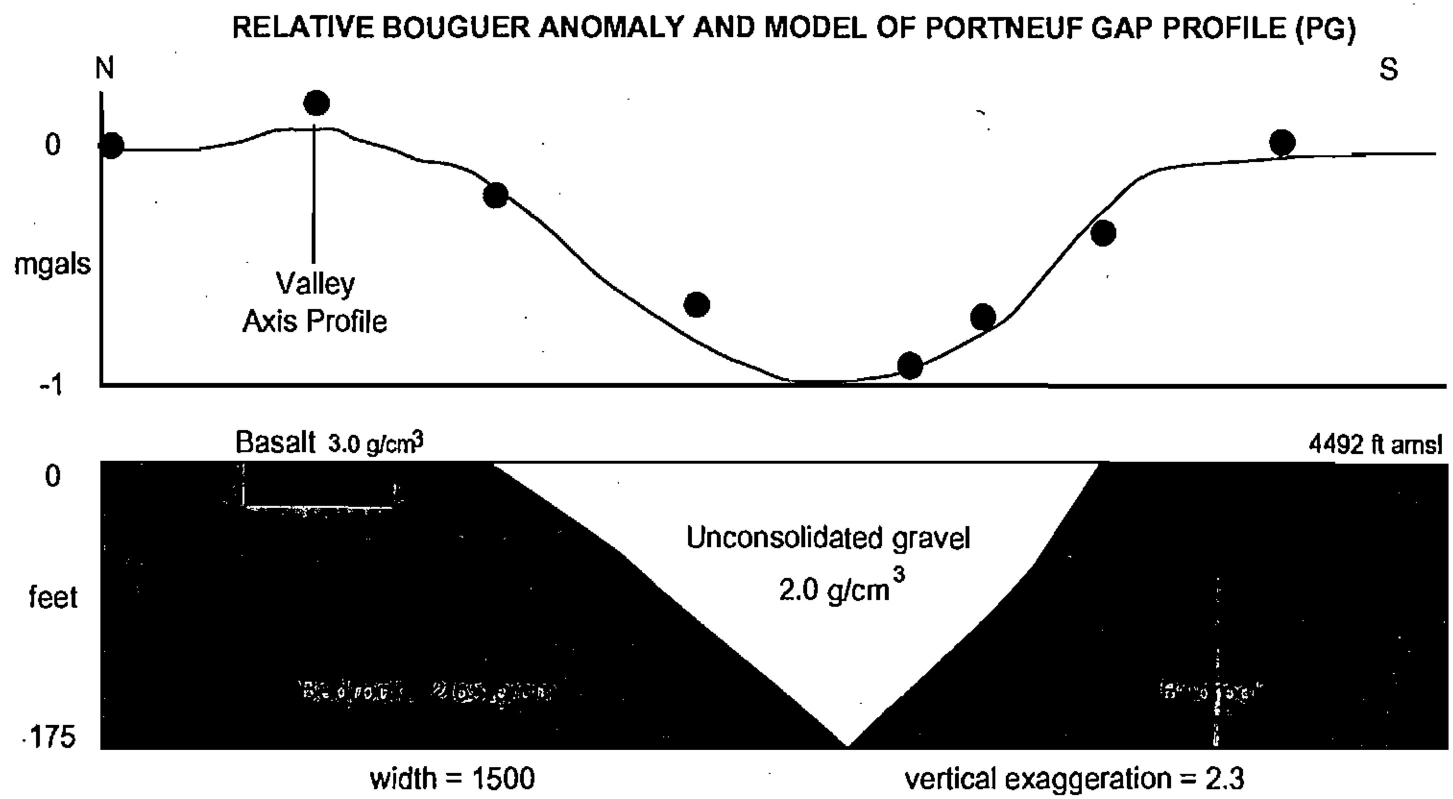

Figure A2.5h - Modeled geologic profile across the Portneuf Gap, describing a gravel-filled prism consistent with a fluvially-incised bedrock notch.

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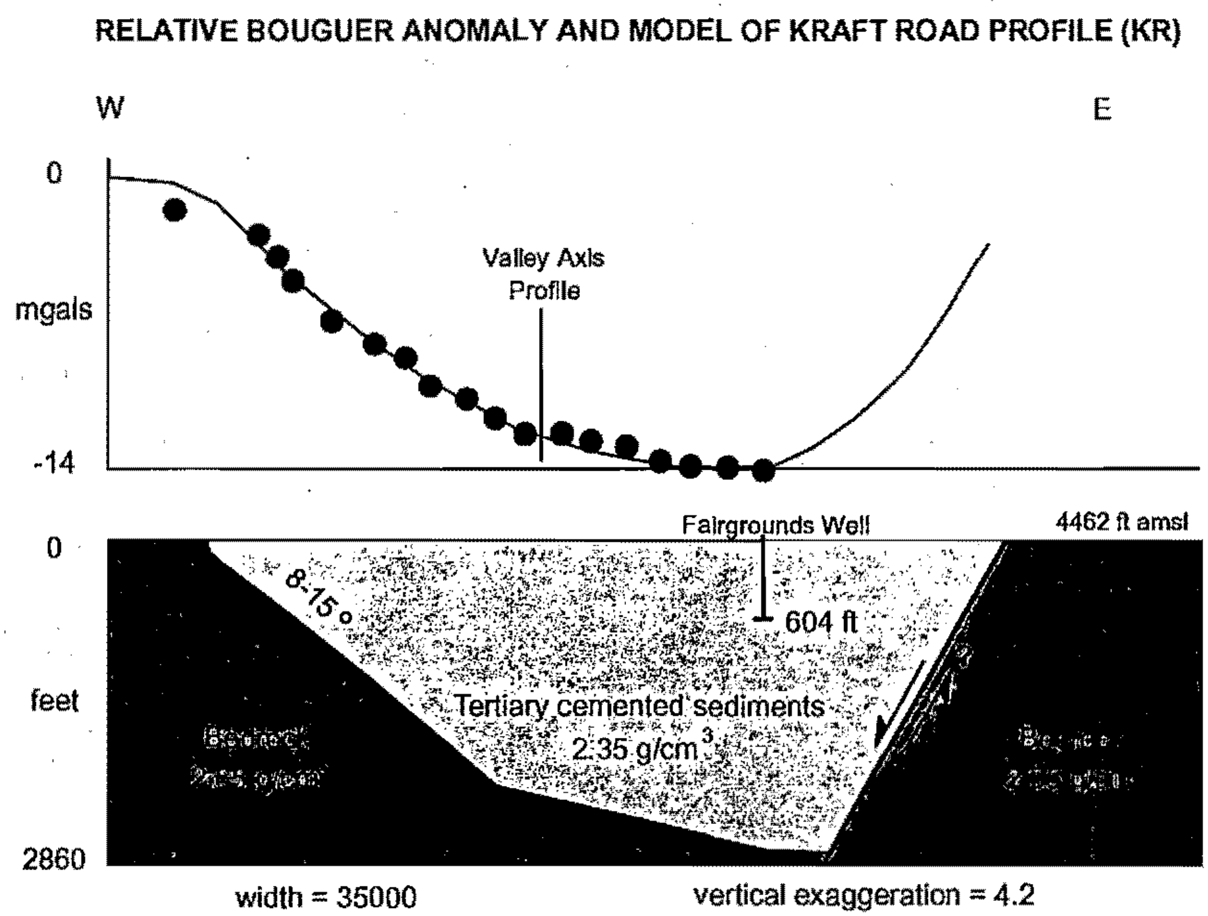

Figure A2.5i - Modeled bedrock geology across the northernmost portion of the valley, along the Kraft road traverse. Lacking deep well control, bedrock stucture was modeled as a northward continuation of the half-graben identified in southern profiles, in order to be consistent with current interpretations of valley bedrock structure (Rodgers, pers. comm., 2000).

RELATIVE BOUGUER ANOMALY AND MODEL OF THE VALLEY AXIS PROFILES

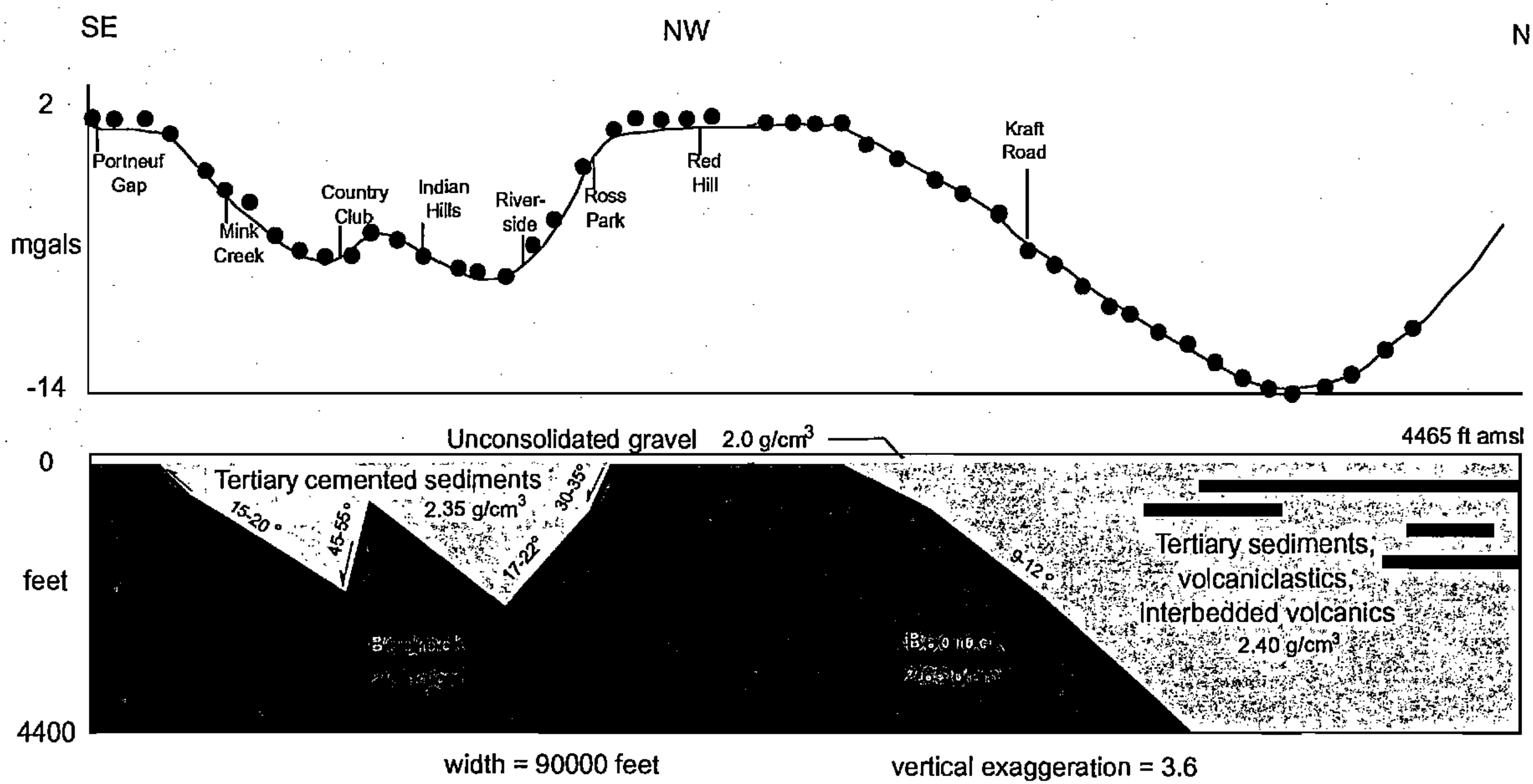

Figure A2.5j - Modeled bedrock relief along the entire south-to-north valley axis, showing the long-wavelength variations in bedrock topography that are required to explain the gravity anomalies. Although bedrock deepens northward from Red Hill, relatively shallow basalts that interfinger with the Portneuf Valley's sedimentary deposits are responsible for the observed Bougeuer gravity anomaly "tail" at the northen end of the traverse.

7483

Figure A3.1 - Digital terrain model of the southern part of the LPRV. View is looking southeast. Portneuf Gap is visible at back of model, Red Hill and its counterpart on the western side of the valley are visible in the near foreground.

Figure A3.2 - Plan view of "bedrock" surface as constructed from the comprehensive well database and outcrop elevations of bedrock in the southern LPRV. Contour interval = 200 ft. The extent of the southern aquifer is shown by the heavy line. Small symbols indicate locations of wells used to construct the "bedrock" surface. Dashed lines indicate the locations of cross-sections shown in Figure A3.3.

Figure A3.3a - Cross-sections constrained by wells where subsurface lithology is known from high-quality drilling logs, in order to compare the depths to local "bedrock" as defined by domestic well logs. In longitudinal profile A-A', true bedrock occurs at Wells 12, 17 and 36 at the depths indicated by the "bedrock" surface. All other wells in this section were not used to construct the "bedrock" surface since bedrock was not encountered in these wells. However, the top of the indurated portion of the Tertiary Starlight Formation occurs at the indicated depths in PMW-1 and PA-7, close to the modelled "bedrock" surface. Induration was not described in the Forsman log, but the described lithology in this well is consistent with the Tertiary Starlight gravels, which extend to more than 580 feet at this location.

Figure A3.3b - Cross-section B-B' along the PA-series of test wells drilled by CH2M-Hill (1995). The close correspondence between depth to the top of the indurated Tertiary section and the depth to the modelled "bedrock" surface at PA-2, 4 and 7, as defined by test drilling, suggests that the surface described by drillers beneath the valley floor as "bedrock" more accurately represents a lithologic change from easily drilled sediments (the Upper Gravel) to hard-to-drill material that probably is indurated Tertiary sedimentary rocks.

Figure A3.4 - Plan view of regional water table constructed from a synthesis of July, 1994 water level data (C. Meehan, unpubl. data) and the well database. Contour interval = 50 ft. Since ground water levels used to create the model surface represent different times, the model purports to show regional-scale water level variations, rather than an accurate representation of water levels at a given point in time. The boundary of the southern aquifer is shown for reference. The hydraulic gradients along the western margin of the aquifer are of the order of 0.05 - 0.1.

7484

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EXHIBIT 132

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Water Balance and Pumping Capacity of the Lower Portneuf River Valley Aquifer, Bannock County, Idaho

John A. Welhan

Staff Report 05-6
July 2006

Idaho Geological Survey
Morrill Hall, Third Floor
University of Idaho
Moscow, Idaho 83844-3014

Water Balance and Pumping Capacity of the Lower Portneuf River Valley Aquifer, Bannock County, Idaho

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7487

CONTENTS

ILLUSTRATIONS

TABLES

Water Balance and Pumping Capacity of the Lower Portneuf River Valley Aquifer, Bannock County, Idaho

John A. Welhan

SUMMARY

A detailed water balance of the southern portion of the lower Portneuf River valley (LPRV) aquifer, completed in 1993-94, has been updated to reflect new information on potential recharge sources, to evaluate recharge potential in the northern valley, and to provide a baseline for evaluating the aquifer's future response to drought conditions and increased demand.

The water balance results, derived from a period spanning 510 days in 1993 and 1994, reflect near-normal hydrologic conditions. More than 75 percent of the aquifer's capacity originates in the southern Bannock Range as precipitation and snowmelt in the Mink Creek, Gibson Jack, and City-Cusick Creek watersheds; about 15 percent originates in the upper Portneuf River basin (entering the LPRV as ground-water underflow through the Portneuf Gap); and less than 5 percent originates as snowmelt in the Pocatello Creek watershed. Leakage from the Portneuf River contributes less than 5 percent to system capacity, most of it during high-flow and flood conditions. Total annual pumping capacity for a normal water year, as determined from the 1993-94 water balance is 7.25 ± 0.4 billion gallons (Bgal) or about 22,000 ± 1000 acre-feet per year.

These results indicate that total demand was already at 100-115 percent of system capacity more than a decade ago. During 1993-94, municipal pumping (Pocatello and Chubbuck) accounted for 6.5 billion gallons of total demand, with the remaining 0.8 Bgal

per year tapped for non-municipal uses. Agricultural withdrawals accounted for 5-10 percent of total demand, with domestic and self-supplied industrial withdrawals each at about 5 percent; non-metered golf course irrigation accounted for 2 percent.

Aquifer recharge in a below-normal water year may be as much as half that of a normal water year. Storage (water level) in the southern aquifer has declined by more than 10 feet since about 1975, and represents direct evidence that long-term demand has exceeded long-term capacity for more than two decades.

Local watersheds have little or no potential to increase the aquifer's total capacity via additional surface water or ground water supplies. For example, diversion of half of all streamflow in the southern Bannock Range would increase total water capacity by less than 5 percent, and in the absence of other sources of ground-water recharge that originate outside the LPRV watershed, any exploitation of deeper aquifers in the LPRV would not increase long-term capacity.

INTRODUCTION

BACKGROUND AND SCOPE

The cities of Pocatello, Chubbuck and Inkom rely on ground water from the lower Portneuf River valley (LPRV) aquifer for all of their drinking, commercial and industrial water needs. In response to a request by Pocatello's Community Development and Research Department for a best available estimate of future water capacity, an initial draft of this report was prepared in 1999. The results of that analysis and of the original water balance estimate compiled in 1993-94 (Welhan et al., 1996) have since been supplemented by additional new information, including better estimates of non-municipal pumping demand.

The original 1993-94 water balance provided an estimate of ground-water recharge derived from the southern LPRV. The results of that analysis are used to estimate evapotranspiration and runoff losses in the southern LPRV, allowing the southern aquifer water balance results to be extended to include the northern aquifer, so that overall system recharge capacity can be quantified.

This report focuses on the shallowest portion of the LPRV aquifer system and the sources of recharge derived from precipitation intercepted by its watershed. The term "capacity" is herein defined as the volume of ground water that can be withdrawn annually without exceeding the system's natural rate of recharge. As such, it is equivalent to the term "safe yield", which is defined as the rate of extraction of ground water that does not exceed the rate of annual recharge (Todd, 1959). "Optimal yield," an extension of the safe yield concept, reflects broader economic and social objectives of a specific water management policy, including longer-term considerations such as conjunctive management of surface and ground water supplies, water banking, artificial recharge, and

managed drawdown (Domenico, 1972). For example, successive annual ground-water overdrafts might be considered acceptable under a long-term drought management policy, given the expectation that future recharge would compensate for past depletions; more than a certain number of successive overdrafts could trigger short-term water rationing.

Because the LPRV is a geographically small watershed its principal aquifer, which supplies all municipal water needs, is prone to large annual pumping-induced storage fluctuations (i.e., large seasonal swings in ground-water level). Pocatello and Chubbuck do not have an explicit long-term water management policy, so a *de facto* strategy has historically focused on short-term safe yield rather than long-term optimal yield. To avoid confusion with a policy-driven definition of acceptable pumping rates, this report focuses only on the short-term response of the aquifer and its annual pumping capacity (safe yield) under normal hydrologic conditions.

The results of this analysis comprise a baseline against which long-term storage trends and aquifer response can be evaluated, and a forecasting model developed, to anticipate future pumping capacity under above-normal and below-normal hydrologic conditions.

HYDROGEOLOGIC SETTING AND PREVIOUS WORK

The LPRV watershed comprises the lowermost portion of the Portneuf River basin (Figure 1). The LPRV aquifer (Figure 2) merges with the Snake River Plain aquifer to which it is tributary and is part of a larger aquifer system that extends beyond the border of the LPRV watershed at Portneuf Gap into Marsh Creek Valley. Southeast of Red Hill, the shallow municipal aquifer is unconfined, less than 250 feet deep, and comprised of clean, highly permeable glacial flood gravels (Welhan et al., 1996). Northwest of Red Hill, it grades into a multi-layered confined system of deeper, silt- and gravel-hosted aquifers that have been tapped to depths of 300-900 feet by municipal and industrial wells. The developed portions of both the northern and southern aquifers overlay several thousand feet of deeper valley-fill sediments. Ground-water recharge originates in the southern Bannock Range, predominantly as snowmelt in the Mink Creek, Gibson Jack, City, and Cusick Creek watersheds, as well as from the upper Portneuf watershed as underflow through the Portneuf Gap (Welhan and others, 1996).

Figure 2 shows the areal distribution of 30-year mean annual precipitation (University of Idaho, 1993) over the principal recharge source areas of the southern Bannock Range. Figure 3 summarizes the valley's hypsography, showing how areas of greatest mean annual precipitation are coincident with the highest elevations.

Details of the water balance for the southern portion of the aquifer are reproduced in Appendix A, revised and updated from Welhan et al. (1996). Their accounting covers a 510-day period from April, 1993 to September, 1994 and reflects water balance

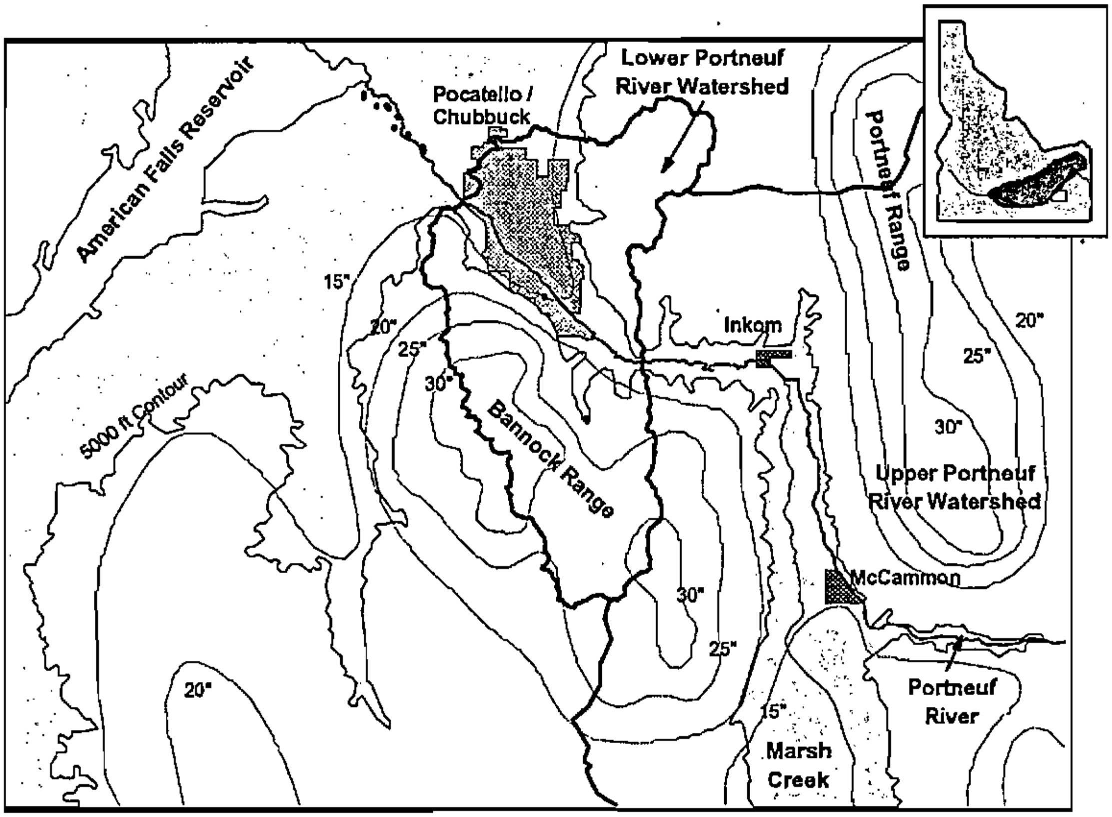

Figure 1. Location of the lower Portneuf River watershed in relation to local highlands having in excess of 30 inches of precipitation annually. Isohyetal lines are based on 30-year mean annual precipitation published by the University of Idaho (1993).

conditions during a period of back-to-back above-normal (1993) and below-normal (1994) water years such that the annualized recharge and discharge fluxes determined for the accounting period are an approximation of normal annual hydrologic conditions. The water balance accounting for the southern aquifer is unusually well-constrained by the bedrock geometry in the vicinity of Red Hill and Portneuf Gap (Reid, 1997), allowing for unusually accurate estimates of underflow to be calculated into and out of the southern aquifer.

Figure 4 summarizes total annual precipitation for the southern Bannock Range. Direct measurements have been available from the NRCS SnoTel station at Wildhorse Divide (see Figure 2) since 1983; prior to 1983, annual estimates are based on Pocatello airport weather station records and a correlation ($r = 0.77$) between annual precipitation at the two stations (see Figure A-2 in the Appendix).

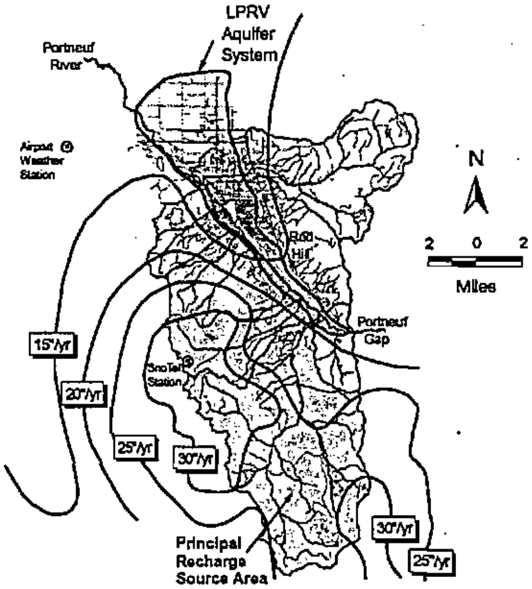

Figure 2 - Geographic relationship between the lower Portneuf River valley (LPRV) aquifer system and local watersheds (dark shading) that contribute the largest fraction of total recharge.

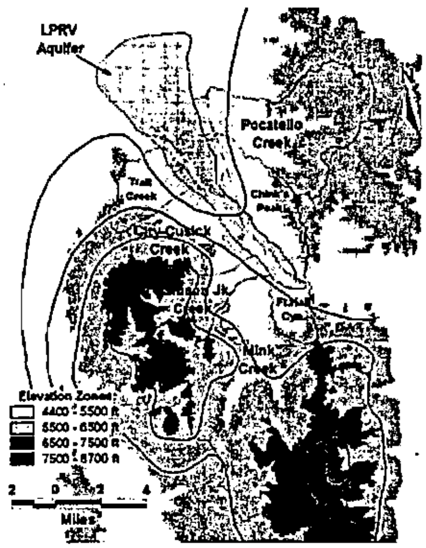

Figure 3 - Hypsography of the LPRV compared to mean annual precipitation (isohyetals taken from Figure 2). Areas of principal snowpack accumulation occur at the highest elevations (darkest shading), which coincide with areas of highest annual precipitation.

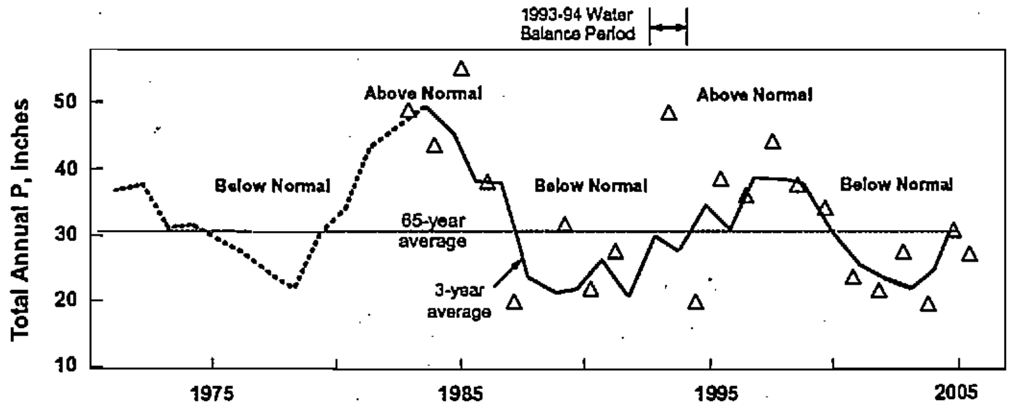

Figure 4 - Total annual precipitation at Wildhorse Divide in the Bannock Range. Solid and dotted lines represent three-year moving averages of, respectively, measured annual precipitation (triangles) and estimates reconstructed from Pocatello airport data using a linear correlation between the two stations (see Appendix, Figure A-2).

THE 1993-94 SOUTHERN AQUIFER WATER BALANCE

The 1993-94 water balance was originally computed using indirect evidence that Portneuf River leakage was a minor source of aquifer recharge (Welhan et al., 1996), an hypothesis that has been corroborated by recent chemical mass balance modeling and analysis of base-flow discharge data (Meehan, 2005).[1] Chemical mass balance arguments were also used to infer that the recharge contribution from the southeastern side of the valley was <10% of the recharge originating from the southern Bannock Range (Welhan et al., 1996).

Figure 5 summarizes the results of the 1993-94 water balance, details of which are provided in the appendix. Municipal wells withdrew water from the southern aquifer at a rate of 1.32 billion gallons per year (Bgal/yr). Recent estimates of non-municipal withdrawals include: 0.14 Bgal/yr by private wells (BBC Research, 2001)[2]; 0.11 ± 0.04 Bgal/yr for agricultural use (BBC Research, 2001, based on irrigated land area in 2000); and non-metered golf course withdrawals of 0.15 Bgal/yr (based on City of Pocatello records for their metered facilities, extrapolated to non-metered facilities). Ground-water flow through the Portneuf Gap contributed slightly more than 1 Bgal/yr.

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[1] High-flow conditions during spring runoff and flood stages may be the only times when the river loses substantial water to the aquifer; see appendix, Sections A.1.2 and A.2.2.

[2] Assumed to be in a fixed proportion relative to municipal demand

The calculated water balance residual, 5.7 ± 0.04 Bgal/yr, represents all other recharge sources (including the Bannock range and the eastern side of the valley, plus river losses). The river is estimated to contribute about 0.3 Bgal/yr (see appendix, Sections A.1.2 and A.2.2.). Therefore, assuming that recharge from the eastern side of the valley is negligible, the Mink Creek /Gibson Jack /City-Cusick Creek watersheds contribute about 5.4 ± 0.1 Bgal/year, or more than five times that from the upper basin, as underflow through the Portneuf Gap. Total recharge to the southern aquifer is 7.25 ± 0.4 Bgal/yr, with three-quarters of that (5.3 Bgal/yr) serving as recharge to the northern aquifer.

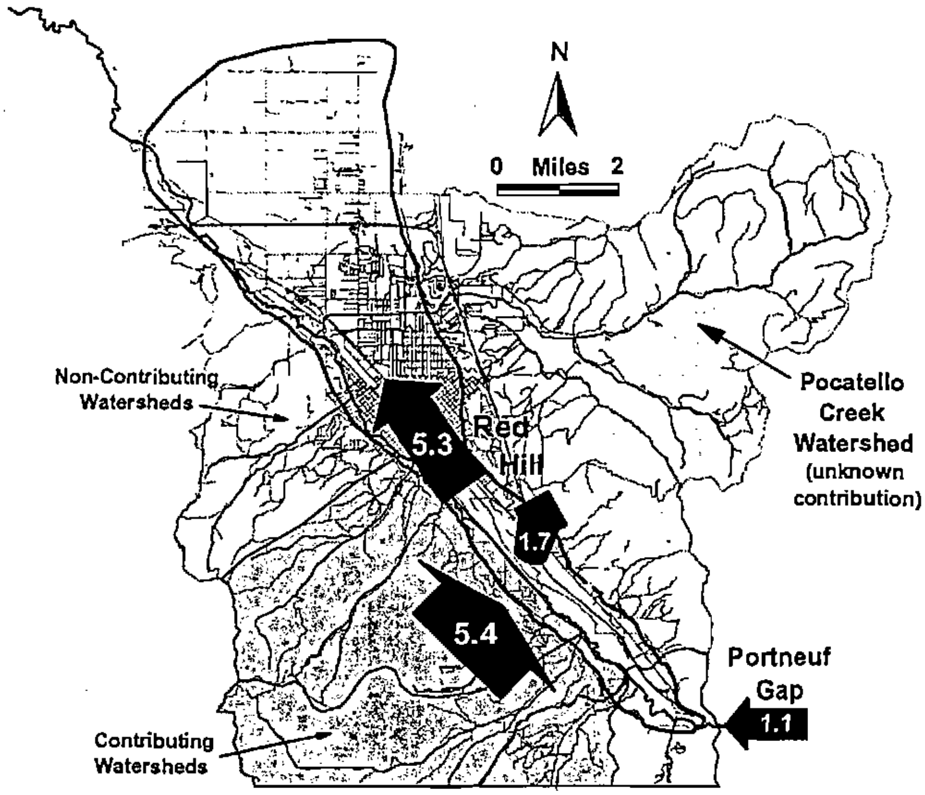

Figure 5 - Southern aquifer water balance, after Welhan and others (1996), revised with new information. All quantities are in billions of gallons (Bgal) per year. Total pumping withdrawals are shown in the conical arrow. Annual recharge from the Portneuf River is estimated at 0.3 Bgal/yr and the change in aquifer storage during the 1993-94 accounting period was -0.29 Bgal/yr.

GROUND-WATER RECHARGE TO THE NORTHERN AQUIFER

Based on hypsography (Figure 3), Pocatello Creek may be the only other watershed capable of supplying any significant amount of snowmelt-derived recharge to the LPRV aquifer. However, its importance as a tributary ground water source is unknown, and estimates of surface runoff and evapotranspiration losses are unavailable to estimate its recharge potential. In contrast, the recharge rate for the southern Bannock Range is an unusually accurate estimate because of constraints imposed by bedrock geometry on the underflow calculations (Appendix A). A similar approach cannot be taken for the northern aquifer because underflow cannot be independently estimated. Instead, outflow to the Snake River Plain must be estimated as a separate water balance residual, based on independent estimates of recharge from the northern valley's tributary watersheds. To do so, the southern Bannock Range recharge rate was used to estimate total evapotranspiration (ET) and runoff losses relative to mean annual precipitation in the Bannock Range, which were then applied to watersheds in the northern LPRV to estimate recharge potential.

An estimate of net ET loss in the Bannock Range can be made by comparing the recharge rate calculated from the southern aquifer water balance with annual precipitation and runoff estimates for the same area. Based on data in Figure 1, the Mink Creek, Gibson Jack, City, and Cusick Creek watersheds intercept an elevation-weighted total of 26.1 inches of precipitation (33.5 Bgal/yr) in an average water year. Of this, 16 percent (5.4 Bgal/yr, derived from the water balance residual) recharges the southern aquifer. Unpublished stream gauging data collected in 1995 (a near-normal year for precipitation) indicates that Mink Creek runoff represented 3 percent of the precipitation intercepted by that watershed; prorated by area, total runoff from the Gibson Jack and City-Cusick Creek watersheds, together with Mink Creek, amounts to 1.2 Bgal/yr. Net ET loss therefore comprises about 80% of the annual precipitation intercepted by the southern Bannock Range during a normal water year. In comparison, Balmer and Noble (1979) determined ET losses of 70-90 percent for nearby watersheds in southeast Idaho.

Evapotranspirative loss was assumed to be inversely proportional to altitude and the amount of precipitation intercepted (i.e., the rate of ET loss is lowest at highest elevations). To achieve an 80 percent overall ET loss rate, zonal loss rates for the southern Bannock Range were determined by trial and error: 100 percent in elevation zones having less than 25 inches of mean annual precipitation[3]; about 85 percent in zones with 25-30 inches of precipitation; and about 65 percent in zones having more than 30 inches. Applying these ET loss rates to other watersheds in the LPRV, Pocatello Creek is the only one in the northern LPRV capable of supplying any significant recharge.

Results of the calculation are summarized in Table 1, showing the amount of annual area-weighted precipitation and the amount available as recharge plus runoff from each watershed. Pocatello Creek's estimate represents an upper limit because the ET loss rate determined for the Bannock Range had to be adjusted downward to obtain a non-zero

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[3] Potential evaporation, alone, is of the order of 61 inches (CH^2M-Hill, 1994a).

recharge estimate. Note that the results corroborate the assumption made in the 1993-94 water balance accounting, that recharge from the eastern side of the valley (Eastern slope) is indeed negligible.

TABLE 1 - Estimated ground-water recharge plus runoff per major watershed, based on evapotranspiration losses estimated from the 1993-94 water balance and prorated on the basis of area and precipitation.

Watershed	Area (sq.mi.)	Weighted mean annual precipitation (inches/yr)	Available as recharge plus runoff (inches/yr)	
Mink Creek	48.2	27.1	5.0	5.4 Bgal/yr recharge contribution
Gibson Jack Creek	11.3	27.1	6.3	
City / Cusick Creek	14.4	21.9	1.7	
Eastern slope	18.4	14.0	0.0	
Fort Hall Canyon	5.7	20.4	0.0	
Trail Creek	7.6	16.9	0.0	
Pocatello Creek	27.7	14.5	< 1.2	(0.5 Bgal/yr)

OVERALL AQUIFER WATER BALANCE

The water balance for the entire aquifer system was calculated using the 1993-94 water balance results for the southern aquifer and the recharge estimates derived for tributary watersheds in the northern aquifer. Table 2 summarizes annualized pumping totals for Pocatello and Chubbuck municipal wells during the accounting period of 1993-94 (conditions equivalent to a normal water year) and for 2000 (a drought year), as well as estimated non-municipal demand.

Table 3 and Figure 6 summarize the water balance of the entire aquifer system under normal hydrologic conditions. The LPRV's total capacity during the 1993-94 accounting period was 7.25 ± 0.4 Bgal/yr. Of this, municipal demand consumed 80-85 percent. Total non-municipal demand is less certain, but the range in Table 2 is believed to be a reasonable representation of actual demand. If so, then total demand may have exceeded aquifer capacity in 1993-94 by as much as 15 percent. In times of drought, this overdraft would be even more acute.

Several important caveats should be noted. First, this analysis considers only intra-basin (meteoric) sources of recharge and focuses on the shallowest portion of the aquifer system. Little is known of the deeper sediments in the system, particularly the role that deep fracture systems and faults may play in capturing meteoric recharge that originates outside the LPRV watershed, or the rate at which water in the deepest zones into or out of the shallow aquifer. Secondly, the flux of ground water past Red Hill may not represent all of the recharge contributed by the southern valley to the northern aquifer. It is possible that some recharge that originates in the southern Bannock Range bypasses Red Hill and contributes directly to the northern aquifer. This would not affect the southern aquifer water balance calculation but would augment overall aquifer capacity. Finally, since the Portneuf River is a gaining stream in the northernmost part of the LPRV and is lined through much of the central part of the valley, it is assumed to be a recharge source only in the southern valley.

TABLE 2 - Summary of municipal and estimated non-municipal pumping withdrawals in the LPRV during 1993-94 (corresponding to a normal water year) and 2000 (a drought year).

	1993/94[1]	2000[2]
South Aquifer		
Municipal	1.32	1.72
Domestic	0.14	0.18
Agricultural	0.11 ± 0.04	0.15 ± 0.05
Industrial	0	0
Golf courses	0.15	0.09
Totals	1.72 ± 0.04	2.13 ± 0.05
North Aquifer[3]		
Pocatello Municipal	4.53	3.82
Chubbuck Municipal	0.65	0.62
Domestic	0.31 ± 0.16	0.26 ± 0.14
Agricultural	0.39 ± 0.13	0.33 ± 0.11
Industrial	0.25 ± 0.07	0.27 ± 0.05
Golf courses	0	0
Totals	6.12 ± 0.36	5.33 ± 0.34
Entire Aquifer		
Municipal	6.49	6.16
Domestic	0.44 ± 0.17	0.43 ± 0.14
Agricultural	0.50 ± 0.17	0.47 ± 0.15
Industrial	0.25 ± 0.07	0.31 ± 0.09
Golf courses	0.15	0.09
Totals	7.83 ± 0.40	7.47 ± 0.39

[1]Annualized on the basis of the 510-day accounting period.

[2]Actual municipal and estimated non-municipal withdrawals.

[3]Includes central aquifer wells, as defined by Welhan et al. (1996).

Note that under pre-development conditions (no pumping diversions), the LPRV would have contributed in excess of 7 Bgal/yr to the Snake Plain aquifer as tributary underflow. Under current pumping conditions, this has been reduced to less than 0.5 Bgal/yr; in fact, at the high-end range of pumping estimates, the LPRV is actually drawing water from the eastern Snake River Plain aquifer. Aside from the obvious implications for water-rights conflicts, the effect of overpumping the northern aquifer could be to pull in contaminants from areas north of Chubbuck.

TABLE 3 - Water balance for the entire LPRV aquifer system under normal hydrologic conditions, based on the 1993-94 accounting period.

Recharge	
Portneuf Gap underflow	1.06
Portneuf River losses	0.26[1]
Maximum Pocatello Creek recharge	0.50
Southern Bannock Range recharge	5.4 ± 0.1
Total capacity	7.25 ± 0.4
Discharge	
Pocatello municipal pumping	5.85
Chubbuck municipal pumping	0.65
Self-supplied domestic pumping	0.44 ± 0.17
Self-supplied agricultural irrigation	0.50 ± 0.17
Self-supplied industrial pumping	0.25 ± 0.07
Non-metered golf course use	0.15
Total pumping withdrawals	7.83 ± 0.4
Change in Aquifer Storage	-0.46
Outflow to Snake River Plain aquifer	0.2 to -0.5 (inflow)

[1]Since the Portneuf River becomes a gaining stream in the northern part of the northern aquifer, river losses are assumed to occur only in the southern valley.

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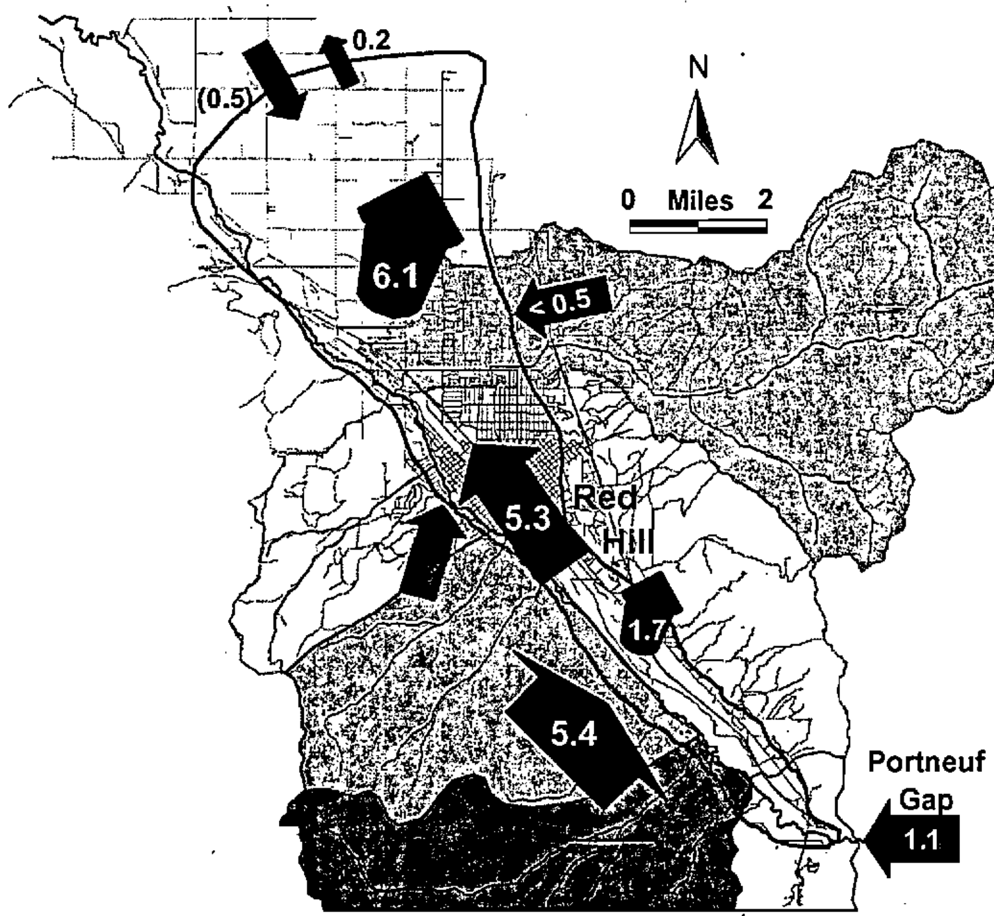

Figure 6 - Water balance for the entire LPRV aquifer system, reconstructed from the 1993-94 accounting for the southern aquifer. Pumping withdrawals (in conical arrows) reflect actual municipal demand plus estimated non-municipal demand. All values are in Bgal/yr. Estimated river recharge is 0.3 Bgal/yr (contributing only in the southern valley), and total storage change over the entire aquifer is -0.46 Bgal/yr.

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DISCUSSION AND CONCLUSIONS

THE IMPACT OF DROUGHT

The water balance results indicate that the aquifer's safe yield was being exceeded under normal hydrologic conditions a decade ago. For comparison, Table 4 presents an approximate water balance accounting of the southern aquifer for a drought year (2000). Underflows at Portneuf Gap and Red Hill were assumed to reflect differences in saturated cross-sectional flow area, only. River losses were assumed to be the same as estimated for 1993-94. Table 4 shows that the water balance residual for 2000 (essentially, Bannock Range recharge) is fully half that in 1993-94. Because 95 percent of total recharge originates in the southern LPRV, drought will clearly have a substantial impact on overall system capacity.

TABLE 4 - Comparison of southern aquifer water balance under normal hydrologic conditions (for the combined 1993-94 accounting period) and drought conditions (year 2000). All values are in billions of gallons per year.

	1993/94	2000
Losses (withdrawals + outflow)		
Pocatello municipal wells	1.32	1.72
Domestic wells	0.14	0.18[2]
Agricultural wells	0.11 ± 0.04	0.15 ± 0.05[2]
Non-metered golf courses	0.15[1]	0.09[2]
Total pumping demand	1.72 ± 0.04	2.13 ± 0.05
Red Hill underflow	5.33	5.14[3]
Gains (recharge + inflow)		
Portneuf Gap underflow	1.06	1.01[3]
Portneuf River losses	0.3	0.3
Change in aquifer storage	-0.29	-3.35
Calculated recharge residual (all unknown recharge sources)	5.7 ± 0.1[4]	2.9
Bannock Range recharge	5.4 ± 0.1[4]	2.7

[1] Country Club golf course demand assumed equivalent to Highland's (0.1 Bgal/yr); Riverside non-metered withdrawal is about 50% of Highland's (J. Ulrich, oral comm., 2006).

[2] Proportions relative to municipal demand were assumed constant between 1993-94 and 2000; non-metered golf course use was estimated from actual demand at Highland.

[3] Hydraulic gradients were assumed not to differ substantially from 1993-94; underflow estimates were adjusted only for a decrease in cross-sectional saturated flow area due to a 5.5 foot average water table decline during 2000.

[4] The range primarily reflects uncertainty in estimated non-municipal demand.

7501

LONG-TERM STORAGE TRENDS

As noted in Section A.3 of the appendix, deep wells in the northernmost portion of the LPRV aquifer can draw on water from the eastern Snake River Plain (ESRP) aquifer when LPRV demand exceeds capacity. If so, then future drilling and production in the northern aquifer would be expected to have little impact on LPRV aquifer capacity but could exacerbate water rights conflicts with ESRP irrigators.

In the southern LPRV, concerns over aquifer storage are paramount. Changes in storage (water level) primarily reflect the difference between capacity (recharge) and pumping demand (see equation A.1 in the appendix). Figure 7 shows water levels in Pocatello municipal well 28 together with records of monthly production in the southern aquifer and local precipitation (a measure of available recharge). Seasonal pumping demand in the southern aquifer (Figure 7.b) has the largest impact on aquifer storage, with fluctuations of 5-10 feet (e.g., Figure 7.c, between 1990 and 1995). This is 30 percent greater than seasonal, pumping-induced variations in water level in the confined northern aquifer. The effect of such large fluctuations is felt by all wells in the southern aquifer. From 1990 to 2005, Pocatello's average monthly production in the southern aquifer increased by 50 percent (heavy line in Figure 7.b); between 2001 and 2004, during the recent drought, annual production increased by 25 percent. Municipal well 44, the southernmost in the well field, came on line in August, 1999, and its peak production was realized the following year (0.7 Bgal/yr, ca. 40 percent of the southern well field's production). However, declining water levels at the pump bowls have since forced a steady 5 percent annual decline in its production.

Superimposed on these short-term storage fluctuations is a long-term downward trend (Figure 7.c). Over a time scale of 25-30 years, the southern aquifer's water table has declined approximately 20 feet. Water level records for the LPRV prior to 1970 are unavailable, so it is not possible to conclude whether the trend is a recent phenomenon or part of an even longer cyclic response to climatic variations. U.S. Geological Survey monitoring well records dating back to 1952, both up- and down-gradient of the LPRV and as far away as Blackfoot, indicate that storage in eastern Idaho aquifers began to decline about 1970 to 1975. Some of this might be attributed to the fact that the region has experienced three droughts but only two above-normal periods in that time frame. Drought severity, however, either in terms of 3-year average annual precipitation (Figure 7.a), snowpack water content (not shown), or duration, has not increased during that time, and the number of years of above-normal precipitation is exactly the same as the number of below-normal years.

Regardless of its cause, the trend clearly indicates that the LPRV's long-term optimal yield (as well as its short-term annual safe yield) have been--and are being--exceeded. Such a trend reflects the interplay of several factors:

(i) magnitude of the recharge deficit relative to demand in dry years (Table 4);
(ii) cumulative impact of successive dry years (compare Figure 7.a and 7.c); and
(iii) growing demand due to more wells and extended pumping schedules in hotter, drier summers.

In the five years of drought since well 44 came on line, water levels in the southern aquifer dropped lower than at any time on record. However, no single well's pumping impact can be held responsible, and curtailing an individual well's production would have little effect on the long-term storage trend, just as individual above-normal or below-normal water years have little long-term impact. For example, although 2006's above-normal snowpack and flooding-enhanced recharge (not shown in Figure 7.c) dramatically reversed the 25-year storage decline, its impact will be short-lived unless it is followed by several normal and/or above-normal water years. Regardless of 2006's individual impact, a continuing long-term decline in aquifer storage can be expected unless long-term demand is brought in line with long-term capacity.

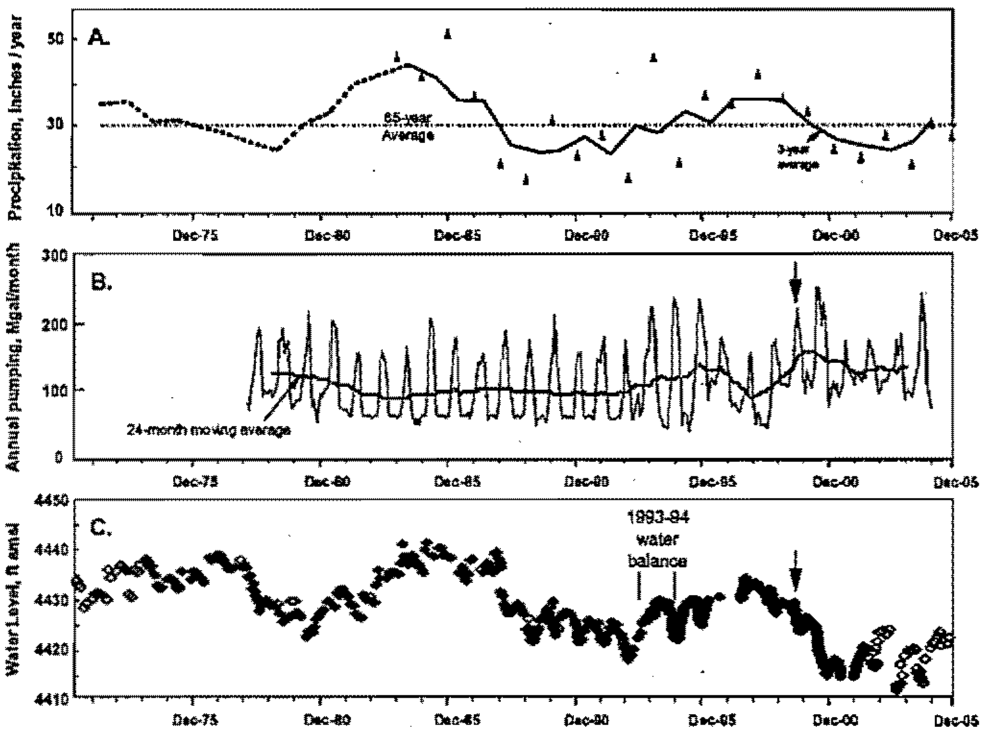

Figure 7 - Comparison of (a) total precipitation at Wildhorse Divide (from Figure 4), (b) total municipal production from wells in the southern aquifer (as monthly totals and two-year moving average), and (c) fluctuations in southern aquifer storage as measured at Pocatello municipal well 28. Solid symbols represent measured values (data logger readings span the period from early 1993 to late 2003); open symbols were estimated from nearby wells. Arrow indicates when well 44 came on line.

7503

To illustrate this point, consider the period of above-normal and below-normal water years between 1995 and 2005. Extrapolating from the results of Table 4 and assuming that, on average, annual capacity is reduced by 50 percent in every below-normal water year but only increases by 25 percent in above-normal water years[4], the impact on average annual capacity would be a net reduction of 12 percent over this ten-year period. That is, in order to manage the aquifer using an optimal yield strategy (and only considering annual capacity as the optimization criterion) would dictate more than a 10% reduction in total demand to remain in balance with fluctuating recharge on a decadal time scale.

CAPACITY AUGMENTATION

Measurements of discharge and stage on lower Mink Creek for 1995 (unpublished data) indicate that runoff from the Bannock Range comprises a minor fraction of the LPRV's overall water budget. Baseflow in Mink Creek in 1995 was about 2 ft^3/sec with spring runoff averaging about 12 ft^3/sec for two months of the year. Annually, this represents about 3 percent of the total precipitation intercepted by the watershed. If half of this were diverted to recharge the aquifer, it would add 0.3 to 0.4 Bgal (about 5 percent) annually to the system's ground water capacity. Other sources of surface water, such as from the Portneuf River, would have to be developed to justify a managed recharge strategy in the future.

The only known sources of natural recharge in the LPRV are meteoric waters falling on the watershed itself (intra-basin recharge). Although some instances of thermal waters are known in the northern valley (Corbett et al., 1980), there is no evidence for deep, extra-basin recharge. In the absence of such a source, system capacity cannot be increased by exploiting deeper aquifers in the LPRV. Although producing horizons are known to exist at greater depths than currently tapped by municipal wells (e.g., artesian zones below 300 feet in the southern aquifer and productive zones below 800 feet in the northern aquifer), they would not increase the aquifer's long-term capacity unless they were recharged from sources outside the LPRV watershed. The only exception would be water flowing in very deep zones not in hydraulic communication with the shallow aquifer, but it is highly unlikely that such water would not be recharged outside the LPRV watershed, anyway. The most likely benefit to be derived from wells that tap deeper zones would be in making up short-term deficits in the shallow aquifer.

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[4] Because evapotranspirative losses are the largest determinant of annual effective recharge, the effect on recharge availability is larger in drought years than in wet years.

ACKNOWLEDGMENTS

Many people have cooperated directly and indirectly over the years toward this ongoing research effort. I wish to thank the City of Pocatello's Water Department including Public Works Director Greg Lanning for his support; past and present Water Superintendents Fred Ostler and Jay Ulrich and their staff, including Janene Orr and Tom Dekker, for access to the city's water records; and the city engineering staff for providing map and geographic data. I also wish to thank Steve Smart, Public Works Director of the city of Chubbuck for his enthusiastic support and interest, as well as for access to city water data and reports, and John Sigler, Environmental Engineer with the City of Pocatello, for reviewing the report prior to its release.

REFERENCES CITED

BBC Research and Consulting, 2001, Economic Impacts of Enhanced Aquifer Protection for the Lower Portneuf River Valley Aquifer, Task 2 Working Paper, Baseline Scenario; draft report submitted to Idaho Dept. of Environmental Quality, February 28.

Balmer, D.K. and J.B. Noble, 1979. Water Resources of the Fort Hall Indian Reservation; Final Report to the Shoshone-Bannock Tribes, Robinson & Noble, Inc., Tacoma, Washington, 227 pp.

CH^2M-Hill, 1994a. Final site assessment report, Pocatello Creek landfill hydrogeologic investigation, Pocatello, Idaho; 85 pp.

CH^2M-Hill, 1994b. Hydrogeology and assessment of TCE contamination in the southern portion of the Pocatello aquifer - Phase I aquifer management plan; final report, 100 pp.

Corbett, M.K., J.E. Anderson and J.C. Mitchell, 1980. An evaluation of thermal water occurrences in the Tyhee area, Bannock County, Idaho; Water Information Bulletin, Idaho Dept. of Water Resources, Boise, ID, 67 pp.

Domenico, P.A., 1972. Concepts and Models in Groundwater Hydrology; McGraw-Hill. NY, 405 pp.

Idaho Department of Environmental Quality, 2004, Non-sewered land parcels in the lower Portneuf River valley; unpublished map.

Meehan, C.W., 2005. Geochemistry of the Southern Pocatello Aquifer and its Implications for Aquifer Recharge and Contamination Potential; Idaho State University M.S. thesis, 202 pp.

Norvitch, R.F. and A.L. Larson, 1970. A Reconnaissance of the Water Resources in the Portneuf River Basin; Idaho Dept. of Reclamation, Water Information Bulletin 16, 58 pp.

Reid, T.V., 1997. Gravity-Derived Subsurface Paleomorphology and Structure of the Lower Portneuf River Valley, Pocatello, Idaho; Idaho State University M.S. thesis, 72 pp.

Rodgers, D.W. and K.L. Othberg, 1999. Geologic Map of the Pocatello South Quadrangle, Bannock and Power Counties, Idaho. 1:24,000; Idaho Geological Survey Map GM-26.

Todd, D.K., 1959. Groundwater Hydrology; John Wiley and Sons, NY, 535 pp.

University of Idaho, 1993, State of Idaho Mean Annual Precipitation, 1961-1990; U. Idaho, State Climate Program, 1:250,000 GIS coverage.

Welhan, J., Meehan, C. and Reid, T., 1996, The Lower Portneuf River Valley Aquifer: A Geologic / Hydrologic Model and Its Implications For Wellhead Protection Strategies; Final Report, EPA Wellhead Protection Demonstration Project and City of Pocatello Aquifer Geologic Characterization Project; 48 pp. plus figures and appendices.

Welhan, J., 2001, Ground water interactions near the Highway Pond gravel pit, Pocatello; Idaho Geological Survey Staff Report 01-3.

APPENDIX A

1993-94 Water Balance
for the Southern Portion of the
Lower Portneuf River Valley Aquifer

Revised from: "The Lower Portneuf River Valley Aquifer: A Geologic / Hydrologic Model and Its Implications For Wellhead Protection Strategies"; J. Welhan, C. Meehan, and T.Reid, 1996; Final Report, EPA Wellhead Protection Demonstration Project and the City of Pocatello Aquifer Geologic Characterization Project; Chapter 6.

A.1. PRINCIPAL RECHARGE SOURCES

A.1.1. Precipitation

Table A-1 summarizes mean annual temperature, humidity and precipitation as recorded at the Pocatello Airport weather station. Precipitation in the lower basin varies from less than 15 inches (38 cm) in the Portneuf River valley to more than 30 inches (76 cm) in the Bannock Range (Figure A-1). A SnoTel station at Wild Horse Divide at an elevation of 6526 ft (1990 m) in the southern Bannock Range averaged 29.7 inches (75.4 cm) over 11 years of record (1983-1994). As shown in Figure A-1, Bannock Range precipitation is the nearest source of local recharge to the LPRV aquifer system, other than underflow from the upper Portneuf basin through the Portneuf Gap, and likely plays a significant role in the aquifer's water balance

TABLE A-1. Summary of meteorological data, Pocatello airport weather station (from National Weather Service, http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?id7211, based on 68 years of record).

												-------Annual--------		
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Mean	1993	1994
Average Temperature, °F:														
23.8	29.0	36.8	46.6	54.3	62.2	70.8	69.2	59.3	48.1	36.0	26.3	46.7	43.2	48.3
Average Snowfall, inches:														
6.57	5.35	3.51	0.41	0.01	0	0	0.04	1.77	4.65	8.61	9.35	41.6	29.6	30.3
Average Total Precipitation, inches:														
1.10	0.92	1.12	1.13	1.35	1.02	0.53	0.61	0.79	0.87	1.05	1.07	11.5	17.9	9.09
Average Daytime Relative Humidity, %:														
73	66	56	43	39	37	30	29	33	42	63	73	49	53	47

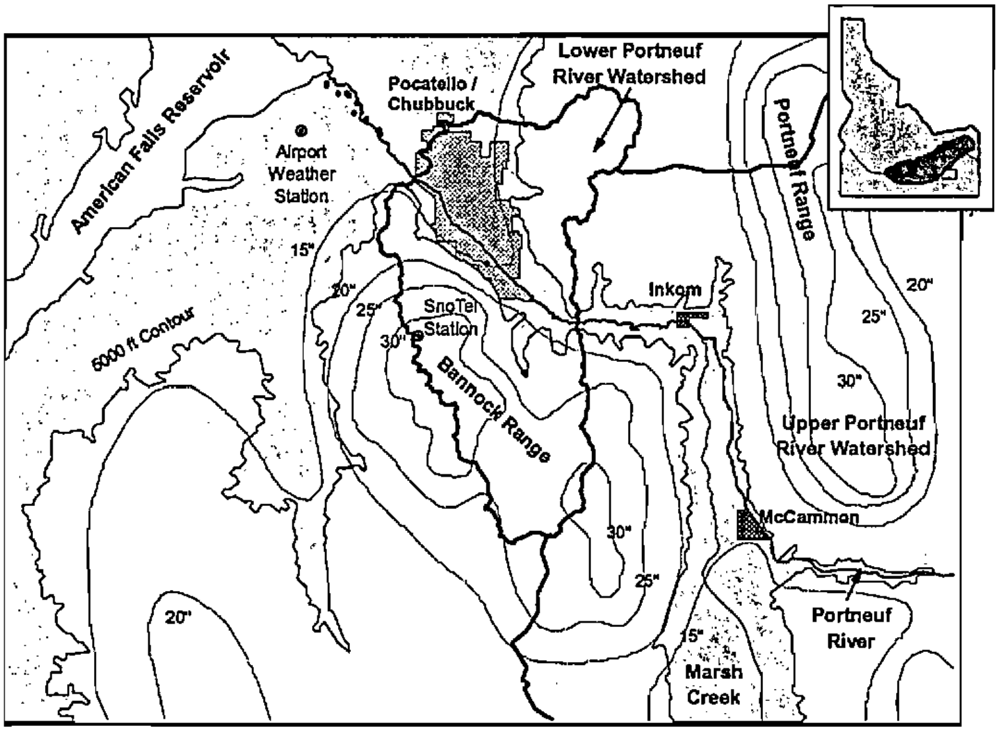

Figure A-1. Thirty-year total mean annual precipitation over the Lower Portneuf River basin and surrounding highlands. Precipitation isohyetals taken from University of Idaho (1993).

Historic trends in precipitation at the Pocatello Airport weather station and at Wild Horse Divide are summarized in Figure A-2 showing that total precipitation on the Bannock Range is a little more than twice that at the Pocatello Airport. Three-year moving averages of total precipitation on the Bannock Range tend to mimic the aquifer's storage variations (for example, the above-normal precipitation at Wildhorse Divide during the 1980s coincides with high ground water levels seen in wells). The synchronicity between aquifer storage and total precipitation suggests that an important part of the aquifer's recharge may be locally derived in the Bannock Range.

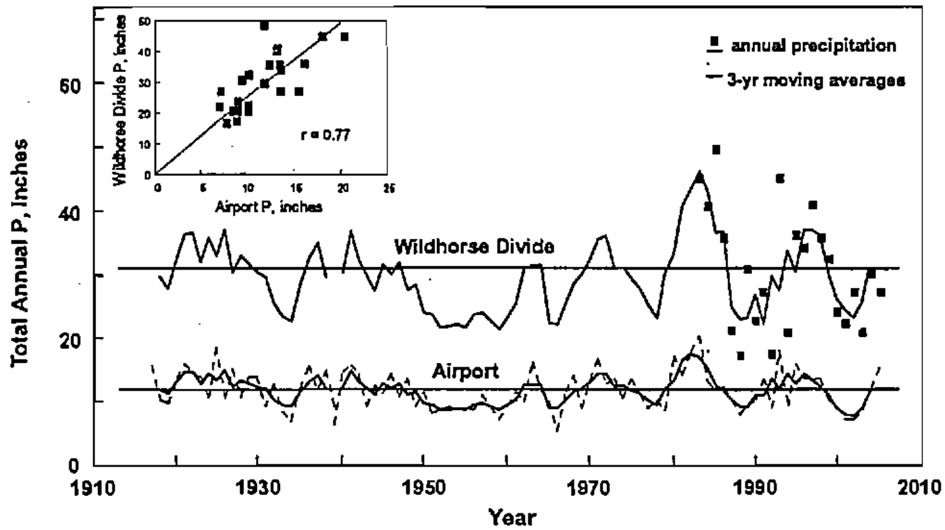

Figure A-2. Historic annual precipitation record at Pocatello Airport and at the SnoTel station on Wildhorse Divide, Bannock Range. Solid lines are three-year moving averages. The correlation between precipitation readings obtained at the two stations that was used to estimate precipitation at Wild Horse Divide prior to 1983 is shown in the inset. Airport data are based on official National Weather Service records since 1939 (http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?id7211); prior to that, older NWS records were used.

A.1.2. Potential Surface and Ground Water Sources

Southern Bannock Range Recharge (Qb)

The major potential recharge sources are summarized in Figure A-3. Because of the chemical similarity of ground waters in the southern Bannock Range, recharge from Mink Creek, Gibson Jack Creek and the City-Cusick Creeks watersheds was lumped together as a single recharge component, Qb. Its magnitude is unknown but is expected to be large, given that local sources of recharge are implicated.

Portneuf Gap Underflow (Qg) and River Losses (Qr)

Based on the upper basin's size (1160 mile^2) and the amount of precipitation it receives (19.6 inches; Norvitch and Larson, 1970), underflow through the Portneuf Gap (Qg) might be expected to be a significant component of aquifer recharge. However, during normal water years, the river's

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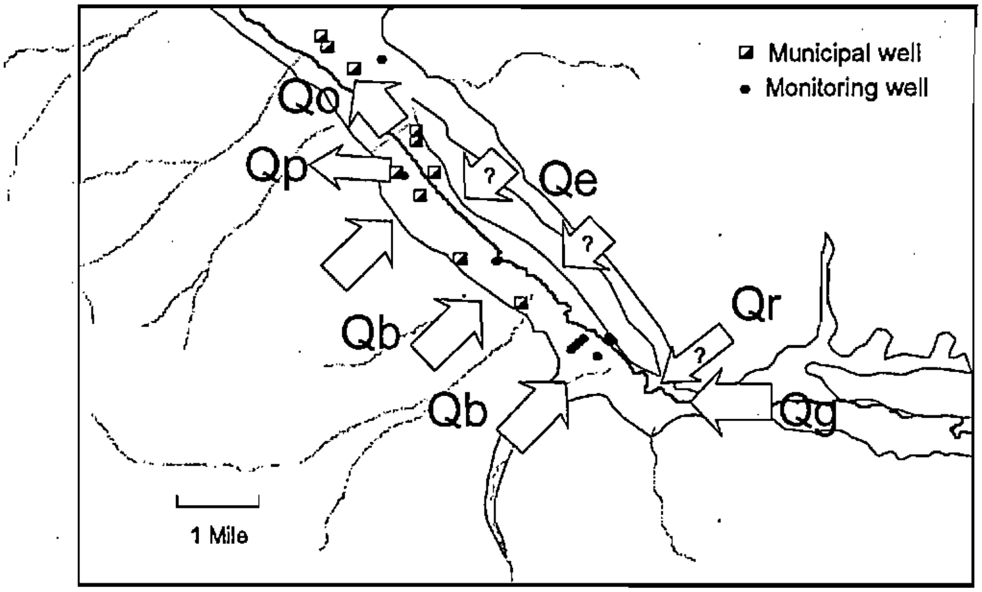

Figure A-3. Principal components of the water balance defined for the southern LPRV aquifer. Provisional water balances were constructed for the periods 4/93 - 10/93, 11/93 - 3/94, and 4/94 - 8/94, reflecting periods of major differences in aquifer storage response. Recharge from the eastern side of the valley may not be a significant source of recharge, based on chemical mass balance arguments. Qo is underflow past Red Hill; Qp is total pumping withdrawals; other terms are defined in the text.

average discharge of 250 ft^3/sec relative to a basin-wide input of 1670 ft^3/sec of precipitation indicates that ground-water outflow plus evapotranspirative loss in the upper basin are of the order of 85 to 90% of precipitation input. Since annual potential evaporation is of the order of 61 inches or more than three times mean annual precipitation (CH^2M-Hill, 1994a), it is to be expected that evaporative loss, alone, would be the largest component of the basin water balance and that ground water outflow would be minor. For the purposes of computing the southern aquifer water balance, Qg was estimated from the saturated cross-sectional area of flow through the Gap, using Darcy's Law.

Norvitch and Larson (1970) proposed that the Portneuf River may lose a minimum of 8 ft^3/sec to ground water underflow somewhere between the lower reaches of the upper basin and the LPRV, with maximum possible estimates as high as 87 ft^3/sec. However, their hypothesis hinges on an estimate of specific discharge per unit basin area that was derived for the uppermost reaches of the upper Portneuf basin and applied to the lower reaches without justification. In contrast, their own river discharge measurements offer no evidence for significant river loss at base flow conditions. For example, the Portneuf River below the confluences of Rapid Creek and Marsh Creek in December, 1968 was 245.5 ft^3/sec. Approximately 5.5 miles downstream, immediately west of the Portneuf Gap, river discharge was 247 cfs. Discharge measured seven miles farther downstream, at the Pocatello gauging station (252 ft^3/sec), is higher because of tributary drainage contributions from the southern Bannock Range.

Although Norvitch and Larson did not measure tributary stream discharges along the lower Portneuf, our measurements on Mink Creek (the largest tributary stream in the LPRV) indicate a baseflow discharge of 1.65 ft^3/sec during July, 1994. When extrapolated to other tributary watersheds of the southern Bannock Range, and considering that 1994 was a below-normal water year, our data are consistent with a 5 ft^3/sec gain below the Portneuf Gap, as documented by Norvitch and Larson, and support the hypothesis that river loss to the aquifer (Qr) is small.[5]

Although the Portneuf River's mean annual discharge was near normal in 1993 (252 ft^3/sec) and below normal in 1994, and both years' mean discharges fall within a range that is comparable to Norvitch and Larson's 1968 base-flow stream measurements, we conclude that the Portneuf River does not lose significant amounts of water to the aquifer during base-flow conditions. However, the possibility remains that such losses may be significant on a transient basis, such as during bank-full and flood stage. In that case, Norvitch and Larson's (1970) river loss rate can be used to estimate Qr when river discharge is above normal (see Section A.2.1).

Leakage From the Eastern Valley Margin (Qe)

A potential source of recharge to the southern aquifer is ground-water inflow from the tributary aquifers on the eastern side of the valley. As documented in Welhan et al. (1996) and Meehan (2005), the shallow alluvial aquifer east of the Portneuf Basalt is highly contaminated with chloride, sulfate and nitrate. On chemical mass balance grounds, the influx of dilute Bannock Range waters, which are low in these constituents, has to be balanced by leakage from the eastern aquifer or another high-salt recharge source. In the absence of evidence to the contrary, it is assumed that Qe is a minor component of aquifer recharge. For calculation purposes, it is lumped together with other unknown recharge sources in the water balance residual (i.e., Qb + Qe + Qr).

Other Possible Sources

Although additional recharge sources may contribute to the LPRV aquifer, the current hydrogeologic model of the basin is incapable of identifying them or their relative

[5] Recent corroboration of this hypothesis has come from a statistical analysis of recent base-flow discharge measurements taken below the Portneuf Gap as well as from chemical mass balance modeling of the southern LPRV aquifer (Meehan, 2005).

magnitudes. For example, low-temperature thermal water north of Pocatello Creek and in the Tyhee area north of Chubbuck is likely an expression of fault-controlled deep circulation contributing small amounts of water to the ground water regime in that area (Corbett et al., 1980). The Tyhee thermal waters are known to be elevated in sulfate and chloride relative to shallow ground water and would represent a potential source of salinity to the shallow ground water system. If similar thermal waters recharge the southern valley, they may be responsible for part or all of the salt added to the southern aquifer system, although their true contribution would be masked by leakage of shallow, contaminated water from the eastern aquifer (Meehan, 2005).

A.2. WATER BALANCE CALCULATIONS

A.2.1. Physical Constraints

The physical water balance for the southern aquifer can be written as:

$$\Delta S = Qg + Qb + Qe + Qr - Qo - Qp \qquad \text{(Eq'n A.1)}$$

where the terms are as defined in Section A.1.2 and Figure A-3. Direct precipitation input on the surface of the LPRV is neglected in this formulation because potential evapotranspiration on the valley floor is so much higher than precipitation. The magnitudes of several of these terms can be estimated on the basis of physical considerations, whereas others cannot even be crudely estimated (e.g., Qb, Qe).

Municipal well water level records in the southern aquifer permit a reasonably accurate estimate of storage change (ΔS) and pumping withdrawals (Qp). Of the remaining terms, estimates of Portneuf Gap underflow (Qg) and southern aquifer outflow (Qo) can be made on the basis of cross-sectional aquifer geometry, hydraulic conductivity, and gradient, using Darcy's Law. During river low-flow conditions, river losses are probably small, leaving only Bannock Range inflow (Qb) and possibly eastern aquifer leakage (Qe) as significant unknown terms.

Based on the timing of recharge events, variations in pumping withdrawals and aquifer storage, three accounting periods spanning about 17 months were used for the water balance calculations. All of these periods are referred to in terms of number of days since January 1, 1993. The first period, from Day 90-300 (April, 1993 - October, 1993) includes the only significant recharge event encountered during the study as well as 1993's period of peak summer well production. The second water balance period, from Day 300-450 (November, 1993 - March, 1994), spans a period of below-normal spring runoff and low seasonal well production rates when aquifer water levels remained fairly constant. The third accounting period, from Day 450-600 (April, 1994 - August, 1994), applies to 1994's period of peak pumping and a drastic decline in aquifer storage (in response to poor spring recharge and high pumping demand). All water balance terms were computed separately for each accounting period then summed over the entire 510-day time span and reported on an annualized basis (normalized to 365 days).

A.2.2. Individual Terms

Pumping Withdrawals (Qp)

Non-municipal pumping withdrawals were not considered in the original water balance estimate (Welhan et al., 1996). Estimates for self-supplied domestic use, agricultural and golf course irrigation, and industrial withdrawals have since become available and are documented in Table 2 in the accompanying report. Municipal pumping withdrawals were obtained from city records. Estimates of domestic and agricultural pumping were taken from BBC Research's (2001) evaluation of water use in the LPRV as of 2000; their domestic pumping estimate was cross-checked against the number of private well owners taken from a map of septic system users in the LPRV (Idaho Dept. of Environmental Quality, 2004), assuming that every septic system owner also operated a private well for domestic use. Self-supplied industrial pumpers were identified through City of Pocatello wastewater treatment records by comparing billed municipal water use with amount of wastewater treated; the difference represents a minimum estimate of self-supplied pumping withdrawals. The ratios of self-supplied to municipal withdrawals were assumed to be constant over time.

Well production in the southern aquifer during the provisional water balance period was summed over the individual accounting periods of the water balance. For example, during the period Day 300-450, Qp was 0.353 billion gallons (Bgal) or 47.2×10^6 ft^3; for Day 450-600, Qp was 0.79 Bgal (105.6×10^6 ft^3).

Southern Aquifer Outflow (Qo)

Figure A-4 shows a hydrogeologic cross section through the aquifer at Red Hill, based on drilling logs and a microgravity survey conducted to define the base of the aquifer (Reid, 1997). This cross-section location is considered the best-constrained for purposes of aquifer underflow calculations for several reasons: the availability of hydraulic conductivity estimates for wells 2 and 36; gravity-defined cross-sectional bedrock geometry at this location; and good correspondence between gravity and well control on the bedrock profile at this location.

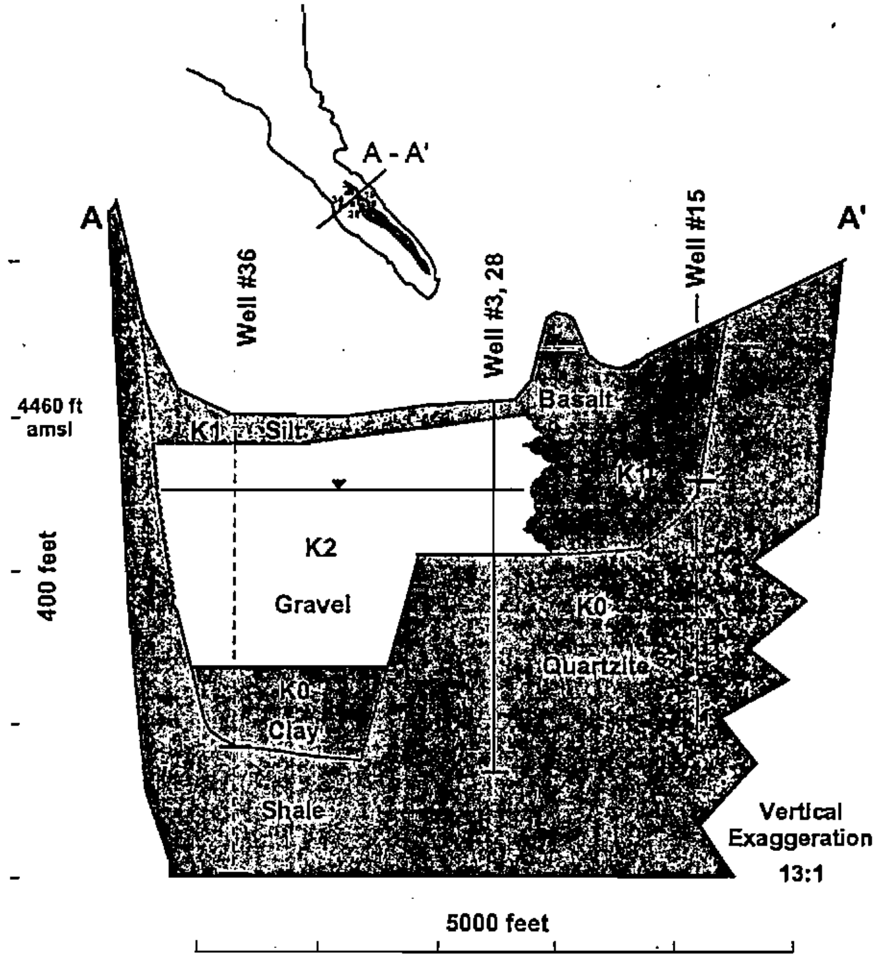

Figure A-4. Cross-section of the southern aquifer's bedrock-bounded outlet, looking to the northwest, immediately upgradient of Red Hill. Bedrock geometry is constrained by a detailed microgravity profile (Reid, 1997) and lithologic logs. Relative permeabilities: K0 < K1 << K2.

The maximum saturated cross-sectional area of the aquifer at well 36 is 2.5×10^5 ft^2, with less than a 4 percent variation among the water balance accounting periods. From pumping tests on Pocatello municipal well 36, the hydraulic conductivity of the aquifer (K2) is 8000 ft/day; silt- and clay-rich sediments and bedrock (K0, K1) in the section are at least three orders of magnitude less permeable. For an observed hydraulic gradient of 0.0013, underflow is estimated at 2.0×10^6 ft^3/day (5.3 Bgal/year).

7515

Portneuf Gap Underflow (Qg)

Figure A-5 shows a cross-section of the Portneuf Gap, looking west. Micro-gravity data obtained from a traverse across the Portneuf Gap (Reid, 1997) were used to constrain the bedrock topography shown in the subsurface. Assuming that bedrock is relatively impermeable, the saturated area available for underflow through the Portneuf Gap is 3×10^4 ft^2. Based on four domestic wells whose water levels were monitored during 1994, the hydraulic gradient across the Gap was 0.0013. The hydraulic conductivity of gravels in this narrow notch was assumed to be comparable to or higher than the values seen at well 36 (also in a bedrock notch) and a value of 10,000 ft/day was assumed for these calculations. The estimated flux through the Gap is therefore 3.9×10^5 ft^3/day (1.06 Bgal/year). Since changes in saturated cross-sectional area were far less than the uncertainty in hydraulic properties, this flow rate was assumed to remain constant during the three water balance accounting periods.

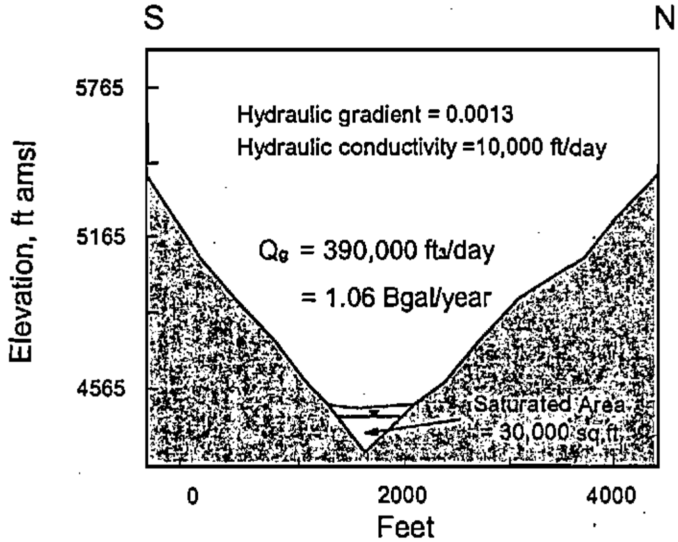

Figure A-5. Cross-section of the Portneuf Gap, looking west toward the southern aquifer, reconstructed from topography and gravity data.

Portneuf River Losses (Qr)

Norvitch and Larson (1970) postulated that the Portneuf River may lose water to the aquifer somewhere in the vicinity of the Portneuf Gap. Mean annual flow on the Portneuf River at Pocatello's gauging station is of the order of 8 ft^3/sec lower than the combined irrigation-adjusted flows of the Portneuf at the Topaz gage and Marsh Creek at the McCammon gauge. However, an analysis of discharge measurements made during base-flow conditions and chemical mass-balance modeling of the southern aquifer

(Meehan, 2005) indicate that the Portneuf River does not lose significant amounts of water to the aquifer.

Based on the southern aquifer's rapid response to past flooding conditions in the Portneuf Gap area,[6] it seems more likely that if the river does contribute substantial recharge below Portneuf Gap, it does so only during high-flow conditions. During the latter two water balance accounting periods, mean river discharge was within the base-flow regime in which Norvitch and Larson's (1970) data indicate negligible river losses. Therefore, significant river losses were assumed to have occurred only during the first water balance period, when river discharge exceeded 400 ft^3/sec for about 60 days. The difference in the water balance residual calculated with and without an additional 8 ft^3/sec river loss during this accounting period placed a lower limit on the magnitude of the annualized river recharge (Qr).

On this basis, the river's contribution to the aquifer during 1993 was 0.3 Bgal, on the assumption that a loss rate of 8 ft^3/sec applies only during spring runoff when flow exceeds 400 cfs and that negligible losses occur during normal and low-flow conditions. Prorated for a 365-day accounting period, river losses are estimated to contribute about 0.3 Bgal of aquifer recharge annually.

Aquifer Storage (ΔS)

Figure A-6 shows monthly water levels measured in southern aquifer production wells during 1993 and 1994, as derived from Pocatello Water Department records, together with continuous water level records from municipal well 28 and monitoring well PMW-2 and monthly water levels from a typical domestic well in the southernmost part of the aquifer near the Portneuf Gap. Water levels are shown as feet above the 4400 ft datum; wells with lower hydraulic heads are located farther downgradient. Changes in water level between the beginning and end of each water balance period are shown on the figure.

During Day 90-300, storage increased over the length of the aquifer but was greatest in the southernmost area, suggesting that a large part of the system's recharge originated from southern sources, such as the Portneuf Gap and the Mink Creek / Gibson Jack sub-basins. During Day 300-450, aquifer storage in the vicinity of wells 12 and 36 showed a slight decline, whereas storage appeared to decline about 2-3 times as much south of well 14. This suggests that most of the recharge during this period entered the aquifer north of well 14 (i.e., at the north end of the Gibson Jack watershed). During the third accounting period (Day 450-600), storage declines were approximately uniform in all parts of the southern aquifer, possibly indicating that the rates of recharge from the Bannock Range had, for the most part, approached baseflow along the length of the aquifer.

[6] Based on prior anecdotal evidence and recently confirmed when the Portneuf reached flood stage in March-May, 2006, when the water table rose 18 feet in six weeks.

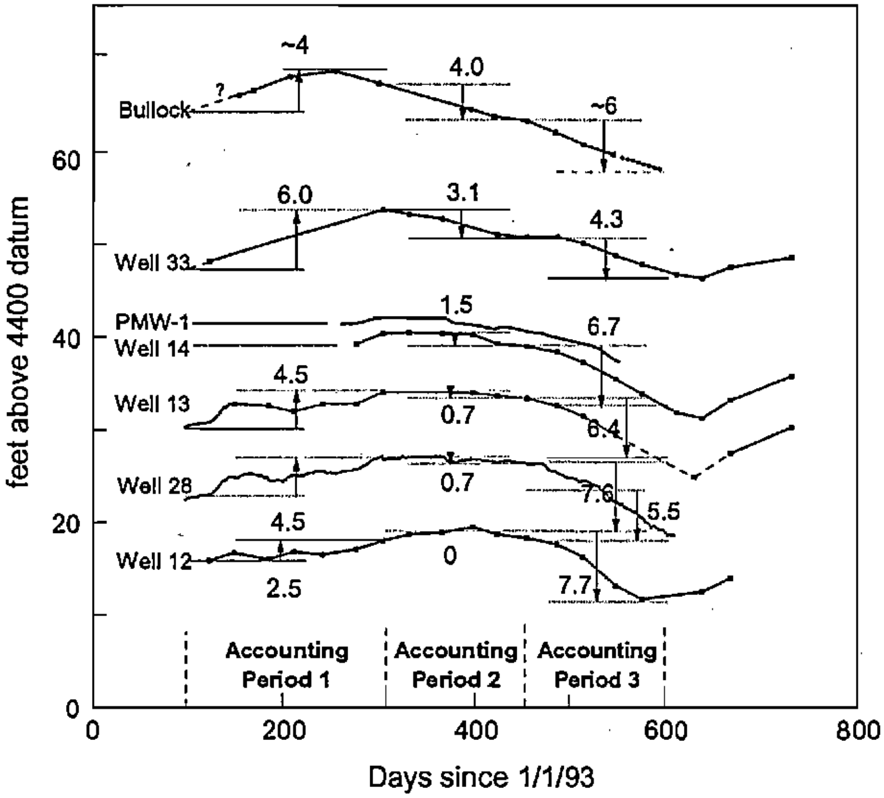

Figure A-6. Water level records in southern aquifer wells that were used to estimate changes in aquifer storage during the water balance period. Changes in head during each accounting period are shown beside the arrows indicating storage increase or decrease (in feet). During day 300-450 and day 450-600, heads declined an average of 1.0 ft and 6.4 ft, respectively. During day 90-300, heads increased an average of 5.0 feet, with the largest increase at Well 33 indicating that the Mink Creek / Gibson Jack watersheds contributed the most recharge. On the other hand, the southernmost wells showed the largest decline during day 300-450, suggesting that recharge from Mink Creek had waned by this time.

If the Bannock Range is the most important source of recharge to the southern aquifer, the differential responses observed during the first two water balance periods suggest that ground water flow rates and recharge may differ along this part of the Bannock Range. This hypothesis is consistent with the varied geology of the Bannock Range, and the fact that areas of limestone, many of them containing evidence of karstification, exist in both the Mink Creek and Gibson Jack watersheds. Substantial areas of karst limestone have been identified in mapping work conducted in the Mink Creek basin (S. Van Hoff, unpubl. data), and limestone outcrops over much of the middle and lower reaches of the Gibson Jack watershed (Rodgers and Othberg, 1999).

Based on the average of water level changes shown in Figure A-6, an aquifer area of 89.5×10^6 ft^2, and a mean porosity of 0.25, storage increased by 112×10^6 ft^3 (0.84 Bgal) during Day 90-300 and decreased by 143×10^6 ft^3 (1.07 Bgal) during Day 450-600.

A.3. DISCUSSION OF WATER BALANCE RESULTS

Figure A-7 and Table A-2 summarize the results of the overall water balance accounting. Figure A-8 summarizes the results by each accounting subperiod. The water balance "residual" represents the total of all unknown recharge inputs including those from the Bannock Range, the eastern valley margin, and the Portneuf River. As discussed in Section A.1.2, Qe and Qr are both believed to be relatively small, so that the computed residual less Qr represents the sum of all Bannock Range recharge to the southern aquifer (Qb).

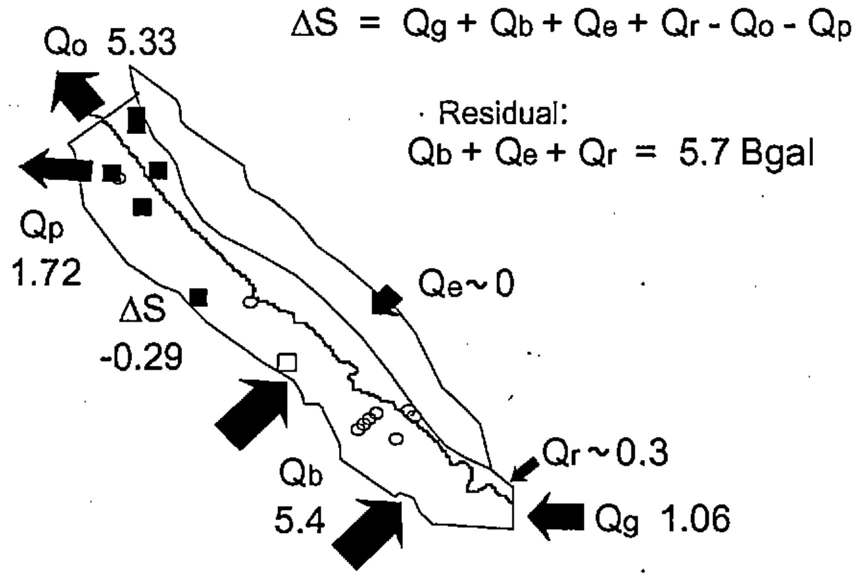

Figure A-7. Results of the southern aquifer water balance, as annual averages reflecting the 1993-94 accounting period. Best available estimates for inflow through the Portneuf Gap (Qg), underflow past Red Hill (Qo), total pumping demand (Qp), and storage change (ΔS) are expressed in billions of gallons per year. Bannock Range recharge (Qb) is believed to dominate the water balance residual (Qb + Qe +Qr) because recharge from the river and the eastern valley margin are thought to be small.

Referring to Figure A-8 and Table A-2, computed recharge was greatest during the first water balance accounting period, as would be expected for the period in which the system received its largest spring runoff pulse from above-normal snowpack. Recharge subsequently declined through the winter of 1993 and was far lower in 1994. The results clearly demonstrate that the southern aquifer is dependent on Bannock Range recharge to replenish storage lost during peak summer pumping, and that pumping has the largest impact on the aquifer during years of low precipitation (such as in 1994).

Note that annual withdrawals in the northern LPRV are three and a half times those from the southern aquifer (Table A-2). Since underflow across the bedrock lip at Red Hill (Qo) likely recharges the shallowest part of the northern aquifer and since most of the northern wells tend to be perforated in the uppermost confined aquifer, the southern aquifer probably supplies most of the pumping demand in Pocatello's northern well field. Chubbuck's municipal wells, farther to the north, are completed in volcanic units of the eastern Snake River Plain (ESRP) province and are >300 feet deep, so they may draw on a combination of ground water from LPRV and ESRP recharge.

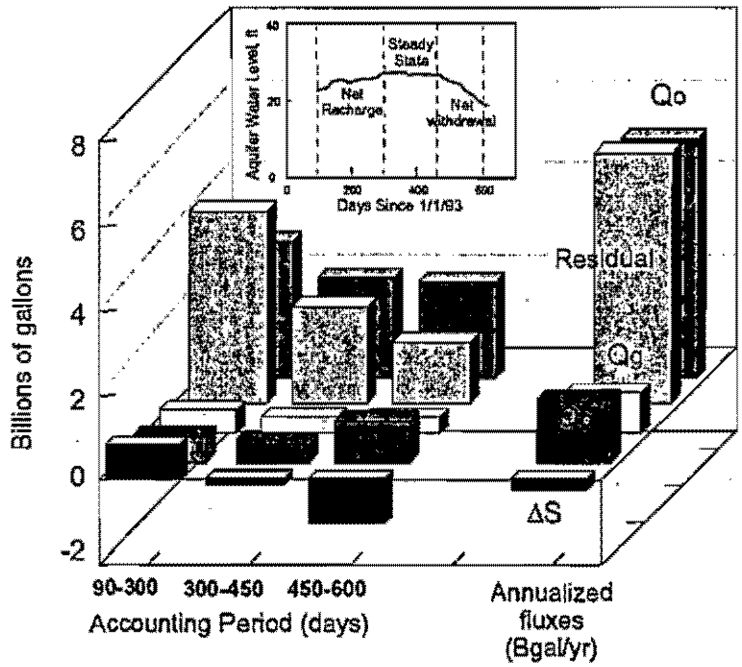

Figure A-8. Water balance summary for the southern aquifer for the period April, 1993 to August, 1994, shown as totals for each of the three accounting periods and as 365-day totals reflecting annualized averages. The "Residual" is the calculated water balance residual representing all unknown recharge sources, primarily from the Bannock Range, the eastern aquifer and the Portneuf River (Qb + Qe + Qr).

Table A-2. Summary of southern aquifer water balance. All values are in billions of gallons. Pumping totals include documented municipal and estimated non-municipal demand during the accounting periods. Portneuf River losses were assumed to have occurred only during high-flow conditions of 1993's spring runoff. The water balance residual includes recharge from all possible sources, including the river. Pumping totals for the northern aquifer are provided for reference.

Accounting period (days since 1/1/1993)	--------Pumping Totals--------- N. Aquifer	S. Aquifer (Qp)	Red Hill Outflow Qo
90-300 (wet spring)	3.72	0.88	3.05
300-450	1.23	0.46	2.24
450-600 (dry summer)	3.59	1.06	2.16
510-day Totals	8.54	2.40	7.45
365-day Totals	6.11	1.72	5.33

Accounting period (days since 1/1/1993)	S. Aquifer Storage ΔS	Portneuf Gap Inflow Qg	Portneuf River Qr.	Water Balance Residual (Qb+Qe+Qr)
90-300 (wet spring)	0.84	0.61	0.31	4.16
300-450	-0.17	0.44	0.00	2.10
450-600 (dry summer)	-1.07	0.44	0.00	1.71
510-day Totals	-0.40	1.49	0.31	7.96
365-day Totals	-0.29	1.06	0.31	5.70

If the northern aquifer relies on outflow from the southern aquifer for most of its recharge, then the LPRV's ground-water capacity will be constrained by development activities in the southern aquifer. The 1993-94 water balance suggests that total pumping demand in the northern and southern well fields (6.8 Bgal/yr) was equal to the system's total recharge capacity (Qg + Qb + Qe + Qr = 6.8 Bgal/yr). Lacking a major source of recharge in the northern LPRV, any future system deficits (demand > capacity) will induce ground-water inflow from the ESRP into the northern LPRV; in other words, the LPRV may cease to be a tributary ground-water source to the ESRP aquifer. If so, then the most logical place to site new wells would be in the northern valley, since the LPRV's upstream capacity is close to or is being exceeded under normal hydrologic conditions and current demand.

CITY OF POCATELLO

EXHIBIT 133

CH2M-Hill, 1994, Hydrogeology and Assessment of TCE Contamination in the Southern Portion of the Pocatello Aquifer - Phase I Aquifer Management Plan

Subcase Nos. (27)

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Date: 3/2/07

Volume 1 of 2
Technical Report

Hydrogeology and Assessment of TCE Contamination in the Southern Portion of the Pocatello Aquifer— Phase I Aquifer Management Plan Final Report

Prepared for

The City of Pocatello
Water Department
Pocatello, Idaho

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Volume 1 of 2

Contents

Contents
(Continued)

Contents
(Continued)

Tables

Tables
(Continued)

Figures

Figures
(Continued)

Executive Summary

Pocatello's Water Department currently provides service to about 16,400 customers (i.e., individual hookups), relying exclusively on groundwater for all of its domestic, agricultural, and industrial needs. In 1994, water service was supplied by 18 municipal wells to meet the City's annual demand of 5.75 billion gallons. It is anticipated that Pocatello's population will continue to expand through the 1990's, thereby increasing the demand to provide good-quality water for the public.

Trichloroethylene (TCE) has resulted in the closure of the City's two most southern municipal supply wells. This contaminant appears to be migrating at a rapid rate and potentially threatens at least four other City wells (no. 12, no. 16, no. 30, and no. 36). Recognizing that controlling environmental pollution is critical to maintaining the quality of Pocatello's drinking water for future generations, the City has embarked on an Aquifer Management Plan. The plan consists of the following three interrelated phases to proactively address contaminant concerns:

- Phase I—Delineation of TCE contamination in the southern aquifer area
- Phase II—Groundwater restoration and treatment of TCE contamination
- Phase III—Implementation of aquifer management tools (i.e., wellhead protection, sole source aquifer designation, etc.)

Phase I activities were directed toward: 1) defining the hydrogeologic framework in the southern portion of the aquifer; and 2) determining the nature and extent of the TCE contamination within the southern aquifer area. A secondary task, but of pivotal importance, was to perform a feasibility analysis of treatment alternatives that could be implemented to control contaminant migration.

Hydrogeology

The alluvial aquifer in the southern portion of the Pocatello Valley is composed solely of the Michaud Gravels which consist of vari-colored, well-sorted, coarse sand, pea gravel, and rounded cobbles of quartzite and argillite. Based on observations made during drilling, this distinct lithology is characteristic throughout the study area. The uniformity of the gravels suggests they were deposited by a single glaciofluvial event as opposed to a series of flood events. Groundwater flow in the alluvial aquifer is relatively straightforward because of the homogeneity of the Michaud Gravels. The flow direction is to the northwest, parallel with the longitudinal axis of the valley. The horizontal hydraulic gradient throughout the study area varies from 0.001 to 0.002.

Values derived from the pump tests indicate the transmissivity of the aquifer is fairly consistent; average values ranged from 59,000 to 198,000 ft^2/day. The specific yield of the alluvial aquifer ranged from 0.003 to 0.04. Calculated values for average linear groundwater velocity ranged from 3.4 to 16.2 ft/day. The primary source of discharge is groundwater pumpage. The majority of pumpage is from municipal and irrigation wells with a lesser amount from industrial and private domestic wells. In 1994, the volume of groundwater pumped from the City's 18 municipal wells totaled approximately 17,600 acre-feet (ac-ft) of which 2,000 ac-ft was derived from the southern portion of the aquifer from pumpage of wells no. 13 and no. 36.

Nature of TCE Contamination

The analytical results from the monitoring well samples indicated that TCE concentrations ranged from none detected to a high of 31.7 ppb identified in the Latter Day Saint (LDS) domestic farm well. Using the maximum contaminant level (MCL) of 5 ppb for TCE, a well-defined zone of groundwater contamination has been delineated as a narrow, but very long, band. The downgradient extent of the plume appears to be located in the vicinity of Tech Farm Road near the south end of Riverside Municipal Golf Course. The plume extends contiguously upgradient to the south end of the study area where the breadth of plume significantly increases to one-half the width of the aquifer. In this area of the aquifer there is a well-defined lateral concentration gradient. The plume is adhering to the southwestern margin of the valley, but appears to be influenced by tributary underflow. This inference is supported by the observation that TCE concentrations decrease by about 50 percent downgradient from the mouth of Gibson Jack Creek.

In comparison, on the downgradient end of the plume, there is a substantial diffusion zone in front of the 5 ppb isocontour line. Sample results indicate that the dispersion front extends downgradient to City wells no. 12, no. 16, and no. 30 where trace level (2.0 to 3.0 ppb) TCE concentrations have been identified. These wells are approximately 1 mile northwest of the northern boundary of the study area. This suggests that the total length of the plume is at least 5 miles long.

The fact that this plume is well-defined by the observed concentration gradients, it has the following three profound implications:

1. The plume is being fueled by a continuous source that is located along the southwest side of the valley but has not yet been identified.

2. The extent to which the TCE contamination is delineated indicates we are observing the leading edge of a significant plume.

3. TCE concentrations will probably not significantly dissipate in the foreseeable future.

Depth-integrated sample results indicate the TCE plume present in the southern portion of the Pocatello Aquifer exists in a dissolved aqueous-phase and is vertically dispersed throughout the saturated thickness of the aquifer. This type of plume configuration implies that transverse dispersivity is nominal and that advection is the predominant process controlling TCE mass transport. It can therefore be concluded that rapid groundwater flow has resulted in a highly dispersed TCE plume in vertical profile, but has minimized lateral (i.e., transverse) dispersion. Thus, lateral spreading of the plume does not appear to be controlled by hydrogeological constraints. In addition, TCE movement will not be significantly attenuated because of the lack of fine-grained sediments and organic carbon within the aquifer to retard contaminant migration.

Preliminary Capture Zone Analysis and Feasibility Assessment

The initial task in the evaluation process was to determine the effectiveness of capturing the TCE plume under current production rates. A steady-state numerical groundwater flow model was constructed to simulate the basic features of the hydrogeologic system. Observations regarding the locations of the capture zones relative to the TCE plume are as follows:

- Well no. 36 captures groundwater along the southwestern aquifer boundary. Consequently, this well may capture groundwater from the vicinity of the TCE plume even when the other three wells are operating at their full capacity. The eastern branch of the delineated capture zone covers an area east of, and parallel to, the TCE plume.
- The other three City wells capture all, or part of their water, from the portion of the aquifer containing the TCE plume. Well no. 33 captures water from an area where TCE concentrations have been measured at >20 ppb. Wells 13 and 14 capture water from areas where TCE concentrations have been measured at >10 ppb.
- Containment of the TCE plume area (as presently defined) would occur if all four wells were pumping simultaneously and on a continual basis, as modeled for the purpose of delineating capture zones. This pumping scenario corresponds to projected future demands for the southern service area and also represents the highest pumping rate that can be achieved for the well field and distribution system under their current configuration.

Capture zones were delineated for a scenario in which all four City wells are pumping at their full capacities on a continual basis. This pumping scenario corresponds to projected future demands for the southern portion of the service area and also represents the maximum pumping scenario for the present configuration of the well field and distribution system. The capture zones indicate that groundwater is supplied to the City's wells primarily from an area between the Portneuf River and the western aquifer boundary. The capture zones include the area where TCE has been observed in the groundwater downgradient of the mouth of the Fort Hall Canyon drainage.

Capture zone analyses were also conducted for a minimal pumping scenario which would consist using only well no. 36. The modeling analyses predict that pumping of well no. 36 at its full capacity would capture a large portion of the TCE plume. However, it is possible that a portion of the plume will lie outside the capture zone of this well and migrate farther downgradient.

There are a number of inherent drawbacks in using the existing City wells, the most significant being improper and unknown well construction methods. None of the wells are open to the full saturated thickness of the aquifer. However, as determined from our investigation, the TCE contamination is in a dissolved phase extending throughout the vertical profile. Therefore, none of the City wells would effectively intercept and capture the plume.

The purpose of the feasibility assessment was to identify, evaluate, and compare treatment alternatives to remove the TCE and PCE contamination associated with Pocatello's water supply wells no. 33 and no. 36. The objective was to bring these wells back online as potable water supply wells. Two applicable treatment technologies have been identified for the removal of TCE and PCE from groundwater: 1) air stripping; and 2) adsorption using granular activated carbon (GAC). Each of these technologies has been commercially implemented in similar applications and is capable of reducing contaminant concentrations to levels consistently less than 1 ppb.

The advantages of installing an air stripping system are that it is the less costly of the two treatment options considered and it has minimal space requirements and lower O&M requirements. The potential need for possible off-gas treatment if the TCE concentrations remain the same or increase is the primary disadvantage of using an air stripper. However, off-gas treatment can be effectively accomplished using vapor phase carbon adsorption.

The advantage of using a GAC system is that off-gas treatment would not be a consideration. However, the GAC system is more costly and would require considerable maintenance because of the continuous operation schedule necessary and change-out of the activated carbon beds. Larger space requirements would also be necessary to house the GAC treatment equipment.

Final Conclusions

Although the TCE levels measured in well no. 36 have not exceeded the MCL, it is our considered judgment that because of the geohydrology in this area, it is only a matter of time before well no. 36 also exceeds the MCL. The highest priority should be to locate the source of the TCE contamination, otherwise dissolved-phase contaminants will continue to leach into the aquifer. If the source of the contamination can be located, there are a number of remedial alternatives that could be pursued.

A formal cooperative agreement between the City of Pocatello and Bannock County should be developed because this problem extends beyond the City limits and is a community-wide concern. The benefits of a cooperative approach would be: 1) a focused effort to resolve the contamination; 2) ensure continuity of data collection and prevent duplication of efforts; and 3) lessen financial impacts through cost sharing. A steering committee should also be established so that City and County officials could stay abreast of developing conditions and oversee and direct future investigative and corrective action alternatives.

Section 1
Introduction

During the past decade, the U.S. Environmental Protection Agency (EPA) has required that public water purveyors monitor for an increasing number of volatile organic chemicals (VOCs). As a result, these chemicals are being identified in public drinking water supplies more and more frequently. A number of VOCs such as trichloroethylene (TCE), tetrachloroethylene (PCE), toluene, and others have been discovered in the Pocatello Valley Aquifer. The most pervasive and significant contaminant is TCE, which has resulted in the closure of the City's two most southern municipal supply wells. This contaminant appears to migrating at a rapid rate and potentially threatens at least four other City wells (no. 12, no. 16, no. 30, and no. 36).

Recognizing that controlling environmental pollution is critical to maintaining the quality of Pocatello's drinking water for future generations, the City has embarked on an Aquifer Management Plan. The plan consists of the following three interrelated phases to proactively address contaminant concerns:

- Phase I—Delineation of TCE contamination in the southern aquifer area
- Phase II—Identification and remediation of the contaminant source
- Phase III—Implementation of aquifer management tools (i.e., wellhead protection, sole source aquifer designation, etc.)

Phase I activities were directed toward: 1) defining the hydrogeologic framework in the southern portion of the aquifer; and 2) determining the nature and extent of the TCE contamination within the southern aquifer area. A secondary task, but of pivotal importance, was to perform a feasibility analysis of treatment alternatives that could be implemented to control contaminant migration.

The primary intent of this report is to provide an understanding of the magnitude and severity of the impending situation. As such, it is hoped this report will facilitate open communication among City officials, regulatory personnel, and other interested parties.

1.1 Site Description and Contaminant History

The City of Pocatello, Idaho's third largest municipality, is located in southeastern Idaho (see Figure 1). To the north and east are the incorporated towns of Chubbuck and American Falls, respectively. Pocatello is often referred to as the "Gate City" because it is an important transportation crossroads for both railroad and interstate traffic. Residents and industry depend exclusively on the valley-fill aquifer to supply the City's annual water demand of 5.75 billion gallons (Pocatello Water Department, 1994). Until recently,

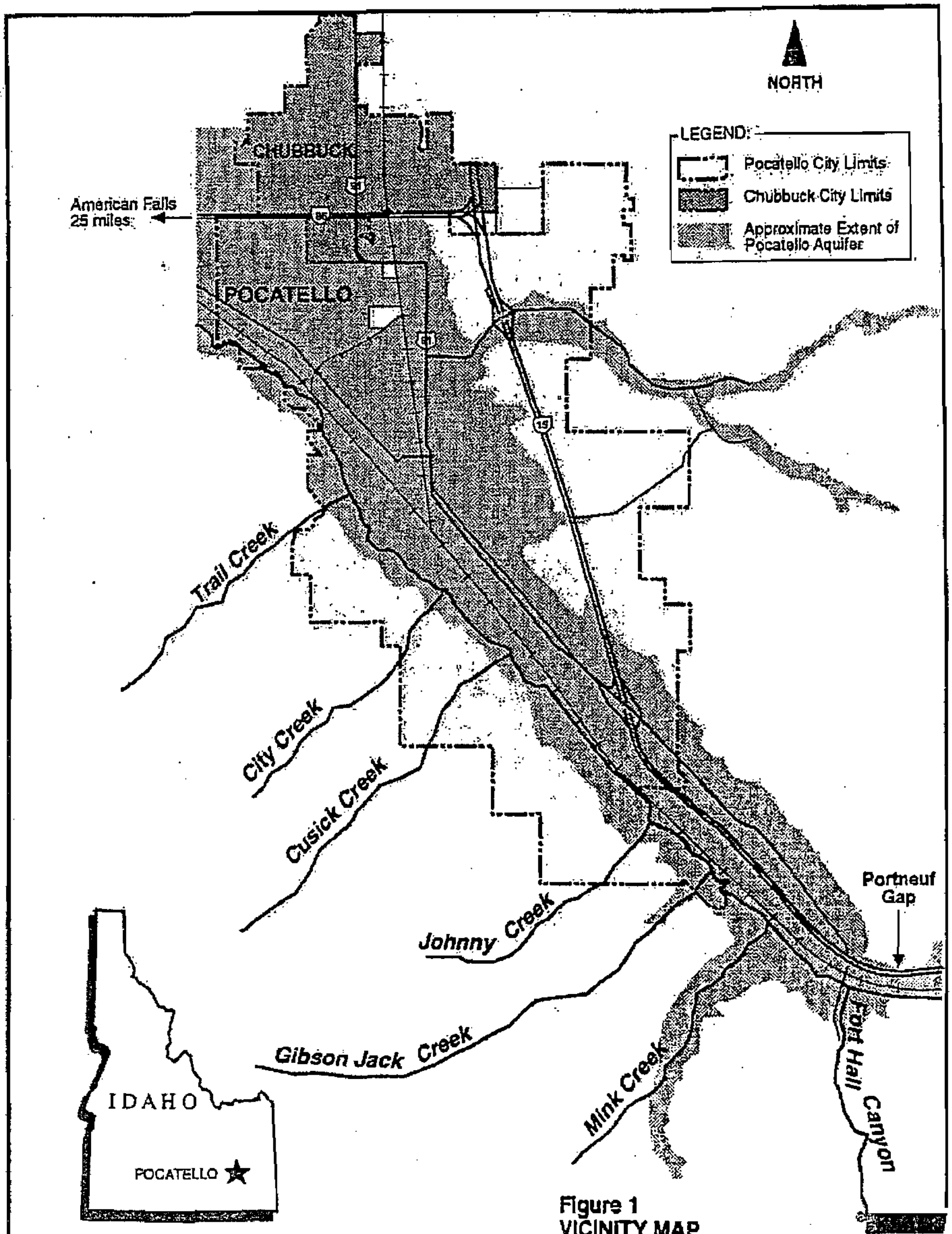

Figure 1
VICINITY MAP
PHASE I AQUIFER MANAGEMENT PLAN
POCATELLO WATER DEPARTMENT
POCATELLO, IDAHO

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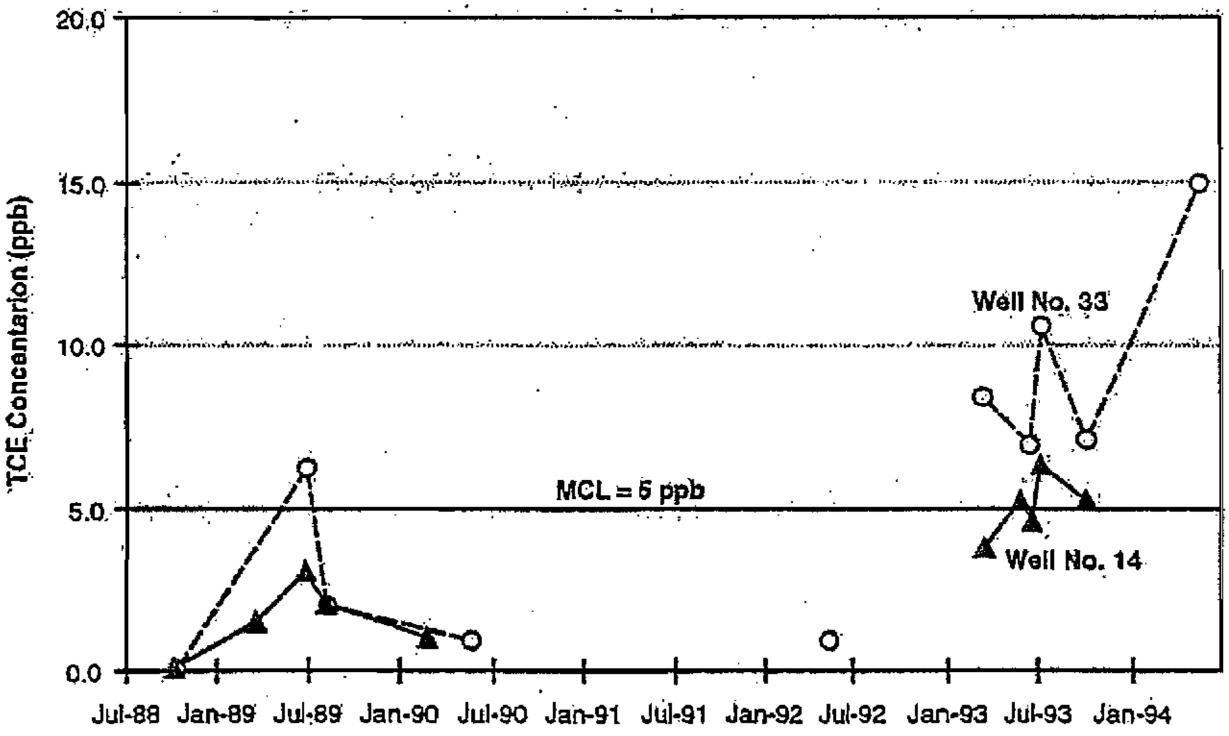
the City utilized 20 wells to meet this demand. However, two of the wells (no. 14 and no. 33) located in the southern portion of the aquifer had to be taken offline because TCE was detected at concentrations greater than the MCL of 5 parts per billion (ppb).

With passage of the 1986 amendments to the Safe Drinking Water Act (SDWA), EPA mandated a series of new drinking water regulations. One of these established the Phase I Rule which set standards for eight VOCs; it became effective January 9, 1989. VOCs are a broad group of man-made chemicals that are widely used in industry as solvents and degreasers. With implementation of these regulations, all community drinking water systems were required to perform water-quality monitoring for four consecutive quarters between 1988 and 1991. In conformance with this rule, initial monitoring was conducted by the City on a quarterly basis from October 1988 through August 1989. As shown in Figure 2, TCE was first detected in municipal wells during the second quarter sampling period. In 1992, EPA then promulgated the Phase V Rule, which required water purveyors to conduct compliance monitoring for the initial eight VOCs. The City resumed monitoring in 1993 and, as displayed in Figure 2, TCE concentrations have generally increased since then.

Figure 2
VOC COMPLIANCE MONITORING RESULTS



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1.2 Location of Study Area

The Pocatello aquifer underlies the floor of the Pocatello Valley. For the purpose of this investigation, the study area was limited to the south valley aquifer area where TCE is known to occur. The initial study area proposed for this investigation was based on perceived hydrologic boundaries of the aquifer in the southern portion of the aquifer. The northeast boundary was defined by the Portneuf River, while the southwest boundary was based on the surficial geologic extent of the Quaternary Alluvium. The study area extended from the south end of the city limits to the north end of Riverside Municipal Golf Course and Ross Park. However, as the study progressed, it became apparent that the Portneuf River did not represent a significant hydrologic boundary and the northeast study margin was extended to the geologic contact of the alluvium with the Portneuf Basalt. The study area was also extended beyond the southern city limits to the mouth of Mink Creek for logistical reasons. The final study area for Phase I is displayed in Figure 3.

1.3 Purpose of the Study

The groundwater resources of the Pocatello Valley are the foundation for the domestic and industrial livelihood of the community. Unlike other cities that rely on nearby rivers for potable supply, Pocatello does not utilize any surface water resources. Prior to this study, insufficient water-quality information was available to evaluate the magnitude and severity of the contamination and only meager information was available regarding the groundwater resources within the Pocatello Valley.

The purpose of this study was twofold:

1. Collect basic hydrogeologic information to qualitatively describe the groundwater flow system and aquifer characteristics with respect to geometry, lithology, and hydraulic properties of the rocks.

2. Develop interpretations of the nature and extent of the TCE contamination identified in the City's municipal supply wells. This included developing a data base to aid in planning, development, and management of the groundwater resources.

The overall objective of this investigation is to understand the physical characteristics of the groundwater flow system in order to utilize hydraulic controls to mitigate TCE contaminant migration.

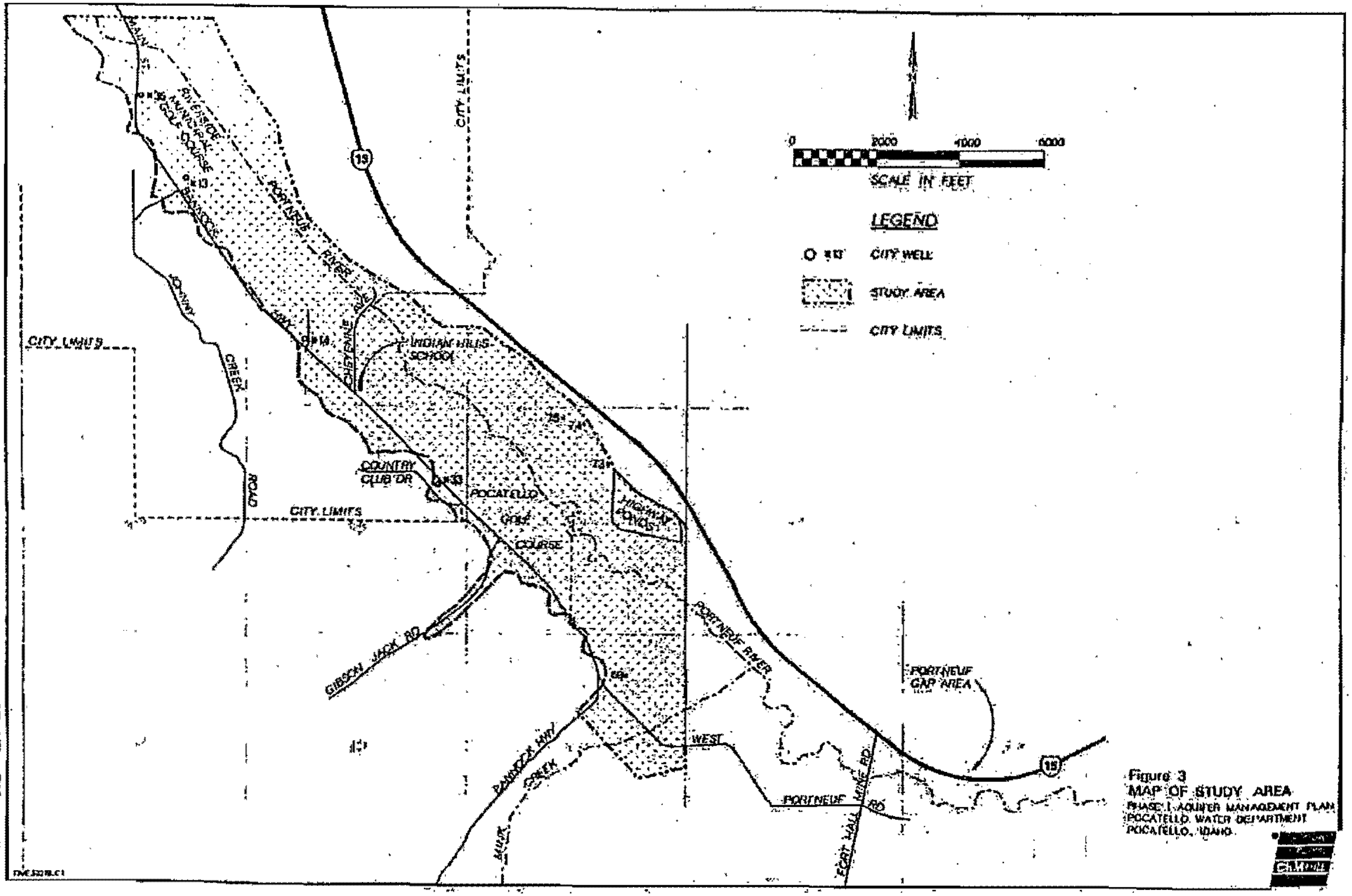


Figure 3
MAP OF STUDY AREA
PHASE I AQUIFER MANAGEMENT PLAN
POCATELLO WATER DEPARTMENT
POCATELLO, IDAHO

7540

1.4 Previous Investigations

A number of early geologic investigations have been completed that describe the basic geologic framework in the Pocatello area. Weeks and Heikes (1908) presented the earliest geologic description of the Fort Hall mining district. Mansfield (1920) described the geology on the Fort Hall Indian Reservation, which included portions of the Michaud and Pocatello quadrangles and subsequently mapped part of the Portneuf quadrangle (1929). The southern two-thirds of the Pocatello quadrangle was mapped by Ludlum (1943). Stearns, Crandall, and Steward (1938) extended their study area into the Pocatello Valley and included a concise section on the groundwater resources. Comprehensive geologic maps of the Michaud and Pocatello quadrangles were published by Trimble (1976). The geologic map of the Pocatello quadrangle has been subsequently updated by Reimber and Bennett (1979). Delineation of the Quaternary age sediments was later refined by Scott (1982).

A variety of site-specific groundwater investigations have been conducted throughout the area by Crosthwaite (1957); West and Kilburn (1963); Norvitch and Larson (1970); Seitz and Norvitch (1979); Goldstein (1981); Jacobsen (1982 and 1984); Corbett (1980); Kindel, Ore, and Welhan (1991); CH2M HILL (1992 and 1994); and Brown and Caldwell (1992 and 1994), but none of these addresses the Pocatello Valley Aquifer. Most recently, Welhan and Meehan (1994) developed a preliminary interpretation of the groundwater flow system for the Pocatello aquifer. Prior to this manuscript, the paucity of relevant groundwater information is best summarized by Welhan and Meehan (1994) as no published hydrogeologic information exists on the aquifer between the Pocatello-Chubbuck city limits or that portion southeast of Pocatello to the Portneuf Gap. As exemplified by this statement, there is clearly a demonstrated need for detailed hydrogeologic information in the Pocatello Valley.

Section 2
Physical Characteristics

This chapter provides a summary of the physical conditions within the study area, including the physiography, climate, demographics, water use, geologic setting, and characteristics of the contaminants of concern.

2.1 Physiography and Climate

The Pocatello Valley is an elongate, northwest-southeast-trending intermontane basin, extending approximately 15 miles in length. The valley is flanked to the southeast by the Bannock Range, while the Pocatello Range forms the northwestern boundary. The City is situated within the valley at an elevation of approximately 4,450 feet above mean sea level (amsl), while peaks in the surrounding mountain ranges rise abruptly to an elevation of 7,200 amsl. At the mouth of the valley is the Portneuf Gap, which is only 1/4 mile wide. The valley floor broadens to about 1 to 2 miles in width and then appreciably widens in the vicinity of Michaud Flats.

Pocatello is located in the Eastern Highlands climatic region in southeastern Idaho (NOAA, 1992). Storms originating over the Pacific Ocean are the primary sources of precipitation. Exceptions occur in the summer when moisture-laden air brought in from the Gulf of Mexico produces thundershowers. Pacific maritime air is most dominant in the winter, producing greater average cloudiness, greater frequency of precipitation, and higher mean temperatures than at the same altitude and latitude in the midcontinent. The climate of eastern Idaho is characterized by a wide range between winter and summer temperatures. The annual average percentage of sunshine is about 70 percent, dropping to 40 percent during the cloudy months of winter. Temperature maxima and minima recorded at the Pocatello Airport were 104°F in August 1969 and -33°F in February 1985, respectively. The warmest temperatures occur during the summer months, June through August (daily mean maximum temperature of 84.1°F), along with the least amount of precipitation (average 3.13 inches for the 3-month period). The coldest temperatures occur during the winter months, December through February (daily mean minimum temperature of 17.8°F), along with the greatest amount of snowfall (average 24.8 inches for the 3-month period). The annual mean precipitation is 12.31 inches. The maximum monthly snowfall recorded at the Pocatello Airport was 37.7 inches of snow in December 1983.

Mean evaporation may be estimated with a form of the Penman equation using wind speed, mean air temperature, mean dew point temperature, and daily solar radiation (NOAA, 1982). Evaporation is greatest in the summer, June through August (29.76 inches for the 3-month period) and lowest in the winter, December through February (3.36 inches for the 3-month period). The annual mean evaporation is 61.14 inches.

2.2 Demography and Water Use

Pocatello has historically grown at a consistent rate from 1910 (about 4,000 residents) through the 1960s. The population was approximately 30,000 in 1960, increasing to 40,000 by 1970. A large proportion of this growth resulted from the annexation of the City of Alameda. No population projections from that period are available; however, U.S. Army Corps of Engineers (COE) reports indicated an annual growth rate for the City of about 2 percent (COE, 1970). This would have resulted in a population of about 48,000 residents by 1980, and a population of 57,600 by 1990 if that average annual growth rate were to continue. It appears the actual growth rate was nearly commensurate with the 1980 projection of about 46,000. However, the closure of two large manufacturing businesses and a reduction in Union Pacific's work force resulted in a decade of no growth; the 1990 population was approximately 46,000. Although demographic statistics are not available for 1994, this trend appears to have changed. General growth indicators such as building permits and new housing starts are at record levels (Reid, 1994).

Pocatello's Water Department currently provides water service to about 16,400 customers (i.e., individual hookups). Prior to 1994, approximately 97 percent of Pocatello's water supply was derived from wells, with only 3 percent supplied from surface water sources (i.e., Mink Creek). With the recent promulgation of EPA's filtration and chlorination rules, Pocatello now relies exclusively on groundwater for all of its domestic, agricultural, and industrial needs. In 1994, water service was supplied by 18 municipal wells to meet the City's annual demand of 5.75 billion gallons. The current daily water use in 1994 stands at nearly 325 gallons per person. Recent growth in the southern part of the valley has included additional suburban residential developments and new county facilities, which have resulted in the City extending service to these areas. It is anticipated that Pocatello's population will continue to expand through the 1990s, thereby increasing the demand to provide good-quality water for the public.

2.3 Geologic Setting

The study area lies within the Basin and Range Physiographic Province of the Sevier Orogenic Thrust Belt. The Pocatello Valley is regarded as a half-grabben with the basin-bounding fault on the east side. Several rock types are present in the basin, including basement crystalline rocks, extrusive rocks, and basin-fill sediments. Figure 4 is a generalized geologic map in the vicinity of the study area.

Bedrock outcrops in the Bannock and Pocatello Ranges are comprised of Precambrian and Cambrian metasediments. The predominant geologic formations include the Caddy Canyon Quartzite, Mutual Formation (quartzite and argillite), Camelback Mountain Quartzite, and the Gibson Jack and Elkhead Limestones. The Tertiary age Starlight Formation laps onto and overlies the Paleozoic and older rocks of the mountains (Trimble, 1976). The Starlight Formation is mainly composed of rhyolitic tuff interstratified with sedimentary breccias. These sedimentary deposits form the benches along the northeast margin of the Bannock

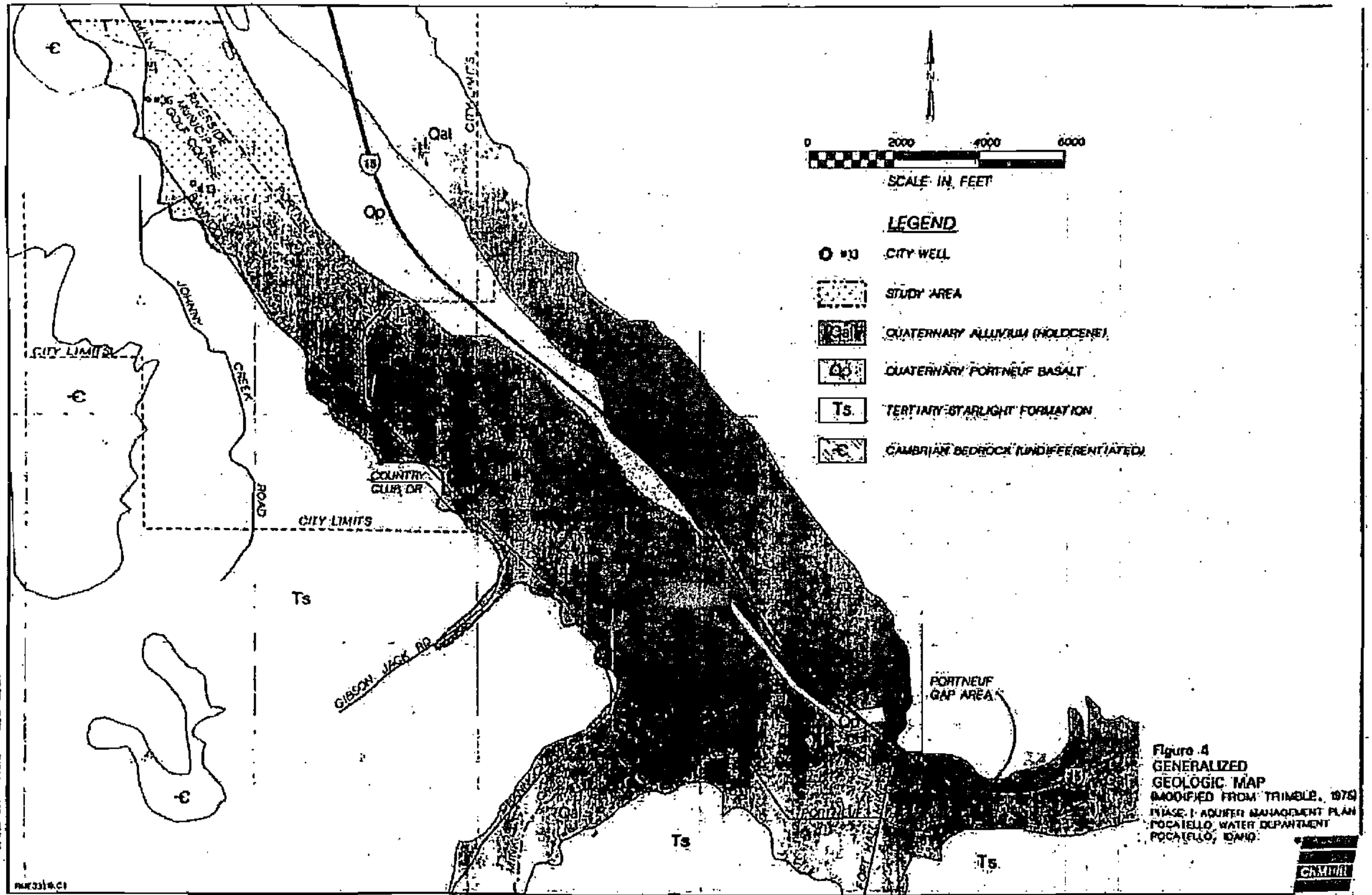


Figure 4
GENERALIZED
GEOLOGIC MAP
(MODIFIED FROM TRIMBLE, 1976)
PHASE I AQUIFER MANAGEMENT PLAN
POCATELLO WATER DEPARTMENT
POCATELLO, IDAHO

7544

Range. Much of the foothills is covered with a layer of wind-blown silty sand (loess) that masks the underlying bedrock.

The broad bench along the northeast side of the valley is formed by the remnants of two successive basalt flows. These flows are recognized as the Portneuf Basalt. It is believed they originated in the Gem Valley and flowed down the Portneuf Valley. The alluvial valley floor is mantled with a veneer of Holocene silt of variable thickness (0 to 40 feet). These fine-grained deposits are then underlain by Pleistocene gravel deposits derived from the Bonneville flood. A more detailed description of the Quaternary geology is presented in Chapter 4.

2.4 Surface Hydrology

The Portneuf River is the primary surface water feature in the study area. The headwaters of the river are located in the Blackfoot Mountains to the northeast of Pocatello. The river flows southward through the Portneuf Valley until it assumes a westerly course through the Portneuf Gorge. The Portneuf River bends sharply northward and flows in a channel on the east side of the low-lying basalt plateau before discharging through the Portneuf Gap. In this vicinity, the river has been described as being perched above the water table and thought to be a loosing stream (Norvitch and Larson, 1970). West of the Gap, a 6.2-mile reach of the river was channelized for flood control by the COE. The project consists of a 1.5-mile stretch of rectangular concrete channel and 4.7 miles of rivetted levee, which was completed in 1968 (CH2M HILL, 1994). The COE is currently studying the feasibility of restoring the concrete-lined portion to a more natural condition.

Marsh Creek, a major tributary to the Portneuf River, originates from numerous small drainages adjacent to Marsh Valley. It flows generally northward to its confluence with the Portneuf River near Inkom. The drainage for the entire watershed covers an area of approximately 1,200 square miles.

2.5 Contaminants of Concern

TCE and PCE are the two most frequently detected organic contaminants in municipal supply wells (WCGR, 1992). The EPA estimates that 3.6 percent of the nation's groundwater supplies are contaminated with TCE (IRPTG, 1985). TCE has resulted in the closure of City wells no. 14 and no. 33 and TCE and/or PCE have been identified in 10 of the City's other 18 municipal supply wells. Once in the groundwater, they are sufficiently soluble to cause widespread dissolved phase contamination and are generally pervasive contaminants.

TCE and PCE are members of a diverse group of organic compounds known as aliphatic hydrocarbons. Chloride ions are typically added through the process of industrial halogenation to synthesize various derivatives that form chlorinated solvents. These compounds are produced at numerous plants throughout the United States, Europe, and Canada and find widespread application in many different processes. In the United States, production of halogenated chemicals steadily increased during the 1960s and 1970s, but has recently decreased (Moore and Ramamoorthy, 1984). Because of their toxicity, these chemicals are being replaced by compounds that naturally biodegrade to inert compounds.

2.5.1 Contaminant Characteristics

TCE and PCE are commonly referred to as dense nonaqueous-phase liquids (DNAPLs). Nonaqueous-phase liquids refer to chemicals that are in an organic phase when they are sold or used—not in an aqueous solution. DNAPLs are immiscible with, and more dense than, water in their undiluted form. Because of this immiscibility, these substances do not readily mix with water; instead, they tend to slowly dissolve in it (THWC, 1994). These chemicals have distinct chemical and physical properties that influence their movement in the subsurface (see Table 1).

Table 1
Physical and Chemical Properties of TCE and PCE

Properties	Trichloroethylene (TCE)	Tetrachloroethylene (PCE)
Physical State	Liquid (at 20°C)	Liquid (at 20°C)
Color	Colorless*	Colorless
Odor	Sweet, chloroform-like	Ether-like
Odor Threshold (ppm)	100	50
Density (g/mL 20°)	1.462	1.625
Freeze/Melt Point (°C)	-84.4/-73	-22.40
Boiling Point (°C)	87.2	121
Flash Point	Practically non-flammable	None
Vapor Pressure (mm Hg @20°C)	58.7	14
Solubility in Water (ppm @20°C)	1000	200
Henry's Law Constant	0.00892	0.0227
Chemical Formula	$CHClCCl_2$	CCl_2CCl_2

*Often dyed pale blue.

7546

Trichloroethylene is synonymous with trichloroethene, acetylene trichloride, ethylene trichloride, and triciene. Tetrachloroethylene is also known as perchloroethylene, perchloroethylene, ethylene tetrachloride, nema, and carbon dichloride.

2.5.2 Contaminant Movement

DNAPL contamination can occur in one or more of the following four different phases:

- Free phase (i.e., free product) where DNAPL occurs as continuous, nonaqueous layers
- Residual concentrations where DNAPL is adsorbed onto soil or aquifer material (i.e., noncontinuous droplets or ganglia)
- Vapor phase in the pore spaces of the unsaturated zone
- Dissolved phase (water-soluble) as dissolved plume in the groundwater

This four-phase distribution process is complex because contaminants can partition into one, two, or all of these phases depending on their specific chemical properties. Partitioning refers to the process by which a contaminant becomes distributed between different media (i.e., air, soil, and water). Equilibrium partitioning models have been developed to evaluate transport pathways. As shown in Table 2, the estimates for an unsaturated topsoil model indicate that a significant amount of TCE is expected to be present in the soil-water and soil-air phases and thus available to be transported through these phases by bulk transport (IRPTG, 1985). In saturated, deep soils (containing no soil air and negligible organic carbon), a much higher percentage of TCE is likely to present in the soil-water phase.

Table 2
Equilibrium Partitioning Calculations for Trichloroethylene in Model Environments

	Estimated Percent of Total Mass of Chemical in Each Compartment		
Soil	**Soil**	**Soil-Water**	**Soil-Air**
Unsaturated topsoil:			
at 20°C	94.3	3.1	2.6
at 10°C	95.3	3.1	1.6
Saturated deep soil	73.5	26.5	–

When DNAPLs are released in the unsaturated zone in sufficient quantity, a portion will become immobilized within the soil profile by adsorption. However, infiltrating snowmelt or rainfall can displace and remobilize DNAPLs in the soil and thus provide a continued

7547

source for groundwater contamination. The remaining portion of the release will continue to move downward through the water table, partially or completely filling interstitial pore spaces. In sandy material, residual TCE will saturate approximately 20 percent of the available pore space (Cohen and Mercer, 1993). Downward movement will continue until the pressure head is depleted and vertical movement ceases, leaving residual pockets occurring as blobs or ganglia or until an impermeable zone is encountered and the DNAPLs spread out forming pools (Pearce and others, 1994). Groundwater flowing through these residual pockets and pools will then result in the formation of a dissolved-phase contaminant plume. Because TCE and PCE have relatively low solubility, it may require up to several decades and possibly centuries before residual and pool zones are depleted by natural dissolution alone (Kueper and others, 1993). Since the drinking water standards for TCE and PCE are orders of magnitude below their aqueous solubility, it follow that the associated contaminant plumes will be large, and the majority of water in these plumes will not comply with regulatory limits. This concept is illustrated by comparing the solubilities of TCE and PCE at 1 percent (see Table 3). As shown, the concentration of TCE and PCE at 1 percent is approximately four orders of magnitude greater than the highest concentration detected in City well no. 33.

Table 3
Comparison of Solubilities for TCE and PCE

Analyte	Solubility (ppb @ 20°C)	1 Percent (ppb @ 20°C)	City Well No. 33*	Idaho Drinking Water MCL (ppb)
TCE	1,000,000	10,000	15.0	5.0
PCE	200,000	2,000	1.2	5.0

*Analytical results from June 2, 1994, sampling event.

2.5.3 Health Hazards

TCE and PCE are central nervous system depressants and irritants and, as such, are known carcinogens. For this reason, the maximum contaminant level set by EPA for municipal water supplies for both TCE and PCE is 5 micrograms per liter (ppb). This level assumes that an individual ingests 2 liters of water per day for a lifetime exposure rate of 70 years. At this rate, the incremental cancer risk is 1×10^{6} (i.e., one person in a million). Assessment of other exposure pathways such as inhalation, dermal, or ingestion of contaminated foods is beyond the scope of this study.

2.5.4 Uses

TCE is widely used as an industrial solvent. Approximately 90 percent of the TCE produced in the U.S. is used for metal degreasing (IRPTG, 1985). It has historically been used as a dry-cleaning agent but has been replaced by PCE. It is also the preferred solvent of the micro-chip processing industry for vapor degreasing of micro-chips and wafers. Other applications include its use as a low-temperature heat exchange fluid, fumigant, and as a dilutant in paints and adhesives. In the past, TCE was use as an extractive solvent in foods (i.e., decaffeinating coffee) and as an inhalation anesthetic during some types of short-term surgery (Moore and Ramamoorthy, 1984). These applications were discontinued because of the possible carcinogenic effects.

PCE is employed primarily as a solvent in dry-cleaning shops and to a lesser extent as a degreaser in metal fabrication industries. Industry sources report that dry cleaners account for about 60 percent of PCE use in the United States (Crooks, 1993—WE&T). Its popularity in this area is due to its nonflammability, ease of recovery for reuse, and compatibility with various fabrics. Other uses include cleaning for tool and die manufacturing, printing presses and publishing, and paint removal and stripping. PCE is also the primary component of several commercial products such as brake and carburetor cleaners and spot removers, but usually contain less than 30 percent (Crooks, 1993—WE&T).

Section 3
Investigation Procedures

The primary objective of this investigation was to obtain the necessary data to develop an understanding of the hydrogeologic framework and determine the nature and extent of TCE contaminant migration within the study area.

Investigative activities consisted of the following data collection and analytical tasks:

- Domestic Well Inventory and Water Quality Sampling
- Monitoring Well Installation and Development
- Monitoring Well Water Quality Sampling
- Aquifer Testing
- Water Level Monitoring
- Capture Zone Delineation
- Feasibility Assessment of Groundwater Treatment Alternatives

A description of the work performed for each task is presented in the following subsection. Interpretations regarding the extent of the TCE contamination and migration potential based on the data collected are presented in Sections 4, 5, and 6.

3.1 Task 1—Domestic Well Inventory and Water Quality Sampling

The purposes of the domestic well inventory and associated water quality sampling were to document the locations of domestic and irrigation wells in the study area and to delineate the lateral extent of the TCE contaminant plume within the southern reaches of the Pocatello Aquifer. Prior to implementing field activities, existing Well Driller's Reports were obtained and reviewed to initially evaluate the magnitude and areal distribution for all of the wells registered with the Idaho Department of Water Resources (IDWR).

Seventy domestic and irrigation wells, four municipal wells, two Idaho State University (ISU) test wells, and one spring were field verified in a door-to-door survey during the periods from November to December 1993 and April to May 1994. A well inventory form containing the owner's name and address, legal location, well depth, casing diameter, and other information ascertained during the site visit was completed for each well inventoried. A detailed description of the wellhead location and a photograph were also included as part of the inventory. Where well access was feasible, a measuring point for each domestic well was established and a static water level was recorded. When possible, a water sample was collected from an appropriate tap and the water quality field parameters of pH, temperature, specific conductivity (SC), alkalinity, chloride, and iron were measured. Completed field inventory forms for each domestic and irrigation well are contained in Appendix A.

After the inventory was completed, the wells were screened based on their geographical distribution and well completion specifications. This information was then used to select representative wells to be sampled for analyses of VOCs. A water sample was collected from 42 different wells after purging the well of at least three well-bore volumes. Samples were collected from an outside faucet or frost-free hydrant near the wellhead to ensure the water had not been exposed to an in-house treatment system (i.e., water softener or carbon filter) prior to collecting a sample. Four duplicate samples were collected and a trip blank accompanied sample transfer to the laboratory to provide quality assurance/quality control (QA/QC). Rigorous sample collection and decontamination protocols were followed to ensure that the results were representative of actual groundwater conditions. The samples were placed on ice in a cooler and delivered to the laboratory. The samples were submitted for analysis of routine VOCs using EPA Method 502.1. Well sampling information forms are contained in Appendix B. Copies of the laboratory reports for each sample and accompanying chain-of-custody forms are included in Appendix C.

All of the inventoried wells were surveyed to establish the elevation of the measuring point at the wellhead. These elevations are referenced to two local benchmarks that are included in the 1988 North American Vertical Datum (NAVD) set. City of Pocatello field point number 26 is a 2-inch-diameter aluminum monument located on the prominent hill west of the Riverside Municipal Golf Course and south of Johnny Creek Road. City of Pocatello field point number 5190 is a Bureau of Land Management (BLM) aluminum monument located on the hillside approximately 0.5 mile south of Gibson Jack Road and 150 feet west of South Bannock Highway; these were used as the control datum.

Domestic well locations were plotted on detailed aerial base maps (scale 1" = 200') provided by the City. Horizontal coordinates (northing and easting) for the domestic wells were scaled from these maps. Although the aerial maps are referenced to the 1927 datum of the Idaho State Plane Coordinate System, conversion factors were applied to all the domestic well horizontal coordinates to tie them to the 1983 North American Datum (NAD). The conversion factors are as follows:

- NAD 83 Northing = 1927 Northing - 35.88 feet
- NAD 83 Easting = 1927 Easting + 155,975.46 feet

Several of the domestic wells were surveyed for horizontal control to confirm the accuracy of the map scaling process and coordinate conversion.

A summary of the information derived from the domestic well inventory, well survey, and water quality sampling program is presented in Table 4; all inventoried well locations are shown in Figure 5. The information generated from this activity provided the foundation for the base map used in this report.

Table 4
Domestic Well Inventory Summary

Well ID	Reported Well Owner	Owner's Address	Township Range	Section	NAVD GS Elev (ft amsl)	NAVD MP Elev (ft amsl)	1983 N.A.D. Northing (ft)	1983 N.A.D. Easting (ft)	Well Depth (ft bmp)	Pump Depth (ft bmp)
1	LISS Railyard	South Bannock Hwy	T15/R35E	17CDD	4511.4	4517.45	418,197	396,643		
2	Lewis, Randy	3070 Bannock Hwy	T15/R35E	18CBA	4532.0	4534.15	415,839	396,100	91.2	92.2
3	Armstrong, Rod	9211 Gibson Jack	T15/R35E	17CCB	4590.4	4591.66	415,974	394,225	100.0	90.0
4	Perry, Chris	3028 Ratnung Trail	T15/R35E	17CDA	4592.0	4509.00	416,084	395,735	583.0	No pump
5	Walsh, Grant	3157 Bannock Hwy	T15/R35E	17CDD	4549.0	4544.68	416,244	394,515	72.1	—
6	Farrington, Ralph	8953 Gibson Jack	T15/R35E	17CBC	4544.2	4531.30	416,734	394,435	47.1	
7	Juniper Hills C.C.	6600 Bannock Hwy	T15/R35E	17CBA	4521.5	4517.89	417,144	394,165	92.9	
8	Juniper Hills C.C.	6600 Bannock Hwy	T15/R35E	17CBA	4519.5	4520.30	417,334	394,705	115.9	No pump
9	Mitchell, Clarence	3492 Bannock Hwy	T15/R35E	17CBB	—	4532.56	417,334	394,015	136.3	132.0
10	City Well 33	South Bannock Hwy	T15/R35E	17ADA	4502.5	4504.04	418,389	393,125		
11	Juniper Hills C.C.	6600 Bannock Hwy	T15/R35E	17BDB	—	—	418,216	393,435	102.0	
12	Akers, Herman	2895 Bannock Hwy	T15/R35E	16AAC	4485.1	4446.37	419,086	393,090	103.0	90.8
13	Akers, Sherman	3099 Bannock Hwy	T15/R35E	16AAC	4483.9	4406.11	419,104	392,835	85.0	No pump
14	Angle, Ray	5768 Bannock Hwy	T15/R35E	16AAC	4451.6	4450.35	419,144	393,651	74.3	
15	Winsley, Boyd	5631 Bannock Hwy	T15/R35E	16ABD	—	—	419,474	391,945		
16	Reese, Mike	5680 Bannock Hwy	T15/R35E	17AAB	4466.6	4431.43	419,634	392,535	124.6	93.5
17	Clubba, Bill	5533 Mia Pones	T15/R35E	18ABB	4492.5	4497.39	417,539	391,915	81.0	61.1
18	Reese, Mike	5680 Bannock Hwy	T15/R35E	18AAB	4411.6	4413.38	419,705	392,583	180.4	142.0
19	Otterbury, Mary	5540 Bannock Hwy	T15/R35E	15ABA	4451.0	4483.29	419,837	392,343	68.0	67.0
20	Holliday, Lyman	5541 Bannock Hwy	T15/R35E	15ABA	4459.2	4451.80	419,834	392,063	84.0	
21	Clutch, Margaret	5811 Bannock Hwy	T15/R35E	15AAA	4460.5	4483.01	419,926	393,735	80.0	
22	Powell, John	5500 Bannock Hwy	T15/R35E	15CCD	4478.8	4480.08	420,134	393,223	107.6	100.0
23	Ogerhen, Steve	5175 Bannock Hwy	T15/R35E	2CDD	4489.0	4472.92	420,574	390,905	68.0	68.0
24	Hart, Vicki	5023 Cheyenne	T15/R35E	2CBA	4412.0	4474.30	421,719	390,713	65.0	
25	[illegible]	Cheyenne Ave	T15/R35E	2DCA	4466.4	4467.93	421,244	392,025	63.8	No pump
26	Wisler, Lincoln	4895 Bannock Hwy	T15/R35E	2CDD	4508.1	4476.82	421,314	390,000	65.3	No pump
27	City Well 14	South Bannock Hwy	T15/R35E	2CAC	4467.9	4410.33	421,739	389,855	83.0	
28	Newton, Michael	4345 Bannock Hwy	T15/R35E	3CDC	4499.4	4500.49	422,034	389,125		
29	Ferncher, Dennis	4390 Bannock Hwy	T15/R35E	3CDA	4467.3	4468.34	422,216	389,615	76.5	66.5
30	Kinsdell, Bob	4405 Bannock Hwy	T15/R35E	3CDD	4413.0	4414.14	422,514	388,795	120.0	89.6
31	Tucker, Rick	505 Crest Ave	T15/R35E	3CAB	4471.7	4494.60	422,534	389,935	40.0	
32	Higgins, Harold	650 Lee Lane	T15/R35E	3CDA	4463.9	4464.86	422,644	387,800	88.0	
33	Pickard, Lynn	775 Lee Lane	T15/R35E	3CDA	4461.7	4464.09	422,614	387,300	93.0	63.0
34	Schwartz, J.D.	4330 Bannock Hwy	T15/R35E	10CC	4460.9	4463.21	422,814	387,075	80.0	70.0
35	Schwartz, J.D.	4330 Bannock Hwy	T15/R35E	10CC	4461.2	4461.45	422,924	388,875	121.0	35.0
36	Pfeiffer, Bill	4350 Tech Farm Rd	T15/R35E	10CC	4461.4	4456.31	423,054	385,775	133.0	73.0
37	Pfeiffer, Bill	4350 Tech Farm Rd	T15/R35E	10CC	4460.1	4461.64	423,170	385,995	44.0	
38	Young, Chris	4320 Tech Farm Rd	T15/R35E	10CC	—	—	423,334	385,631		
39	Frank, Lee	4300 Tech Farm Rd	T15/R35E	10CC	4461.3	4431.61	423,124	385,663		64.3
40	McIntosh, Marge	4161 Bannock Hwy	T15/R35E	12ADB	4474.4	4415.71	421,574	381,895	65.5	
41	Frank, Joe	4100 Tech Farm Rd	T15/R35E	10CD	4459.8	4460.49	423,574	381,875	63.0	
42	Overall, James	4305 Tech Farm Rd	T15/R34E	12ADA	4480.7	4455.17	423,684	388,525	58.0	47.4
43	Stewart, Bob	675 Golf Drive	T15/R34E	12ADA	4480.6	4454.14	425,014	388,425		37.2
44	Christensen, Bill	4044 Tech Farm Rd	T15/R35E	10CD	4460.8	4452.06	424,034	388,263	42.0	41.0
45	Roberts, Delbert	711 Golf Drive	T15/R34E	12ADA	4482.8	4463.67	424,016	388,193	32.3	
46	[illegible]	3960 Tech Farm Rd	T15/R35E	10BC	—	—	424,339	388,335	90.0	
47	Mennecke, Deb	3903 Tech Farm Rd	T15/R35E	10BC	4459.3	4454.13	424,430	388,750	80.0	67.6
48	Ames, Ruby	3117 Mandy Creek	T15/R34E	12ABB	4541.9	4543.23	425,134	388,045	100.0	
49	Dundy, Gerald	3800 Tech Farm Rd	T15/R35E	10BB	4477.5	4461.02	425,414	388,715	100.0	69.4
50	City Well 13	South Bannock Hwy	T15/R34E	11CU	4462.3	4463.41	425,304	387,185	101.0	93.4

Well ID	Inventory Date	Date of Inventory Static WL (ft bmp)	Date of Inventory WL Elev (ft amsl)	2-Dec-93 Static WL (ft bmp)	2-Dec-93 WL Elev (ft amsl)	Casing Diameter (in)	Casing Depth (ft)	Perforated Interval (ft)	SC at 25 C (umhos/cm)	Temp (C)	pH (su)	Alkalinity (mg/L)	Chloride (mg/L)	Iron (mg/L)	TCE (ug/L)	PCE (ug/L)	Well Use Area?	Comments
1	12-May-94	61.05	4456.40			6									77.1	2.9	Yes	Ballpark irrigation well
2	11-Nov-93	73.82	4460.33			6			398	11	7.34	<315	45	0.1	16.1	1.2	No	
3	11-Jan-93			17.08	4574.58	6			420	10.3	7.25	<315	75	0.4			No	
4	11-Nov-93	48.64	4460.36			16	545	36-555	360	12.9	7.90				ND	ND	Yes	No pump
5	12-Nov-93	17.92	4526.74			6		-	551	10.4	7.31	<315	30	4.2	ND	ND	No	
6	13-Nov-93	14.56	4525.34			6											No	
7	11-Nov-93	67.68	4456.21	48.08	4455.81	10											No	South abandoned well
8	11-Nov-93	66.74	4453.56	65.31	4455.99	10			312	10.9	7.96				2.0	ND	No	North abandoned well
9	13-Nov-93	10.64	4521.92			6			313	11	7.36	<315	25	1.0	ND	ND	No	
10	01-Dec-93	51.25	4452.79			—											No	
11	11-Nov-93	No access				12											No	Irrigation well, winterized
12	13-Nov-93	36.83	4449.92			6	100	None	383	9.8	7.29	<383	41	1.5	3.0	ND	Yes	Currently used well
13	12-Nov-93	38.92	4441.19	37.23	4446.85	8											No	Abandoned well, no pump
14	12-Nov-93	11.90	4449.85			4	80	Yes	738	10.2	7.30	<315	40	1.4			No	
15	14-Nov-93	No access				8											No	Old unused well, no access
16	13-Nov-93	40.99	4441.41			8	-	70-84	620	11.3	7.70	<315	32	0.8	4.7	ND	Yes	Domestic well
17	14-Nov-93	51.57	4445.72			8	81	Yes	533	8.8	7.11	<315	65	0.8	2.7	ND	Yes	
18	13-Nov-93	36.03	4447.55	34.21	4447.34	10	315		696	10.9	7.18	<315	42	7.0			No	Irrigation well
19	13-Nov-93	No access				8	68	Yes	712	10.4	6.94	<383	38	0.4			No	Owner prohibited well access
20	13-Nov-93	37.13	4446.01			8	84	50-82	706	10.2	7.31	<315	40	1.0	3.6	ND	Yes	
21	12-Nov-93	30.85	4452.76			6	85	70-83	721	9.6	7.13	<315	41	0.5	1.9	ND	Yes	
22	14-Nov-93	32.37	4481.76			6	100	Yes	472	13	7.18	<315	40	0.8	ND	ND	No	
23	14-Nov-93	42.30	4441.63			8	69										No	Well in basement of house
24	15-Nov-93	32.83	4441.47			8											No	
25	02-Dec-93	22.90	4444.85	22.90	4444.85	4	65	55-65	695	10.6	7.49				ND	ND		Near Indian Hills School
26	15-Nov-93	54.69	4440.13			6											No	No pump
27	01-Dec-93	30.52	4439.81			12	82	Yes									No	
28	15-Nov-93	No access				6			350	11.3	7.14	<383	34	0.1			No	Access plug welded over
29	14-Nov-93	29.35	4438.99			8			760	10.8	7.09	<383	39	2.1	2.2	ND	No	
30	15-Nov-93			17.33	4460.81	6			434	11.4	7.36	<383	28	1.4	ND	ND	No	
31	16-Nov-93	24.37	4470.23			6	80	None									Yes	
32	15-Nov-93	No access				6	89	79-89	753	11.3	7.30	<315	38	0.4	0.1	ND	Yes	Temporarily no well access
33	15-Nov-93	25.90	4438.19			10	95	None	718	9.5	7.44	<315	65	3.1	3.4	0.6	Yes	New (in use)
34	10-Nov-93	24.45	4437.78	24.34	4457.92	8			816	10.8		<315	42	0.8			No	Irrigation well
35	10-Nov-93	15.68	4445.77	13.77	4443.68	8			679	11.5	7.87	<315	79	1.5	ND	ND	No	Domestic well
36	16-Nov-93	17.35	4439.01			0			830	10.3	7.42	<315	149	0.5			No	Domestic well
37	16-Nov-93			24.37	4437.31	8	34	None									Yes	Irrigation well
38	18-Nov-93	No access				6			930	12.4	7.32	<315	110	1.1			No	Old unused well, no access
39	16-Nov-93	18.14	4437.47			8											No	Domestic well, winterized
40	16-Nov-93	34.16	4402.87	38.17	4437.06	10											No	
41	16-Nov-93			24.03	4438.46	10	79	None	811	10.9	7.43	<311	42	1.4	6.3	ND	Yes	Irrigation well
42	16-Nov-93	19.34	4435.61			6			809	10.8	7.39	<315	47	3.5			No	
43	17-Nov-93	19.12	4435.21			6											No	
44	17-Nov-93	16.41	4435.65			6			655	10.6	7.83	<315	44	0.5	ND	ND	No	
45	17-Nov-93	20.00	4433.09			6			869	10.9	7.59	<315	54	1.0	6.3	ND	No	
46	17-Nov-93	No access				8			703	10.5	7.78	<315	48	1.3			No	Steel plate prevents access
47	16-Nov-93	19.46	4435.27	19.37	4435.36	6			695	9.8	7.42	<383	61	1.5	ND	ND	No	
48	17-Nov-93	No access				10			919	18.5	7.33	385-770	53	1.2			No	Access plug welded on
49	16-Nov-93	26.48	4434.54	26.44	4434.58	6			708	9.5	7.41	<383	47	1.5	ND	ND	No	
50	22-Nov-93	30.58	4413.31	30.71	4432.99	14	101	61-100							3.2	ND	Yes	

Table 4

Domestic Well Inventory Summary

Well ID	Registered Well Owner	Owner's Address	Township Range	Section	1988 N.A.V.D. GS Elev (ft amsl)	1988 N.A.V.D. MP Elev (ft amsl)	1983 N.A.D. Northing (ft)	1983 N.A.D. Easting (ft)	Well Depth (ft bgs)	Pump Depth (ft bgs)	Inventory Date	Date of Inventory Depth WL (ft btoc)	Date of Inventory WL Elev (ft amsl)	7-Dec-93 Depth WL (ft btoc)	7-Dec-93 WL Elev (ft amsl)	Casing Diameter (in)	Casing Depth (ft)	Perforated Interval (ft)	SC at 25 C (umhos/cm)	Temp (C)	pH (su)	Alkalinity (mg/L)	Chloride (mg/L)	Iron (mg/L)	TCE (ug/L)	PCE (ug/L)	Well Log Avail	Comments
51	Haxe, Gary	3409 Bannock Hwy	T7S/R34E	10CC	4482.2	4480.71	415,644	384,615			17-Nov-93			48.71	4431.91	6			1929	9.9	7.48	<315	36	0.6	ND	ND	No	
52	Hickley, Eldon	930 Shale Dr	T7S/R34E	4CDD	—	—	415,844	385,835	170.0	42.0	19-Nov-93	Flowing				6			367	14.2	7.90	<315	18	0.1			No	Flowing artesian well
53	DiCataldo, Tony	3121 Bannock Rd	T7S/R34E	1CDA	—	—	416,150	383,315	200.0		18-Nov-93	Flowing				6	285	115-205	249	9.7	7.18	1<315	19	3.0			Yes	Flowing artesian well
54	Collins, Allen	3141 Bannock Rd	T7S/R34E	1CDA	—	—	426,344	383,399	Spring	No pump	18-Nov-93	Spring							306	17.5	7.40	<315	24	0.3	ND	ND	No	Spring
55	Collins, Allen	3141 Bannock Rd	T7S/R34E	1CDA	—	—	426,374	383,845	205.0		18-Nov-93	Flowing				6	200	132-146	323	13.1	7.38	<315	24	0.8			Yes	Flowing artesian well
56	Williams, John	3083 Bannock Rd	T7S/R34E	1CDA	4499.5	4493.75	426,504	383,900		31.5	19-Nov-93	29.53	4464.22	29.10	4464.65	6			1464	12.3	7.21	305-770	198	0.6			No	
57	Coffin, Blaine	2935 Hawkwood	T7S/R34E	1CAD	4482.9	4482.87	427,164	385,733	187.7		18-Nov-93	47.84	4435.03			6	172	None									Yes	Abandoned well
58	Coffin, Blaine	2935 Hawkwood	T7S/R34E	1CAD	4476.6	4476.27	427,314	385,875	100.0		18-Nov-93	No access				6			823	10.9	7.49	<315	76	1.2	2.7	ND	No	Current domestic well; no access
59	ISU/PAMW-2	South Bannock Hwy	T7S/R34E	1DBC	4465.0	4463.59	427,354	386,123	160.2	No pump	22-Nov-93	35.33	4430.26			4	160	120-140	790	10.1	7.74				4.3	ND		Near City Well #36
60	City Well 36	South Bannock Hwy	T7S/R34E	1DBC	—	—	427,394	386,155	300.0		23-Nov-93	37.79				20	300	135-175							4.0	ND	Yes	
61	Hadley, Kirk	1815 Hawkwood	T7S/R34E	1CAA	4502.6	4501.99	427,554	383,600	93.5	82.0	18-Nov-93	72.68	4429.31	72.67	4429.32	6	92	None	817	11.3	7.24	<315	78	1.0			Yes	
62	Leeds, Gary	1841 Hawkwood	T7S/R34E	1CAA	4497.9	4498.13	427,674	385,635	93.4	81.2	18-Nov-93	48.92	4429.23			5.6	97	None	420	10.9	7.44	<315	75	1.4	2.5	ND	Yes	
63	Hall, Tom	3651 E. Grant	T7S/R34E	1BDD	4500.6	4500.32	428,094	385,350	116.0		17-Nov-93	No access				6	101	None	898	9.9	7.45	<315	56	1.8			Yes	
64	Pierce, Todd	2727 Bannock Hwy	T7S/R34E	1BDB	4472.0	4473.01	428,184	385,981	83.4	78.5	19-Nov-93	43.79	4429.22	43.90	4429.11	6			721	10.2	7.33	<315	34	0.7	ND	ND	No	
65	Armstrong, Hatton	2721 Bannock Hwy	T7S/R34E	1BDD	4480.2	4481.22	426,384	383,575	83.2	No pump	19-Nov-93	52.48	4428.74	52.36	4428.86	6	83	None	816	10.8	7.67				ND	ND	Yes	No pump, irrigation well
66	Waeth, Carma	2871 Bannock Hwy	T7S/R34E	1BDD	4498.9	4457.97	428,624	383,963		38.5	29-Nov-93	34.15	4423.41	34.01	4423.83	6			679	10.7	7.35	<315	43	1.4	ND	ND	No	Well in basement of home
67	Kerby, Bob	2396 South Grant	T7S/R34E	1BDB	4466.0	4467.19	431,464	384,833	89.0	80.7	03-Dec-93	38.78	4428.41			6	89	None	781	11.5		<315	79	1.0	4.8	ND	Yes	
68	Johnson, Della	4173 Tyhee Rd	T7S/R35E	30ACD	4539.5	4536.97	412,491	397,278	113.6		26-Apr-96	3.40	4533.57			6			1665	9	7.69				ND	ND	No	
69	LDS Farm Domestic	South Bannock Hwy	T7S/R35E	20ACB	4510.3	4511.14	413,909	397,678	96.0	89.0	12-May-96	32.76	4438.38			6	96	80-96	814	10.5	8				31.3	1.8	Yes	LDS Farm domestic well
70	LDS Farm East	South Bannock Hwy	T7S/R35E	20AD	4502.4	4510.63	413,383	398,736			12-May-96	48.46	4462.16														No	LDS Farm south irrigation well
71	LDS Farm North	South Bannock Hwy	T7S/R35E	17DCD	4496.5	—	414,916	397,693	89.0		12-May-96	No access					89										No	LDS Farm north irrigation well next to PA-5
72	Ensdowns	Hildreth Rd	T7S/R35E	17DAD	4481.8	4481.41	416,771	399,303	73.4	No pump	09-Jul-96	27.06	4454.40			18	73	70-86	700		7.03	248			ND	ND	No	Rain irrigation well next to PA-10
73	Hildreth, Howard	8424 Hildreth Rd	T7S/R35E	17ABD	4491.0	4491.70	418,867	397,332	69.0		26-Apr-96	37.59	4454.12			10	69	35-69	713	9.6	7.45				ND	ND	Yes	Irrigation well
74	Hildreth, Howard	8420 Hildreth Rd	T7S/R35E	17ARB	4487.1	4487.79	419,197	396,675	50.0		26-Apr-96	34.40	4451.39			4	50	Yes	667	11.4	7.59				ND	ND	No	Domestic well
75	Grady, Maurice	8302 Hildreth Rd	T7S/R35E	12DAA	4473.3	4467.89	419,938	396,182	100.0		26-Apr-96	15.30	4451.90			12	100	35-100	683	9.3	7.87				ND	ND	Yes	
76	Lewis, Randy	South 2nd St	T7S/R35E	7ACD	4490.5	4492.55	433,094	391,923	128.0	111.0	27-Apr-96	33.76	4458.79			6	128	63-128	708	11	7.39				ND	ND	Yes	
77	Ratliff, Clay	3960 South 2nd	T7S/R35E	7BDA	—	—	435,194	389,500	63.0		27-Apr-96	No access				8	65		831	11.3	7.38				ND	ND	Yes	Well has no access port for water levels

Quality assurance/quality control summary for VOC sampling:
PAM#1 (duplicate of Rome well) had a TCE concentration of 4.7 ug/L and was nondetect for PCE.
PAM#2 (duplicate of Juniper Hills Country Club north abandoned well) was nondetect for both TCE and PCE.
PAM#3 (duplicate of Fein well) was nondetect for both TCE and PCE.
PAM#4 (duplicate of Christensen well) was nondetect for both TCE and PCE.
The trip blank was nondetect for both TCE and PCE.

Notes:
1988 N.A.V.D. = 1988 North American Vertical Datum
1983 N.A.D. = 1983 North American Datum for horizontal control
ft amsl = feet above mean sea level
ft bbgs = feet below top of casing

7553

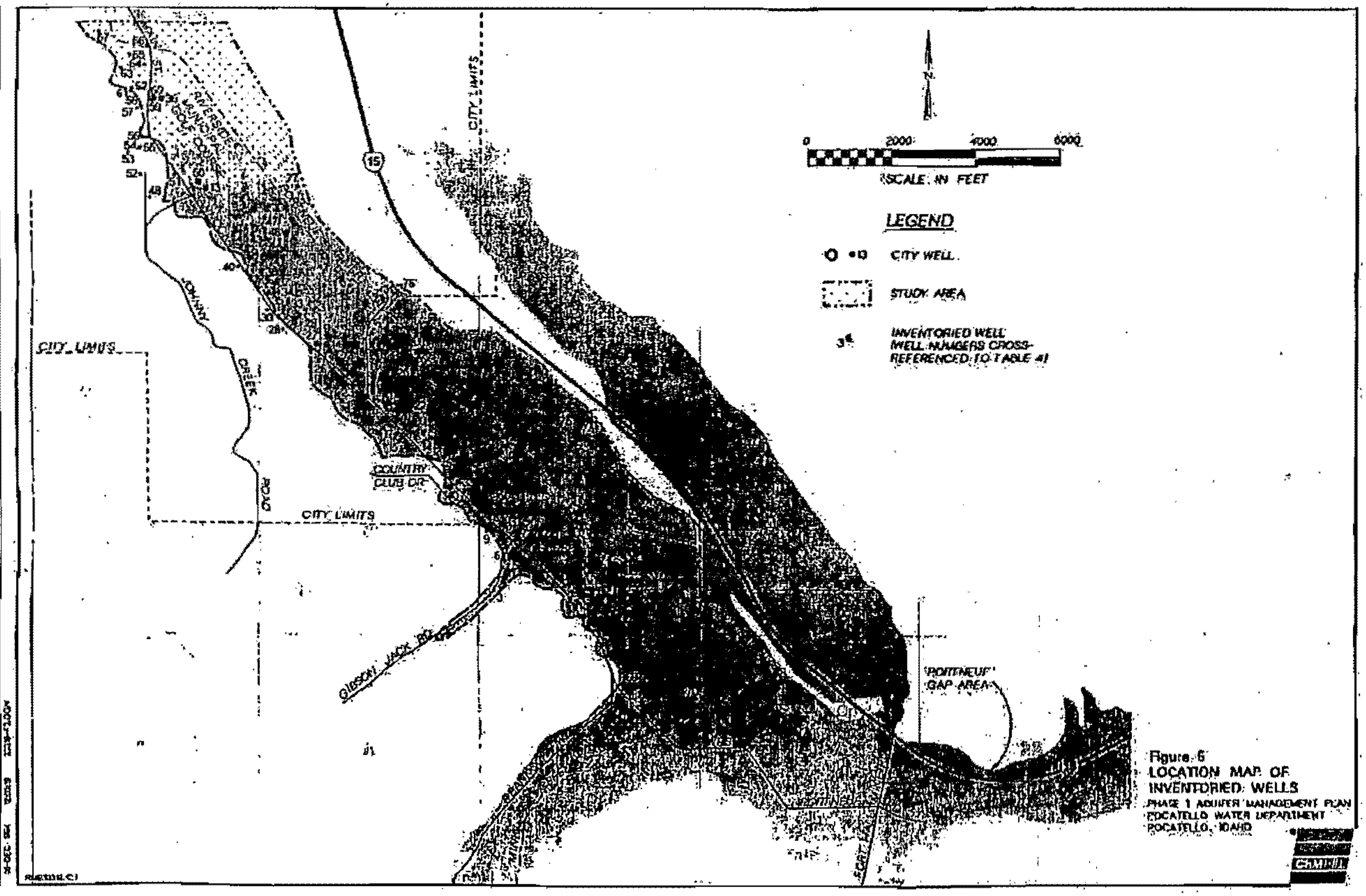


Figure 6
LOCATION MAP OF INVENTORIED WELLS
PHASE 1 AQUIFER MANAGEMENT PLAN
POCATELLO WATER DEPARTMENT
POCATELLO, IDAHO

CH2M HILL

7554

3.2 Task 2—Aquifer Characterization

The purpose of aquifer characterization activities was to supplement the existing hydrogeologic information attained from the domestic well inventory in order to accomplish the following:

- Determine the physical characteristics of the aquifer (i.e., transmissivity and specific yield)
- Evaluate the vertical extent of TCE contamination through a cross-sectional area of the aquifer
- Further assess pathways for contaminant migration
- Provide baseline data to assess treatment alternatives and evaluate potential risk to public health

Task 2 consisted of several subtasks, which are described below.

3.2.1 Monitoring Well Installation and Development

Ten monitoring wells (PA-1 through PA-10) were installed in the southern portion of the study area between March 30, and April 17, 1994. Prior to initiating drilling operations, Drilling Permits were obtained from the IDWR. Copies of the permits issued for each well are contained in Appendix D. For the most part, the wells were drilled along a cross-sectional transect of the aquifer at the south end of the valley as shown in Figure 6. The initial plan was to install four sets of paired wells to evaluate the vertical hydraulic gradient within the aquifer and to determine the vertical variation in TCE contaminant concentrations. However, installation procedures were modified to reflect changing conditions and attain as much information as possible as the drilling progressed. The result was that multiple zones were completed in some of the wells. The final outcome was that monitoring wells PA-1, P-2, P-3, PA-4, PA-6, PA-7, and PA-8 were located along a lateral profile across the valley from South Bannock Highway to the Portneuf River, and wells PA-9 and PA-10 were located proximal to the old Katsilometes irrigation well. The wells were numbered in the chronological order in which they were drilled.

A Drill Systems AP-1000 percussion-hammer drill rig was used to advance the boreholes. A percussion (casing) hammer drill rig drives dual-wall steel casing (6-inch I.D. and 9-3/4-inch O.D. threaded casing) into the ground with a diesel pile-driving hammer. Reverse-air circulation cools the bit and removes cuttings from the boring. Air is forced down the annular space of the drill pipe, lifting the cuttings back to the surface and into a cyclone where they drop out into a roll-off bin. Only pre-filtered air was used so that saturated zones would by easily identified; no drilling fluids were used. This drilling method can rapidly penetrate unconsolidated sediments and allows for a very reliable means of collecting soil samples because of the relatively undisturbed return of the cuttings from

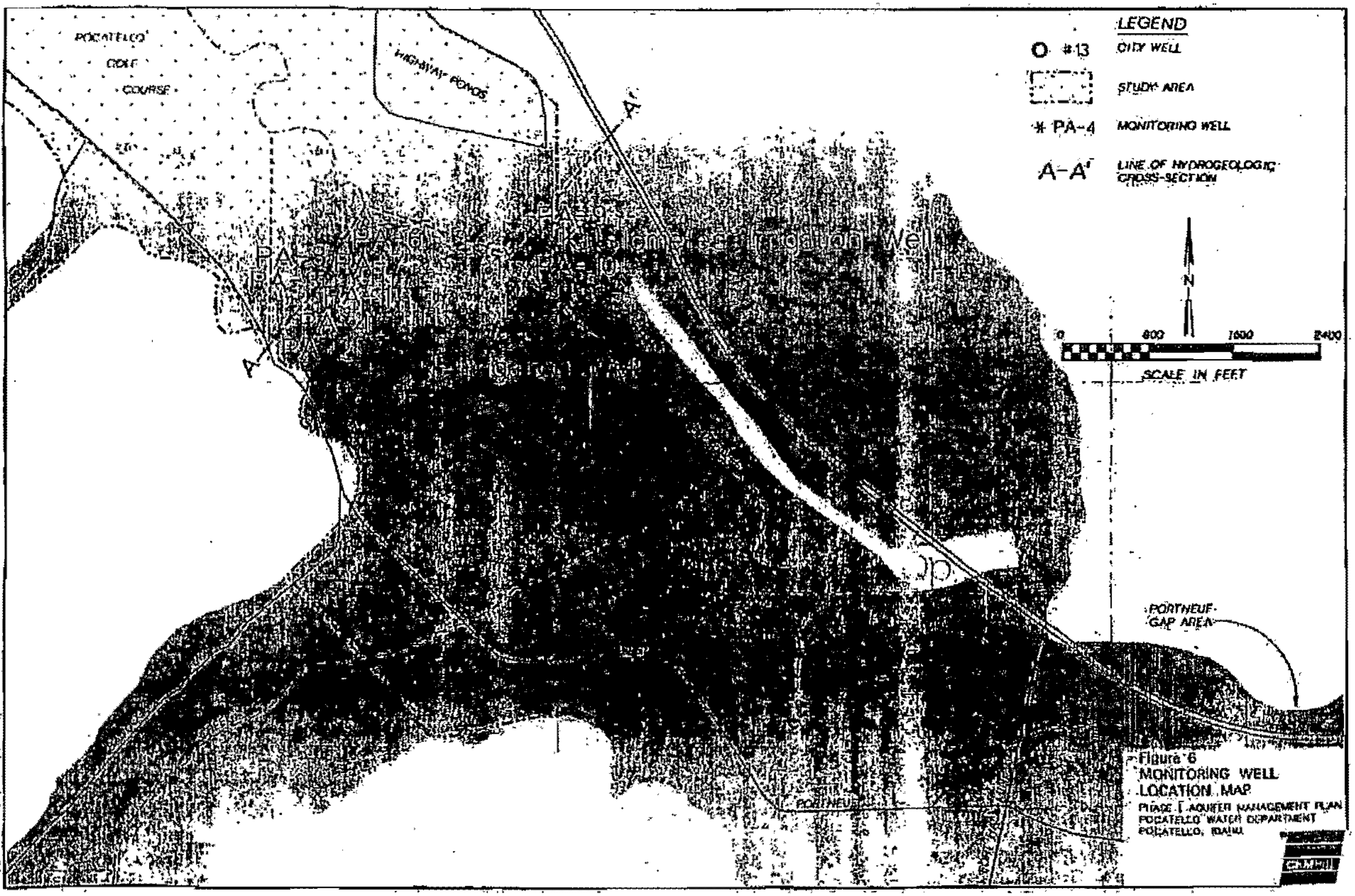


Figure 6
MONITORING WELL LOCATION MAP
PHASE I AQUIFER MANAGEMENT PLAN
POCATELLO WATER DEPARTMENT
POCATELLO, IDAHO

7556

the bottom of the borehole. Large cobbles (up to 6 inches) in the drill cuttings generally were unfractured and cemented gravels remained intact for easy identification. Drill cuttings were continuously monitored and grab samples were collected approximately every 10 feet (or at lithologic changes). All drill cuttings (except PA-9 and PA-10) were containerized and removed from the study area upon completion of the boreholes as monitoring wells. Water produced during drilling activities was pumped directly onto the ground surface. Geologic descriptions of the borings were recorded on soil boring and well completion logs and are included in Appendix E. All downhole drill tools and well development equipment were decontaminated at a specified decontamination area before drilling proceeded and between each well after it was used. Well drilling and installation was performed in compliance with the IDWR Well Completion Specifications and supervised by a CH2M HILL project hydrogeologist.

With the exception of PA-2 and PA-7, all of the wells were completed in the Michaud Gravels. Well PA-2 was completed in Tertiary cemented gravels, while PA-7 was constructed in a vesicular basalt zone underlying the alluvial aquifer. Observation wells PA-5 and PA-10 were completed at similar depths to the respective nearby irrigation wells, which were used for aquifer testing. Several of the wells (PA-4, PA-6, PA-8, and PA-9) in the alluvial aquifer were completed with multiple screened intervals to evaluate the vertical TCE concentration gradient within the contaminant plume. The water level within each well-bore was allowed to stabilize before determining the appropriate interval to place the well screen(s). A summary of the rationale used to determine the well completion method is presented in Table 5.

Table 5
Summary of Monitoring Well Completion Rationale

Monitoring Well No.	Completion Technique	Site Selection Rationale
PA-1	Single	Paired well; deep completion.
PA-2	Single	Lithologic control; aquifer geometry.
PA-3	Single	Paired well; shallow completion.
PA-4	Multiple	Lithologic control and evaluate contaminant distribution.
PA-5	Single	Observation well for LDS irrigation well aquifer test.
PA-6	Multiple	Lithologic control and evaluate contaminant distribution.
PA-7	Single	Paired well; deep completion.
PA-8	Multiple	Paired well; shallow and central completion.
PA-9	Multiple	Exploration well to evaluate lithology and observation well.
PA-10	Single	Observation well for Katsilometes irrigation well aquifer test

The monitoring wells were completed with threaded, flush-joint, 4-inch-diameter, schedule 40 PVC casing and machined 20-slot PVC well screen; no PVC glues or other adhesives were used. A 5-inch-long threaded end cap was attached to the bottom of the screen. A filter pack consisting of CSSI silica sand (No. 10-20) was placed in the annular space and generally extended 2 to 3 feet above the top of the screen. In monitoring wells with multiple screened intervals, formation sand and gravel were allowed to cave around the well casing between the screened intervals. Approximately 3 to 6 feet of 20-40 grade silica sand or #40 Unimin sand was placed above the filter pack to retard vertical flow between multiple screened intervals as a precautionary measure. In compliance with well completion requirements, a 3- to 5-foot bentonite seal was placed above the sand filter pack. The remainder of the annular space in all of the wells was filled with a bentonite cement grout to within 3 feet of the ground surface. A slurry weight of 14.5 pounds per gallon was maintained to ensure proper curing of the grout mixture. A locking watertight cap was then placed over the PVC well casing and cemented in place. A summary of well completion specifications is presented in Table 6. Monitoring well construction diagrams are provided on the soil boring and well completion logs in Appendix E.

The wells were developed between April 17 to 21, 1994. Development was completed using a progressive sequence of surging, bailing, and pumping. A surge block was used to initially swab the well for 10 to 15 minutes to loosen bridged particles in the filter pack. The well was then bailed with a 10-foot stainless steel bailer to remove the fines and clean the bottom of the well. Following bailing, a 3-horsepower (hp) submersible Grundfos pump was slowly lowered in 1-foot increments throughout the length of the screened interval(s). Discharge was set at a maximum pump capacity of 43 gallons per minute (gpm) for all of the wells except for PA-2 and PA-7. Total drawdown at the end of development ranged from 0.02 to 0.08 foot. Well PA-2 was developed at a pumping rate of approximately 10 gpm; total drawdown was 30 feet. Well PA-7 was developed at a pumping rate of approximately 20 gpm and had about 3.5 feet of drawdown. Development was terminated when the purged water was clear and free of turbidity. The duration for developing the wells generally ranged from 3 to 4 hours. The estimated volume of water purged during development is included in Table 6.

The monitoring wells were also surveyed on May 13 and 14, 1994, to establish horizontal and vertical control. Elevations are referenced to NAVD 1988, and geographic coordinates are referenced to NAD 1983. The horizontal coordinates and elevation data for each well are presented in Table 6.

3.2.2 Monitoring Well Water Quality Sampling

The purpose of this task was to evaluate the vertical distribution of the TCE contaminant plume in a cross section of the aquifer. The monitoring wells were initially sampled from April 25 to 27, 1994. A second set of samples was collected between August 8 to 11, 1994, to evaluate temporal variation of contaminant concentrations.

Table 6
Summary of Monitoring Well Construction Data

Well Name	Date Completed	Coordinates Easting (feet)	Coordinates Northing (feet)	Concrete Elev (ft amsl)	MP Elev (ft amsl)	Borehole Depth (ft bgs)	Well Depth (ft bgs)	Screened Interval(s) (ft bgs)	Development Purge Volume (gallons)
PA-1	31-Mar-94	596,779.97	415,700.51	4,503.17	4,504.91	166	148.9	128.5-148.5	2300
PA-2	2-Apr-94	596,458.04	415,357.57	4,520.13	4,522.32	133	130.4	120-130	500
PA-3	3-Apr-94	596,771.12	415,699.05	4,503.17	4,505.38	69	67.9	47.5-67.5	3800
PA-4	5-Apr-94	596,563.54	415,490.98	4,518.79	4,520.72	158	145	64.6-74.6, 99.6-109.6 134.6-144.6	3500
PA-5	6-Apr-94	597,662.82	414,887.57	4,496.24	4,498.01	87.5	86.4	36-86	2500
PA-6	6-Apr-94	597,051.29	416,171.34	4,486.09	4,487.75	77.5	76.4	31-41, 66-76	2700
PA-7	14-Apr-94	596,921.64	415,942.40	4,491.81	4,493.60	177	176.7	171.3-176.3	4500
PA-8	15-Apr-94	596,902.16	415,911.68	4,492.97	4,494.70	128.5	127.2	36.8-46.8, 76.8-86.8 116.8-126.8	5000
PA-9	16-Apr-94	598,383.95	416,320.53	4,479.10	4,481.10	149	97.8	57.4-67.4, 87.4-97.4	5800
PA-10	17-Apr-94	599,070.80	416,150.23	4,480.79	4,482.74	69	62.4	22-62	3100

Notes:
Concrete Elev= top of the concrete pad elevation in feet above mean sea level (ft amsl)
MP Elev= measuring point elevation in feet above mean sea level at top of 4-inch PVC casing
ft bgs= feet below ground surface
DTW= depth to water in feet below measuring point
WL Elev= water level elevation in feet above mean sea level

Standard groundwater sampling and decontamination protocols were followed during the collection of the water-quality samples. Prior to sampling, at least three well-bore volumes were removed using a Grundfos Redi-Flo II stainless steel submersible pump. Presample purging continued until field parameters (pH, temperature, and specific conductivity) had stabilized to within 10 percent of the previous measurement. Field parameter measurements, purge volumes, and other pertinent data for each sample are summarized on individual sampling information forms (see Appendix F). A sample was collected from each interval within the multiple-screened wells. A rubber packer assembly was used to restrict upward and downward inflow to the pump, thereby isolating the zone sampled. The pump was typically set in the middle of the screen.

Four duplicate samples and an equipment rinsate blank were collected as part of the QA/QC procedures. The samples were submitted for laboratory analysis by EPA Method 502.1. Copies of the laboratory reports and chain-of-custody documentation are included in Appendix G. The results of the analyses are presented in subsection 4.6.

3.2.3 Aquifer Testing

The purpose of aquifer testing was to estimate the hydraulic characteristics (i.e., transmissivity and specific yield) of the aquifer. Constant rate discharge tests were performed on the LDS farm north irrigation well and the Katsilometes irrigation well. These are the only two high production wells in the lower valley for which observation wells were located nearby. Through the courtesy of the LDS farm manager, this well was used because it is located in the central portion of the south valley. The Katsilometes family has offered to transfer ownership of this well to the City. However, the well has been out of service for an unknown number of years and no information is available regarding the depth, completion, and production capability for the well. Therefore, the City requested that CH2M HILL design and implement a testing program to assess the viability of using the Katsilometes well as a municipal supply well as a subtask to our existing contract. Testing procedures are described below. Test results for both wells are discussed in subsection 4.4.

3.2.3.1 LDS Farm North Irrigation Well Pump Test

A 30-hour constant rate discharge test was performed on the LDS irrigation well (hereafter referred to as the pumping well) on May 14 and 15, 1994. Well recovery data were monitored for a 2-hour period after the test was completed. Scheduling and implementation of the pump test had to be coordinated with the farm's irrigation schedule. Prior to initiating the test, the turbine pump was removed and a videotape of the well was made. This was done to determine how the well was completed because a Well Driller's Report does not exist for this well. The well completion details are summarized in Technical Memorandum No. 1, which is contained in Appendix H. The pump was reset in the well with no difficulties after video logging.

7560

Data interpretation was complicated by the fact that it was not possible to maintain a constant discharge rate throughout the duration of the test. During the first 3 minutes of the pump test, while the irrigation pipe was filling, the pumping rate was greater than 1,220 gpm. However, once the lines were fully charged, the pumping rate stabilized at 1,220 gpm. The pumping water was discharged through two center pivots located in the vicinity of the well. The end gun on each pivot would automatically shut off for up to 2 hours out of every 24 hours when coverage was not required to extend beyond the circular radius of the pivot. The estimated discharge from one end gun is 120 gpm. Occasionally, both end guns would be off at the same time, temporarily reducing the flow to approximately 1,000 gpm. These fluctuations in discharge were apparent in the drawdown data. In addition, a strong low-pressure system that moved through the area during the test further complicated data interpretation.

The primary observation well used during the test was PA-5, which is located 40 feet laterally from the pumping well. Other observation wells included the LDS domestic farm well, the LDS ballpark irrigation well, and monitoring wells PA-2 and PA-3. Water level changes in wells PA-5 and the LDS farm domestic well were recorded using an In-situ 1000-B data logger and pressure transducer. The pressure transducer recordings were verified by manually measuring the water levels with a Solinst water level meter. Water levels in the LDS ballpark well and PA-2 and PA-3 were routinely measured by hand throughout the test and recovery period. Water levels in the pumping well could not be monitored because there was no measuring port or access tube on the turbine.

The maximum observed drawdown at the end of the pump test in well PA-5 was only 0.39 foot. This well is completed at approximately the same depth as the irrigation well. Although neither well penetrated the full thickness of the aquifer, the effects of partial penetration appear to be minimal because the aquifer transmissivity is so high that it is unlikely that pumping at this rate would induce any type of significant vertical gradient. At this rate, groundwater flow is probably laminar and there is minimal upward inflection. Aquifer test data are contained in Appendix I.

3.2.3.2 Katsilometes Irrigation Well Pump Test

After removing the existing turbine pump, this well was also videotaped to determine the completion method. A summary of the observed details is presented in Technical Memorandum No. 2, which is contained in Appendix H. Based on the findings of the well video, it was decided to attempt to clean the perforations to improve well efficiency. This was accomplished by sonic jetting the well on July 4, 1994. A substantial amount of sand, gravel, and rusty scaling material was removed by this process. The well was then redeveloped over a 3-hour period on July 6, 1994.

Following redevelopment, a 10-hour, step-drawdown test was conducted on July 7, 1994, to evaluate well efficiency and determine an appropriate pumping rate for the subsequent constant-rate discharge test. Beginning at 1,000 gpm, the pumping rates were sequentially increased 300 gpm over five periods (1,000; 1,300; 1,600; 1,900; and 2,200 gpm) during the step-drawdown test. Water levels were monitored in the pumping well and observation well PA-10, located approximately 40 feet away, with pressure transducers connected to an Insitu 1000-B data logger. A Stevens Type-F water level recorded was used to record water level fluctuations in well PA-9. Based on the results of the step-drawdown test data, it was determined that a suitable pumping rate for the constant discharge test would be about 2,100 gpm. The results of the step-drawdown test are presented in subsection 4.5 and the data are contained in Appendix I.

A 50-hour constant rate discharge test was conducted on the Katsilometes irrigation well between July 8 to 10, 1994. Well recovery data was subsequently monitored for a 12-hour period after the test was completed, until water levels had recovered to their pre-test conditions. The pumped water was discharged through 1,200 feet of 4-inch irrigation pipe into a gravel pit located downgradient of the well. The pumping rate initially surged as high as 2,250 gpm during the first few minutes of the test as the discharge pipe filled. However, once filled, the rate then stabilized and remained relatively constant at approximately 2,000 gpm throughout the duration of the test. The pump performed efficiently and without any problems or shutdowns.

Water levels were monitored during the constant discharge test and recovery period in the pumping well and observation wells PA-9 and PA-10 in the same manner as during the step-drawdown test. In addition, manual water level measurements were routinely recorded in all of the monitoring wells (PA-1 through PA-8) on the west side of the Portneuf River with a Solinst water level meter during the pump test and recovery period. No other large diameter irrigation wells (including the LDS farm irrigation wells) were in operation during this period. In addition, the weather pattern was very stable, with no significant change observed in the barometric pressure; this may explain the relatively uniform antecedent water level trends observed prior to and after the test. Complete aquifer test and recovery data are contained in Appendix I.

3.2.4 Water Level Monitoring

Water levels in monitoring wells PA-1 through PA-10 have been periodically measured on several occasions since they were installed in April 1994. Water level measurements were recorded to evaluate the potential vertical hydraulic gradients at different times. A summary of recorded depth to water measurements and groundwater elevations for the monitoring wells is provided in Table 7.

Table 7 Periodic Monitoring Well Water Level Measurements							
26-Apr-94		12-May-94		07-Jul-94		03-Aug-94	
DTW	WL Elev	DTW	WL Elev	DTW	WL Elev	DTW	WL Elev
48.77	4,456.14	48.49	4,456.42	50.83	4,454.08	51.39	4,453.52
65.36	4,456.96	65.06	4,457.26	67.35	4,454.97	67.95	4,454.37
49.30	4,456.08	49.02	4,456.36	51.36	4,454.02	51.93	4,453.45
64.62	4,456.10	64.36	4,456.36	66.70	4,454.02	67.27	4,453.45
40.78	4,457.23	40.50	4,457.51	42.91	4,455.10	43.47	4,454.54
31.86	4,455.89	31.57	4,456.18	33.90	4,453.85	34.46	4,453.29
37.49	4,456.11	37.21	4,456.39	39.55	4,454.05	40.11	4,453.49
38.69	4,456.01	38.38	4,456.32	40.72	4,453.98	41.29	4,453.41
24.84	4,456.26	24.59	4,456.51	26.89	4,454.21	27.48	4,453.62
26.31	4,456.43	26.07	4,456.67	28.40	4,454.34	28.97	4,453.77

In addition, four Stevens Type-F water level recorders have been deployed throughout the study area to evaluate seasonal fluctuations of the water table. Recorders were installed on two of the domestic wells, which include the Akers' abandoned well and at the abandoned Juniper Hills Country Club well (north well). These recorders have continually operated since April 8, 1994, through the present. Recorders were also installed on monitoring wells PA-5 and PA-8 and have been operational since July 23, 1994. A summary of the observed temporal variations in presented in subsection 4.5. Hydrographs are contained in Appendix L.

3.3 Task 3—Capture Zone Delineation

The capture zones for each of the four City wells within the study area were delineated using numerical modeling methods by simulating groundwater flow to each well. The objectives of this task were twofold: 1) to evaluate whether the capture zones include portions of the aquifer where TCE has been detected; and 2) to evaluate the effectiveness of utilizing the existing City wells to intercept the TCE plume and prevent further downgradient migration into the main portion of the aquifer. Two public-domain codes, MODFLOW and MODPATH, were used to simulate groundwater flow and to delineate capture zones, respectively. A comprehensive description of the methods used to develop the finite-difference grid, boundary conditions, and parameter selection, along with the modeling results is contained subsection 6.1.

3.4 Task 4—Feasibility Assessment of Treatment Alternatives

A preliminary feasibility assessment of groundwater treatment alternatives was undertaken to identify, evaluate, and compare treatment alternatives for removing the TCE from City wells no. 33 and no. 36 in order for these wells to remain online. A comparison of the effectiveness, implementability, and cost for each alternative considered is summarized in subsection 6.2. This section also includes a discussion of the advantages and disadvantages of each alternative relative to site-specific conditions and our recommendation regarding the most viable system with respect to the City's needs.

Section 4

Hydrogeology of the Southern Portion of the Pocatello Aquifer

One of the main objectives of our investigation was to develop an understanding of the hydrogeologic framework of the southern portion of the Pocatello Aquifer in order to evaluate the fate and transport of the TCE contamination that has impacted groundwater potability. This section presents a discussion of the physical and water-yielding characteristics, areal extent and thickness, and direction and rate of groundwater flow for the southern part of the aquifer.

4.1 Geology

The Pocatello Valley is located within the Basin and Range Physiographic Province of the Sevier Orogenic Thrust Belt. According to Ore (1982), there were five major events that formed the valley. By middle Pleistocene (approximately 600,000 years ago) these landforming processes had ceased and the landscape of the valley was fairly similar to that of today with one exception—this was still a period of active volcanism. Basalt eruptions originating in the Gem Valley lava field poured down the Portneuf Valley (Scott and others, 1982). The lava flows followed the ancestral drainage of the Portneuf River through the Portneuf Gap and finally terminated at the south end of the Pocatello Valley. The remnants of these flows are manifest today as a broad bench along the northeast margin of the valley. Stratigraphic evidence indicates there were two successive lava flows that are formally recognized as the Portneuf Basalt because of their origin.

Following emplacement of the Portneuf Basalt, the waning stages of the last ice age were a relatively quiescent period. Toward the end of the Pleistocene (14,000 to 15,000 years ago), Glacial Lake Bonneville was naturally draining to the north through Red Rock Pass. Glacial lake meltwater continued to flow through the pass as a normal stream, until a much softer layer of rock was encountered. At this point, the summit of the divide was rapidly eroded, resulting in the catastrophic Bonneville flood. It is estimated the lake level rapidly dropped 300 feet as a single event (Gilbert, 1890) and the maximum discharge is calculated to have been 15 million cubic feet per second (cfs) (Alt and Hyndman, 1989). In comparison, the maximum historic discharge of the upper Snake River was 72,000 cfs in June 1984.

The floodwaters flowed down Marsh Creek and then into the lower Portneuf River. It is estimated the flood wave was at least 400 feet deep as it passed through the Portneuf Gap (Malde, 1968). The floodwaters not only eroded the Portneuf Basalt along the center and western margin of the valley, but also exhumed the pre-existing alluvial fill deposits (early Pleistocene age) and scoured a new channel into the underlying Tertiary age sediments. As the velocity of the floodwaters subsided, a thick package of well-sorted sand, gravel, and cobbles were deposited in the southern part of the Pocatello Valley. This event in and of itself is responsible for the appearance of the modern landscape. The unconsolidated deposits left in the flood's wake have been formally designated the Michaud Gravels. For the purpose of this report, the Michaud Gravels and "alluvial aquifer" are used interchangeably hereafter.

4.2 Aquifer Composition and Geometry

The geometry of the aquifer is based on lithologic logs generated during this investigation and available logs provided by the Pocatello Water Department and previous studies. In plan view, the lateral boundaries of the aquifer are basically delineated by the geologic contact between the Quaternary alluvium with less permeable rocks along the basin margins (Figure 4). Vertical outcroppings of the Portneuf Basalt define the northeast boundary, while breciated sediments of the Lower Member of the Starlight Formation of the Tertiary age form a more arbitrary boundary along the southwest.

In cross-sectional view, the aquifer resembles an asymmetrical basin with the deepest portion occurring adjacent to the southwest side of the valley (Figure 7). The contact between the Michaud Gravels and the underlying Tertiary age Starlight Formation represents an unconformity from scouring by the Bonneville flood. The unconformity is quite steep on the southwest side, probably becoming more of an undulating surface toward the center of the valley. As would be expected, high energy floodwaters pouring through the Portneuf Gap preferentially eroded the western valley margin between Fort Hall Mine Road and Gibson Jack Creek because this would have been the outside margin of the flood channel.

The soil boring log from PA-2 indicates the breciated sediments of the Starlight Formation consist of poorly sorted angular clasts of quartzite and argillite within a weakly cemented silty-clay matrix. The sediments become progressively more indurated from 125 feet to the bottom of the borehole at 133 feet. The next monitoring well in the transverse profile is PA-4, which is located approximately 170 feet northeast of PA-2. The lithology encountered at this location is entirely different from that of PA-2. Below the surface silt, a thick sequence of Michaud Gravels is present at a depth from 50 to 150 feet. Well indurated gravels and reworked pre-Michaud cobbles were then encountered from 150 feet to the bottom of the borehole at 158 feet.

Toward the center of the valley, the contact between the Michaud Gravels and the Tertiary sediments progressively flattens. Breciated gravels in a clay matrix were logged in PA-1 from 159 feet to the bottom of the borehole at 166 feet. Similarly, well-cemented gravels were identified below the Michaud Gravels in PA-7 from 168 feet to 172; solid basalt was then encountered from 172 to 177 feet. Across the river on the northeast side of the valley, the contact between the Michaud Gravels and the Tertiary sediments occurs at a depth of about 100 feet in PA-9. The basement lithology encountered consisted of angular clasts of quartzite within a reddish-brown clay from 98 feet to the bottom of the borehole at 149 feet.

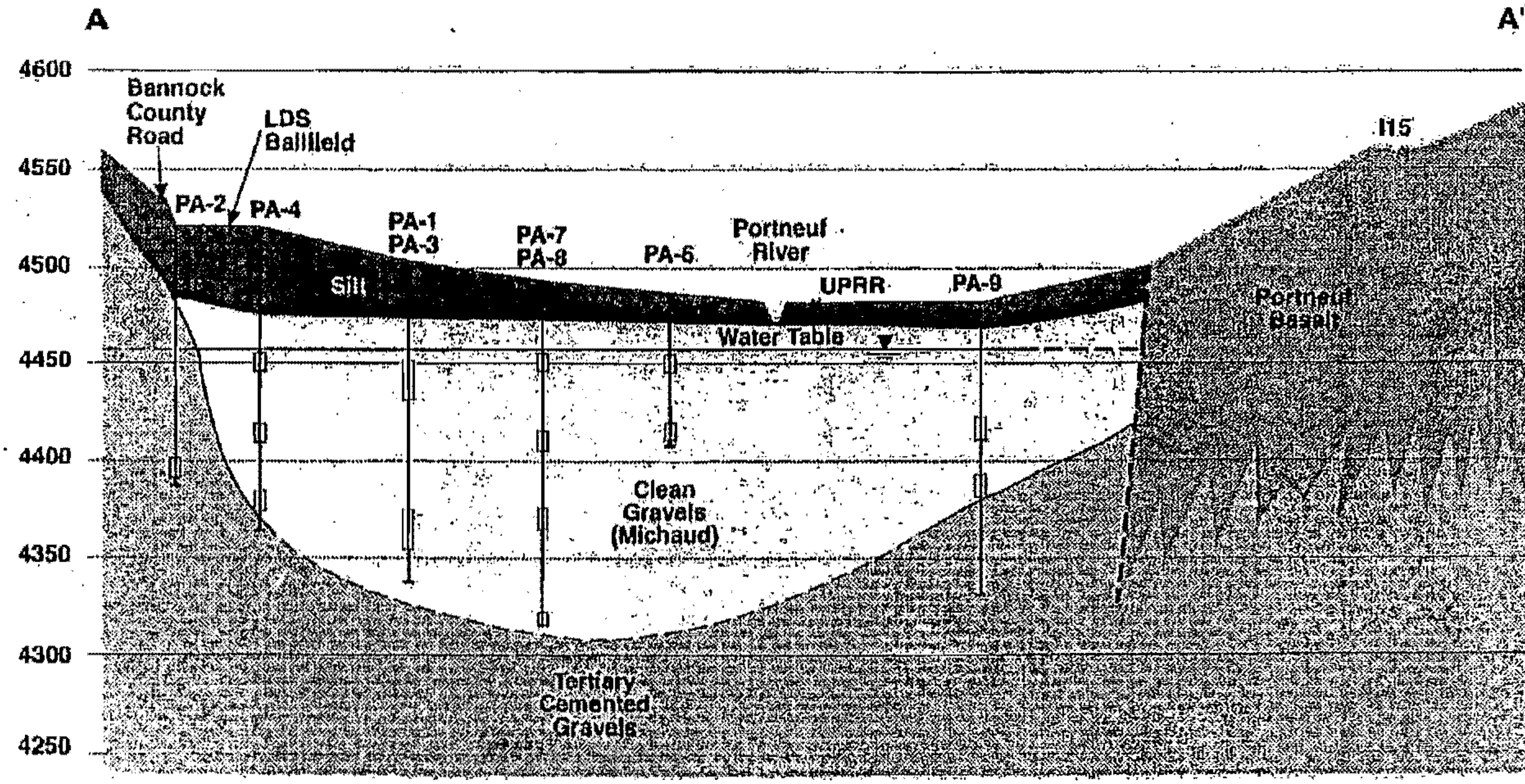


Figure 7
HYDROGEOLOGIC CROSS SECTION A-A'
PHASE I AQUIFER MANAGEMENT PLAN
POCATELLO WATER DEPARTMENT
POCATELLO, IDAHO

RME33319.C1

7567

Based on lithologic log PA-4, which fully penetrates the Michaud Gravels, the aquifer is about 105 feet thick and has a saturated thickness of 85 feet at PA-4. The thickest portion of the aquifer (approximately 150 feet) occurs in the center of the valley where the saturated thickness at PA-7 is about 130 feet. The thickness gradually decreases toward the northeast margin of the valley where the Michaud Gravels is 85 feet thick at PA-9, with a saturated thickness of approximately 75 feet.

In summary, the aquifer is solely composed of Michaud Gravels consisting of varicolored, well-sorted, coarse sand, pea gravel, and rounded cobbles of quartzite, argillite, and reworked basalt. Based on observations made during drilling, this distinct lithology is characteristic throughout the study area. The uniformity of the gravels suggests they were deposited by a single glaciofluvial event as opposed to a series of flood events. Transitional zones were observed at the base and top of the aquifer and where the clean gravels vertically grade into gravels within a silty-sand matrix. An approximate 1-inch layer of gastropod (snail) shells was observed at the top of the gravels in the vicinity of the Highway Ponds. A silt mantle of variable thickness (0 to 43 feet) overlies the aquifer throughout the area. The term "silt" is somewhat of a generic term for this unit, in that the lithology varies from dry, light brown silt to clayey silt to moist and plastic, dark brown silty clay. The silt has probably accumulated as overbank flood material from recent floods. The potentiometric surface (i.e., water table) is contained in the Michaud Gravels (Figure 7). The silt mantle is not saturated. Examination of the lithologic logs would tend to indicate the alluvial aquifer is unconfined.

This general shape of an asymmetrical basin appears to be consistent throughout the study area. A test well (PMW-1) drilled by the Idaho Geological Survey in the vicinity of Indian Hills School indicates the Michaud Gravels are only about 55-feet thick with a saturated thickness of 40 feet in this area. Conversely, the Michaud Gravels are about 150 feet thick and have a saturated thickness of 135 feet at City well no. 36, which is located in the northern portion of the study area along the western margin of the valley.

4.3 Groundwater Flow

Groundwater flow in the alluvial aquifer is relatively simple because of the homogeneity of the Michaud Gravels. Two water table contour maps of the alluvial aquifer were prepared from water level measurements made at different periods of the water year. Figure 8 was generated from measurements made from inventoried wells during November 1993. Figure 9 represents water levels recorded on May 12, 1994, in the 10 monitoring wells and several nearby irrigation wells. The groundwater flow direction in both instances is to the northwest, parallel with the longitudinal axis of the valley. In Figure 8, the average horizontal hydraulic gradient of the alluvial aquifer from the mouth of Gibson Jack Creek to the northern boundary of the study area is 0.002. The gradient steepens (0.003) somewhat in the vicinity of Indian Hills School, but otherwise the contours are uniformly spaced. However, from the mouth of Mink Creek to the area of the Highway Ponds the hydraulic gradient is about 0.001. The observed changes in the spacing of water table

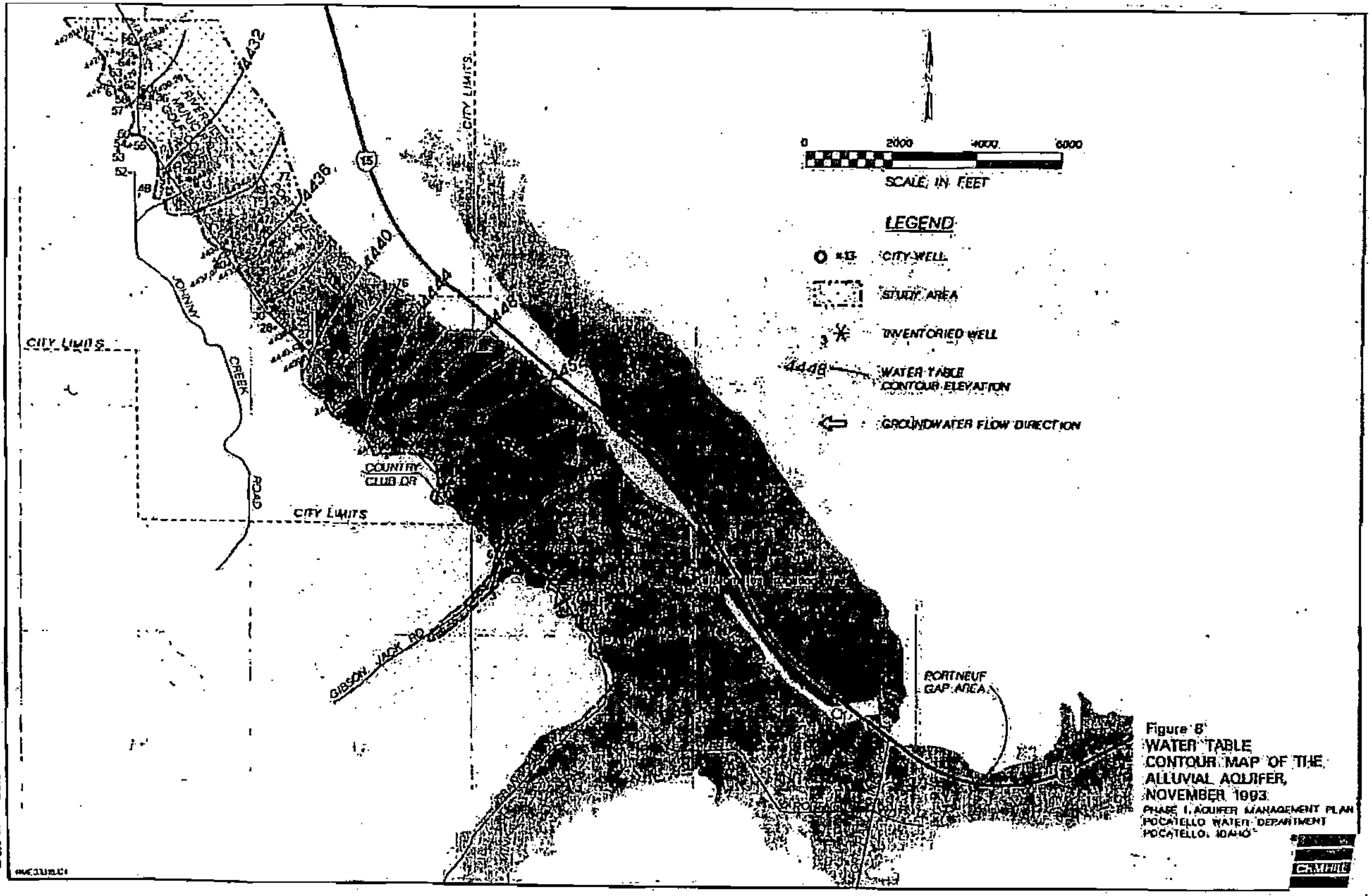


Figure 6
WATER TABLE CONTOUR MAP OF THE ALLUVIAL AQUIFER, NOVEMBER 1993
PHASE I, AQUIFER MANAGEMENT PLAN
POCATELLO WATER DEPARTMENT
POCATELLO, IDAHO

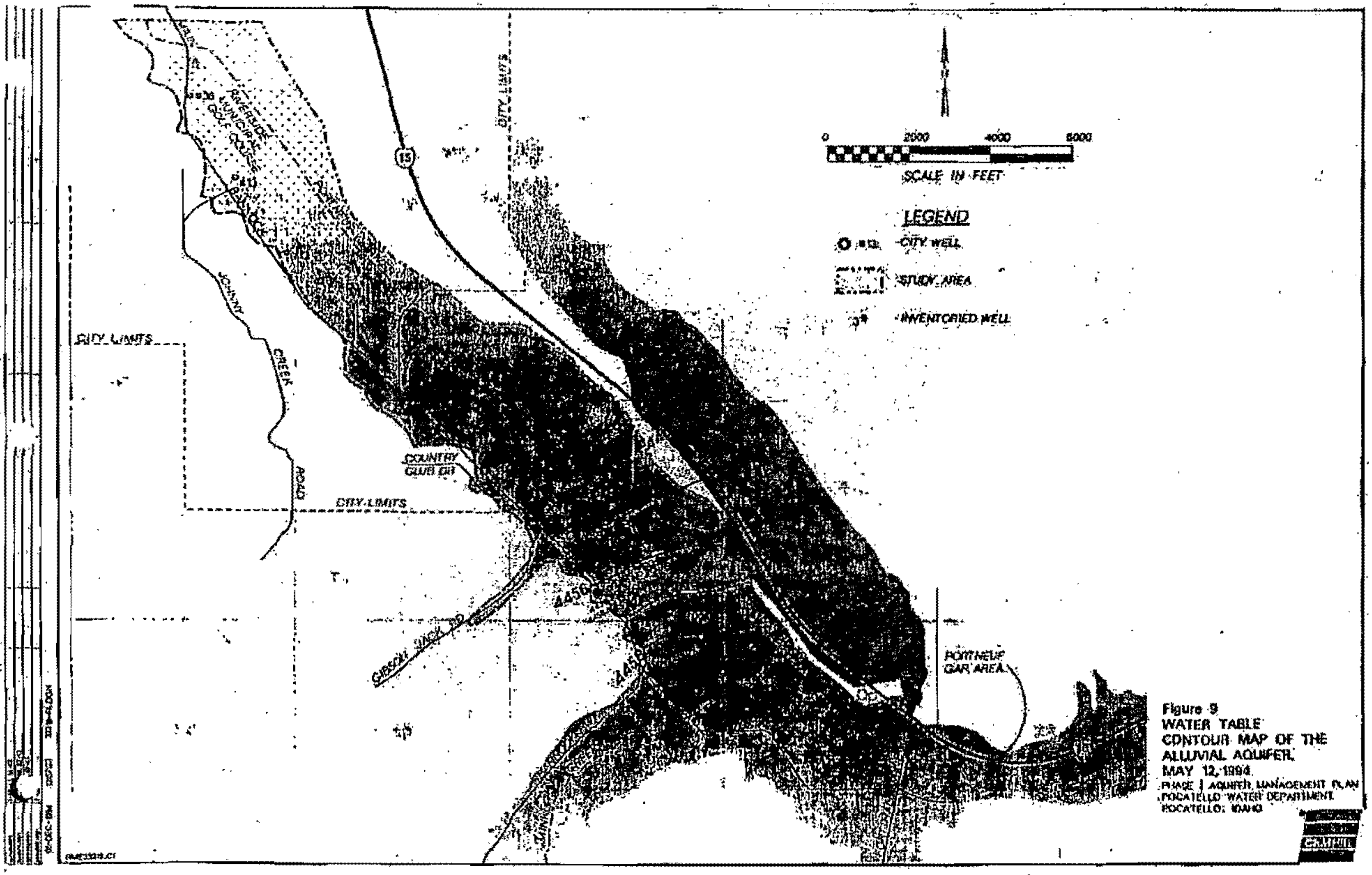


Figure 9
WATER TABLE CONTOUR MAP OF THE ALLUVIAL AQUIFER, MAY 12, 1994
PHASE I AQUIFER MANAGEMENT PLAN
POCATELLO WATER DEPARTMENT
POCATELLO, IDAHO

elevation contours, are probably a function of either changes in the saturated thickness and/or the hydraulic conductivity of the aquifer.

Paired monitoring wells PA-1 and PA-3 were screened at the base and top of the Michaud Gravels, respectively, to evaluate the vertical hydraulic gradient within the aquifer. Water level elevations in PA-1 have generally been about 0.06 feet higher than in PA-3 (Table 7). The difference in completion elevations between the two wells is 81.0 feet. A very slight upward vertical gradient of 0.0007 was determined from this set of paired wells. The magnitude of this gradient is considered insignificant with respect to a vertical component of groundwater flow as well as its effect on TCE transport.

4.4 Aquifer Characteristics

A variety of methods including constant-rate discharge tests, step-drawdown pumping tests, and distance-drawdown graphs were used to determine the physical flow characteristics of the aquifer.

4.4.1 Aquifer Transmissivity and Specific Yield

Two constant-rate discharge tests (pump tests) were conducted to estimate the transmissivity and specific yield of the alluvial aquifer. An initial pump test was conducted on the LDS Farm north irrigation well between May 13 to 15, and a separate pump test was performed on the Katsilometes irrigation well from July 8 to 10, 1994. The logistics of the tests are described in Section 3.2.3.

Only the drawdown data from observation well PA-5 could be analyzed for the LDS Farm irrigation well pump test. Recovery data was interrupted by the farm's irrigation schedule. Both drawdown and recovery data were analyzed for the Katsilometes irrigation well and from observation well PA-10. However, cascading water within the pumping well produced spurious drawdown data, thus only the recovery data was used. Recovery data was not analyzed from observation well PA-9 because the data was incomplete.

The Neuman (1975) method for analyzing pumping test data for anisotropic unconfined aquifers which considers delayed yield was used to calculate transmissivity values for all pump test data. The Jacob (1950) straight-line method was subsequently used to double-check values determined from PA-9 and PA-10 drawdown data during the Katsilometes pump test. In addition, the Jacob (1950) method was the analytical technique used to estimate transmissivity for the recovery data obtained from the Katsilometes pump and step drawdown tests. Data fitting and curve matching procedures were performed using the aquifer test analysis program *AQTESOLV* Version 1.1 (Duffield and Rumbaugh, 1991).
Values derived from the pump tests indicate the transmissivity of the aquifer is fairly consistent (Table 8); average values ranged from 59,000 to 198,000 square feet per day (ft^2/day). It is interesting to note that the results from the Katsilometes pump test display anisotropic (4:1) and/or heterogeneous conditions in this area of the aquifer. Water level

Table 8
Summary of Aquifer Characteristics from Pump Test Results

Well Number	Transmissivity (ft2/day) Drawdown Data: Neuman	Transmissivity (ft2/day) Drawdown Data: Jacob	Transmissivity (ft2/day) Recovery Data: Constant Rate Test	Transmissivity (ft2/day) Recovery Data: Step Test	Average Transmissivity (ft2/day)	Specific Yield	Aquifer Thickness (feet)	Hydraulic Conductivity (ft/day)	Hydraulic Gradient	Groundwater Velocity (ft/day)
LDS Farm Pump Test May 13-15, 1994										
PA-5 Test 1	72,500	—	—	—	72,500	0.003	120	600	0.002	3.4
PA-5 Test 2	80,000	—	—	—	80,000	0.003	120	670	0.002	3.8
Katsilometes Pump Test July 8-10, 1994										
Pumping well	—	—	64,000	52,500	58,000	—	70	830	0.002	4.7
PA-9	187,500	209,500	—	—	198,000	0.04	70	2,830	0.002	16.2
PA-10	47,000	57,500	71,500	59,000	59,000	0.01	70	840	0.002	4.8

Note: The average hydraulic gradient over the length of the Portneuf Valley of 0.002 was used to estimate groundwater velocity.

7572

drawdown and recovery data and curve matching graphs are contained in Appendix J. In addition, a transmissivity value of 423,000 ft^2/day was determined using the distance-drawdown method. Water level fluctuations induced by the late season irrigation from the LDS Farm north irrigation well were recorded on the water level recorder charts deployed on monitoring wells PA-5 and PA-8 and the Akers and Juniper Hills observation wells. Overall, transmissivity values determined in this study were generally lower than empirically determined values by Welhan and Meehan (1994), but are generally within the same range.

The specific yield of the alluvial aquifer was also calculated from the pump test data. Specific yield values ranged from 0.003 to 0.04 (Table 8). The typical values for unconfined aquifers range from 0.01 to 0.30 (Freeze and Cherry, 1979). Specific yield cannot be determined from recovery data or from the pumping well drawdown data.

4.4.2 Boundary Conditions

Observation wells on the opposite side of the river were monitored during both constant-rate discharge tests to discern drawdown from the pumping wells and thus evaluate the potential of river leakage. Highly transmissive aquifers, such as the Pocatello Valley aquifer, develop shallow cones of depression, but have a large areal extent (Driscoll, 1986). Drawdown in distant wells is usually not apparent during short duration pumping tests as was the case for the LDS Farm irrigation well test; no drawdown was observed in wells PA-9 and PA-10, which are across the river. However, during the Katsilometes step-drawdown and constant-rate discharge tests, monitoring wells on the opposite side of the river appeared to show an influence from the extending cone of depression. Antecedent water level decline was well documented before the test and could be reliably extrapolated throughout the test period. The hydrographs in Appendix J entitled "Water Levels in Wells on the West Side of the Portneuf River" and "Water Levels in Monitoring Well PA-5" indicate that the rate of water level decline increased during the pump test and then either flattened or rose during the recovery period. This would tend to indicate the radius of influence of the Katsilometes well definitely extends to the other side of the river.

However, this same data also suggests the Portneuf River may be a partial recharge (i.e., positive) boundary. A definitive flattening of observation and pumping well drawdown curves occurred approximately 300 minutes into the test. This time corresponds with the distance at which the cone of depression would intersect the river. Although this type of flattening may also be in response to delayed yield, which is characteristic of unconfined aquifers. Based on the test results it is recommended that future pump tests be performed for a minimum of 10 days to be able to fully evaluate delayed yield response.

4.4.3 Hydraulic Conductivity and Groundwater Velocity

The hydraulic conductivity of the aquifer was determined in order to estimate the average linear groundwater velocity (Table 8). Hydraulic conductivity values ranged from 600 to 2,830 feet per day (ft/day) which are representative of well-sorted gravels (Fetter, 1988).

The average linear groundwater velocities were estimated from the following relationship:

$$V = -Ki/n_e$$

V = average linear groundwater velocity [linear ft/day]
K = hydraulic conductivity [ft/day]
i = horizontal hydraulic gradient [1]
n_e = effective porosity [1]

Based on field observations, the aquifer matrix predominantly consists of coarse sand and pea gravel. Freeze and Cherry (1979) report porosity values of 0.25 to 0.50 for sand and 0.25 to 0.40 for gravel. It was therefore concluded that a value of 0.35 would be appropriate for effective porosity. The remainder of the parameters have been previously discussed. As shown in Table 8, calculated values for average linear groundwater velocity ranged from 3.4 to 16.2 ft/day. The highest value was derived from the observation well longitudinally downgradient of the Katsilometes irrigation well. Values derived from transverse observation wells averaged about 4.2 ft/day.

4.4.4 Analysis of Katsilometes Irrigation Well Step-Drawdown Test

The purpose of the step-drawdown test was to evaluate the efficiency of this well at various pumping rates. This essentially consisted of a two-step process. Incremental values for specific capacity were initially derived from the step-drawdown test results. Using this information, the well efficiency was then calculated as a percentage of well losses.

The step-drawdown test can be used to measure the effects of turbulent flow conditions at high discharges. Bierschenk (1964) presented a graphical method for determining both the laminar and turbulent components of drawdown in a well. Assuming that drawdown is the sum of a first-order laminar flow component and a second-order turbulent flow component, drawdown can be expressed as follows:

$$s = BQ + CQ^2$$

s = drawdown [ft]
Q = pumping rate [gpm]
B = calculated constant [1]
C = calculated constant [1]

Rearranging the terms in the equation yields the following relationship:

$$s/Q = CQ + B$$

If s/Q is plotted against Q using the step-drawdown test data, the graph would be a straight line with a slope of C and a y-intercept of B. Once B and C are determined from the graph, the terms of the equation can be rearranged as follows:

$$Q/s = 1/(CQ+B)$$

Specific capacity and drawdown can be projected for any discharge rate. The step-drawdown test analysis and plot of s/Q verses Q are included in Appendix K. Specific capacity values for various pumping rates are summarized in Table 9.

Table 9
Specific Capacity Values and Well Efficiency for the Katsilometes Irrigation Well

Flow Rate (gpm)	Specific Capacity (gpm/ft)	Well Efficiency (%)
1,000	234	96
1,300	185	76
1,600	153	63
1,900	131	54
2,050	122	50

Well efficiency is defined as the ratio of actual specific capacity of a well to the maximum specific capacity possible determined from formation characteristics and well geometry (Mogg, 1968). Accordingly, drawdown attributable to natural losses in the formation (aquifer loss) can be distinguished from drawdown caused by inferior well construction techniques (well loss).

The maximum specific capacity of the Katsilometes well was determined from the constant rate discharge test drawdown data and the step-drawdown test recovery data using the nonequilibrium well equation modified by Cooper and Jacob (1946). Based on our calculations, the maximum specific capacity (excluding well loss) would be 244 gpd/ft. Well efficiencies were then determined for various pumping rates by dividing specific capacity values by the maximum calculated specific capacity (Table 9). As determined from the video log of the well, there are only a limited number of perforations. Therefore, the majority of the head loss is attributable to limited open area of the well to the aquifer. The well efficiency calculations are included in Appendix K.

As shown in Table 9, when the well is pumping at 2,050 gpm, the efficiency is only 50 percent. This translates into an additional 9 feet of head. The cost differential was evaluated between a well operating at 100 percent efficiency as compared with this well at 50 percent efficiency. The following assumptions were made with regard to this comparison:

- A 125-hp pump would be installed at the wellhead.

- The pump is running continuously for 1 year

- Pocatello's standard energy charge is $0.030212/kwhr and demand charge per rate schedule is $33

- Electrical motor efficiency is 94 percent

- Pump efficiency is 82 percent

Based on these assumptions, the annual operational cost difference is about $1,400. Assuming the cost to drill and install a new well at this location is roughly $20,000, the duration required to recoup the additional electrical costs is about 14 years. This assumes delivery at the wellhead; system pressure requirements (i.e., pipe friction or pumping to a reservoir) were not considered in this assessment.

4.5 Water Level Fluctuations

Continuous water level recorders were deployed on monitoring wells PA-5 and PA-8 and two of the inventoried domestic wells (Akers abandoned well and Juniper Hills Country Club north well). In addition, the Idaho Geological Survey has maintained water level measurement equipment on PMW-1 and City well no. 28 for roughly 1 year. Hydrographs for all six sites are provided in Appendix L. These six wells are geographically distributed throughout the southern portion of the Pocatello Aquifer. In general, the water levels in all six wells show a similar response with some minor aberrations from localized influences. City well no. 28 was the only location having a continuous record for the 1994 water year (October 1, 1993, through September 30, 1994). The hydrograph from this well indicates the water level was fairly stable for the first half of the year and then continually declined throughout the next 6 months at a rate of about 1.5 feet per month. The rate of decline in the other wells was about 0.75 feet per month. A possible reason for the steeper rate of decline observed in well no. 28 is that it is within the cumulative zone of influence of four large capacity City wells (nos. 2, 3, 13, and 36) that are in the immediate vicinity. This appears to be substantiated by pronounced declines superimposed on the general trend. Similar responses were also observed on the Juniper Hills hydrograph, but are coincident with pumping from the LDS Farm north irrigation well.

The 6-year period ending in winter 1993 was one of extended drought conditions with annual precipitation totals 30 to 50 percent below normal. This was also a period of below-average groundwater recharge. Although the 1993 snowpack was at or above average, 1994 was again abnormally low. Precipitation data (i.e., cumulative snow pillow and rainfall) for the 1992, 1993, and 1994 water years were obtained for the Wildhorse Divide SNOTEL site in the headwaters of the Mink Creek drainage from the Soil Conservation Service. This information was superimposed on the well hydrographs to discern if there was a correlation in water level responses with either snowmelt or rainfall (see Appendix L). The hydrograph for City well no. 28 was the only well in which water level changes were monitored during 1993. As shown for this hydrograph, it would appear that the observed rise in water level could be in response to snowmelt infiltration. The rapid decline in the snowpack was also probably exacerbated by spring rainfall. In comparison, the amount of snow on the ground in 1994 was about half that of 1993. For the most part, water levels within the alluvial aquifer showed no response to snowmelt conditions. Future water level data collected during the 1995 water year may provide additional insight into water level responses.

4.6 Recharge and Discharge

It has been previously postulated that underflow through the Portneuf Gap is the main source of recharge to the Pocatello Aquifer (Norvitch and Larson, 1970). The amount of underflow passing through Portneuf Gap has been roughly estimated to be about 0.73 million gallons per day (mgd) (820 ac-ft/yr) on an annual basis (J. Welhan, pers. comm., 1994). In comparison, the rate of underflow that occurs in the vicinity of the monitoring well transect was estimated to range between about 0.26 to 1.25 mgd (291 to 1,380 ac-ft/yr). These simple mass flux calculations indicate there is probably another source of recharge to the aquifer. The Mink Creek and Gibson Jack Creek drainages along with upward diffusion from the underlying Tertiary-age sediments are postulated as the likely source for the balance of this recharge. The absolute magnitude and relative contribution of each source of recharge will continue to be a controversial issue until a comprehensive water budget is completed.

The primary source of discharge is groundwater pumpage. The majority of pumpage is from municipal and irrigation wells with lesser amounts from industrial and private domestic wells. In 1994, the volume of groundwater pumped from the City's 18 municipal wells alone totaled approximately 15.7 mgd (17,600 ac-ft/yr) of which 1.77 mgd (2,000 ac-ft/yr) was derived from the southern portion of the aquifer from pumpage of wells no. 13 and no. 36. The volume of water pumped from City wells no. 14 and no. 33 in 1992, prior to being taken offline was about 1.3 mgd (1,500 ac-ft/yr). Therefore, the four wells comprising the southern wellfield accounted for approximately 20 percent of the City's water supply. It is not possible to estimate the discharge from other sources of pumpage because none of these wells are metered.

Section 5
Water Quality

Inasmuch as the Pocatello Aquifer provides virtually all of the water needs to both rural and urban residents of Pocatello, the quality of the groundwater is of paramount importance. As stipulated by Idaho law, the Water Department is required to furnish potable water to the citizens that meets specific drinking-water standards established by the Idaho Department of Health and Welfare (IDHW). Although no water-quality standards regulating the use of single-family private wells exist, these individuals are also concerned about the quality of water they drink and use for culinary purposes. In some cases, groundwater may not meet these standards because it contains dissolved constituents coming from either natural sources or impacts from human activity. If the groundwater has been affected to the extent that it no longer complies with drinking water standards, then it is considered to be polluted or contaminated. As part of our overall assessment, ambient groundwater quality as well as TCE contamination was evaluated to develop an awareness of the value of this resource.

5.1 Ambient Groundwater Quality

Before proceeding with our discussion regarding the nature and extent of the TCE contamination, it is worthwhile to briefly examine ambient groundwater quality. Limits for concentrations of inorganic constituents in drinking water have existed for many years. Table 10 presents a comparison of the MCLs and secondary maximum contaminant levels (SMCLs) for inorganic analytes relative to the concentrations observed in City wells no. 14 and no. 33. These two wells were selected because they have the most comprehensive analytical results within the study area. As displayed, no inorganic constituents were reported in excess of the established standards for public drinking water supplies. With regard to mineral content, the groundwater is a calcium-bicarbonate type, which is the most common chemical composition. In general, the groundwater is of excellent quality, although it is quite hard water.

5.2 Nature of TCE Contamination

One of the two primary objectives of this project was to assess the nature and extent of the TCE contaminant plume. Water quality samples were collected from 42 inventoried wells, and 18 discrete-depth samples were collected the 10 new monitoring wells to delineate the lateral and vertical extent of the TCE contamination within the southern portion of the Pocatello Aquifer. The samples were submitted for analysis of 38 different VOCs by EPA Method 502.1. TCE and PCE were the only contaminants identified in the suite of VOCs from all of the wells sampled. Concentrations of TCE and PCE detected in the inventoried wells are presented in Table 4. Many of the wells are constructed as open-bottom completions only and water is derived from that point in the aquifer in which the well was

Table 10
Idaho Drinking Water Standards

	Concentration (ppm)			
Constituent	**MCL***	**SMCL****	**Well No. 14**	**Well No. 33**
Arsenic	0.05		N.D.	N.D.
Barium	2.0		0.14	0.14
Cadmium	0.005		N.D.	N.D.
Chromium	0.1		N.D.	N.D.
Chloride		250.0	50.6	50.2
Copper		1.0	0.01	0.01
Cyanide	0.2		N.D.	N.D.
Fluoride	4.0		0.20	0.19
Iron		0.3	0.02	0.07
Lead	0.015		N.D.	N.D.
Manganese		0.05	N.D.	N.D.
Mercury	0.002		N.D.	N.D.
Nitrate	10.0		1.8	1.7
Selenium	0.05		N.D.	N.D.
Silver	0.1		N.D.	N.D.
Sulfate		250.0	40.2	37.4
TDS		500.0	426.0	416.0
Zinc		5.0	N.D.	N.D.

*MCL = Maximum Contaminant Level; enforceable standards considered to have significant potential threat to human health at concentrations above the specified limits.

**SMCL = Secondary Maximum Contaminant level; these substances can affect the aesthetic quality of water but are not considered to be a health risk.

N.D. = none detected.

TDS = Total Dissolved Solids.

Sample results derived from comprehensive sampling event as reported October 22, 1991.

completed. Thus, these sample results represent point samples at the depth the casing was terminated. However, the monitoring wells were completed with both single and multiple-screened zones so that discrete-depth samples could be attained (refer to Table 6).

The analytical results from the monitoring well samples are presented in Table 11. TCE concentrations ranged from none detected (i.e., detection limit = 0.5 ppb) to a high of 31.7 ppb identified in the LDS domestic farm well.

5.2.1 Spatial Distribution

The analytical results were plotted to evaluate the spatial distribution of TCE concentrations in plan view (Figure 10). The results from the May 1994 monitoring well samples were used because they were collected closer to the period in which the inventoried wells were sampled. Using the MCL of 5 ppb for TCE, a well-defined zone of groundwater contamination has been delineated as a narrow, but very long, band. The downgradient extent of the plume appears to be located in the vicinity of Tech Farm Road near the south end of Riverside Municipal Golf Course. The plume extends contiguously upgradient to the south end of the study area where the breadth of plume significantly increases to one-half the width of the aquifer. The plume is adhering to the southwestern margin of the valley but appears to be influenced by tributary underflow. This inference is supported by the observation that TCE concentrations decrease by about 50 percent downgradient from the mouth of Gibson Jack Creek.

The highest TCE concentrations detected were in wells in the vicinity of the LDS farm at the southern portion of the study area. In this area of the aquifer there is a well-defined lateral concentration gradient. This observation is better depicted in a cross-sectional view (Figure 11). As shown, there appear to be distinct zones with respect to the lateral distribution in TCE concentrations across the aquifer; the boundary of the plume corresponds to the superimposed location of the Portneuf River.

In comparison, on the downgradient end of the plume, there is a substantial diffusion zone in front of the 5 ppb isocontour line. A recent set of monitoring results for samples collected by the Pocatello Water Department on June 2, 1994, indicate that the dispersion front extends downgradient to City wells no. 12, no. 16, and no. 30 where trace level (2.0 to 3.0 ppb) TCE concentrations have been identified. These wells are approximately 1 mile northwest of the northern boundary of the study area. This suggests that the total length of the plume is at least 5 miles long.

The fact that this plume is well-defined by the observed concentration gradients has three profound implications:

1. The plume is being fueled by a continuous source that is located along the southwest side of the valley but has not yet been identified.

Table 11 Monitoring Well Sampling Results for TCE and PCE					
Well	Sample Depth	April 25-27, 1994		August 8-11, 1994	
Number	(ft bmp)[a]	TCE	PCE	TCE	PCE
PA-1	145	19.9	1.5	14.2	1.1
PA-2	125	ND[b]	ND	ND	ND
PA-3	55	11.6	0.9	10.5	0.8
PA-4	70	26.4	2.1	21.3	1.7
PA-4	105	26.5	2.0	21.1	1.8
PA-4	145	26.0	2.0	22.5	1.8
PA-5	43	7.6	0.8	4.8	ND
PA-5	85	8.2	0.9	4.3	ND
PA-6	35	7.6	0.6	3.6	ND
PA-6	75	6.9	0.6	3.4	ND
PA-7	170	7.9	0.8	7.3	0.6
PA-8	40	8.5	0.8	4.7	ND
PA-8	85	8.7	0.9	6.5	ND
PA-8	125	7.8	0.7	4.4	ND
PA-9	65	ND	ND	ND	ND
PA-9	95	ND	ND	ND	ND
PA-10	30	ND	ND	ND	ND
PA-10	60	ND	ND	ND	ND

Note: all results are expressed as µg/l.

[a]ft bmp= feet below measuring poing at top of 4-inch PVC casing.

[b]ND= none detected.

7581

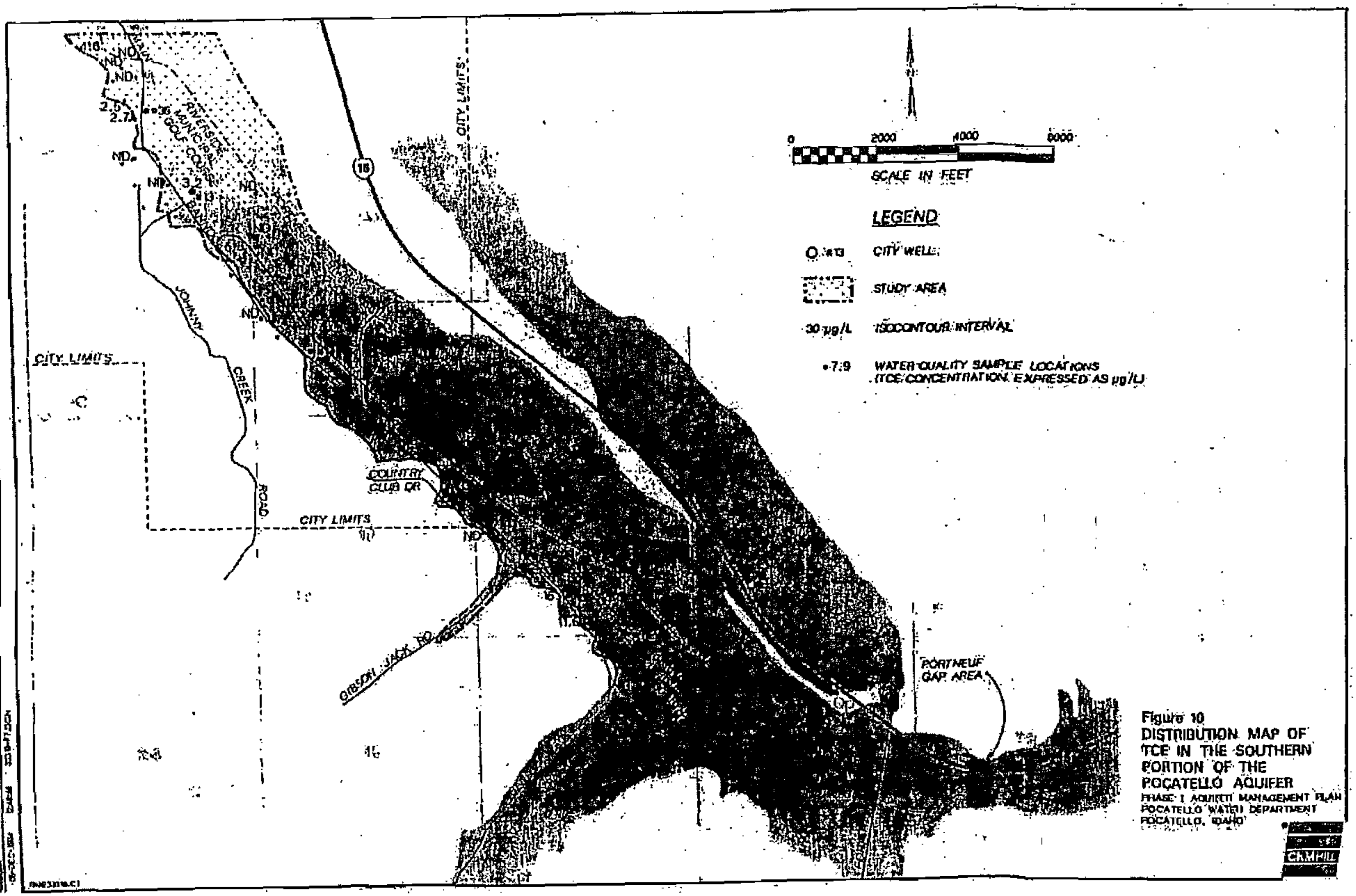
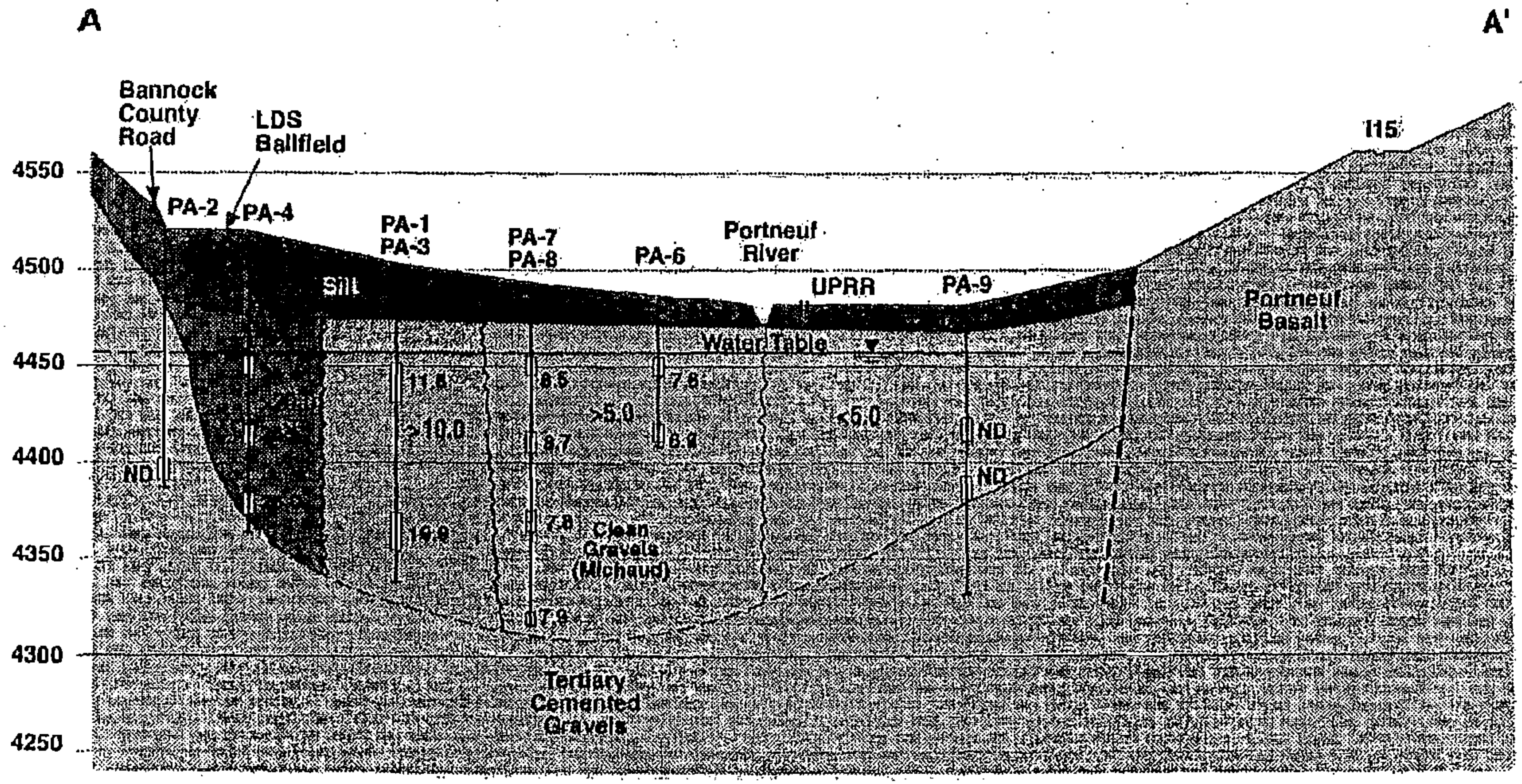


Figure 10
DISTRIBUTION MAP OF TCE IN THE SOUTHERN PORTION OF THE POCATELLO AQUIFER
PHASE I AQUIFER MANAGEMENT PLAN
POCATELLO WATER DEPARTMENT
POCATELLO, IDAHO



NOTE: Samples collected between April 25 to 27, 1994.

Figure 11
VERTICAL DISTRIBUTION OF TCE CONTAMINANT PLUME
PHASE I AQUIFER MANAGEMENT PLAN
POCATELLO WATER DEPARTMENT
POCATELLO, IDAHO

RME33310.C1

2. The extent to which the TCE contamination is delineated indicates we are observing the leading edge of a significant plume.

3. TCE concentrations will probably not significantly dissipate in the foreseeable future.

5.2.2 Vertical Distribution

The sample results for both paired wells and multiple-screened wells indicate TCE concentrations are remarkably similar within a particular well cluster or multiple completion for both sampling events (see Table 11). It can generally be concluded that dissolved aqueous-phase TCE or PCE concentrations are for the most part uniformly dispersed in vertical profile. This observation is particularly apparent with respect to the May sample results for well PA-4 in which TCE concentrations vertically varied less than 2 percent and also in a paired set of wells PA-7 (deep completion) and PA-8 (shallow and mid-level screened zones) where vertical variability between four different sampling depths was only 10 percent. This correlation is less apparent in paired wells PA-1 and PA-3 where the concentration difference is about 40 percent. The salient point of this observation is that the TCE plume present in the southern portion of the Pocatello Aquifer exists in a dissolved aqueous-phase and it is vertically dispersed throughout the saturated thickness of the aquifer.

5.2.3 Temporal Variation

As presented in Table 11, two sets of samples were collected from the monitoring well array to evaluate temporal variation in contaminant concentrations. The results of the analysis indicate that TCE concentrations decreased (10 to 50 percent) between the samples collected in the latter part of April to the mid-August sampling event. The reason for the observed decrease is not entirely understood. One possibility is that groundwater pumpage from the two large LDS irrigation wells during the summer may have had an influence on TCE concentrations by drawing the plume over toward the center of the valley. Another reason is variation in the concentration of TCE moving through the flow system. In fact, large variations in dissolved-phase concentrations (even orders of magnitude) have been documented at many DNAPL sites for no explicable reason (Cherry and Feenstra, 1991).

5.2.4 Contaminant Migration and Mobility

The spatial distribution and distance the TCE contamination has traveled is a function of aquifer composition as well as the physical and chemical characteristics of the contaminant. As previously described, the aquifer is highly permeable with unusually high groundwater flow velocities. In addition, the alluvial aquifer is essentially channelized by the less permeable Tertiary sediments, which produce a constant uniform flow direction. These factors will propagate a very long, yet quite narrow, plume. This type of plume configuration also implies that both longitudinal and transverse dispersivity values are small and advection is the predominant process controlling TCE mass transport (Davis, 1986). It can therefore be concluded that rapid groundwater flow has resulted in a highly dispersed TCE plume in vertical profile, but has minimized lateral (i.e., transverse) dispersion. Thus, lateral spreading of the plume does not appear to be controlled by hydrogeological constraints.

The physical and chemical properties of TCE can also have a significant influence on contaminant migration and mobility. A few general observations can be made with respect to contaminant movement regarding the extent to which TCE and PCE have migrated. The two predominant properties controlling TCE and PCE mobility are their solubility in water and the potential for adsorption. Values for these properties are presented in Table 12.

Table 12
Selected Physical Properties of TCE and PCE

Property	Trichloroethylene (TCE)	Tetrachloroethylene (PCE)
Solubility (ppm)	1,000	200
Octanol-water partition coefficient (log K_{ow})	2.00*	2.93*

*From Fetter (1993); mean value, n = 12.

As shown, TCE is five times more soluble than PCE and therefore more readily dissolved and transported in the groundwater. The octanol-water partition coefficient (log K_{ow}) can be used as an indicator of the likelihood that compounds will be sorbed within the aquifer and thus represents contaminant mobility. The higher the value, the less mobile the compound tends to be in the environment because the more likely it is to be retained by organic carbon within the matrix of the aquifer (Fetter, 1993). However, given the nature in which the Michaud Gravels were deposited and their composition, it is doubtful there is an appreciable amount of organic carbon in the aquifer. Therefore, TCE will not be significantly attenuated because of the lack of fine-grained sediments and organic carbon within the aquifer to retard contaminant migration. On a qualitative basis, TCE is considerably more soluble and mobile than PCE and this may account for the extent it has migrated. In addition, neither TCE nor PCE is subject to significant biodegradation in this type of environment and will therefore not naturally denigrate.

7585

5.2.5 Sample Quality Assurance/Quality Control

The collection of groundwater samples followed CH2M HILL's standard operating procedures. A project quality control program was also implemented to collect sample duplicates, equipment decontamination rinsate samples, and trip blanks for validation of analytical data. Chain-of-custody forms were used to document sample possession and transfer.

5.2.5.1 Data Validation

Prior to evaluation of the analytical results, a data validation program was conducted to assess the completeness, precision, and accuracy of the reported data. Data considered valid by this process were then used for our assessment report.

The results of the data validation process are presented below and can be summarized by the following steps:

- Review of field notes
- Review of sample documentation
- Review of laboratory analytical methods and detection limits
- Review of sample holding times
- Review of field QC sample results
- Review of lab QC sample results
- Calculation of relative percent duplication for duplicate samples
- Elimination or flagging of data not meeting project requirements

5.2.5.2 Sample Collection, Handling, and Analysis

Field Sampling Information Forms document the sample collection and provide field parameter data. A stainless steel Grundfos Redi-Flo2 submersible pump was used to sample all the monitoring wells. The pump was decontaminated between use in each well by scrubbing in a liquinox/water solution, rinsing with clean tap water, followed by a triple rinse with deionized water. The decontamination Rinsate Blank was collected by pumping deionized water through the pump following the decontamination procedure described above and collecting the water in 40-milliliter vials for laboratory analysis.

Samples remained in the custody of CH2M HILL field personnel until delivery to the laboratory. Time and date of sample collection, sample identification numbers, names of custody personnel, and time and date received by the lab were transcribed on the chain-of-custody forms for each sample. Sample containers were refrigerated with blue ice packs and delivered directly to the laboratory.

Sample collection methods and field equipment and meter calibration followed by CH2M HILL's standard operating procedures. Sample collection, handling, and documentation appear to have met QA/QC program requirements as did laboratory analytical methods, holding times, and detection limits. All submitted samples were analyzed for requested parameters.

5.2.5.3 *Quality Control Samples*

Nine quality control samples were collected as part of the water-quality sampling program to provide information for validation of the analytical data. These samples included one trip blank, two decontamination rinsate blanks, and six field duplicates, all of which were analyzed for "purgable halocarbons" by EPA Method 502.1. The analytical results of these QA/QC samples are presented in Table 13. Analytical results for the field duplicates display a good correlation with the original sample. The calculated relative percent differences (RPD) for all compounds in both sample/duplicate sets is 3 percent or less. Sample comparison was based on TCE concentrations with RPD values of 10 percent for aqueous solutions as acceptable (EPA, 1986). No VOCs were detected in the trip blank or decontamination rinsate blank. Therefore, the laboratory meets QA/QC requirements.

Table 13
TCE Concentrations for QC Data Evaluation

Duplicate Sample I.D.	Original Sample I.D.	TCE Concentration		RPD
		Original	Duplicate	
PAM #1	Reese Domestic Well	4.7	4.7	0.0
PAM #2	Rinsate Blank	N.D.	N.D.	0.0
PAM #3	Chris Pein (deep well)	N.D.	N.D.	0.0
PAM #4	Bill Christiansen	N.D.	N.D.	0.0
Trip Blank	Trip Blank	N.D.	N.A.	–
Rinsate Blank	Rinsate Blank	N.D.	N.A.	–
PA-1 (Dup)	PA-1	14.2	14.3	0.1
PA-4 (Dup)	PA-4	26.5	26.5	0.0
PA-5 (Dup)	PA-5	7.6	7.4	2.7

The analytical data is therefore considered accurate. Based on this validation effort, the data are considered to be acceptable for use in evaluating the distribution of TCE within the study area.

Section 6
Remedial Action Alternatives

This section of the report presents our preliminary evaluation of corrective action alternatives that could be implemented to: 1) reinstitute the use of City well no. 33; 2) preclude interruption of service from City well no. 36; and 3) mitigate TCE migration into the main portion of the alluvial aquifer. Recognizing that the City needs to respond with an expeditious but feasible approach, it was decided to initially evaluate the practicality of using the City's four existing municipal supply wells (Nos. 13, 14, 33, and 36). The purpose of this assessment was not to identify and review all of the remedial alternatives that could be applied to this site, but simply to consider those alternatives the City would be most likely to implement.

The initial task in the evaluation process was to determine the effectiveness of capturing the TCE plume under current production rates. A description of the steady-state numerical groundwater flow model used to determine the capture zones for each of the four wells is presented in subsection 6.1.

In subsection 6.2, a feasibility analysis of the two most commonly used groundwater treatment alternatives (i.e., air stripping and carbon adsorption) was performed to compare the implementability, effectiveness, and cost of each method for removing the TCE contamination at the wellhead of well no. 33 and no. 36. This would allow well no. 33 to be brought back online and ensure that well no. 36 could continue to operate without interruption.

Subsection 6.3 address other possible remedial alternatives. However, implementing these alternatives is unlikely because of limitations beyond the City's control.

6.1 Capture Zone Delineation

A single-layer, steady-state numerical model was constructed to simulate the basic features of the hydrogeologic system. This type of model is referred to as an interpretive model (Anderson and Woessner, 1992) because it serves as a framework for evaluating the areal extent of the capture zone for each well based on the current understanding of the hydrogeologic system. The capture zones for each of the four City wells (Nos. 13, 14, 33, and 36) located in the project area were delineated using numerical modeling methods to simulate groundwater flow to each well. The primary objectives of the delineation task were as follows:

- To evaluate whether the capture zones include portions of the aquifer where TCE has been detected

- To evaluate the effectiveness of utilizing existing City wells to intercept the TCE plume

6.1.1 General Methodology

Numerical modeling methods were selected instead of analytical methods because the aquifer's irregular dimensions (both in plan view and in cross-sectional view) can be more realistically simulated using numerical methods. Two public-domain codes developed by the U.S. Geological Survey were used to simulate groundwater flow and to delineate capture zones. MODFLOW (McDonald and Harbaugh, 1988) was used to simulate the groundwater flow system. MODPATH (Pollock, 1989) was used to delineate the groundwater capture zones for each City well using water level elevations and volumetric fluxes computed by MODFLOW. Appendix M contains a detailed description of the codes used, as well as a discussion regarding their inherent assumptions and limitations.

MODFLOW and MODPATH both require construction of a rectangular finite-difference grid over the study area. Each cell in the grid contains information on aquifer geometry (e.g., the elevation of the base of the aquifer), hydraulic parameters (e.g., hydraulic conductivity), and hydraulic stresses on the aquifer (e.g., pumping from wells). MODFLOW computes water level elevations for the centers of each cell and volumetric fluxes between adjacent cells from the user-specified data for each grid cell. The values of the user-specified parameters were derived from the hydrogeologic information attained during investigative activities. The results of the MODFLOW simulations are used by MODPATH to compute groundwater flow velocities between cells and to move particles of water between cells along simulated groundwater flow lines. MODPATH can be used to track particles of water forward or backward in time. For this study, particles were tracked backwards in time from each well to delineate the capture zones for each of the four City wells in the project area.

6.1.2 Numerical Model Construction and Calibration

A steady-state numerical groundwater flow model was constructed to simulate the basic features of the hydrogeologic system. This section describes the construction of the flow model, with an emphasis on the assumptions used to derive initial parameter values and to adjust parameter values during calibration. An outline of the area covered by the model grid and the location of the grid origin is displayed in Figure 12.

6.1.2.1 Model Area, Finite-Difference Grid, and Boundary Conditions

The portion of the grid that simulates the aquifer within the study area is shown in Figure 13. The effective model domain consisted of 6,720 cells (120 rows and 56 columns). Each cell in the grid has been assigned dimensions of 200 feet by 200 feet. The grid was aligned in the predominant direction of regional groundwater flow (from southeast to northwest) and represents an area of approximately 10 square miles.

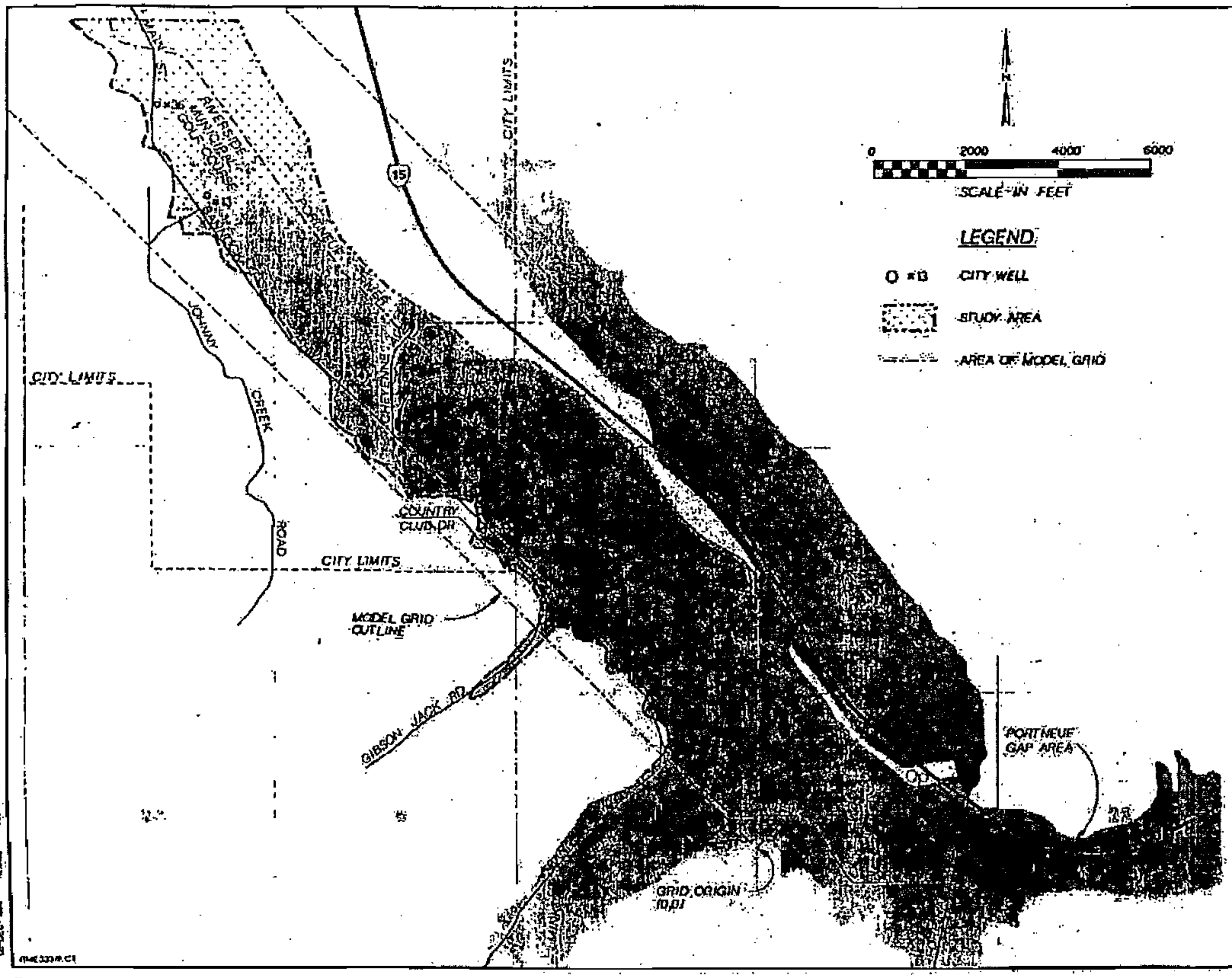


Figure 12
OUTLINE OF AREA
COVERED BY MODEL GRID
PHASE 1 AQUIFER MANAGEMENT PLAN
POCATELLO WATER DEPARTMENT
POCATELLO, IDAHO

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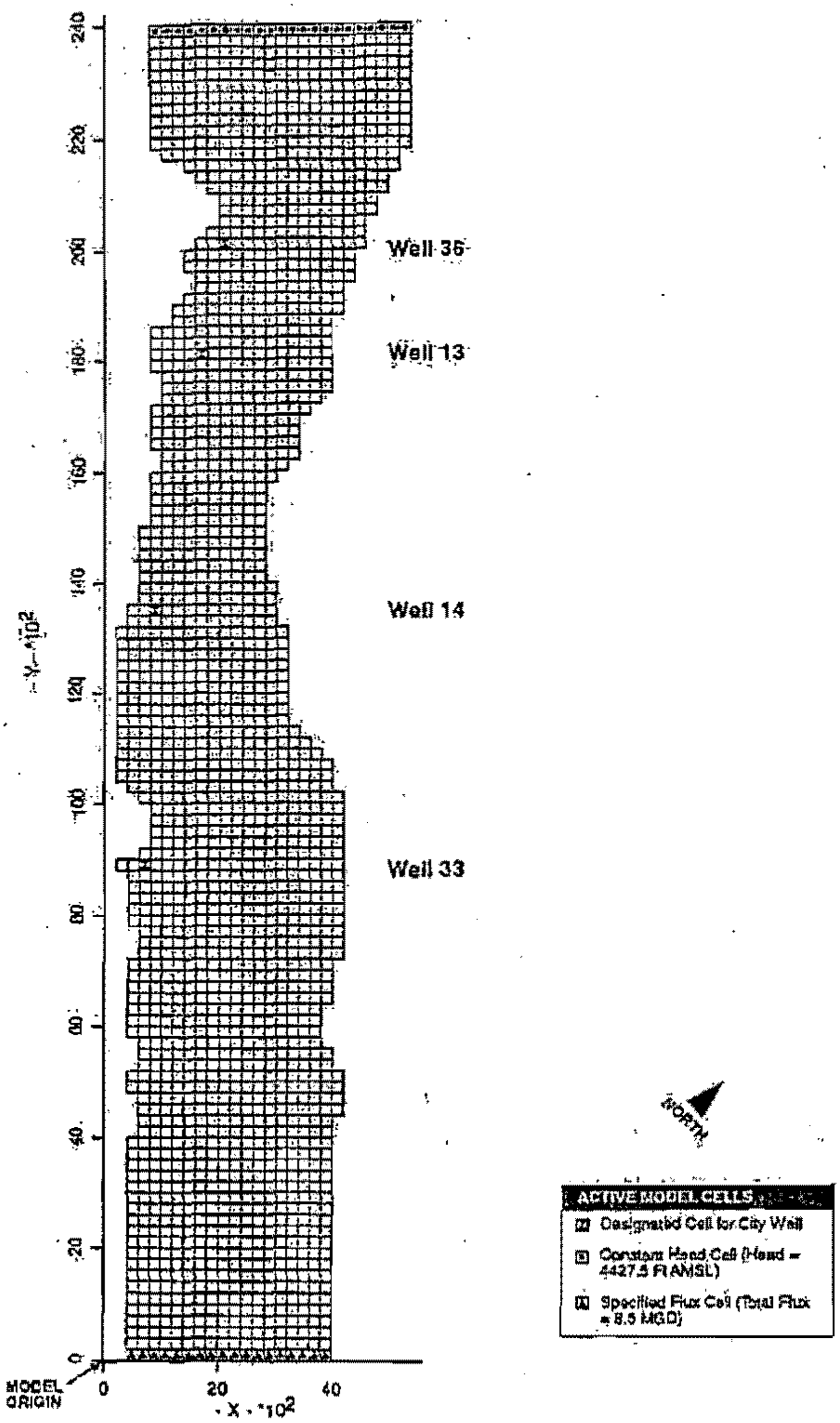


Figure 13
MAP SHOWING MODEL GRID (ACTIVE CELLS) AND BOUNDARY CONDITIONS
PHASE I AQUIFER MANAGEMENT PLAN
POCATELLO WATER DEPARTMENT
POCATELLO, IDAHO

CH2M HILL

RME33519.C1

The grid was extended beyond the downgradient and upgradient boundaries of the study area to avoid potential numerical problems associated with assigned boundary conditions. A constant-head boundary was established along the downgradient boundary of the grid. The water level elevation along this boundary was fixed at 4,427.5 feet at each grid cell. This water table elevation was interpolated from the water level elevation map for the study area. A constant-flux boundary was established at the upgradient boundary of the grid. The volumetric flux through this boundary incorporated the combined fluxes from the main valley stem and from the tributary valley occupied by Mink Creek. Figure 13 also shows the boundary conditions.

6.1.2.2 Modeling Assumptions

Several assumptions about the nature of the hydrogeologic system were made during construction and calibration of the numerical model. These assumptions were based on both model limitations and on the conceptual hydrogeologic model discussed in previous sections of this report. The assumptions are as follows:

- Groundwater flow is horizontal.

- The aquifer is situated in an asymmetrical structural valley. The thickest portion of the alluvial aquifer is assumed to be adjacent to the southwestern margin of the aquifer, and the thinnest portion is assumed to be along the northeastern boundary. Therefore, each of the City's four wells are assumed to be located in areas where the aquifer is thickest.

- The elevation of the base of the aquifer is assumed to decrease from north to south along the longitudinal axis of the valley (i.e., the principal groundwater flow direction) by an amount equal to the change in the elevation of the water table. Between the two study area boundaries, the water table and aquifer base elevation are assumed to decrease by 30 feet. This assumption is equivalent to assuming that the saturated thickness of the aquifer is constant along a given groundwater flowline.

- The City's wells are assumed to fully penetrate the aquifer. In reality, only one well (City well no. 36) is known to be completed to the base of the aquifer.

- The Portneuf River is assumed to be hydraulically independent of the aquifer. Consequently, the river does not lose water to, or gain water from, the aquifer.

- Areal recharge over the aquifer is assumed to be negligible. This assumption is reasonable because annual precipitation is low (approximately 12.3 inches), and annual evapotranspiration is high (approximately 61.1 inches). In addition, most precipitation occurs as snowfall. This snowfall runs off or evaporates during periods when soils are nearly frozen, with little corresponding recharge beneath the soil evaporative zone directly to the water table.

- Irrigation is assumed to occur at rates that meet crop consumptive use, with no recharge to the water table. In addition, irrigation pumping rates are assumed to be insignificant on a long-term (annual average) basis compared to pumping from the City wells.

- Evapotranspiration withdrawals from the water table are assumed to be negligible because of the depth of the water table (typically 30 feet or greater throughout the basin).

- There are no tributary inflows of groundwater from Gibson Jack Road or other areas further downgradient. Consequently, all groundwater flow into the study area is from areas upgradient of Gibson Jack Road. However, some recharge probably occurs as tributary underflow, but this has not been quantified.

- The water level elevations shown in Figure 8 are representative of a single point in time. At the water table elevations shown in Figure 8 were measured over a 14-day period in November 1993.

- Water level elevations and groundwater flow directions shown in Figure 8 represent long-term, annual average steady-state conditions in the aquifer.

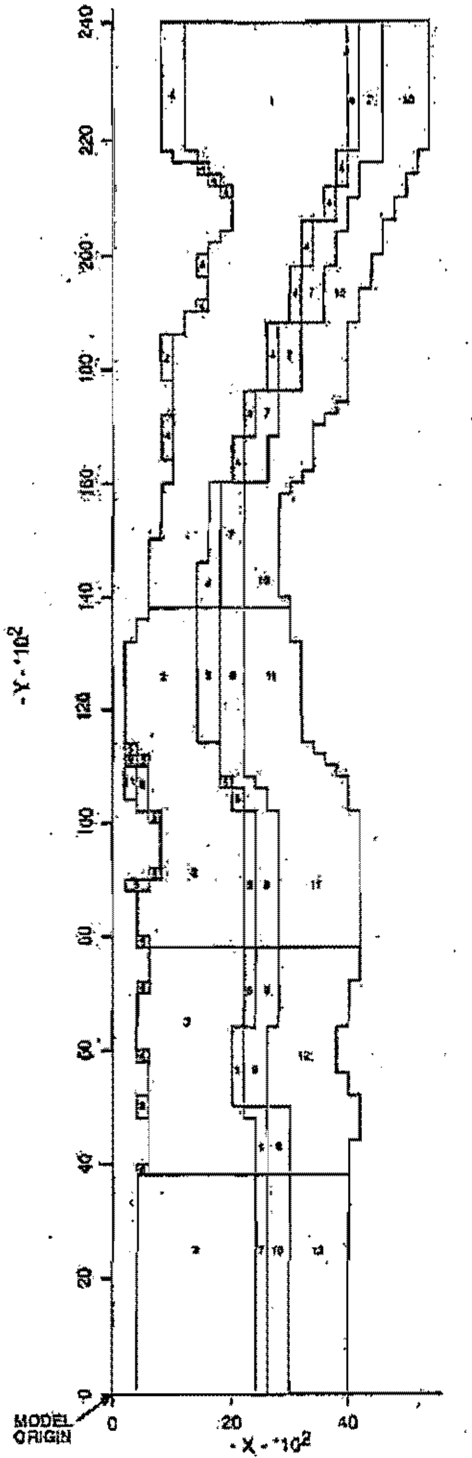
- Little or no flow occurs between the aquifer and the formations that form its boundaries.

- The aquifer is unconfined.

6.1.2.3 Parameter Selection

The following quantitative parameters were specified on a cell-by-cell basis in the flow model (MODFLOW): the aquifer base elevation, the hydraulic conductivity, underflow into the aquifer system across the upgradient model boundary, and well pumping rates. These parameters were selected as follows.

6.1.2.3.1 Aquifer Base Elevation. The deepest portion of the aquifer (adjacent to the southwestern aquifer boundary) was assumed to have a base elevation ranging from 4,300 feet to 4,320 feet. The value of 4,300 feet was determined from the well log for well no. 36. The base of the aquifer adjacent to the northeastern aquifer boundary was estimated to range from 4,390 feet to 4,420 feet. A total of 16 elevation points were used to define the aquifer base elevation (see Figure 14).



Zone	Elevation (Ft)
1	4300
2	4310
3	4320
4	4330
5	4340
6	4350
7	4360
8	4370
9	4380
10	4390
11	4400
12	4410
13	4420

Figure 14
AQUIFER BASE ELEVATION ZONATION PATTERN
PHASE I AQUIFER MANAGEMENT PLAN
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6.1.2.3.2 Hydraulic Conductivity. The hydraulic conductivity was initially set at 3,000 ft/day throughout the aquifer. This value was a representative mean value derived from the following aquifer test results:

- A distance-drawdown analysis of the 8-day irrigation event involving pumping from the LDS farm north irrigation well.

- Time-drawdown analyses (using the Neuman and Jacob methods) at observation well PA-9 during the 50-hour pump test of the Katsilometes well.

The aquifer was initially simulated as anisotropic. The ratio of the longitudinal and transverse hydraulic conductivities (i.e., the anisotropy factor) was set at a 4:1 ratio, based on aquifer test data derived from the controlled test on the Katsilometes irrigation well.

Hydraulic conductivity values and anisotropy ratios were varied during the model calibration process. Prior to calibration, allowable ranges for variation in the values of these two parameters were defined. The hydraulic conductivity was allowed to vary in the upgradient half of the study area from 600 ft/day to 3,500 ft/day, based on pumping test data at the LDS farm well and the Katsilometes well. No controlled pump test data were available in the downgradient half of the study area. Consequently, the hydraulic conductivity was allowed to vary from 600 feet/day (the low value interpreted from the LDS and Katsilometes pump tests) to 4,500 feet/day (derived from specific capacity data at City well no. 36). The anisotropy ratio was allowed to vary between 1.0 (isotropic conditions) and 5.0 (the value measured from pump test data).

6.1.2.3.3 Groundwater Inflow from Upgradient Areas. The groundwater inflow rate at the upgradient constant-flux boundary was allowed to range between 0.6 million and 3.5 million ft^3/day. These estimated flow rates were based on the simulated cross-sectional area (394,800 ft^2); a hydraulic gradient of 0.0025 (measured from the water level map for the upgradient portion of the study area); and the range of hydraulic conductivity values (600 and 3,500 ft/day).

6.1.2.3.4 Pumping Rates. For calibration simulations, the only pumping well in the model was City well no. 36. The pumping rate was set to the current average rate of 1,300 gpm. Other City wells were not simulated since they were not operating at the time of the water level measurements in November 1993.

6.1.2.4 Calibration Procedure

During calibration, values of hydraulic conductivity, anisotropy ratio, and upgradient flux were adjusted. The calibration criteria consisted primarily of matching simulated groundwater flow directions to flow directions suggested by water levels measured in November 1993. In addition, the calibration effort was performed to obtain reasonable estimates of groundwater elevations at measured points in the vicinity of the City wells. However, quantitative statistical analyses of calibration quality (based on comparisons of simulated and measured water levels at observation wells) were not performed.

6.1.2.5 Calibration Results

Figure 15 compares water level contours obtained from field measurements and from the calibrated flow model. Water level elevations were simulated to within 1 foot in the vicinity of City wells no. 36 and no. 13. Simulated water level elevations were approximately 2 feet higher than measured elevations in the vicinity of City well no. 14. Simulated water level elevations were approximately 2 feet lower than measured elevations in the vicinity of City well no. 33 and in areas farther upgradient.

The calibration process suggested that the aquifer system is isotropic and heterogeneous. The use of an anisotropy ratio of 1.0 (simulating isotropic conditions) was necessary to replicate groundwater flow directions inferred from measured water level elevations, particularly in the vicinity of City wells no. 13 and no. 36. An anisotropy ratio of 5.0 produced a strong component of flow from the southwest towards the northeast in the downgradient portion of the aquifer in the vicinity of these two wells.

In addition, the hydraulic gradients suggested by the measured water level elevations could only be simulated by subdividing the hydraulic conductivity over four areal zones within the study area (see Figure 16). During calibration, the four zones were established along the principal groundwater flow direction. The low hydraulic conductivity was 1,000 ft/day (approximately 20 percent higher than values of 600 to 800 ft/day suggested by several analyses of data from the LDS farm well and Katsilometes well pump tests). The highest zone value of hydraulic conductivity was 3,000 ft/day in the northern portion of the model. Values of 1,600 ft/day and 2,200 ft/day were used in intermediate zones to simulate a gradual increase of hydraulic conductivity in the downgradient direction. Coincident with the adjustment of hydraulic conductivity values, the flux across the upgradient constant head boundary was adjusted until a value of 1.35 million cubic ft^3/day was found to produce reasonable gradients with the calibrated hydraulic conductivity values.

6.1.3 Delineation of Capture Zones

6.1.3.1 Delineation Procedure

The initial step in delineating capture zones consisted of running the flow model with the appropriate pumping rates for each City well of 1,300 gpm at well no. 36; 1,000 gpm at well no. 13; 800 gpm at well no. 14; and 1,200 gpm at well no. 33. The four wells were assumed to be pumping simultaneously. This assumption yielded wider capture zones than would be obtained if only one well were pumping at any given time. As with the calibration simulations, other wells in the valley were assumed to pump insignificant volumes in the future compared to the four City wells. Although this assumption also has the potential to produce slightly larger capture zones than if other wells were pumping, the resulting error is likely to be small because other wells in the study area are domestic or

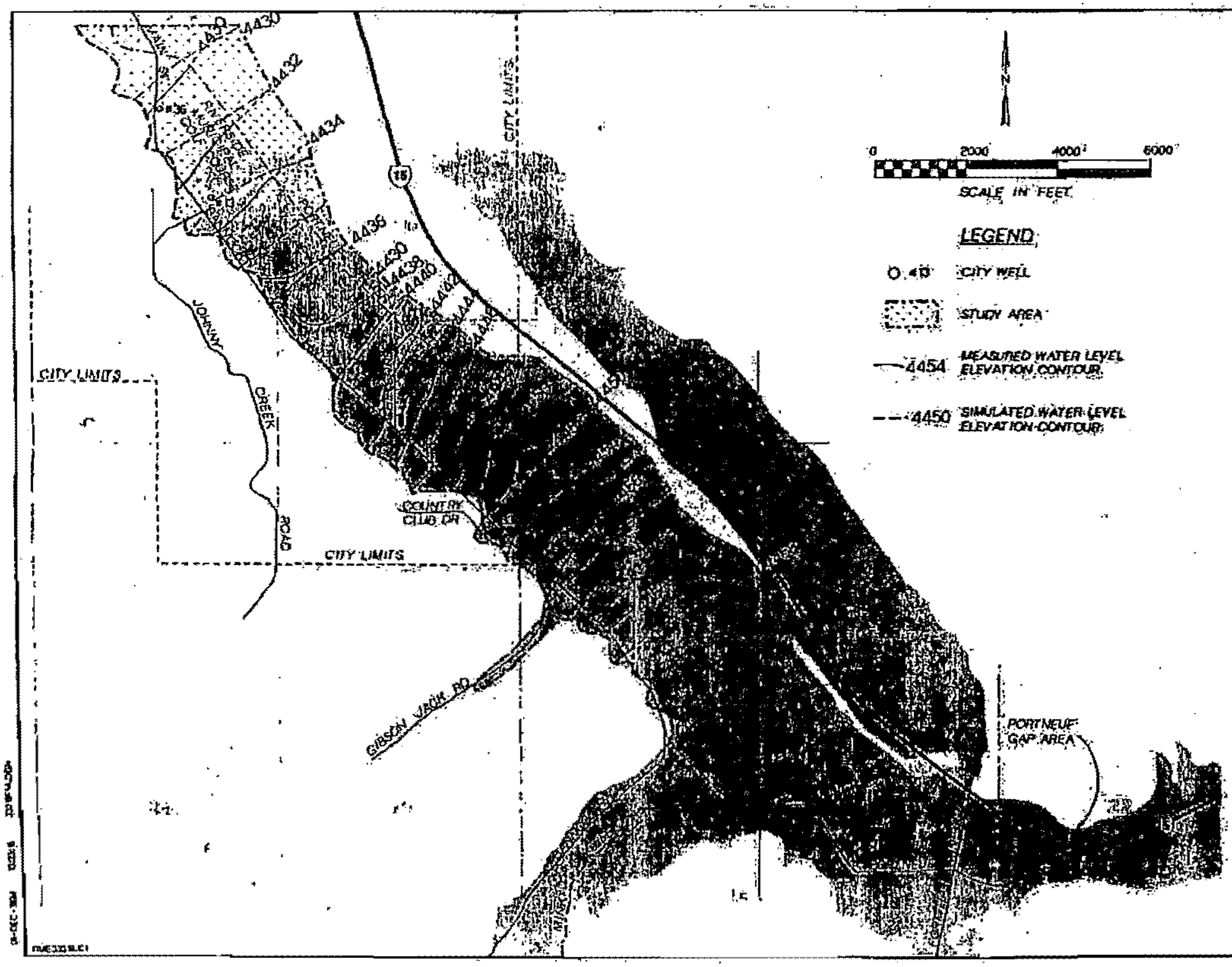

Figure 15
COMPARISON OF SIMULATED & MEASURED WATER LEVEL ELEVATION CONTOURS
PHASE I AQUIFER MANAGEMENT PLAN
POCATELLO WATER DEPARTMENT
POCATELLO, IDAHO

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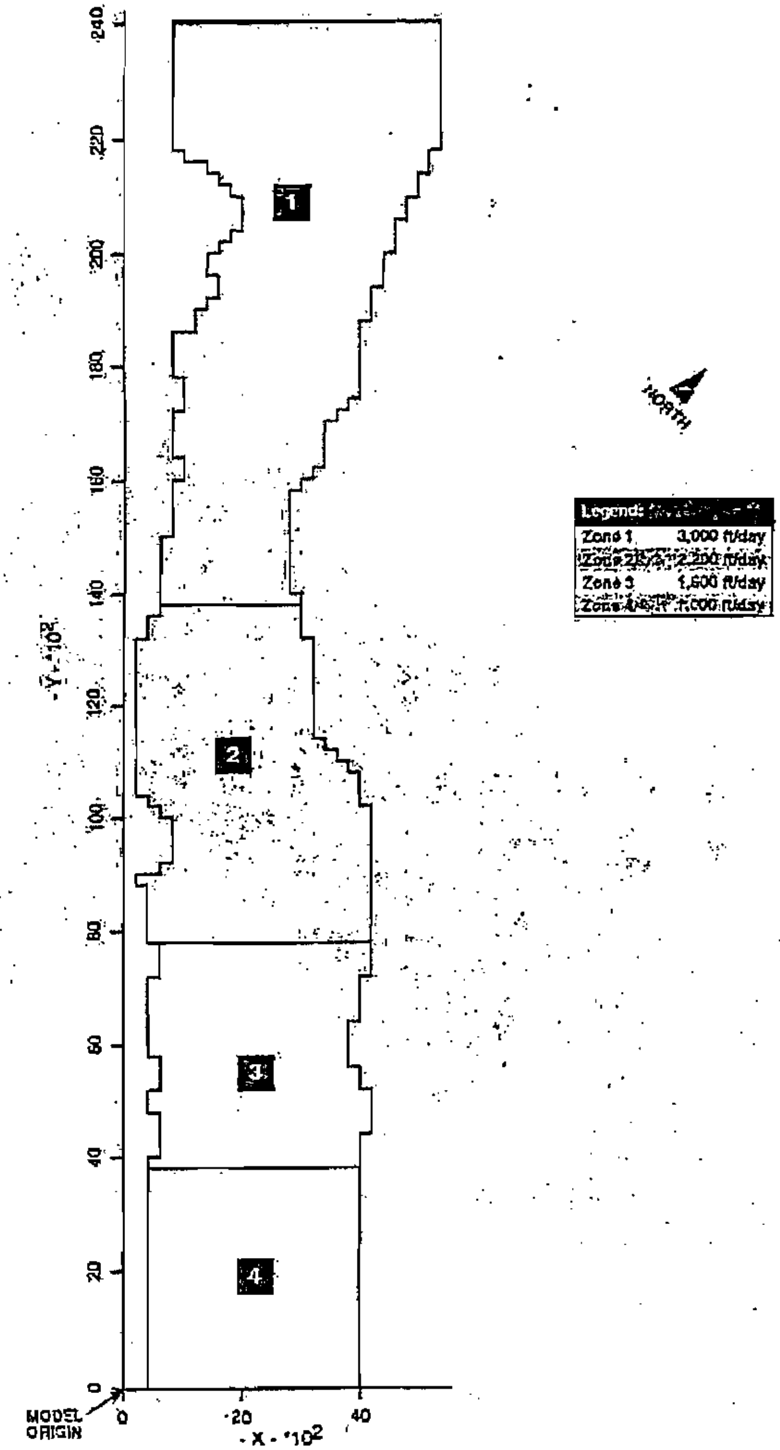

Figure 15
HYDRAULIC CONDUCTIVITY
ZONATION PATTERN
PHASE I AQUIFER MANAGEMENT PLAN
POCATELLO WATER DEPARTMENT
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seasonal irrigation wells that pump relatively small annual volumes of groundwater as compared with the City wells.

The delineation of capture zones was accomplished using a backwards particle-tracking procedure. Forty particles were placed in each cell containing a pumping City well. Each particle was placed in the middle of the aquifer's saturated thickness at the cells corresponding to City wells. MODPATH then computed the positions of the groundwater flowlines radiating backward in time from each City well. The computational procedure for any given particle was continued until the particle encountered the upgradient model boundary or one of the lateral boundaries of the aquifer. The flowlines were then plotted with the MODPATH-PLOT program, and capture zones were drawn around the ensemble of flowlines to define the groundwater capture areas for each well.

6.1.3.2 Results

The capture zone of the total pumping effect from all four City wells is shown in Figure 17. The individual capture zone for each well is shown in Figures 18 through 21. For well Nos. 13, 14, and 33, the capture zones are generally manifest as elongate strips that extend directly upgradient of the well. The capture zone for City well no. 36 shows a branching pattern resulting from the simultaneous capture of water by the other three City wells (see Figure 21). Observations regarding the locations of the capture zones relative to the TCE plume are as follows:

- Well no. 36 captures groundwater along the southwestern aquifer boundary. Consequently, this well may capture groundwater from the vicinity of the TCE plume even when the other three wells are operating at their full capacity. The eastern branch of the delineated capture zone covers an area east of, and parallel to, the TCE plume.

- The other three City wells capture all or part of their water from the portion of the aquifer containing the TCE plume. Well no. 33 captures water from an area where TCE concentrations have been measured at >20 ppb. Wells 13 and 14 capture water from areas where TCE concentrations have been measured at >10 ppb.

- Containment of the TCE plume area (as presently defined) would occur if all four wells were pumping simultaneously and on a continual basis, as modeled for the purpose of delineating capture zones. This pumping scenario corresponds to projected future demands for the southern service area and also represents the highest pumping rate that can be achieved for the well field and distribution system under their current configuration.

Additional analyses were performed to evaluate TCE plume migration under the present seasonal, low-demand pumping scenario. This scenario, which represents the lowest pumping rate for the current well field and distribution system consists of only pumping

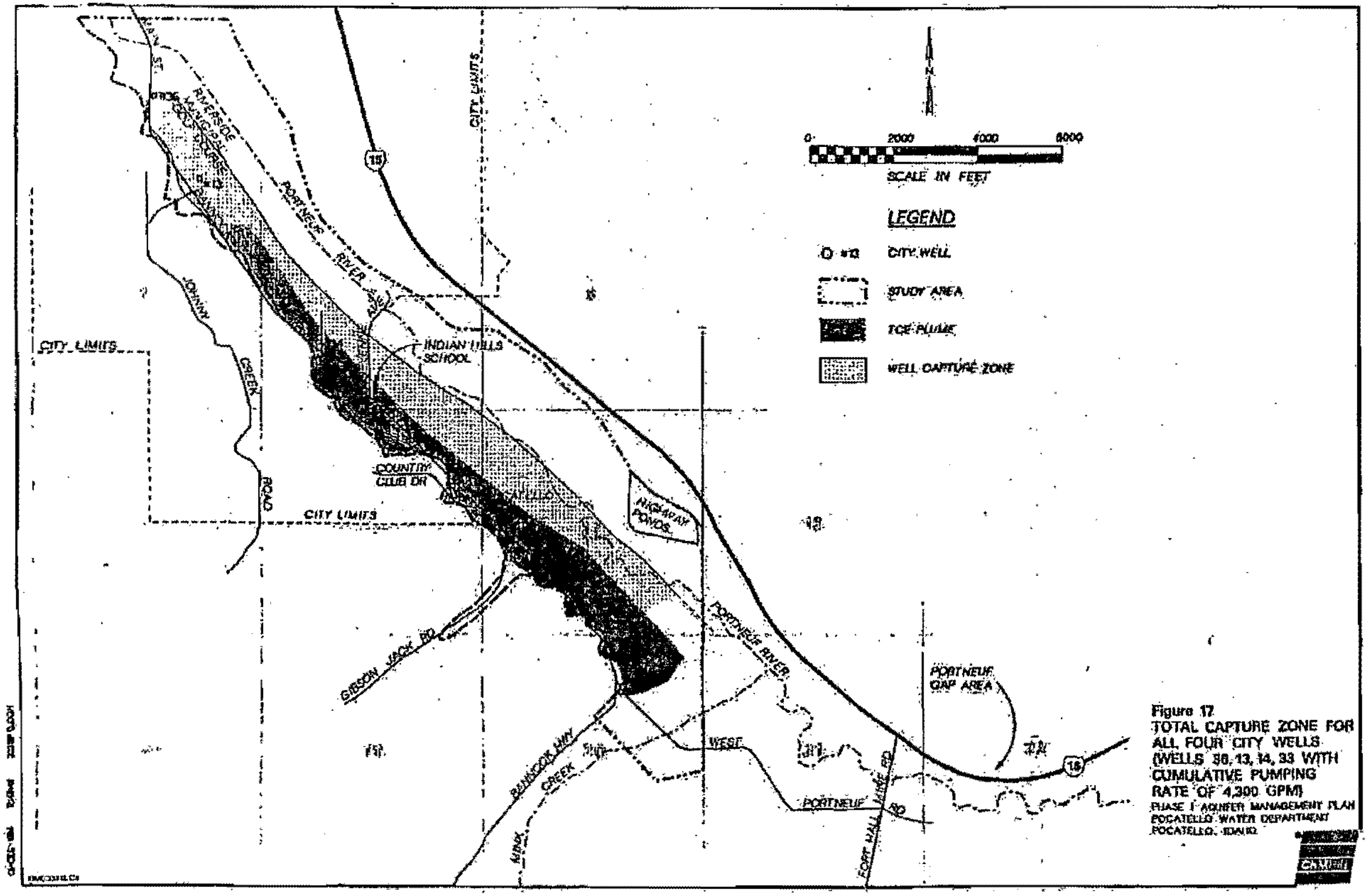

Figure 17
TOTAL CAPTURE ZONE FOR ALL FOUR CITY WELLS (WELLS 36, 13, 14, 33 WITH CUMULATIVE PUMPING RATE OF 4,300 GPM)
PHASE I AQUIFER MANAGEMENT PLAN
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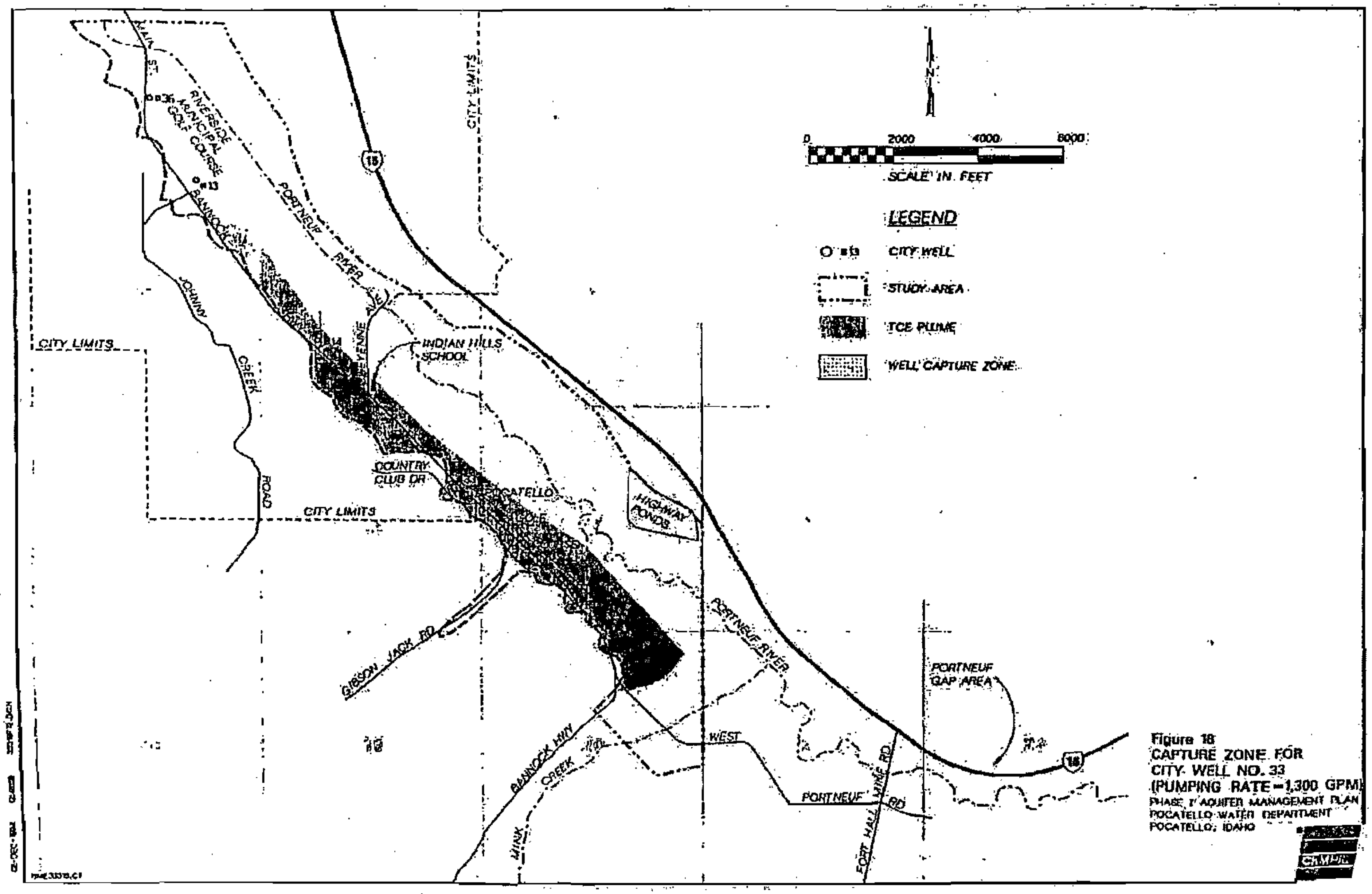

Figure 18
CAPTURE ZONE FOR
CITY WELL NO. 33
(PUMPING RATE = 1,300 GPM)
PHASE I AQUIFER MANAGEMENT PLAN
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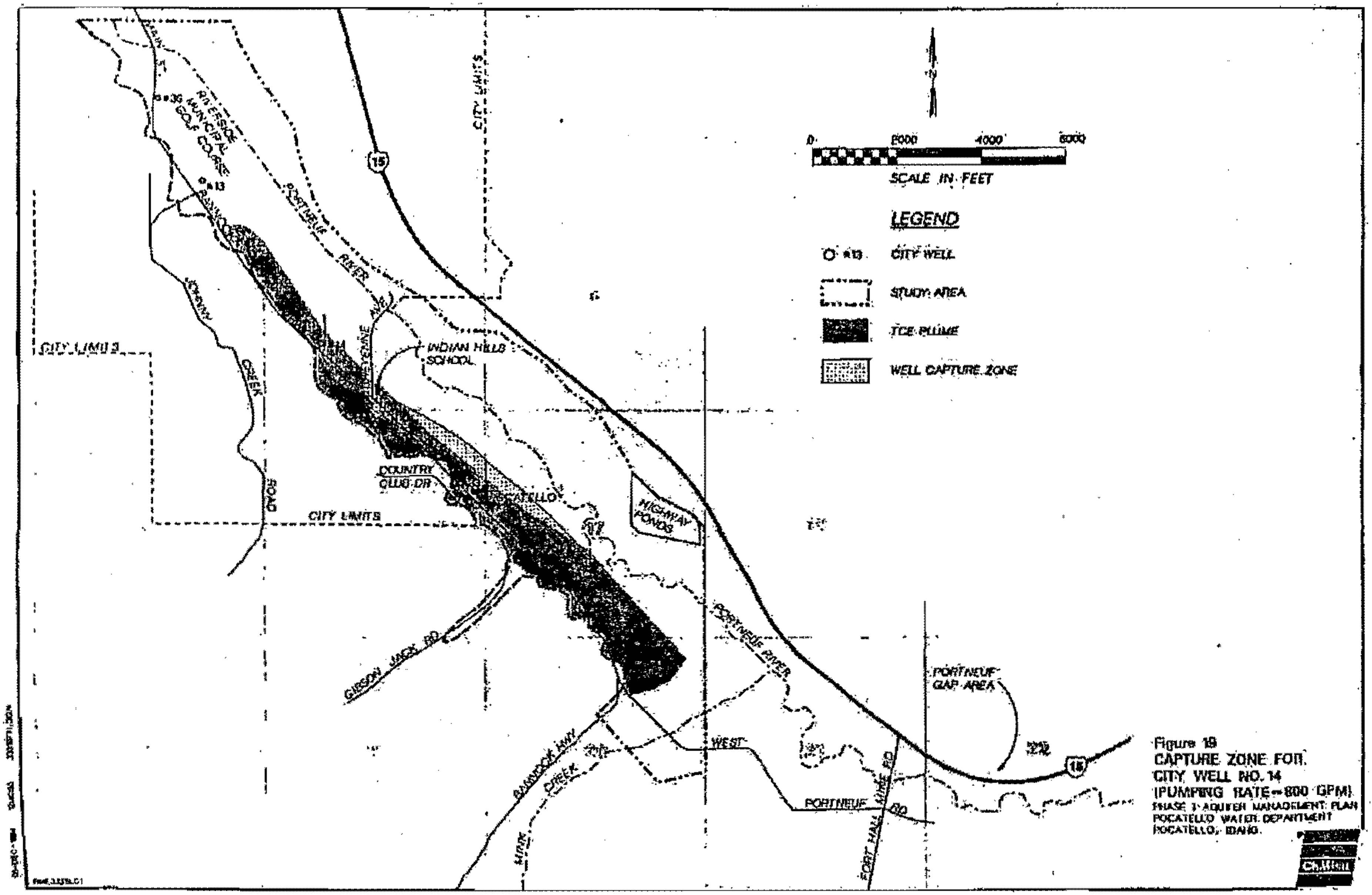

Figure 19
CAPTURE ZONE FOR
CITY WELL NO. 14
(PUMPING RATE = 800 GPM)
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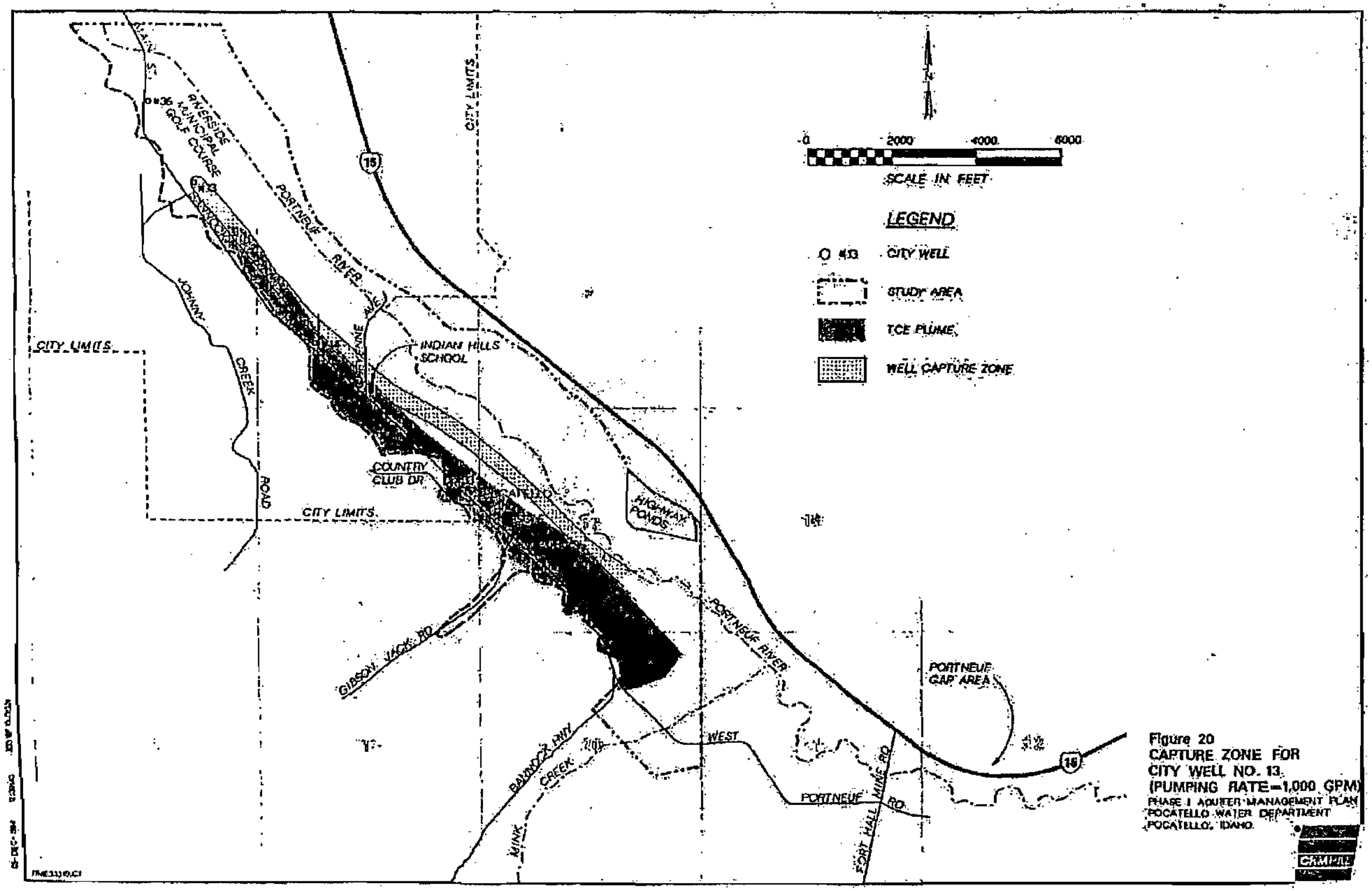

Figure 20
CAPTURE ZONE FOR
CITY WELL NO. 13.
(PUMPING RATE=1,000 GPM)
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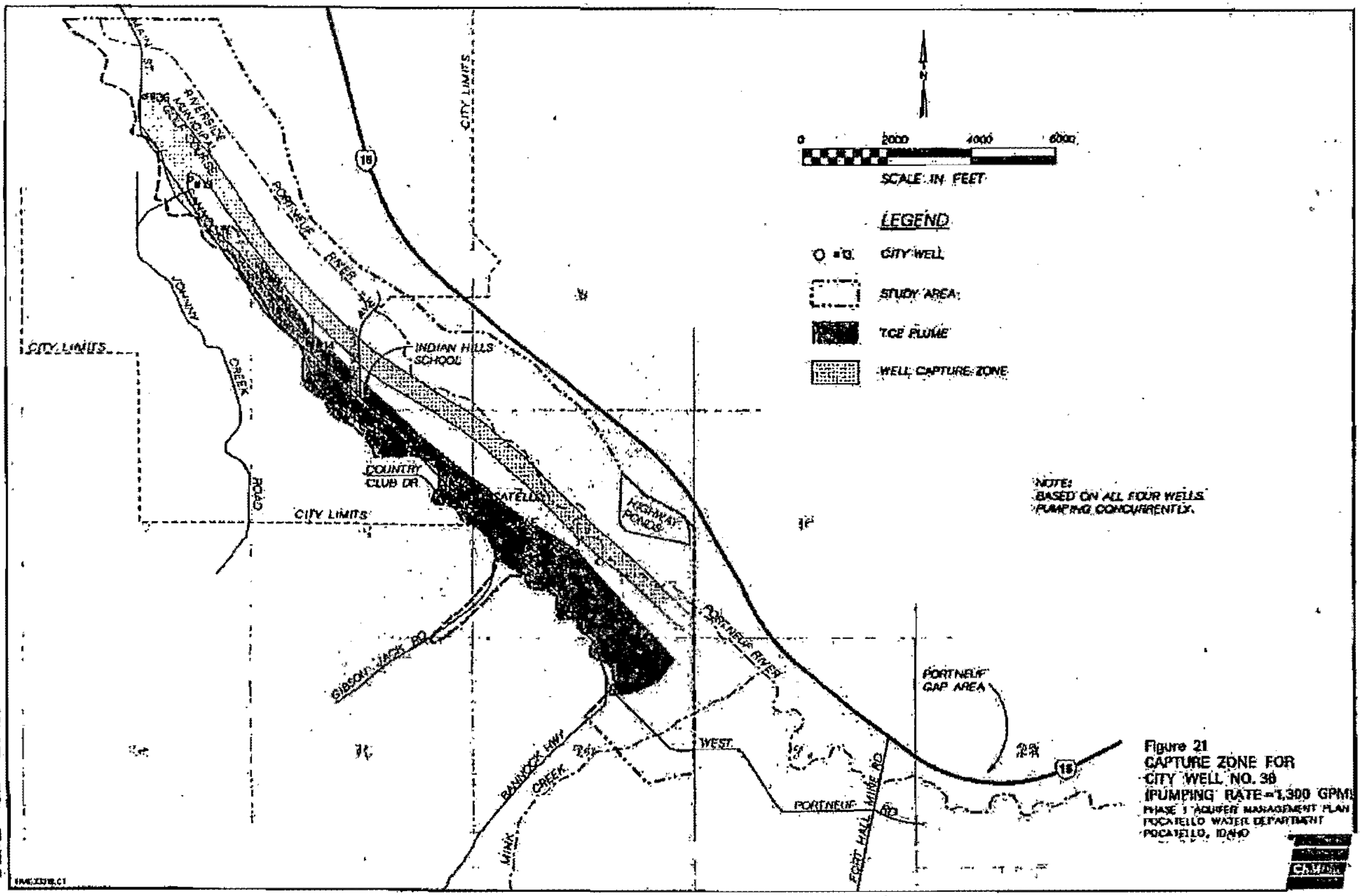

Figure 21
CAPTURE ZONE FOR
CITY WELL NO. 38
(PUMPING RATE=1,300 GPM)
PHASE 1 AQUIFER MANAGEMENT PLAN
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from well no. 36. The pumping rate from this well is assumed to be at the current production capacity of 1,300 gpm. The analysis indicates that this strategy would allow a large portion of the TCE plume to be captured, thereby inhibiting northward migration into the central portion of the aquifer (see Figure 22). However, a small portion of the plume could potentially circulate past well no. 36, primarily along the western edge of the valley. Consequently, additional City wells using modified pumping scenarios may need to concurrently operate in order to fully contain the plume. Further analyses would be required to evaluate whether plume containment could be accomplished with fewer than four wells operating on a continual basis at their full production capacities.

6.1.4 Limitations of Analysis

Numerical modeling methods were selected over analytical methods for this analysis because the aquifer has irregular dimensions (both in plan view and in cross-sectional view). A single-layer steady-state numerical model was constructed to simulate the basic features of the hydrogeologic system. This type of model is called an interpretive model because it serves as a framework for evaluating the likely areal extent of the capture zone for each well based on the current understanding of the hydrogeologic system. Although the calibrated model simulates groundwater flow directions sufficiently well to meet the objectives of this project (i.e., evaluating whether the City's wells potentially capture groundwater from the TCE plume), the model is not constructed or calibrated in a manner to allow it to serve as a predictive tool for more detailed evaluations without further refinement. This limitation in the use of the model exists for the following reasons:

- The model assumes that pumping wells fully penetrate the aquifer. However, according to well completion specifications provided by the City, none of the four wells is open throughout the full saturated thickness of the aquifer. Because actual capture zones for each of the four wells are depth-dependent, the areal extent of each capture zone has probably been overestimated and may differ substantially from those delineated with the single-layer model. Future modeling efforts would need to address subdividing the aquifer into multiple layers to simulate groundwater pumping at variable depths in the aquifer.

- The model is a steady-state analysis of groundwater flow patterns in the study area. Consequently, it assumes that all pumping wells operate at their production capacity on a continual basis. The areal extent of groundwater capture zones for each well may differ substantially from those delineated by this model if wells are pumped at different rates and/or at discontinuous durations than performed for these capture zone analyses. Variations from the simulated conditions will also affect the potential for downgradient migration of the TCE plume.

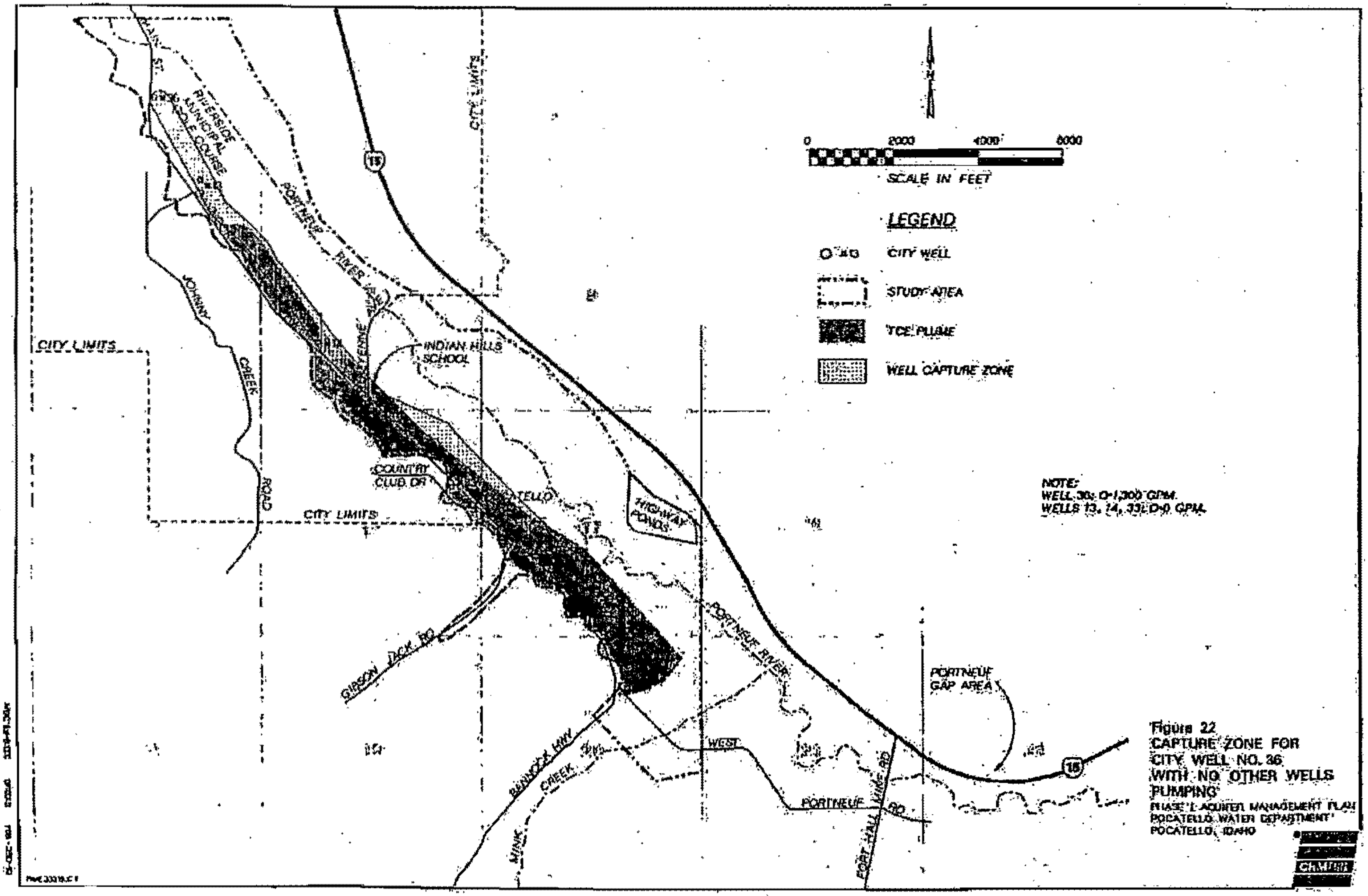

Figure 22
CAPTURE ZONE FOR CITY WELL NO. 36 WITH NO OTHER WELLS PUMPING
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- The model was calibrated using only general groundwater flow directions, not measured groundwater elevations at specific wells throughout the study area. Although the simulated water level contours appear to reasonably correspond to the contours and elevations at specific wells shown in Figure 8, a more rigorous calibration effort would be required to produce a predictive model. The calibration criteria would be expanded to include the following evaluations:

  - Quantitative comparisons of simulated water table elevations with elevations measured at observation wells throughout the study area. The comparison would consist of simple statistical analyses of the difference between measured and simulated elevations.

  - Qualitative comparisons of simulated groundwater flow directions with those inferred from maps prepared from measured elevations at each observation well in the aquifer. This procedure would be similar to the calibration step documented in this report.

  - Quantitative comparisons of the simulated water budget with independent estimates made from field data. Water budget comparisons would be made for the entire study area and, if applicable, for subareas of particular interest.

- Numerical computational methods for delineating capture zones, such as those employed by MODPATH, are generally quite sensitive to the values of hydraulic conductivity, as well as their spatial variation. However, the hydraulic heads computed by the flow model (MODFLOW) are typically much less sensitive to the choice of hydraulic conductivity. Additional pump tests in the vicinity of the four City wells would be necessary, together with a comprehensive sensitivity analysis of the MODFLOW and MODPATH models to comprehensively evaluate the vertical and lateral dimensions of the capture zones for each well. In addition, analyses of the sensitivity of the delineated areas to the choice of effective porosity would be required, particularly where time-of-travel calculations are of interest.

6.1.5 Summary of Capture Zone Delineation

Capture zones were delineated for a scenario in which all four City wells are pumping at their full capacities on a continual basis. This pumping scenario corresponds to projected future demands for the southern portion of the service area and also represents the maximum pumping scenario for the present configuration of the well field and distribution system. Figure 17 shows the simulated total capture zone when all four City wells are operational; Figures 18 through 21 show the individual capture zones for each well. The capture zones indicate that groundwater is supplied to the City's wells primarily from an area between the Portneuf River and the western aquifer boundary. The capture zones include the area where TCE has been observed in the groundwater downgradient of the mouth of the Fort Hall Canyon drainage.

Capture zone analyses were also conducted for a minimal pumping scenario which would consist using only well no. 36. The modeling analyses predict that pumping of well no. 36 at its full capacity would capture a large portion of the TCE plume. However, it is possible that a portion of the plume will lie outside the capture zone of this well and migrate farther downgradient. Further analyses would be required to evaluate whether full containment of the plume could be accomplished at varied pumping rates for all four City wells on a continuous basis.

There are a number of inherent drawbacks with using the existing City wells, the most significant being improper and unknown well construction methods. None of the wells are open to the full saturated thickness of the aquifer. As determined from our investigation, the TCE contamination is in a dissolved phase extending throughout the vertical profile. Therefore, none of the City wells would effectively intercept and capture the plume.

6.2 Feasibility Assessment of Groundwater Treatment Alternatives

The purpose of the feasibility assessment was to identify, evaluate, and compare treatment alternatives to remove the TCE and PCE contamination associated with Pocatello's water supply wells no. 33 and no. 36. The objective was to bring these wells back online as potable water supply wells. The tasks associated with this evaluation include the following:

- Review the available site-specific information pertinent to the City's municipal supply wells no. 33 and no. 36.
- Develop treatment alternatives with the ability to deliver potable water with a residual TCE concentration of less than 1 ppb.
- Provide order-of-magnitude cost estimates (+50 percent to -30 percent expected accuracy of estimate) for each alternative, including a breakdown of the estimated capital and operation and maintenance costs.
- Summarize the findings of this evaluation by comparing the effectiveness, implementability, and cost of each alternative considered, including a discussion of the advantages and disadvantages of each alternative with regard to site-specific conditions.

Based on the results of the Capture Zone Analysis and discussion with Pocatello's Water Superintendent, the proposed plan of action is as follows:

- Use well no. 33 to initially intercept and treat the upgradient of the plume.

- Water from well no. 13 will be pumped to a holding reservoir and blended with to an acceptable level.

- Well no. 14 pump to waste and irrigation at Riverside Golf Course.

- Intercept and treat the remaining plume at well no. 36 to inhibit further downgradient contaminant migration.

Although PCE has also been detected in wells no. 14 and no. 33, the concentration is generally an order-of-magnitude less (nondetected to 1.2 ppb) than the concentration of TCE. Therefore, any treatment alternative used for TCE will also effectively reduce the concentration of PCE. A comprehensive discussion of the chemical and physical properties associated with each of these chemicals is contained in subsection 2.5. Table 14, provides a summary of the monitoring results of TCE concentrations for wells of concern no. 33 and no. 36.

Table 14 Summary of TCE Sample Results		
Well No.	Sample Date	Sample Results (ppb)
33	4-Oct-88	<0.1
33	26-Jun-89	6.3
33	8-Aug-89	2.0
33	22-May-90	<1.0
33	20-May-92	<1.0
33	24-Mar-93	8.4
33	29-Jun-93	7.0
33	20-Jul-93	10.6
33	18-Oct-93	7.1
33	2-Jun-94	15.0
36	14-Oct-93	1.2
36	6-Jan-94	4.0
36	16-Mar-94	4.0
36	26-May-94	3.1
36	23-Aug-94	4.0

6.2.1 Description of Treatment Technologies

Two applicable treatment technologies have been identified for the removal of TCE and PCE from groundwater: 1) air stripping; and 2) adsorption using granular activated carbon (GAC). Each of these technologies has been commercially implemented in similar applications and is capable of reducing contaminant concentrations to levels consistently less than 1 ppb. A description of the treatment technologies and a process schematic illustrating the basic components of each process system are presented in the following text.

6.2.1.1 Treatment Alternative No. 1—Air Stripping

Air stripping is a process of intimately mixing air with contaminated water to transfer the contaminant from one media to another. The contaminant is generally a VOC that has dissolved in the water and when vigorously mixed with air is volatilized into the air. Air stripping can be performed in many ways; however, the most efficient process is to use a vertical, countercurrent packed tower (see Figure 23).

In a countercurrent packed tower, the contaminated water is pumped to the top of a tower and distributed across a bed of porous packing media while air is forced up from the bottom of the tower countercurrent to the down-flowing water. As the air and contaminated water come in contact with each other, the contaminants are volatilized from the water, transferred to the air, and exhausted from the top of the tower. The water trickles down through the packing and collects in a sump at the base of the tower. The function of the tower and packing media is to increase the available contact surface area between the air and water, thus maximizing the volatization of the contaminant.

Packed tower air stripping is a proven and cost-efficient method for removing VOCs from large-capacity municipal water supply wells. Under ideal conditions, removal efficiencies of greater than 99 percent are achievable. Single air stripping towers have been used to treat flow rates ranging from 10 to 5,000 gallons per minute and to treat volatile contaminant concentrations ranging from 5 to 100,000 ppb. Removal efficiency is also influenced by the chemical vapor pressure and by water temperature. Removal rates generally improve as water temperature increases.

One potential disadvantage of using air stripping is that media in the packed towers is susceptible to fouling and plugging. This reduces the hydraulic capacity and removal efficiency of the system. Fouling is caused by biological growth or precipitation of inorganics, especially calcium carbonate from the well water, and ferric hydroxide from water containing high concentrations of iron (greater than 1.0 ppm). In most cases, fouling can be easily controlled by introducing either sodium hypochlorite or a dilute acid to the system, depending on the cause of the fouling.

Another potential disadvantage of this process is that, although the volatile contaminant has been removed from the water, it has been transferred to the air, which in turn is exhausted from the system. The impacts of such discharges on ambient air quality are often a concern. Emission standards have been established, and in some cases off-gas treatment is dictated by regulatory requirements. Pocatello is presently designated a PM_{10} nonattainment area, but this designation is related to particulate matter and is not related to chemical emissions.

If off-gas treatment is required, it is generally accomplished using a GAC filter system to remove VOCs before discharge to the atmosphere. The application of vapor-phase carbon adsorption to remove organics from air stripper off-gas streams is a proven technology. Limitations of the technology are difficulties in predicting removal efficiencies and in successfully monitoring system performance. Off-gas treatment removal efficiencies of about 95 percent are achievable. We do not believe that off-gas treatment will be required for either air stripping system under discussion. However, there is a requirement to submit written notification as a Notice to Construct to DEQ about expected discharge volumes.

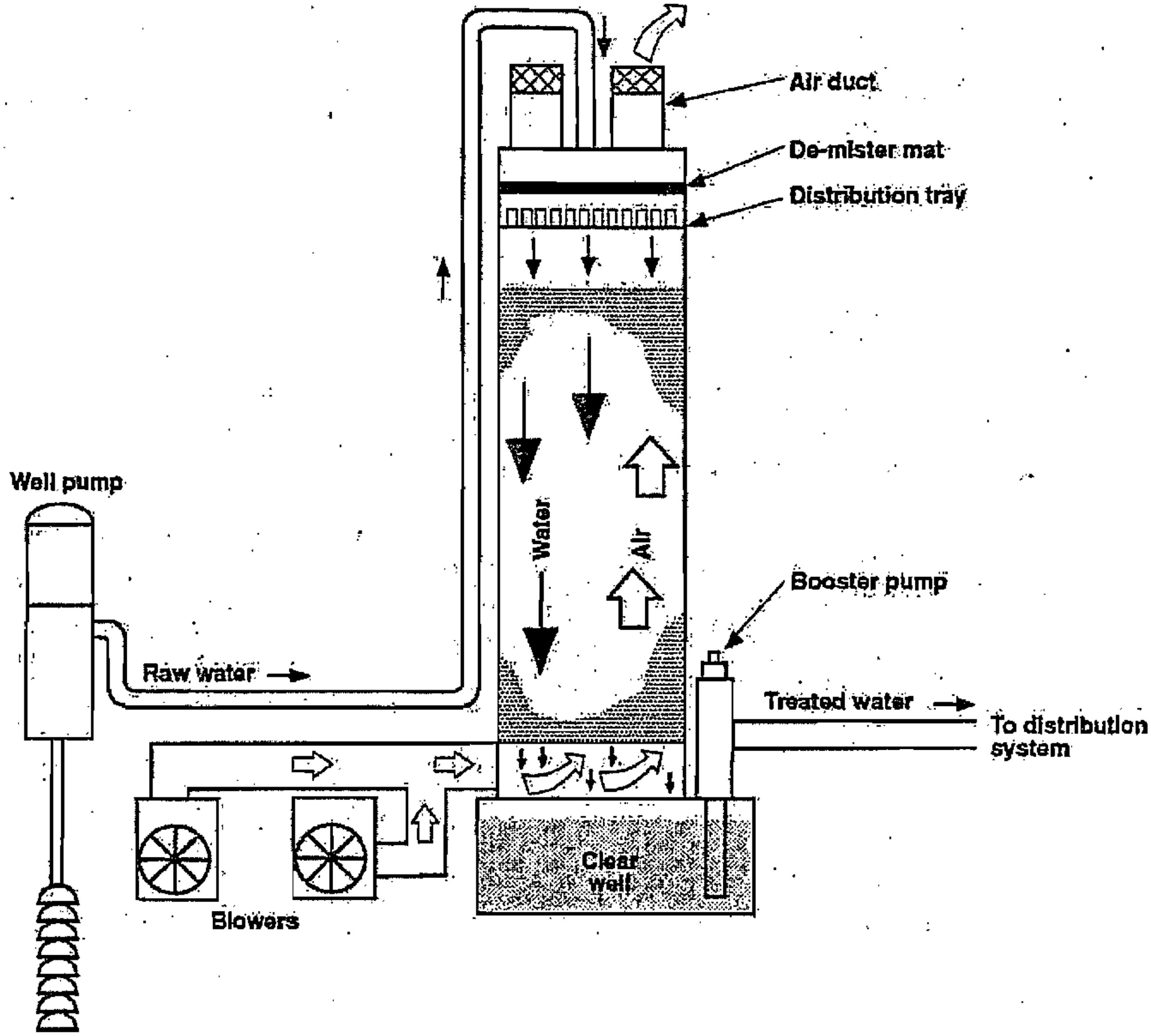

Figure 23
PROCESS SCHEMATIC OF PACKED COLUMN AIR STRIPPER
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6.2.1.2 Treatment Alternative No. 2–Adsorption Using Granular Activated Carbon

Vessels containing GAC are also used to remove organic contaminants from water. The contaminated water is passed through a bed of GAC where organic molecules are physically adsorbed to the internal pores of the carbon granules. Once the micropore surfaces are saturated with organics, the spent carbon is removed from the vessel and regenerated or recycled. A pressurized, down-flow carbon adsorption system is shown schematically in Figure 24.

GAC adsorption is widely used for removal of mixed organics from aqueous streams. This technology is best suited for removing organics with high molecular weights, low water solubility, low polarity, and low degree of ionization. Standard carbon adsorption vessels can treat flow rates ranging from 5 gpm to over 350 gpm. However, larger vessels are available for treating up to 1,000 gpm. Flow rates greater than 1,000 gpm can be treated using multiple vessels in parallel configuration. Organic concentrations as high as 10,000 ppb of total organic carbon have been treated using this process.

One disadvantage of this process is the limited useful life of the carbon. The available adsorptive sites on the carbon eventually become filled or saturated with the contaminant. Once this occurs, the carbon has become exhausted and the entire bed of carbon must be removed from the vessel and replaced. Generally, the carbon is regenerated or recycled for future use. The frequency of carbon change-out is affected by the level of total organic material present in the influent stream. Various mathematical models have been developed to predict the adsorptive capacity of different types of carbon in contact with different contaminants. However, change-out is most commonly determined by regular sampling of the influent and effluent streams. The carbon beds are also susceptible to bacterial growth, which reduces the adsorptive capacity and increases the frequency of carbon change-out.

A major limitation of this technology is that the desired treatment may not be obtained if the units are not properly installed, operated, and maintained. When properly applied, GAC adsorption can remove over 99 percent of organic contaminants.

6.2.2 Development of Remedial Alternatives

Various other remedial and operational alternatives were considered in addressing the TCE-contaminated groundwater situation associated with wells no. 33 and 36. Specifically to address the use of wells no. 33 and no. 36, the following two remedial alternatives were developed:

1. Alternative A: Installation of Air Stripping Systems

2. Alternative B: Installation of Granular Activated Carbon Systems

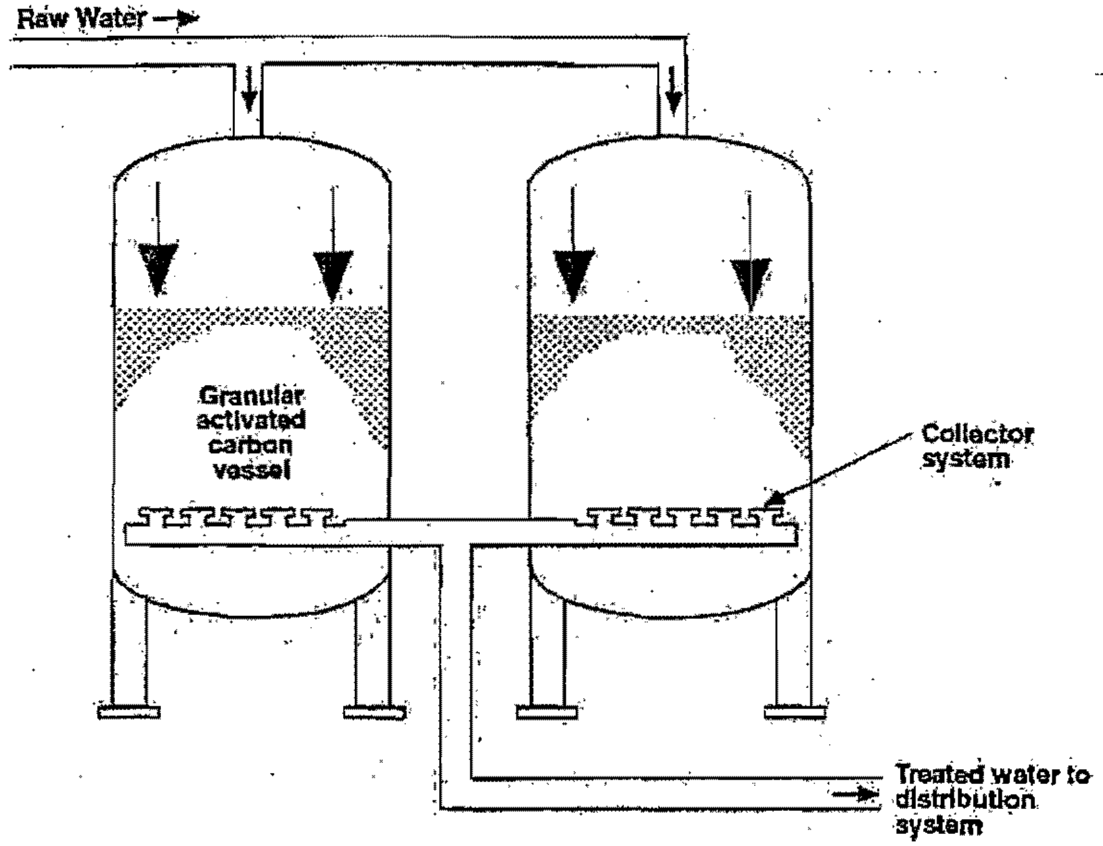

Figure 24
PROCESS SCHEMATIC OF GRANULAR ACTIVATED CARBON TREATMENT
PHASE I AQUIFER MANAGEMENT PLAN
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The two treatment technologies previously described, air stripping and adsorption using granular activated carbon, were used to develop Alternatives A and B. For these two alternatives, the following preliminary design criteria were used:

•	Influent TCE Concentration:	15 to 100 ppb	
•	Influent PCE Concentration:	5 to 20 ppb	
•	Well Water Quality:	<u>Well No. 33</u>	<u>Well No. 36</u>
	Hardness (as $CaCO_3$)	256 ppm	313 ppm
	Iron	0.06 ppm	0.06 ppm
	Total Dissolved Solids	418 ppm	450 ppm
	Chloride	44 ppm	60 ppm
	Copper	0.01 ppm	0.02 ppm
•	Maximum Effluent TCE Concentration:	1.0 ppb	
•	Maximum Effluent PCE Concentration:	1.0 ppb	
•	Process Treatment Capacity:	<u>Well No. 33</u>	<u>Well No. 36</u>
		900 gpm with option to increase to 1,200 gpm	1,400 gpm with option to increase to 3,500 gpm
•	Recommended Operational Schedule:	Continuous pumping (24 hours per day)	

The following text describes each alternative and the basic system components identified at this time.

6.2.2.1 *Alternative A—Air Stripping System*

Alternative A uses the treatment technology of air stripping for removal of all detected VOCs from wells no. 33 and no. 36. As shown in Figures 25 and 26, a supply pipeline would be installed to transfer the water from the existing wellhead to a single air stripping tower located contiguous to the wellhouses. Several stages of the existing well pumps would be removed to accommodate the reduced head requirements. The air stripping towers[1] would be approximately 7 feet in diameter by 35 feet high for well no. 33, either

[1]Other sizes are available depending upon manufacturer; however, the taller systems are more efficient and are recommended.

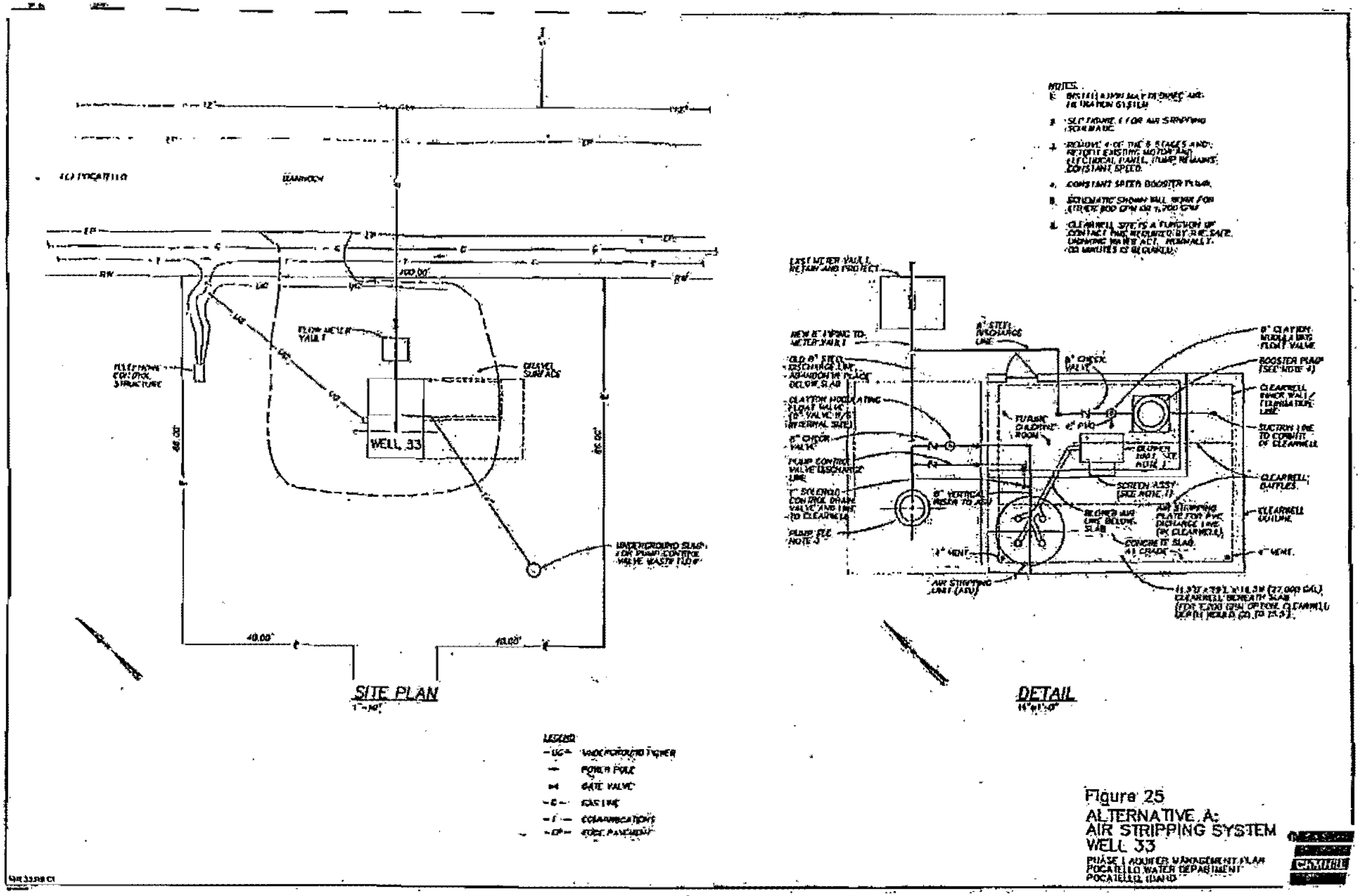

Figure 25
ALTERNATIVE A:
AIR STRIPPING SYSTEM
WELL 33

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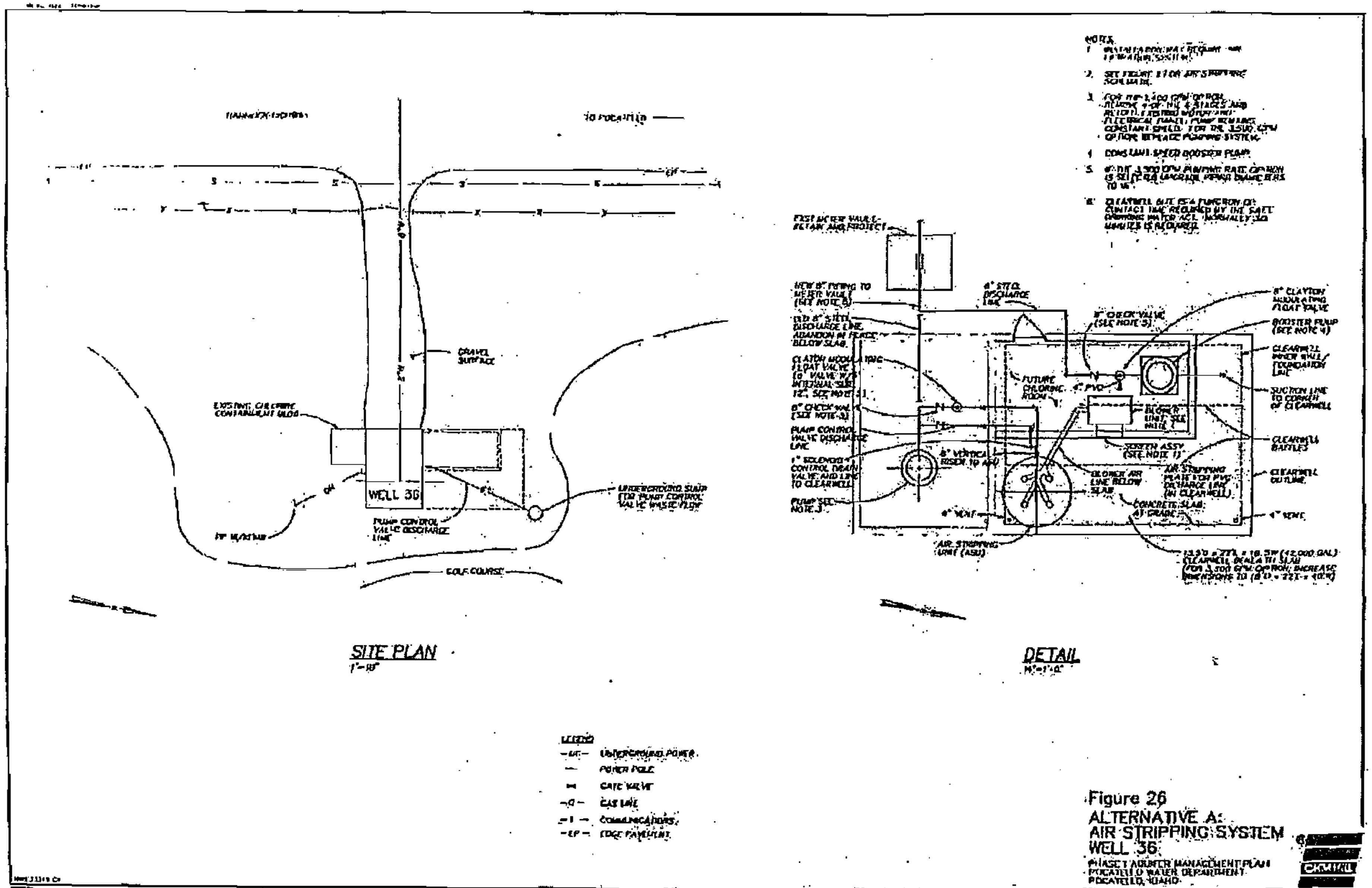

Figure 26
ALTERNATIVE A:
AIR STRIPPING SYSTEM
WELL 36
PHASE I AQUIFER MANAGEMENT PLAN
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for the 900 gpm or 1,200 gpm option, and 8 feet in diameter by 35 feet high for well no. 36 at a flow rate of 1,400 gpm, and 12 feet in diameter by 36 feet high at a flow rate of 3,500 gpm. A building addition would be constructed to house the new booster pump, electrical equipment, and in the case of well no. 33, a new chlorine disinfection system containment room for water disinfection. The units would be mounted on a concrete pad over a buried clear well as shown in Figures 25 and 26. A 10- to 30-hp blower, mounted in the building addition, would be used to deliver the required air flow to the air stripping tower. The supply pipe, which is exterior to the building, would be automatically drainable. The booster pump would be sized to either match current flow requirements or the higher rate. Both the booster pump and supply would be constant speed with a modulating float valve control system to prevent overpumping or underpumping each other. Figure 27 shows a schematic of the clear well/building addition/air stripping tower system.

Water quality samples collected from both wells show slightly elevated levels of calcium carbonate ($CaCO_3$). As explained earlier, calcium deposits on the packing material inside the air stripping tower will cause the system to work inefficiently. To alleviate this problem, pretreatment of the influent stream would be required. This can be accomplished in a number of ways, either by the addition of acid (i.e., sulfuric acid) to the system in a continuous or batch operation or by the addition of a sequestering agent (i.e., polyphosphate). Generally, an increase in pH is experienced through the tower and pH adjustment of the treated water may be required regardless of the pretreatment chemical used. For purposes of this evaluation, it will be assumed sulfuric acid will be fed to the influent stream to control fouling of the packing material. It will also be assumed that the sulfuric acid will lower the pH of the influent enough to offset the increase in pH experienced through the tower, and pH adjustment prior to introducing the treated water to the distribution system will not be necessary. Pretreatment equipment would consist of a small chemical metering pump and the associated piping.

Following treatment through the air stripping tower, it would be necessary to re-pump the water to the existing distribution system using a booster pump. Although the Groundwater Disinfection Rule in the Safe Drinking Water Act has not been finalized, the EPA continues to propose that all public water systems using groundwater be required to disinfect. Additionally, all community water systems would be required, under the draft rule, to maintain a disinfection residual in the distribution system whether or not primary disinfection is required. Based on this information, it is recommended that a clear well sized for 30 minutes minimum contact time be installed in connection with this alternative.

Treated water from the air strippers would drain to a clear well located underneath the tower. The clear well would be sized to provide a retention time of 30 minutes. Approximate sizes are shown in Figures 25 and 26. This retention time assumes disinfection using chlorine, and is based on an anticipated contact time (CT) requirement for disinfection assuming a 4-log (99.9 percent) inactivation for virus and, as a minimum, to provide sufficient volume to prevent pump on-off cycling. Vertical baffles would be constructed in the clear well to induce plug flow and provide structural support for the slab above the clear well. The booster pump would pump the water from the clear well to the existing water distribution system. A small building addition would be constructed adjacent to the present

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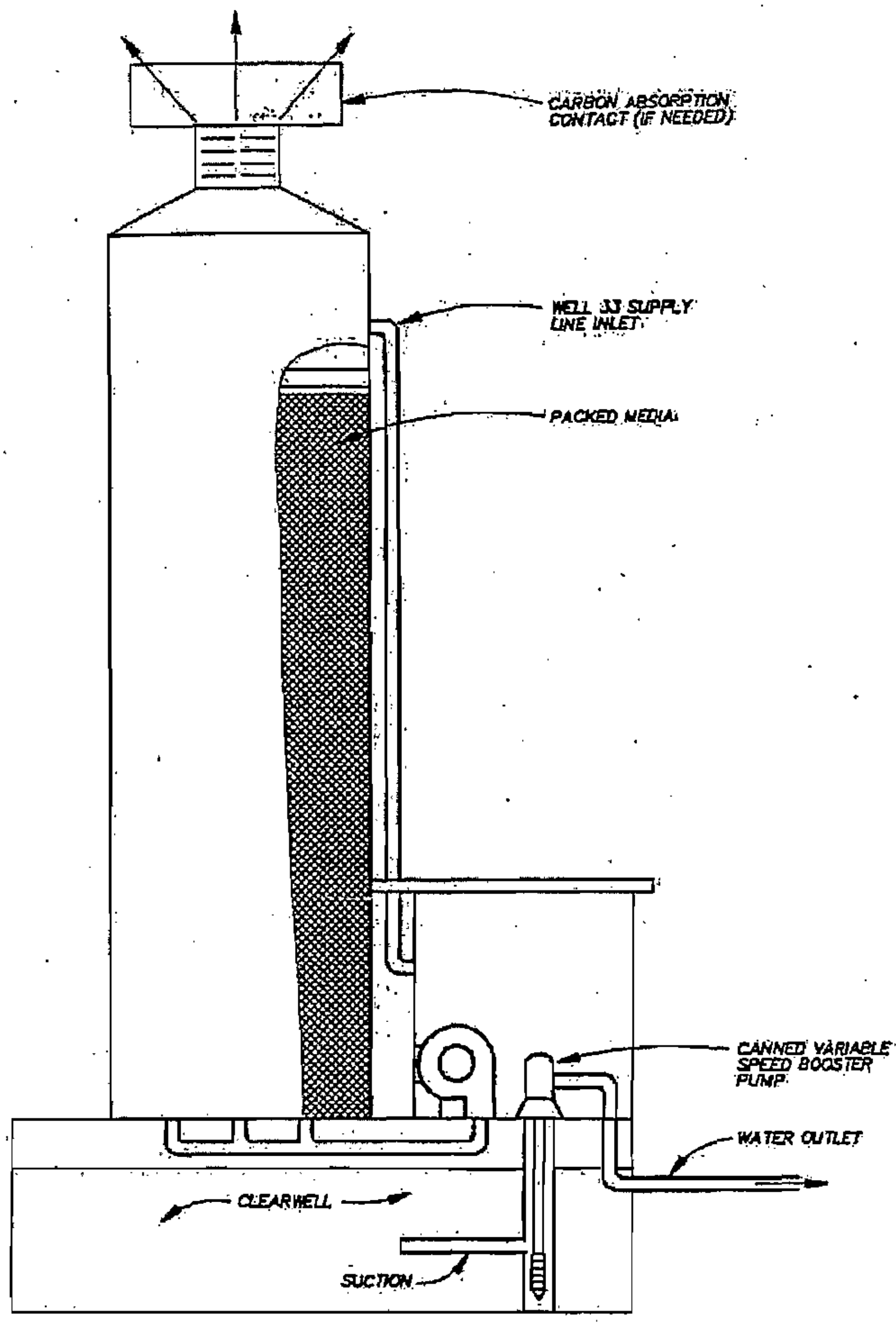

NOTES:

1. POSSIBLE OFF-GAS CAPTURE AND TREATMENT MAY BE REQUIRED FOR TCE. ADDITIONAL COMPUTER AMBIENT AIR MODELING MAY BE REQUIRED, AND DISCUSSION WITH IDHW-DEQ TO DETERMINE STATUS.

2. CLEARWELL NORMALLY SIZED EITHER TO INCLUDE 30 MINUTES OF CONTACT TIME FOR DISINFECTION. IF DISINFECTION DEEMED NOT NECESSARY, SIZE COULD BE REDUCED BY 63%.

Figure 27
ALTERNATIVE A:
AIR STRIPPING SYSTEM FOR WELLS 33 AND 36

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POCATELLO, IDAHO

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wellhouses to house the booster pump, motor starter, control panel for the tower, and storage for the pretreatment chemical (sulfuric acid). Space for a 4-foot by 6-foot chlorination room would be provided inside the control room, similar to well no. 36, in anticipation of the disinfection requirements for well no. 33.

As mentioned earlier, one of the disadvantages of air stripping is that the contaminant is transferred from the water to the air and is exhausted to the atmosphere from the stripping tower. Air emissions of TCE and PCE from a stripping tower are classified as air contaminants by Idaho Code, and a Permit to Construct would need to be submitted for approval by the Idaho Division of Environmental Quality (DEQ) prior to construction. DEQ's Toxics Emission Policy Screening Guidelines provide a screening level for TCE emissions of less than 0.0122 lb/day and for PCE emissions of less than 0.312 lb/day. For emission rates below the screening level, DEQ typically concludes that the emissions are below the level of concern and no permit or notification is required to proceed; however, this is subject to preparing a computer analysis of ambient air quality at the property line. Emissions of TCE and PCE are limited to 7.7×10^{-4} or 2.1 micrograms/meter^3 respectively. Should the ambient level exceed these levels, further study, modeling, risk assessment, or additional emission control (off-gas treatment with carbon canister) may be required.

Based on the analytical data available at this time, the amount of TCE and PCE that would be emitted from the implementation of Alternative A was evaluated and is presented in Tables 15, 16, 17, and 18.

Table 15
Estimated TCE Emissions from Implementation of Alternative A (Well Production Rate of 900 gpm)—Well No. 33

At Influent TCE Concentration of: (ppb)	TCE Emission Rate (lb/day)	Allowable lb/day 0.0122 Excess (lb/day)
13.5	0.146	+0.134
15	0.162	+0.150
30	0.324	+0.312
100	1.082	+1.070

*15 ppb at 90 percent removal rate; highest level recorded.

7620

Table 16 Estimated PCE Emissions from Implementation of Alternative A (Well Production Rate of 900 gpm)—Well No. 33		
At Influent PCE Concentration of: (ppb)	PCE Emission Rate (lb/day)	Allowable lb/day 0.0312 Excess (lb/day)
1.08*	0.012	-0.30
2.0	0.0222	-0.290
4.0	0.0444	-0.268
10.0	0.111	-0.201

*1.2 ppb at 90 percent removal rate; highest level recorded.
Note: Increase these levels by 33 percent if the 1,200 gpm pumping option is selected.

Table 17 Estimated TCE Emissions from Implementation of Alternative A (Well Production Rate of 1,400 gpm)—Well No. 36		
At Influent TCE Concentration of: (ppb)	TCE Emission Rate (lb/day)	Allowable lb/day 0.00122 Excess (lb/day)
3.6	0.06	+0.049
5.0	0.085	+0.073
10.0	0.169	+0.157
15.0	0.255	+0.243

*4.0 ppb at 90 percent removal rate; highest level recorded.

Table 18 Estimated PCE Emissions from Implementation of Alternative A (Well Production Rate of 1,400 gpm) – Well No. 36		
At Influent PCE Concentration of: (ppb)	PCE Emission Rate (lb/day)	Allowable lb/day 0.312 Excess (lb/day)
0.45*	0.008	-0.304
1.00	0.018	-0.294
5.00	0.086	-0.226
10.00	0.172	-0.140

*Maximum detected level, March 1994.
Note: Increase these levels by 250 percent if the 3,500 gpm pumping option is selected.

Given the measured TCE and PCE concentrations and calculated emission rates, it is probable that if the influent TCE and PCE concentrations stabilize at the current maximum levels, the estimated TCE and PCE emission rates would be in excess of the screening level for TCE and below the screening level for PCE. Additional computer ambient air modeling may need to be done and an air permit exemption would be pursued from DEQ in order to try and eliminate the need for off-gas capture. For purposes of this evaluation, Alternative A for wells no. 33 and no. 36 will include provisions for off-gas treatment, and the tower would be designed to accommodate an off-gas treatment system.

DEQ requires quarterly monitoring of the treated water for well no. 33 for TCE until four successive sampling events show results less than the MCL of 5 ppb. Given that the air stripper specified will reduce the TCE concentration to 1 ppb or less, quarterly monitoring would be required for the first year of operation; then, annual monitoring of the effluent would be permitted. However, it may be determined that quarterly monitoring is necessary to oversee system performance. Since the tower specified was sized for an influent concentration of 100 ppb or less, it is recommended that monitoring of the influent stream be continued on a quarterly basis. Influent concentrations greater than 100 ppb would possibly overload the tower and result in unacceptable levels of TCE leaving the tower. In addition, if the influent TCE concentration decreases over time to the point where treatment is not required, the air stripping tower could be taken offline with slight piping modifications to the piping system.

6.2.2.2 *Alternative B—Granular Activated Carbon System*

Alternative B includes installation of a GAC system to treat the TCE- and PCE-contaminated water. The pipeline to transfer the water from the existing wellhead to the GAC system would be essentially the same as the pipeline for Alternative A. Two GAC duplex system trains would be used, each train consisting of two GAC vessels, giving a total of four contact vessels. Each vessel would be approximately 10 to 12 feet in diameter and contain 20,000 pounds of carbon, resulting in a total carbon weight of 80,000 pounds. The GAC systems would be mounted on a 30-foot by 30-foot concrete pad in a metal building addition to the existing buildings (see Figures 28 and 29).

Assuming a worst case future influent VOC concentration for well no. 33 of 30 ppb and for well no. 36 of 10 ppb, a flow rate of 900 gpm for well no. 33 and 1,400 gpm for well no. 36, and a continuous system operation, time to carbon exhaustion in the primary contactors (40,000 lb) is estimated to be 350 days for well no. 33 and 600 days for well no. 36.

At the higher pumping rate options for well no. 33 of 1,200 gpm and 3,500 gpm for well no. 36, these times would be reduced to approximately 260 and 240 days, respectively. As change-out of the first vessel in each train is normally carried out at approximately 50 percent of exhaustion, the first vessels in each train would be changed out after either 175 or 130 days for well no. 33, depending upon the pumping option, and 300 or 120 days for well no. 36. However, given an operational schedule of less than continuous (e.g., 6 months per year), the carbon would remain dormant for 6 months. Previous experience with GAC systems has shown that microorganisms will grow on and foul the dormant carbon beds, leaving the system ineffective. It will therefore be necessary to completely drain the system during shutdown, including all of the carbon. Because of the high cost of carbon change-out, it would be more cost-effective to operate the system continuously to obtain maximum use from the carbon. To prevent the system from freezing, a metal building to house the carbon system would be constructed. The building would be designed to allow future vessel removal through roof hatches.

A small control building would be constructed adjacent to the GAC building. The control building would house the booster pump, chemical addition pump, motor starter, and other electrical equipment, and space for a small chlorination room for well no. 33 in anticipation of future disinfection requirements, and would include the existing chlorination room for well no. 36. Comparable to the air stripping alternative, treated water from the GAC system would collect in a clear well for disinfection. The clear well would be located underneath the building addition and would be dimensioned as shown in Figures 28 and 29 to provide a retention time of 30 minutes. Vertical baffles would be constructed in the clear well to induce plug flow and provide structural support for the slab above. A booster pump would be used to transfer the water from the clear well back to the distribution system.

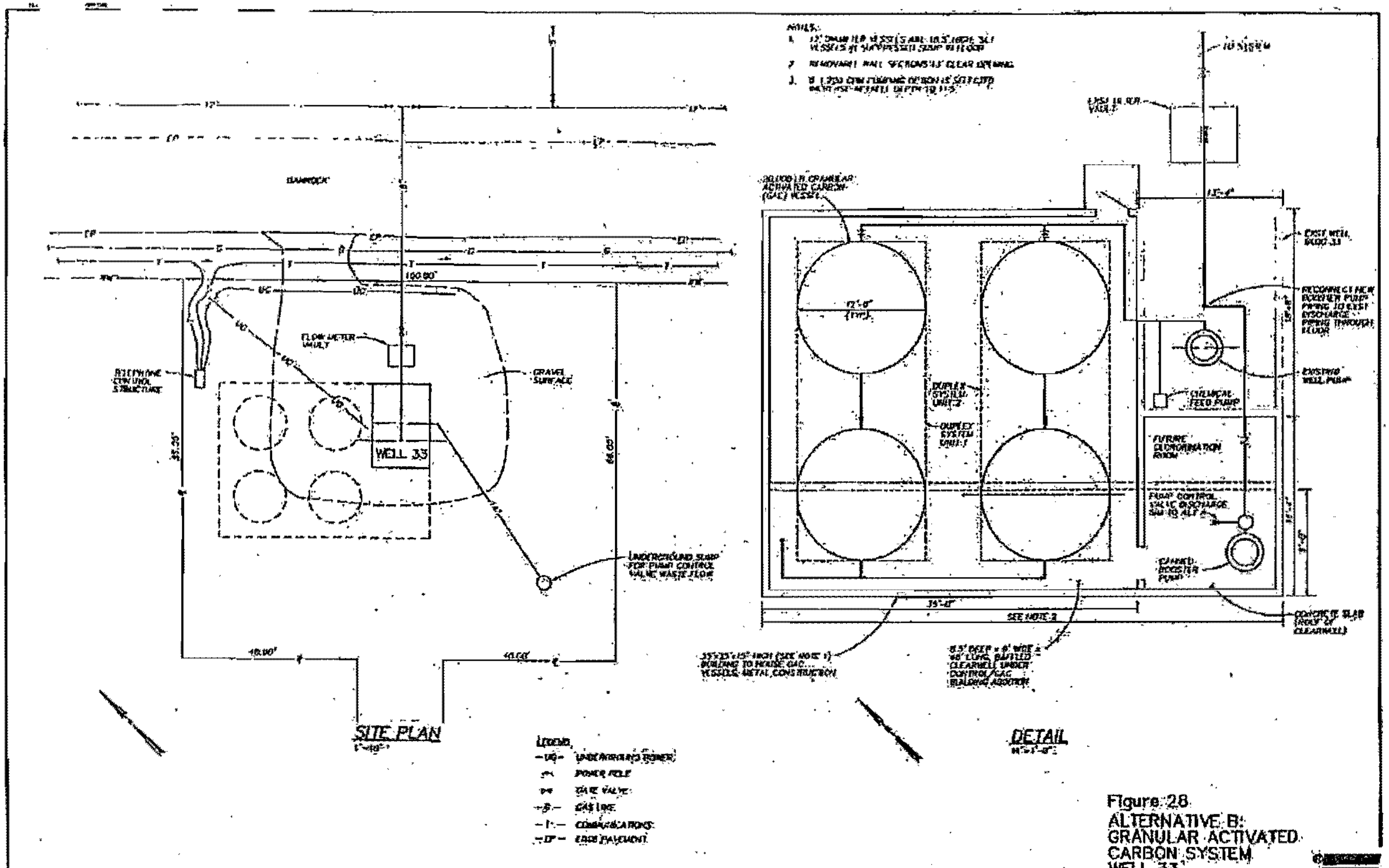

Figure 28
ALTERNATIVE B:
GRANULAR ACTIVATED CARBON SYSTEM
WELL 33

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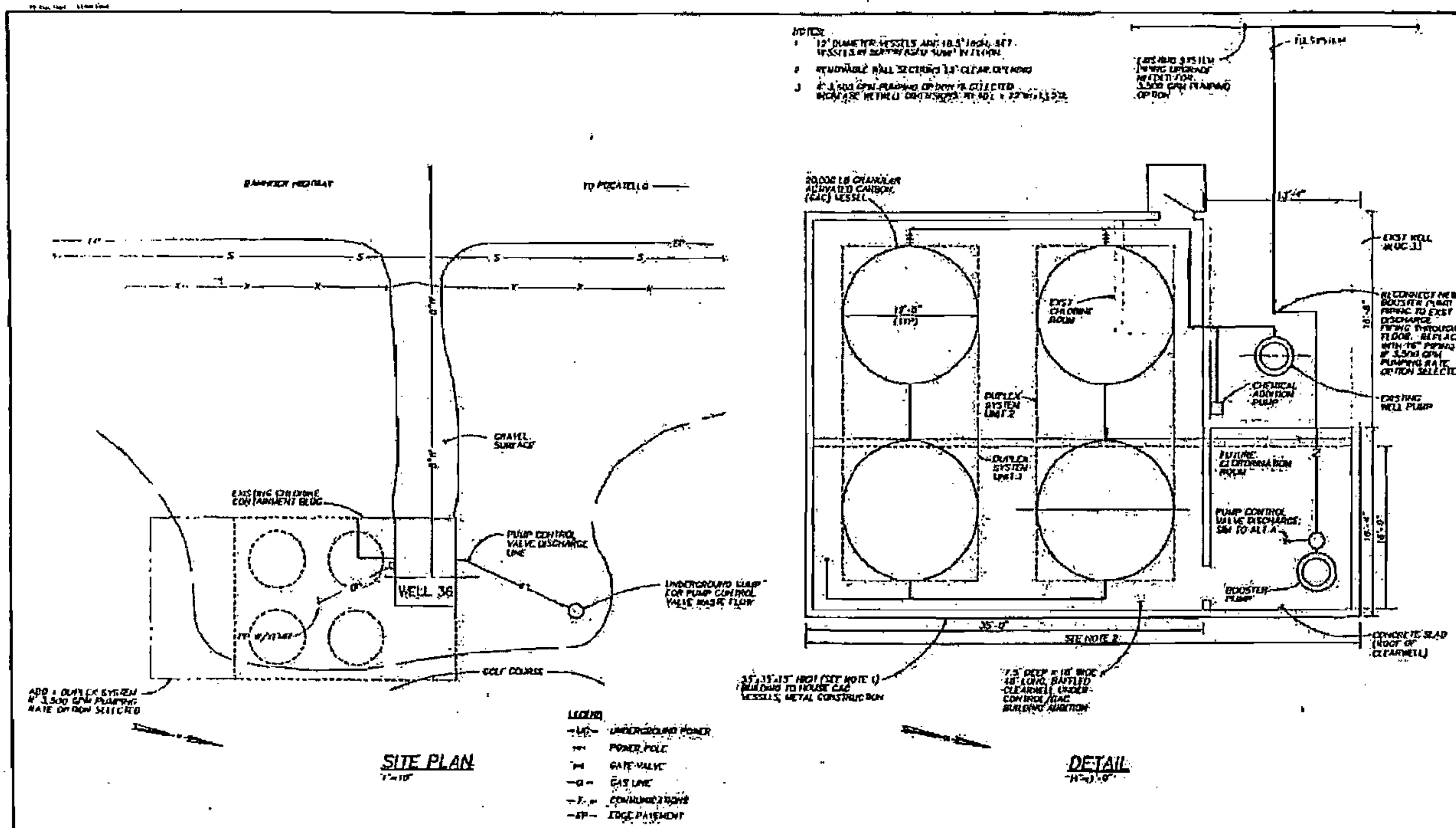

Figure 29
ALTERNATIVE B:
GRANULAR ACTIVATED
CARBON SYSTEM
WELL 36

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POCATELLO, IDAHO

7625

Because of the TCE and PCE contaminants that have been detected in both wells, and assuming that the concentration in well no. 36 increases to 5 ppb or greater, DEQ will require quarterly monitoring of the treated water until four successive sampling events show results less than the MCL of 5 ppb. Given that the GAC system specified will reduce the VOC concentration to 1 ppb or less, quarterly monitoring would be required for the first year of operation; then, annual monitoring of the effluent would be permitted. However, it may be determined that quarterly monitoring is necessary to oversee system performance. Since the carbon usage rate was determined based on an influent concentrations of 100 ppb or less, it is recommended that monitoring of the influent stream be continued on a quarterly basis. Influent concentrations greater than 100 ppb would saturate the GAC systems faster, which in turn would increase the frequency of carbon change-out. In addition, if the influent VOC concentrations decrease over time to the point where treatment is not required, the GAC system could be taken offline.

It is also recommended that water samples be collected from between the two vessels of each GAC train duplex system. This provides an effective way to monitor system performance and indicates when the first vessel in each train is approaching exhaustion. The proposed monitoring schedule would be to sample between each vessel on a monthly basis for the first year of operation. This information would be used to evaluate trends in system performance and would help to establish an appropriate monitoring schedule for future sampling between the two vessels.

6.2.3 Cost Estimate

In order to develop budgetary cost estimates for each alternative, various vendors were contacted regarding preliminary equipment needs and their associated costs. The preliminary equipment costs were then used to develop budget level capital cost estimates for each alternative. Allowances were included for such items as installation, delivery, electrical and mechanical work, instrumentation and control, mobilization, demobilization, bonding and insurance, and startup.

It should be emphasized that this is an order-of-magnitude estimate and an estimate of this type is normally expected to be accurate within plus 50 percent or minus 30 percent. The same range of accuracy applies to all alternatives, thus providing a comparative basis for screening of the two alternatives considered. Table 19 provides a summary of the estimated capital cost and annual operation and maintenance costs. The capital cost includes equipment, delivery, installation and construction, contingency, and engineering. Annual operation and maintenance costs were estimated using information gathered from vendors and from previous experience with similar projects. For a breakdown of the costs presented in Table 19, refer to Appendix N.

Table 19 Summary of Remedial Costs			
		Estimated Costs	
Alternative	Well No.	Capital	Annual O&M Cost
A-1	33 @ 900 gpm	$443,100[a]	$67,755 (+ $15,300[b])
A-2	33 @ 1,200 gpm	473,200[a]	$80,310 (+ $18,300[b])
A-3	36 @ 1,400 gpm	489,300[a]	$90,010 (+ $19,500[b])
A-4	36 @ 3,500 gpm	567,044[a]	$164,000 (+ $36,500[b])
B-1	33 @ 900 gpm	$828,100[a]	$91,180
B-2	33 @ 1,200 gpm	$837,200[a]	$106,310
B-3	36 @ 1,400 gpm	$839,300[a]	$96,510
B-4	36 @ 3,500 gpm	$1,188, 600[a]	$170,100

[a]Includes full 30-minute contact time in clear well.
[b]If off-gas treatment is required.

An annual water consumption per person was calculated using the total water consumption for 1994 of 5,743,449,000 gallons and the estimated population of the City of Pocatello for 1994 of 48,000. Assuming 2.86 persons per household and amortizing the capital cost of each alternative over a 30-year period at an interest rate of 6 percent, the annual cost per household for each alternative was calculated to be as follows:

- Alternative A: Air Stripping System
  - A-1 $ 6.87
  - A-2 $ 7.92
  - A-3 $ 8.64
  - A-4 $14.40
- Alternative B: Granular Activated Carbon System
  - B-1 $ 9.02
  - B-2 $ 9.96
  - B-3 $ 9.38
  - B-4 $15.28

6.2.4 Comparison of Remedial Alternatives

The purpose of the feasibility assessment was to identify, evaluate, and compare various remedial alternatives to address the VOC contamination associated with the City's municipal water supply for wells no. 33 and no. 36. The primary design criterion for the preferred remedial alternative is to have the ability to deliver potable water with residual TCE concentrations less than 1 ppb. The two remedial alternatives developed for this evaluation were as follows:

- Alternative A: Air Stripping System
- Alternative B: Granular Activated Carbon System

Table 20 summarizes the advantages and disadvantages of these alternatives.

Table 20
Comparison of Remedial Alternatives

Alternative	Advantages	Disadvantages
A: Air Stripping System	• Delivers potable water with residual TCE and total VOC concentrations less than 1.0 ppb • Lower capital and annual O&M cost • Minimal space requirements • Proactive approach to contamination problem • May reduce possible high levels of dissolved gasses in system	• Possible need for off-gas treatment because of air quality limitations (estimated capital cost of $35,000 to $55,000 and annual O&M cost of $15,300 to $36,500) • Potential for residential disturbance because of blower noise • Potential need to readjust pH of treated water prior to distribution
B: Granular Activated Carbon System	• Delivers potable water with residual TCE and total VOC concentrations less than 1.0 ppb • Off-gas treatment not required • Quiet system • Pretreatment of influent water not necessary • Proactive approach to contamination problem	• Higher capital and annual O&M cost • Largest space requirements • Most intensive maintenance because of carbon change-out • Most difficult system when well not used continually

As shown in Table 20, both air stripping and adsorption using granular activated carbon have the ability to deliver potable water with residual TCE concentrations less than 1.0 ppb. In addition, both alternatives will reduce VOC concentrations to less than 1.0 ppb

The advantages of installing an air stripping system are that it is the less costly of the two treatment options considered and it has minimal space requirements and lower O&M requirements. The potential need for possible off-gas treatment if the TCE concentrations remain the same or increase is the primary disadvantage of using an air stripper. However, off-gas treatment can be effectively accomplished using vapor phase carbon adsorption.

The significant advantage of using a GAC system is that off-gas treatment would not be a consideration. However, the GAC system is more costly and would require considerable maintenance because of the continuous operation schedule necessary and change-out of the activated carbon beds. Larger space requirements would also be necessary to house the GAC treatment equipment.

6.2.5 Recommendations

Because TCE has been measured in well no. 33 at levels consistently above the MCL of 5 ppb, it is recommended that the City of Pocatello install an air stripper treatment system on well no. 33.

Although the TCE levels measured in well no. 36 have not exceeded the MCL, it is our considered judgment that because of the geohydrology in this area, it is only a matter of time before well no. 36 also exceeds the MCL. We recommend that the City assume that the concentration will likely soon exceed the MCL; therefore, a treatment system will also need to be instated within a very short time frame. If the City elects to use a treatment system to remove the TCE and other VOCs, our recommendation is to install an air stripping tower onsite. This recommendation is primarily based on the much higher cost of installing a GAC system.

6.3 Other Potential Remedial Alternatives

The highest priority should be to locate the source of the TCE and PCE contamination, otherwise dissolved-phase contaminants will continue to leach into the aquifer. If the source of the TCE and PCE can be located, there are a number of remedial alternatives that could be pursued and would be more beneficial than the proposed wellhead treatment options. These alternatives would initially focus on source removal by physically removing liquid and solid wastes. Groundwater treatment alternatives which could then be implemented in the vicinity of the release range from conventional pump and treat, to air sparging with enhanced soil vapor extraction and/or flushing with surfactants. These alternatives are presented because they address contamination at the source rather than treating the symptoms once the contaminants have migrated into the alluvial aquifer.

Section 7
Recommendations

Based on the findings of Phase I investigation activities, the following general recommendations are presented:

- First and foremost, a formal cooperative agreement between the City of Pocatello and Bannock County should be developed because this problem extends beyond the City limits and is a community-wide concern. The benefits of a cooperative approach would be: 1) a focused effort to resolve the contamination; 2) ensure continuity of data collection and prevent duplication of efforts; and 3) lessen financial impacts through cost sharing. A steering committee should also be established so that City and County officials could stay abreast of developing conditions and oversee and direct future investigative and corrective action alternatives.

- Another set of water quality samples should be collected from the monitoring well network and selected domestic wells to evaluate temporal variation in contaminant concentrations since the last set of samples was collected on August 10, 1994.

- The City should proceed with developing plans and specifications for installation of air-stripping towers on municipal supply wells no. 33 and no. 36.

- A data gap exists between the southern study boundary of this investigation and the hydrogeologic investigation conducted at the Fort Hall Canyon Landfill. Follow-up work in this area should be undertaken so that the results of the two investigations can be integrated.

- Future investigative efforts should focus on source identification.

- If the source of the TCE and PCE contamination can be identified, source removal and clean up actions should be implemented.

References Cited

Alt, D. A., and D. W. Hyndman. 1989. *Roadside Geology of Idaho*, Mountain Press Publishing Company, Missoula, MT, 393p.

Anderson, A. L. 1928. Portland Cement Materials Near Pocatello, Idaho. Idaho Bureau of Mines and Geology Pamphlet 28. 15 pp.

Anderson, M. P., and W. W. Woessner. 1992. Applied Groundwater Modeling: Simulation of Flow and Advective Transport. Academic Press, Inc. San Diego; Harcourt Brace Jovanovich.

Bierschenk, W. H. 1964. Determining Well Efficiency by Multiple Step-Drawdown Tests. Publication 64. International Association of Scientific Hydrology.

Brown and Caldwell. 1992. Preliminary Hydrogeologic Assessment in the Vicinity of Fort Hall Canyon Landfill, Bannock County, Idaho. 20 pp.

Cherry, J., and S. Feenstra. 1991. Identification of DNAPL Sites: An Eleven Point Approach. Waterloo Centre for Groundwater Research, University of Waterloo, Ontario, Canada.

CH2M HILL. 1992. Phase I Site Assessment Report, Pocatello Creek Landfill Hydrogeologic Investigation, Pocatello, Idaho. 61 pp.

CH2M HILL. 1994. Final Portneuf River Restoration Study Pre- and Post-Project Resource Inventory. Prepared for U.S. Army Corps of Engineers, Walla Walla District. 48 pp.

City of Pocatello, Water Department. 1994. Summary of Underground Sources.

Cohen, R. M., and J. W. Mercer. 1993. DNAPL Site Evaluation. Boca Raton, Florida: C. K. Smoley.

Cooper, H. H. Jr., and C. E. Jacob. 1946. A Generalized Graphical Method for Evaluating Formation Constants and Summarizing Well Field History. *Transactions, American Geophysical Union*. Vol. 27, No. 4.

Crooks, William H. 1993. Wastewater from Dry Cleaners Is Anything but Clean. *Water, Environment and Technology*. Pp. 30-31.

Corbett, M. K., J. E. Anderson, and J. C. Mitchell. 1980. An Evaluation of Thermal Water Occurrences in the Tyhee Area, Bannock County, Idaho. Idaho Department of Water Resources, Water Information Bulletin No. 30, Geothermal Investigations in Idaho, Part 10. 67 pp.

Crosthwaite, E. G. 1957. Groundwater Possibilities South of the Snake River Between Twin Falls and Pocatello, Idaho. USGS Water Supply Paper 1460-C.

Davis, A. D. 1986. Deterministic Modeling of Dispersion in Heterogeneous Permeable Media. *Groundwater*. Vol. 24, No. 5, Pp. 609-615.

Driscoll, F. G. 1986. Groundwater and Wells. 2nd ed. Johnson Division, St. Paul, Minnesota. 1089 p.

Duffield, G. M., and J. O. Rumbaugh. 1991. Geraghty and Miller's AQTESOLV™ Aquifer Test Solver Version 1.00 Documentation. Reston, VA.

Fetter, C. W. 1988. Applied Hydrogeology. 2nd ed. New York: Macmillan Publishing Company. 592 pp.

Fetter, C. W. 1993. Contaminant Hydrogeology. New York: Macmillan Publishing Company. 458 pp.

Freeze, R. A., and J. A. Cherry. 1979. Groundwater. Englewood Cliffs, NJ: Prentice-Hall Inc. 604 pp.

Gilbert, G. K., 1890, *Lake Bonneville*, U.S. Geological Survey Monograph 1, 438 p.

Goldstein, F. J. 1981. Hydrogeology and Water Quality of Michaud Flats, Southeast Idaho. Idaho State University. Masters thesis. 80 pp.

Heath, R. C., and F. W. Trainer. 1968. Introduction to Ground Water Hydrology. Worthington, Ohio: Water Well Journal Publishing Co. 285 pp.

Installation Restoration Program Toxicology Guide (IRPTG). 1985. Volume 1, Chapter 16-3. Cambridge, MA: Arthur D. Little, Inc.

Jacob, C. E. 1950. Flow of Groundwater. Pp. 321-386 in Engineering Hydraulics, H. Rouse, ed. New York: John Wiley & Sons.

Jacobsen, N. D. 1982. Groundwater Conditions in the Eastern Part of Michaud Flats, Fort Hall Indian Reservation. U.S. Geological Survey Open File Report 82-570. 35 pp.

Jacobsen, N. D. 1984. Hydrogeology of Eastern Michaud Flats, Fort Hall Indian Reservation. U.S. Geological Survey Water Resources Investigations Report 84-4201. 31 pp.

Kindel, G. and others. 1991. Geological and Hydrogeological Characterization of the Fort Hall Canyon Landfill Site, Bannock County, Idaho. Pp. 33-1 to 33-8 in Proceedings of the 27th Engineering Geology and Geological Engineering Symposium. Logan, Utah.

Kueper, B. H., D. Redman, R. C. Starr, S. Reitsma, and M. Mah. 1993. A Field Experiment to Study the Behavior of Tetrachlorethylene Below the Water Table: Spatial Distribution of Residual and Pooled DNAPL. *Groundwater*. Vol. 31, No. 5. Pp. 756-766.

Ludlum, J. C. 1943. Structure and Stratigraphy of Part of the Bannock Range, Idaho. Geological Society of America Bulletin 54.

Malde, H. E. 1968. *The Catastrophic Late Pleistocene Bonneville Flood in the Snake River Plain, Idaho*. U.S. Geological Survey Professional Paper 596. 52 pp.

Mansfield, G. R. 1920. Geography, Geology, and Mineral Resources of the Fort Hall Indian Reservation, Idaho, *with a chapter on* Water Resources by W. B. Heroy. U.S. Geological Survey Bulletin 713. 152 pp.

Mansfield, G. R. 1929. Geography, Geology, and Mineral Resources of the Portneuf Quadrangle, Idaho. U.S. Geological Survey Bulletin 803. 110 pp.

McDonald, M. G., and A. W. Harbaugh. 1988. A Modular Three-Dimensional Finite-Difference Ground-Water Flow Model. Techniques of Water-Resources Investigations of the United States Geological Survey. Chapter 1, Book A6 (Modeling Techniques).

Mogg, J. L. 1968. Step-Drawdown Test Needs Critical Review. *Johnson Drillers' Journal*. July/August. Johnson Division. St. Paul, Minnesota.

Moore, J. W., and S. Ramamoorthy. 1984. Organic Chemicals in Natural Waters. New York: Springer-Verlag. 289 pp.

Neuman, S. P. 1975. Analysis of Pumping Test Data from Anisotropic Unconfined Aquifers Considering Delayed Yield. *Water Resources Research*. Vol. 11, No. 2. Pp. 329-342.

Norvitch, R. A., and A. L. Larson. 1970. A Reconnaissance of the Water Resources in the Portneuf River Basin, Idaho. Idaho Department of Reclamation. 58 pp.

Norvitch, R. F., and A. L. Larson. 1970. A Reconnaissance of the Water Resources in the Portneuf River Basin. Idaho Department of Water Resources, Water Information Bulletin 16. 58 pp.

Ore, H. T. 1982. Tertiary and Quaternary Evolution of the Landscape in the Pocatello, Idaho, Area. *Northwest Geology* 11. Pp. 31-36.

Pearce, A. E., E. A. Voudrias, and M. P. Whelan. 1994. Dissolution of TCE and TCA Pools in Saturated Subsurface Systems. *Journal of Environmental Engineering*. Vol. 120, No. 5. Pp. 1191-1206.

Pollock, D. W. 1989. Documentation of Computer Programs to Compute and Display Path Lines Using Results from the U.S. Geological Survey Modular Three-Dimensional Finite-Difference Ground-Water Flow Model. U.S. Geological Survey Open File Report 89-381. (MODPATH)

Pollock, D. W. 1990. A Graphical Kernel System (GKS) Version of Computer Program MODPATH-PLOT for Displaying Path Lines Generated from the U.S. Geological Survey Three-Dimensional Ground-Water Flow Model. U.S. Geological Survey Open File Report 89-622.

Rember, W. C., and E. H. Bennett. 1979. Geologic map of the Pocatello quadrangle, Idaho. Idaho Bureau of Mines and Geology, Geologic Map Series, Pocatello 2 deg quadrangle, 1:250,000.

Scott, W. E., K. L. Pierce, J. P. Bradbury, and R. M. Forester. 1982. Revised Quaternary Stratigraphy and Chronology in the American Falls Area, Southeastern Idaho. Pp. 581-595 in Cenozoic Geology in Idaho. B. Bonnichsen and R. M. Breckenridge, eds. Idaho Bureau of Mines and Geology Bulletin 26.

Scott, W. E. 1982. Surficial Geologic Map of the Eastern Snake River Plain and Adjacent Areas, 111° to 115° West, Idaho and Wyoming. U.S. Geological Survey Miscellaneous Investigations Series Map I-1372.

Seitz, H., and R. Norvitch. 1979. Groundwater Quality in Bannock, Bear Lake, Caribou and Part of Power Counties, Southeast Idaho. U.S. Geological Survey Water Resources Investigations 79-14. 51 pp.

Stearns, H. T., L. Crandall, and W. G. Steward. 1938. Geology and Groundwater Resources of the Snake River Plain in Southeastern Idaho. U.S. Geological Survey Water Supply Paper 774. 268 pp.

The Hazardous Waste Consultant (THWC). 1994. The Challenges of Characterizing and Remediating DNAPLs. Vol. 12, Issue 4. Elsevier Science Inc.

Trimble, D. E., and W. J. Carr. 1961. The Michaud Delta and Bonneville River Near Pocatello, Idaho. U.S. Geological Survey Professional Paper 424-B. Pp. 164-166.

Trimble, D. E. 1976. Geology of the Michaud and Pocatello Quadrangles, Bannock and Power Counties, Idaho. U.S. Geological Survey Bulletin 1400. 88 pp.

U.S. Environmental Protection Agency (EPA). 1986. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846), Revision 1. Third edition. July 1992.

Waterloo Centre for Groundwater Research (WCGR). 1992. Migration and Remediation of Dissolved Organic Contaminants in Groundwater. Proceedings from Short Course, February 24-27, 1992, Chicago, Illinois.

Welhan, J. and C. Meehan. 1994. Hydrogeology of the Pocatello Aquifer: Implications for Wellhead Protection Strategies. Proceedings from 30th Symposium on Engineering Geology and Geotechnical Engineering.

West, S. W., and C. Kilburn. 1963. Groundwater for Irrigation in Part of the Fort Hall Indian Reservation. U.S. Geological Survey Water Supply Paper 1576-D.

CITY OF POCATELLO

EXHIBIT 135

Lower Portneuf River Valley Aquifer Illustrations

Subcase Nos. (27)

29-00271
29-00272
29-00273
29-02274
29-02338
29-02401
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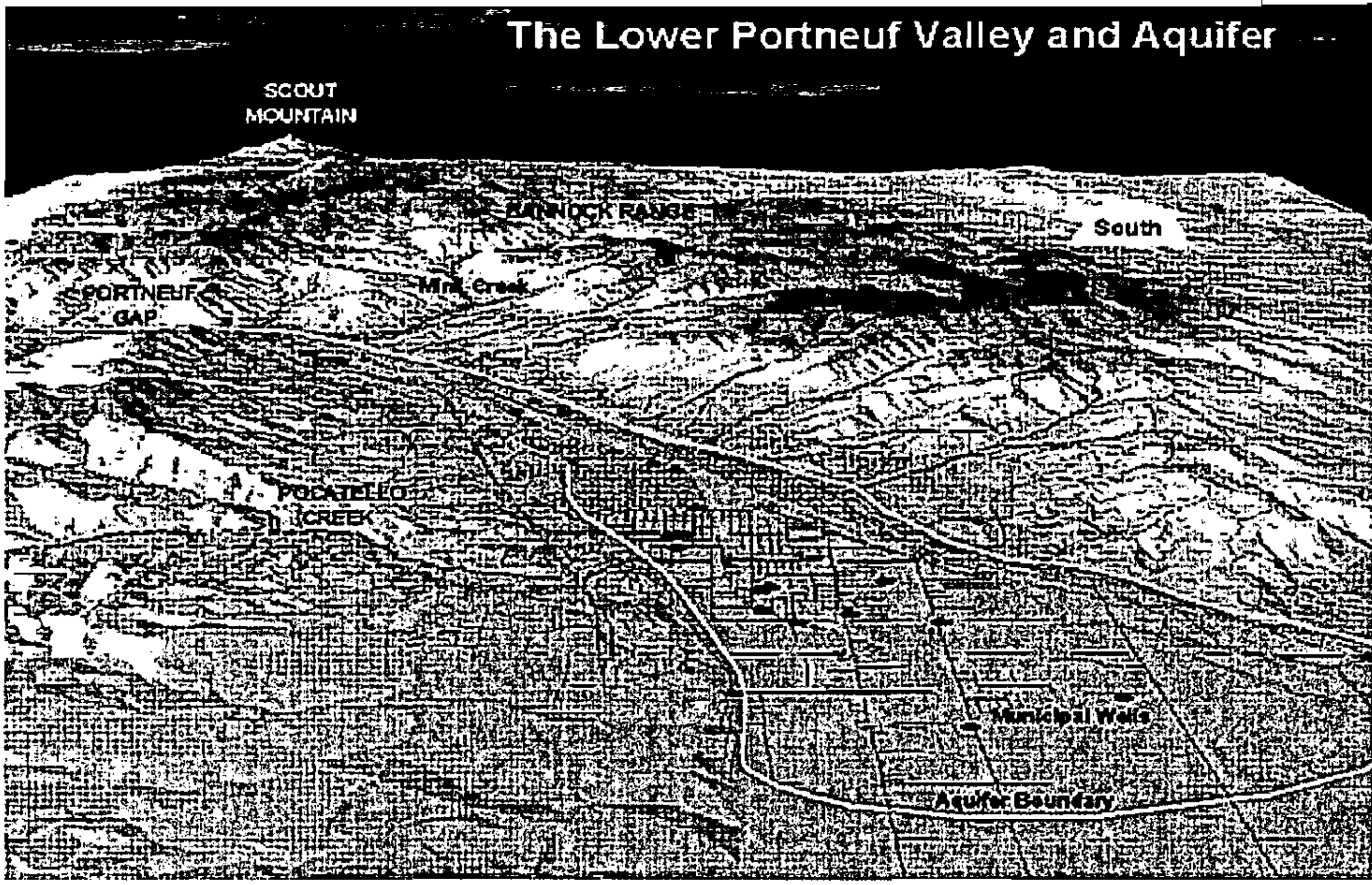
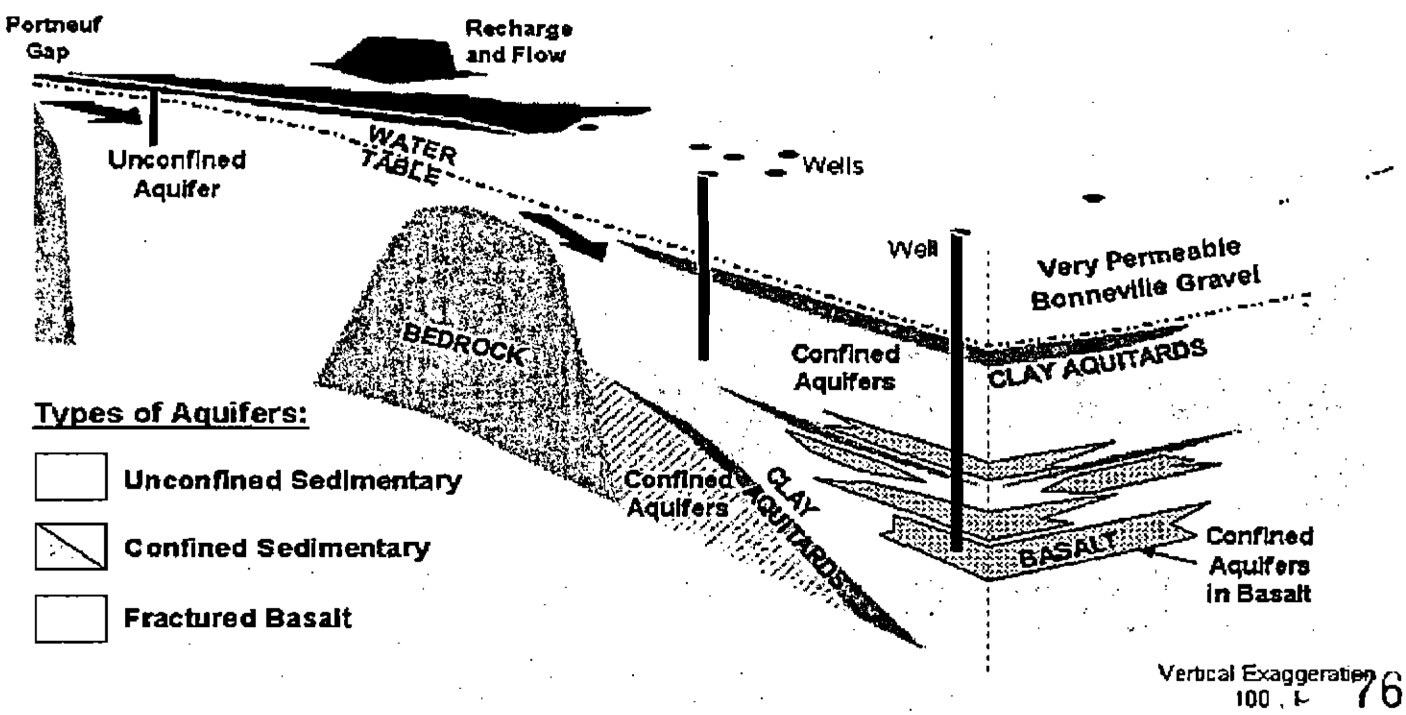
29-271 et.al
(Subcase No.)
EXHIBIT
Admitted Doc. 135
Date: 3/1/07

Lower Portneuf River Valley Aquifer Illustrations



The Lower Portneuf Valley Aquifer System



7637

Source: http://www.idahogeology.org/Services/Hydrogeology/PortneufGroundWaterGuardian/my_drinking_water/aquifer_protect/protect.html

CITY OF POCATELLO

EXHIBIT 136

Figure - Centroid of Annual Well Production

Subcase Nos. (27)

29-00271
29-00272
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29-02274
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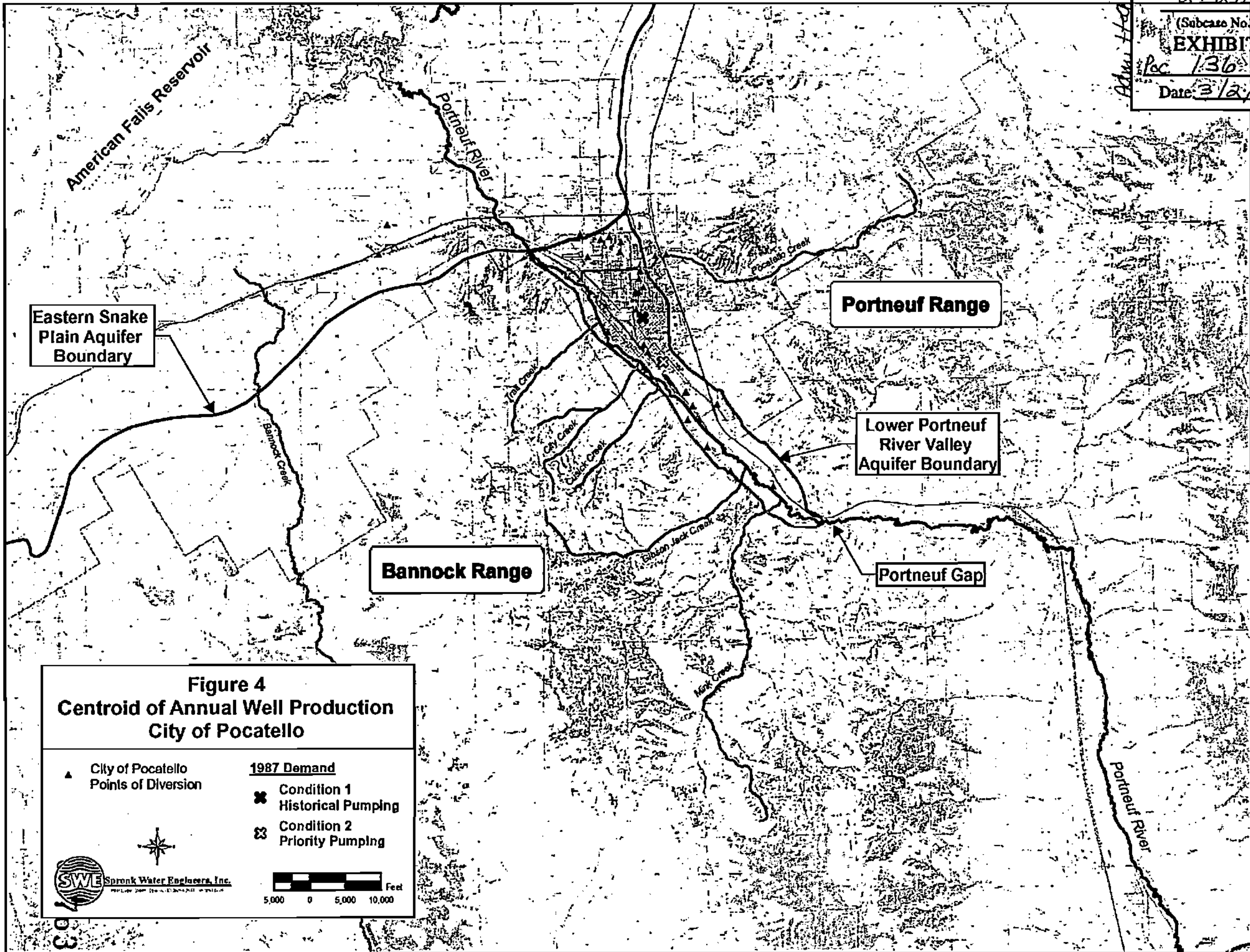
29-271 et al.
(Subcase No.)
EXHIBIT
Poc 136
Date 3/2/07
Adm 440



CITY OF POCATELLO

EXHIBIT 137

IDWR, Enhanced Ground water Rights Transfer Spreadsheet (version 2.2)

Subcase Nos. (27)

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29-02274
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(Subcase No.)
EXHIBIT
Poc 137
Date: 3/8/07
Admitted

EASTERN SNAKE PLAIN AQUIFER
GROUND-WATER RIGHTS TRANSFER SPREADSHEET
ASED ON ENHANCED SNAKE PLAIN AQUIFER MODEL

by

Donna M. Cosgrove
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(208) 282-7914

Gary S. Johnson
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(208) 282-7985

Idaho Water Resources Research Institute
University of Idaho

February, 2005
Version 2.0

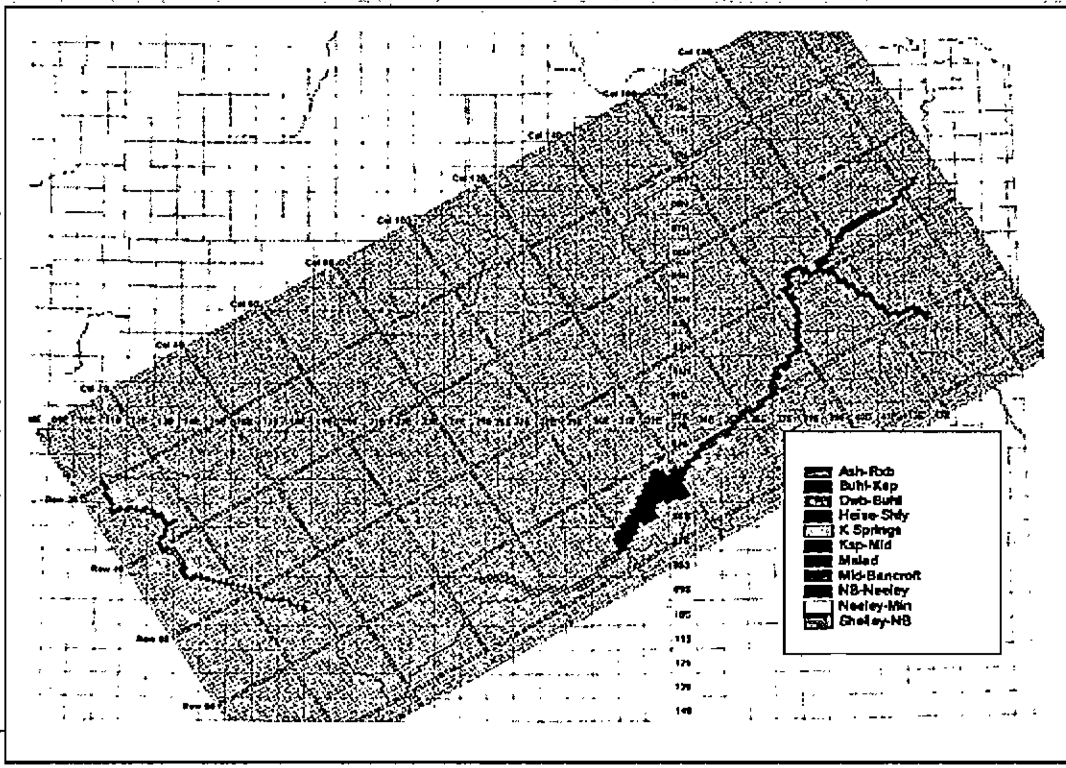
7641

GROUND-WATER RIGHTS TRANSFER SPREADSHEET

University of Idaho

The purpose of this spreadsheet is to provide water users and managers with a common tool for the analysis of hydrologic effects of ground-water right transfers within the Eastern Snake River Plain aquifer on gains and loses of the Snake River. This analysis describes how hydrologic effect (not necessarily injury) varies over time in eleven reaches of the Snake River defined by gaging stations and major springs: 1) Ashton Rexburg, 2) Heise to Shelley, 3) Shelley to Near Blackfoot, 4) Near Blackfoot to Neeley, 5) Neeley to Minidoka, 6) Devil's Washbowl to Buhl, 7) Buhl to Thousand Springs, 8) Thousand Springs, 9) Thousand Springs to Malad, 10) Malad and 11) Malad to Bancroft. These reaches have been identified as hydraulically connected with the aquifer through previous modeling studies.

The spreadsheet is intended to be used to balance hydrologic effects from existing uses with those that would occur after a ground-water right transfer. This may require that the water right be diminished in quantity to not exceed the anticipated effects from the existing use on any reach of the Snake River. The spreadsheet allows users to experiment with the rate of use resulting from a proposed transfer in order to achieve the desired balance of effects.



7642

ENHANCED GROUND-WATER RIGHTS TRANSFER SPREADSHEET

UNIVERSITY OF IDAHO - IDAHO WATER RESOURCES RESEARCH INSTITUTE — IDAHO DEPARTMENT OF WATER RESOURCES

Cells this color are set up for user entries

ENTER STARTING DATE FOR SIMULATION, THEN PUSH "UPDATE DATES" BUTTON		TRANSFER NO:
		123
YEAR	[illegible]	TRANSFER NAME
SEASON	SPRING	Boggle3

ENTER CELL LOCATIONS:	'TO' CELL	'FROM1' CELL	'FROM2' CELL	'FROM3' CELL
ROW	48	58	0	0
COLUMN	15	28	0	0

TRIMESTER OF ACTIVITY	TO WELL Projected Use AF/TRIMESTER	FROM1 WELL With Transfer AF/TRIMESTER	FROM1 WELL Without Transfer AF/TRIMESTER	FROM2 WELL With Transfer AF/TRIMESTER	FROM2 WELL Without Transfer AF/TRIMESTER	FROM3 WELL With Transfer AF/TRIMESTER	FROM3 WELL Without Transfer AF/TRIMESTER
SUM 1965	0	100	100	0	0	0	0
WIN 1965	0	100	100	0	0	0	0
SPR 1966	0	100	100	0	0	0	0
SUM 1966	0	100	100	0	0	0	0
WIN 1966	0	100	100	0	0	0	0
SPR 1967	0	100	100	0	0	0	0
SUM 1967	0	100	100	0	0	0	0
WIN 1967	0	100	100	0	0	0	0
SPR 1968	0	100	100	0	0	0	0
SUM 1968	0	100	100	0	0	0	0
WIN 1968	0	100	100	0	0	0	0
SPR 1969	0	100	100	0	0	0	0
SUM 1969	0	100	100	0	0	0	0
WIN 1969	0	100	100	0	0	0	0
SPR 1970	0	100	100	0	0	0	0
SUM 1970	0	100	100	0	0	0	0
WIN 1970	0	100	100	0	0	0	0
SPR 1971	0	100	100	0	0	0	0
SUM 1971	0	100	100	0	0	0	0
WIN 1971	0	100	100	0	0	0	0
SPR 1972	0	100	100	0	0	0	0
SUM 1972	0	100	100	0	0	0	0
WIN 1972	0	100	100	0	0	0	0
SPR 1973	0	100	100	0	0	0	0
SUM 1973	0	100	100	0	0	0	0
WIN 1973	0	100	100	0	0	0	0
SPR 1974	0	100	100	0	0	0	0
SUM 1974	0	100	100	0	0	0	0
WIN 1974	0	100	100	0	0	0	0
SPR 1975	0	100	100	0	0	0	0
SUM 1975	0	100	100	0	0	0	0
WIN 1975	0	100	100	0	0	0	0
SPR 1976	0	100	100	0	0	0	0
SUM 1976	0	100	100	0	0	0	0
WIN 1976	0	100	100	0	0	0	0
SPR 1977	0	100	100	0	0	0	0
SUM 1977	0	100	100	0	0	0	0
WIN 1977	0	100	100	0	0	0	0
SPR 1978	0	100	100	0	0	0	0
SUM 1978	0	100	100	0	0	0	0
WIN 1978	0	100	100	0	0	0	0
SPR 1979	0	100	100	0	0	0	0
SUM 1979	0	100	100	0	0	0	0
WIN 1979	0	100	100	0	0	0	0
SPR 1980	0	100	100	0	0	0	0
SUM 1980	0	100	100	0	0	0	0

<u>Entering Dates</u>

Enter the starting year and season for your simulation. The starting date represents the beginning of the analysis period.
Once you have entered the starting date, push the "UPDATE DATE" Button.
The date only needs to be updated once, unless the desired timeframe of the simulation is changed.
Modifying the date does not automatically adjust the location of the rates entered in the table.

<u>Entering Well Locations</u>

Enter the row and column location for the 'TO' well in spreadsheet cell B15 and B16, respectively.
Enter the row and column location for the 'FROM1' well in spreadsheet cell C15 amd C16, respectively.
Enter the row and column location for the 'FROM2' well in spreadsheet cell D16 and D16, respectively.
Enter the row and column location for the 'FROM3' well in spreadsheet cell E15 and E16, respectively.
If the 'FROM2' well is not to be modeled, the entered row and column should be 0 or blank.
If the 'FROM3' well is not to be modeled, the entered row and column should be 0 (zero).
The 'FROM3' well cannot be used if the 'FROM2' well is not being used.

<u>Running the Model</u>

Once the model cells have been specified for the 'FROM' and 'TO' wells, push the 'RUN MODEL' button to generate the response functions. The model only needs to be re-run if the locations of the 'FROM' and 'TO' wells are changed.

<u>Getting the Model Output</u>

Once the model has been run, push the 'GET OUTPUT' button to retrieve the model output. This prepares the model output for use for calculating effects.

<u>Entering water use data</u>

All water use should be entered in units of acre-feet per four month period. See the user's manual for instructions on multiple water rights with different priority dates and/or different wells.

Entering 'TO' Well Projected Water Use

Enter the projected water use for the 'TO' Well in Column B. 'TO' Well water use should start in the trimester (4-month period) in which the transfer will be effective.

Entering 'FROM' Well 'With Transfer' Use

Enter the 'With Transfer' water use for the first 'FROM' Well in Column C, for the second 'FROM' well in Column E, and for the third 'FROM' Well in Column G.
'With Transfer' water use should reflect historical and projected after transfer use for this well and should cease or be reduced at the time of the water right transfer.

Entering 'FROM' Well 'Without Transfer' Use

The 'Without Transfer' Use for the 'FROM' wells should include historical and projected use for each well.
The projected use should reflect expected pumpage from that well if the transfer were not to take effect.
Enter the 'Without Transfer' water use for the first 'FROM' Well in Column D, for the second 'FROM' well in Column F, and for the third 'FROM' well in Column H.
Prior to the expected date of transfer, the 'With Transfer' use should be the same as the 'Without Transfer' use.

If only one 'FROM' well is to be represented, pumpage in columns E, F, G and H should be 0.
If only two 'FROM' wells are being represented, pumpage in Columns G and H should be 0.
Projected water use in the 'TO' well and the 'FROM' wells will be used to estimate the change in effect to the river reaches caused by the water right transfer. (See user's manual.)

<u>Calculating Effect of the Transfer on River Gains and Losses</u>

After all of the above steps have been completed, the effects of the proposed transfer on gains and losses of the four hydraulically connected reaches of the Snake River can be estimated by clicking the CALCULATE EFFECTS' button. This will result in a multiplication of the response function matrix (determined in the model runs) times the water use rates entered in the table provided in columns B through H.
After the multiplication has been performed, the spreadsheet will automatically advance to the GRAPHS worksheet. Here one graph is provided showing the effect for each of the four reaches, and a fifth graph illustrates the net effects on all four reaches. Results are also presented in tabular form in the CALCULATED EFFECTS worksheet. See the Users Manual for more information.

7643

Version2.2

2/21/2007 Today's Date

1/4/2006

Version 2.2 modified by Donna Cosgrove

Fixed bugs located by J. Lindgren and B. Bendixsen

Caused errors if only one FROM well in use

12/2/2005

Version 2.1 modified by Donna Cosgrove

Converted to ESPAM v1.1 files

2/8/2005

Version 2.0 modified by Donna Cosgrove

Adapted to run enhanced Snake Plain Aquifer Model

Calculates transfer effects for 11 reaches

Version 1.2 modified by Donna Cosgrove

Added User ability to input transfer number and name.

Displayed transfer number and name on each graph.

Added lines of code to force column width=10 in .wel file.

7644

CITY OF POCATELLO

EXHIBIT 138

Graph - Annual Depletions Resulting from Surface Water Diversions and Ground Water Pumping of Alternate Points of Diversion.

Subcase Nos. (27)

29-00271
29-00272
29-00273
29-02274
29-02338
29-02401
29-02499
29-04221
29-04222
29-04223
29-04224
29-04225
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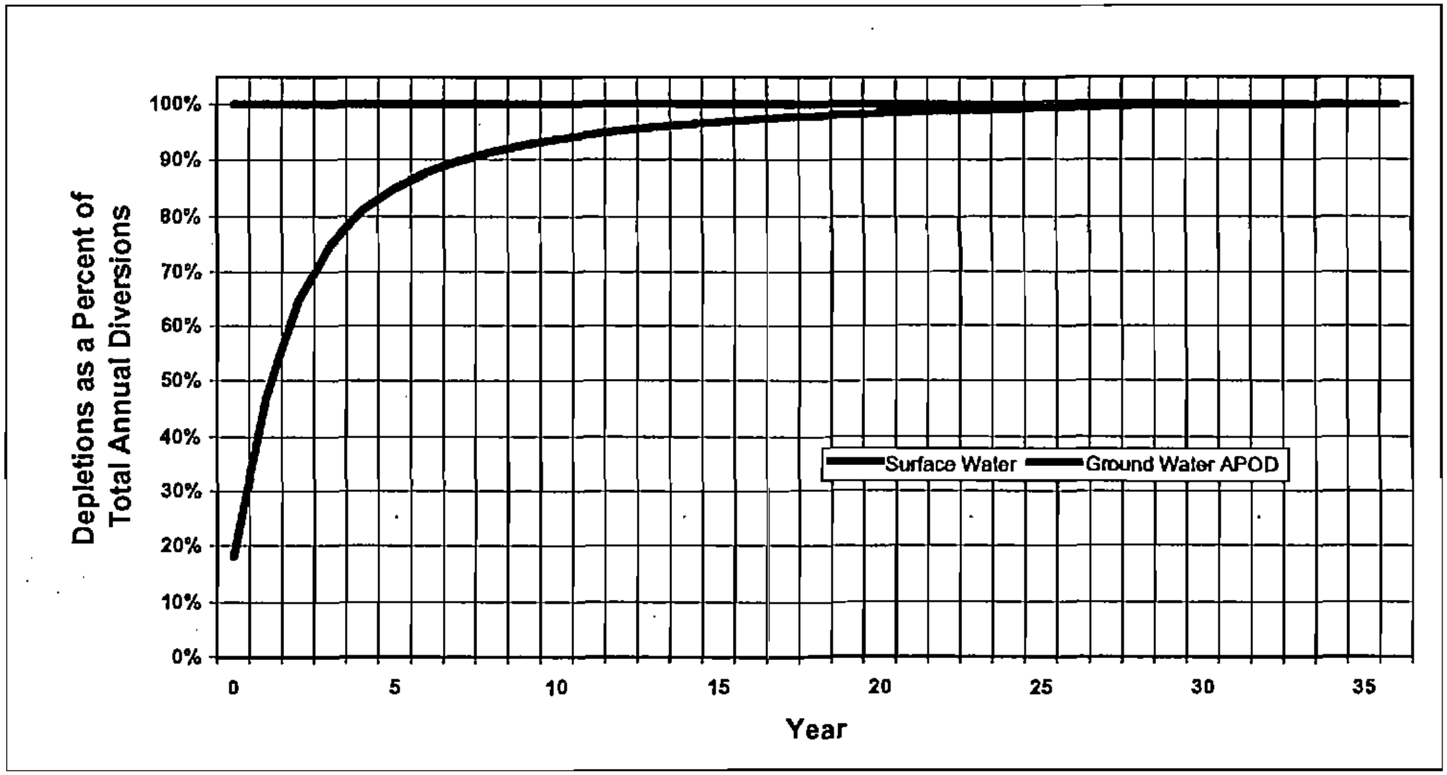
Admitted

29-271 dal.
(Subcase No.)
EXHIBIT
Poc 138
Date: 3/8/07

Figure 1
Annual Depletions Resulting from Surface Water Diversions and Ground Water Pumping at Alternate Points of Diversion
City of Pocatello



7646

CITY OF POCATELLO

EXHIBIT 139

Table - Summary of Surface Water Use (1980 - 1987)

Subcase Nos. (27)

29-00271
29-00272
29-00273
29-02274
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Admitted

29-271 et al.
(Subcase No.)
EXHIBIT
Poc. 139
Date: 3/8/07

Table 5
City of Pocatello
Summary of Monthly Surface Water Use, 1980 - 1987
(acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1980	224	246	343	232	205	259	289	290	266	262	230	240	3,085
1981	271	259	284	226	175	233	321	266	244	239	209	239	2,964
1982	255	255	284	310	295	298	275	321	285	316	279	263	3,436
1983	284	237	280	294	316	309	305	296	281	249	240	284	3,376
1984	300	278	294	274	283	241	229	267	287	269	284	267	3,273
1985	332	352	355	0	0	0	294	204	191	196	198	305	2,426
1986	Monthly surface water combined with other well production data												1,711
1987													1,499

Note:
Records show that in March, April, and May of 1986, there was no surface water diverted (see Appendix C).

7648

CITY OF POCATELLO

EXHIBIT 143

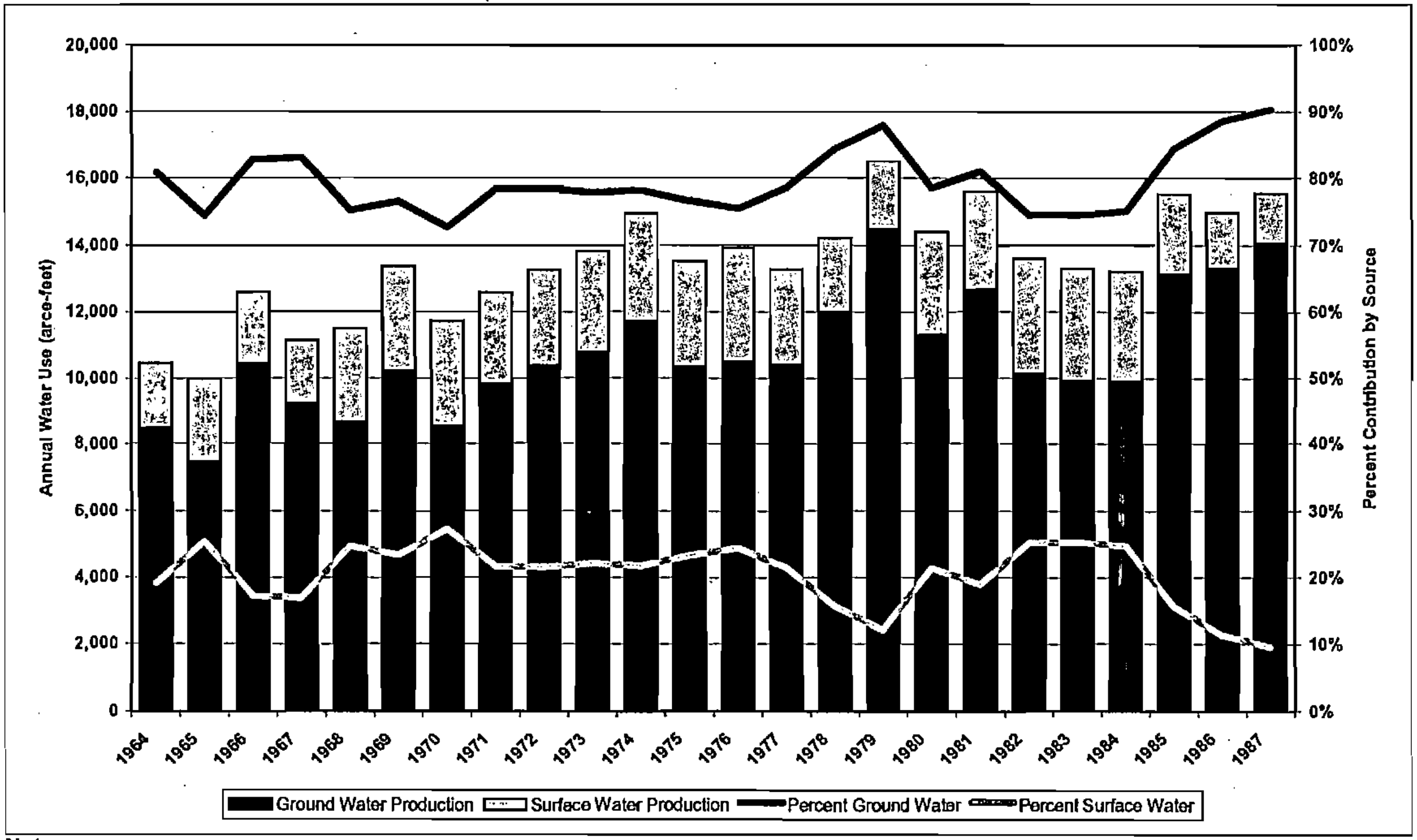
Graph – Annual Depletions Resulting from Surface Water Diversions and Ground Water Pumping of Alternate Points of Diversion

Subcase Nos.

all 38

29-271 et.al.
(Subcase No.)
EXHIBIT
Poc. 143
Date: 3/8/07
Admitted

Figure 5
Summary of Annual Water Use (1964 - 1987)
City of Pocatello



Note:
Excluding Airport Wells

SWE Spronk Water Engineers, Inc.

07650

CITY OF POCATELLO

EXHIBIT 144

Resume of Gregory K. Sullivan, P.E.

Subcase Nos.

all 38

29-27Ldal
(Subcase No.)
EXHIBIT
Poc. 144
Date: 3/1/07
ADMITTED

Gregory K. Sullivan, P.E.
Principal Water Resources Engineer
Spronk Water Engineers, Inc.

Education: B.S., Civil Engineering, May 1985, Colorado State University.

M.S., Civil Engineering, May 1990, University of Colorado - Denver.
Thesis - "Optimal Water Supply Capacity Expansion Using Objective Space Dynamic Programming"

Continuing Education: Applied Ground Water Flow Modeling, International Ground Water Modeling Center, Colorado School of Mines (3/93)

Professional Registration: Professional Engineer in Colorado (#26802), Idaho (#8387) and Nevada (#10868)

Professional Memberships: American Society of Civil Engineers (Water Laws Committee)
Colorado Ground Water Association
American Water Resources Association

Work History:

1990 to Present: Principal and Senior Water Resources Engineer
Spronk Water Engineers, Inc.
1000 Logan Street
Denver, Colorado 80203

Mr. Sullivan is a principal and senior water resources engineer for Spronk Water Engineers, Inc. He is responsible for the management and successful completion of water rights engineering and water resources planning projects. Projects include water supply planning, changes of water rights, plans for augmentation, historical consumptive use and stream depletion analyses, water rights evaluations and appraisals, water supply planning, reservoir operations studies, ground water modeling and water rights accounting.

1985 to 1990: Water Resources Engineer
J. W. Patterson & Associates, Inc.
Denver, Colorado

Performed water supply, hydraulic and hydrologic analyses for agricultural, industrial, commercial and municipal developments. Managed yield and impact analyses of water rights adjudications, transfers, exchanges and plans for augmentation. Conducted ground water studies including aquifer testing, project dewatering and water well design and construction monitoring.

Selected Projects:

Kansas v. Colorado - Arkansas River basin in Colorado and Kansas
Kansas v. Nebraska - Republican River basin in Nebraska, Kansas and Colorado
Water Supply Planning - Arapahoe County Water and Wastewater Authority, Colorado
Water Rights Transfers - City of Loveland, Colorado
Rio Grande Irrigation Project Modeling - New Mexico
Plan for Augmentation and Water Supply Planning - Perry Park Water and Sanitation District, Douglas County, Colorado
Carson River Water Rights Modeling - California and Nevada
Water Rights Appraisal - Gilman Mine near Minturn, Colorado
Snake River Basin Adjudication, Idaho
Development of Conjunctive Management Rules - Snake River Basin, Idaho
Ground Water Model Peer Review - Eastern Snake Plain Aquifer, Idaho
Water Supply Evaluations - Snake River Basin, Idaho
Federal Reserved Water Rights Claims - Snake River Basin, Idaho
Senate Bill 74 Study of Denver Metropolitan Area Water Supplies - Colorado
Water Supply Planning - Hiwan Golf Club, Evergreen, Colorado
Plan for Augmentation - Buffalo Park Development Company, Evergreen, Colorado
Water Supply Yield Modeling - Genesee Water and Sanitation District, Colorado
Water Supply Yield Modeling - City of Loveland, Colorado
Plan for Augmentation and Water Supply Modeling - Upper Cherry Creek Water Association, Colorado

Expert Testimony:

U.S. Supreme Court, Kansas v. Colorado, No. 105, Original
District Court, Water Division 1, Colorado (several cases)

List of Cases in Which
Gregory K. Sullivan, P.E.
Has Testified as an Expert Witness

Date	Case No.	Court	Description	Client	Trial or Depo	Areas of Expertise
7/91	86CW388(A)	District Court, Water Division 1, Colorado	Plan for Augmentation	Arapahoe Water & Sanitation District (Applicant)	Trial	Water Resources Engineering and Water Rights Engineering
11/91	80CW156 & 80CW074	District Court, Water Division 1, Colorado	Change of Water Rights and Plan for Augmentation	Perry Park Water & Sanitation District (Applicant)	Trial	Water Resources Engineering and Water Rights Engineering
11/93	89CW225	District Court, Water Division 1, Colorado	Application for Water Rights, Change of Water Rights and Plan for Augmentation	Perry Park Water & Sanitation District (Applicant)	Depo	n/a
4/95	93CW092, 93CW093 & 93CW094	District Court, Water Division 1, Colorado	Application for Water Rights, Change of Water Rights and Plan for Augmentation	Arapahoe Water & Sanitation District (Objector)	Depo	n/a
12/95	89CW228	District Court, Water Division 1, Colorado	Application for Water Rights and Plan for Augmentation	Perry Park Water & Sanitation District (Objector)	Trial	Water Resources Engineering and Water Rights Engineering
8/96	86CW380 & 88CW054(B)	District Court, Water Division 1, Colorado	Applications for Water Rights, Plan for Augmentation and Exchange	Arapahoe County Water and Wastewater Authority	Trial	Water Resources Engineering and Water Rights Engineering
9/98	90CW201	District Court, Water Division 1, Colorado	Applications for Water Rights, Plan for Augmentation and Exchange	Arapahoe County Water and Wastewater Authority	Trial	Water Resources Engineering and Water Rights Engineering
12/98	95CV411-1	District Court, Douglas County, Colorado	Paulk v. Braden, et. al. (Reservoir Title Lawsuit)	Perry Park Country Club (Defendant)	Depo	n/a
1/00	No. 105, Original	U.S. Supreme Court	Arkansas River Compact Violation	State of Kansas (Plaintiff)	Trial	Water Resources Engineering, Water Rights Engineering and Hydrologic Modeling

7654

List of Cases in Which *Gregory K. Sullivan, P.E.* Has Testified as an Expert Witness During the Past Four Years

Date	Case No.	Court	Description	Client
4/95	93CW092, 93CW093 & 93CW094	District Court, Water Division 1, Colorado	Application for Water Rights, Change of Water Rights and Plan for Augmentation	Arapahoe Water & Sanitation District (Objector)
12/95	89CW228	District Court, Water Division 1, Colorado	Application for Water Rights and Plan for Augmentation	Perry Park Water & Sanitation District (Objector)
8/96	86CW380 & 88CW054(B)	District Court, Water Division 1, Colorado	Applications for Water Rights, Plan for Augmentation and Exchange	Arapahoe County Water and Wastewater Authority (Objector)
9/98	90CW201	District Court, Water Division 1, Colorado	Applications for Water Rights, Plan for Augmentation and Exchange	Arapahoe County Water and Wastewater Authority (Applicant)
12/98	95CV411-1	District Court, Douglas County, Colorado	Paulk v. Braden, et. al. (Reservoir Title Lawsuit)	Perry Park Country Club (Defendant)

CITY OF POCATELLO

EXHIBIT 147

Pocatello Portrait: The Early Years, 1878-1928

Subcase Nos.

all 38

from Gittins, H. Leigh. Pocatello Portrait: The Early Years, 1878-1928.

29-271etal
(Subcase No.)
EXHIBIT
Admitted
Rc 147
Date: 2/26/07

27

A SCANT SUPPLY IN 1924

Perhaps we should continue the account of the Bannock County Memorial Building. At an evening mass meeting February 4, 1924, it was decided to form a holding committee to take charge of building finances and building plans. For the American Legion Post, Commander E. J. Therkilsen and former post commander Ivan Gasser were elected to represent the Legion on the new committee, which also represented other patriotic groups and the community. Mr. Gasser was again honored in August by being elected grand *chef de gare* of Idaho's La Societe des 40 Hommes et 8 Chevaux.[1] These offices undoubtedly helped him in his central aim — to erect the Bannock Memorial Building.

We were all somewhat diverted at this time by a statewide drive to erect another memorial at Moscow, Idaho on the University of Idaho campus. That memorial was to be in the form of an armory and gymnasium. According to the list already compiled from war department records, 34 Bannock County soldiers and sailors lost during the World War would have their names cast in bronze in the memorial, along with Spanish-American fallen heroes. Local checking with American Legion lists was requested.[2]

By the middle of September, finances were in good enough shape to organize "The Bannock County Servicemen's Memorial Association," a social corporation with nine trustees of one-, two-, and three-year terms. The purpose of this group was to supervise the erection of the building and provide for its maintenance and operation. The nine trustees elected were: John Hood, E. J. Therkilsen, and Mrs. E. R. Holman for the three-year term; A. J. Pierce, Mrs. Sam Winters, and E. H. Clark for the two-year term; and Walter H. Cleare, Mrs. John Anderson, and Ivan Gasser for the one-year term.[3] Architect Paradise's plans called for a two-story building in the Italian-Spanish Renaissance style with two large assembly halls 33' by 65' along with all needed support rooms such as kitchens, lounges, etc. The outside of the building was to be finished in light buff tapestry brick with dark red tapestry brick trim. The roof was to be of old-fashioned Granada Spanish tile in variegated colors. French doors were to be utilized. It was to be a beautiful building.

Finances were in such good shape that on the 10th of November 1924, Alex Mather received the contract for construction of the building. The contract price was $49,070 for the Memorial Building situated on a beautiful spot on the west bank of the Portneuf. The labor of many people dedicated to the remembrance of our war heroes was coming to a successful conclusion. Mrs. John Anderson, president of the local War Mothers, had the honor of turning the first shovelful of earth for construction of the new building at 2:00 p.m., November 11, 1924, Armistice Day. A moderately large crowd watched the exercises conducted by Walter S. Cleare.[4] But it seemed that a $15,000 bond was involved and also an incomplete fund drive, so we are apt to read more about this project in the future.

Pocatello had not experienced a really critical city water shortage since the system was municipalized back in 1916. But times do change. The city was still growing in area and population. In fact, the Chamber of Commerce's reasonably accurate survey in late 1924 showed the city had a population of 19,501 compared to the 1920 census of 15,001, or a 30 percent increase over the 1920 figure. Postmaster A. B. Bean reported a 25 percent increase in the number of persons served, and Water Superintendent Clarence Rainey reported domestic water services at 3,200, up from 1,600 at the beginning of 1920, a 100 percent increase. Superintendent of Schools W. R. Siders reported school enrollment up 45.4 percent.[5] Truly we were growing.

It became evident to some by the end of February that the hills surrounding the city and region were not white with deep snow banks. As

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know, water worries concerning Pocatello often articulated by Mr. Fletcher R. Burrus. It no real surprise then when he gave a detailed r report to the Chamber of Commerce. His mittee presented three recommendations for nber study and action. One, enlarge the pre- water system before dire need should hit the two, enhance this enlargement by building a o 60 million gallon reservoir on a natural loca- on Cedar Ridge; three, fill said reservoir with ngtime runoff, settled thus for summer use, take care of city needs for several years. The mber was to give serious consideration to the a.[6]

Then came the discouraging reports. Upper ke River watersheds were far below the nor- precipitation levels — less than 50 percent mal. Snake River dropped to its lowest orded level. It was so low that the ferry at shone Falls had to cease operation. The ferry ld only be brought to within 70 feet of its th-side landing spot. By May 17, the eorologist in Boise after 44 days without rain cast the worst dry spell in the history of the e. The only other comparable year was 1907, ges were dry and vegetation meager.[7]

On June 30, 1924, Mayor Ross stated that 000 feet of pipe was being installed on the new irrigation ditch system on the east side of n. He stated 165 acres would have greatly roved water facilities by July 15, at nominal . This Fort Hall system was a great saving to city water system. Cattle and sheep on the ge were beginning to lose weight from the ex- ded drought. Indirect pressure was placed on the villages of North Pocatello and Fairview mediately north of Pocatello. The two villages solidated, effective July 31, to form the village Alameda. The principal purpose at that time s to secure means to purchase the Fairview er system, owned by the Pocatello Realty and estment Company. The water works, valued at 000, could now be purchased through ding of the two communities.[8]

Mayor Ross asked cooperation to conserve water supplies on July 20 and pointed to the ught situation all over the Northwest. Those nected with the surface irrigation on the east e were no longer to use city water except for nestic purposes. But like so many instances in the past, even a popular mayor could not get real voluntary cooperation, hence very limited sprinkling time regulations were placed in effect on July 23, 1924. The reservoirs continued to drop to the point that the mayor asked for no Sunday sprinkling in order to bring the reservoirs up to a safe level in case of fires. Editorials were now stressing the need for greater water source expansion.

The drought was now acute, but still many citizens vexed authorities by "night sprinkling." Extra officers were employed to catch the culprits and fine them through the regular channels, first $1, then $5 and so on. Reservoir water became so low that on August 1 all officers were ordered to shut off water used by anyone for sprinkling purposes.[9]

On August 6, a previously-appointed water committee reported to the Chamber of Commerce meeting in the Bannock Hotel the results of their findings. Committee members were explicit and reflected real concern in how to cope with this renewal of the Pocatello water problem. The report stated:

1. The current emergency measures and relief actions of the mayor and council must be accepted uncomplainingly and with full support by the citizens.
2. A sufficient reserve must be maintained in the reservoirs to protect against fires.
3. The diminishing water supply must be conserved for domestic use by keeping the reservoirs two-thirds full, even though to do so may mean the cancellation of all sprinkling.

The committee recommended the building of more reservoirs and immediate action before the council to promote bond issues to build the reservoirs, "there being nothing more important, in our opinion, to the welfare of the city of Pocatello than the necessity which confronts us in this matter." The strong committee recommendations were signed by the following knowledgeable men: Fletcher R. Burrus, E. T. Anderson, A. B. Canfield, C. M. Rainey, and A. R. Higson.[10]

Upon the recommendation of Mayor Ross, the two city flushers were used to haul water pumped from the Portneuf to large city owned lawns, mostly on the west side of town. It was estimated that 100,000 gallons of water could be distributed daily to needy lawns in this fashion. The flushers were of 1,200 gallon capacity. No

13. *Pocatello Tribune*, June 26, 1919, page 10. This building is now the Spaulding Building.
14. *Pocatello Tribune*, May 24, 1919, page 1, October 11, 1919, page 1, and September 26, 1919, page 4.
15. *Pocatello Tribune*, July 18, 1919, page 3.
16. *Pocatello Tribune*, May 14, 1919, page 12.
17. *Pocatello Tribune*, August 21, 1919, page 2.
18. *Pocatello Tribune*, June 11, 1919, page 5.

23

1. *Pocatello Tribune*, January 17, 1920, page 1.
2. *Pocatello Tribune*, March 20, 1920, page 7.
3. *Pocatello Tribune*, May 18, 1920, page 1.
4. *Pocatello Tribune*, July 16, 1920, page 6.
5. *Pocatello Tribune*, January 17, 1920, page 2.
6. *Pocatello Tribune*, May 12, 1920, page 9.
7. *Pocatello Tribune*, April 14, 1920, page 5.
8. *Pocatello Tribune*, May 8, 1920, page 3 and May 22, 1920, page 3.
9. *Pocatello Tribune*, July 24, 1920, page 3. This area is now known as Justice Park and contains several sites, including Camp Tendoy.
10. *Pocatello Tribune*, May 9, 1920, page 10.
11. *Pocatello Tribune*, May 7, 1920, page 10.
12. *Pocatello Tribune*, August 6, 1920, page 7.
13. *Pocatello Tribune*, July 16, 1920, page 6.
14. *Pocatello Tribune*, May 8, 1920, page 3.
15. *Pocatello Tribune*, October 27, 1920, page 1.

24

1. *Pocatello Tribune*, May 6, 1921, page 3.
2. *Pocatello Tribune*, May 20, 1921, page 6.
3. *Pocatello Tribune*, May 25, 1921, page 10.
4. *Pocatello Tribune*, May 27, 1921, page 10. Concrete steps leading to the Hillcrest are still visible and in good condition.
5. *Pocatello Tribune*, May 27, 1921, page 16.
6. *Pocatello Tribune*, June 11, 1921, page 1.
7. *Pocatello Tribune*, May 12, 1921, page 10, May 20, 1921, page 1, May 31, 1921, page 5, and October 12, 1921, page 6.
8. *Pocatello Tribune*, January 22, 1923, page 3.
9. *Pocatello Tribune*, February 9, 1921, page 1.
10. *Pocatello Tribune*, February 19, 1921, page 3.
11. *Pocatello Tribune*, April 1, 1921, page 1.
12. *Pocatello Tribune*, May 13, 1921, page 3.
13. *Pocatello Tribune*, July 30, 1921, page 2.
14. *Pocatello Tribune*, March 3, 1921, page 3.
15. *Pocatello Tribune*, June 30, 1921, page 3.
16. *Pocatello Tribune*, October 19, 1921, page 1.
17. *Pocatello Tribune*, May 2, 1921, page 1.
18. *Pocatello Tribune*, September 9, 1921, page 8.
19. *Pocatello Tribune*, September 19, 1921, page 3.
20. *Pocatello Tribune*, March 12, 1921, page 8.
21. *Pocatello Tribune*, May 12, 1921, page 10.
22. *Pocatello Tribune*, December 24, 1921, page 3.

25

1. *Pocatello Tribune*, March 21, 1922, page 3.
2. *Pocatello Tribune*, May 6, 1925, page 8.
3. *Pocatello Tribune*, March 25, 1922, page 7.
4. *Pocatello Tribune*, June 2, 1922, page 12.
5. *Pocatello Tribune*, June 10, 1922, page 7.
6. *Pocatello Tribune*, May 30, 1922, page 1.
7. *Pocatello Tribune*, March 21, 1922, page 3.
8. *Pocatello Tribune*, August 26, 1922, page 10.
9. *Pocatello Tribune*, September 12, 1922, page 3.
10. *Pocatello Tribune*, April 7, 1922, page 10.
11. *Pocatello Tribune*, October 13, 1922, page 11.
12. *Pocatello Tribune*, June 22, 1922, page 1.
13. *Pocatello Tribune*, August 2, 1922, page 3.
14. *Pocatello Tribune*, September 20, 1922, page 5.
15. *Pocatello Tribune*, June 1, 1922, page 12.
16. *Pocatello Tribune*, January 11, 1922, page 1.
17. *Pocatello Tribune*, October 19, 1922, page 12.
18. *Pocatello Tribune*, June 17, 1922, page 16.
19. *Pocatello Tribune*, August 30, 1922, page 6.
20. *Pocatello Tribune*, November 25, 1922, page 1.

26

1. *Pocatello Tribune*, March 14, 1923, page 8.
2. *Pocatello Tribune*, March 21, 1923, page 10.
3. *Pocatello Tribune*, April 25, 1923, page 1.
4. *Pocatello Tribune*, May 8, 1923, page 5.
5. *Pocatello Tribune*, May 3, 1923, page 6.
6. *Pocatello Tribune*, May 3, 1923, page 3.
7. *Pocatello Tribune*, June 13, 1923, page 16.
8. *Pocatello Tribune*, June 13, 1923, page 13.
9. *Pocatello Tribune*, June 13, 1923, page 15.
10. *Pocatello Tribune*, June 28, 1923, page 1.
11. *Pocatello Tribune*, March 29, 1923, page 5.
12. *Pocatello Tribune*, September 27, 1923, page 9.
13. *Pocatello Tribune*, June 26, 1923, page 10, June 29, 1923, page 5, July 11, 1923, page 7, and July 14, 1923, page 11.
14. *Pocatello Tribune*, July 31, 1923, page 3.
15. *Pocatello Tribune*, August 3, 1923, page 8.
16. *Pocatello Tribune*, August 4, 1923, page 5.
17. *Pocatello Tribune*, August 3, 1923, page 1.
18. *Pocatello Tribune*, August 6, 1923, page 3, August 6, 1923, page 7, and August 7, 1923, pages 1 and 7.
19. *Pocatello Tribune*, August 8, 1923, page 7.
20. *Pocatello Tribune*, August 8, 1923, page 7.
21. *Pocatello Tribune*, August 9, 1923, page 7.
22. *Pocatello Tribune*, August 11, 1923, page 11.
23. *Pocatello Tribune*, January 12, 1923, page 5.
24. *Pocatello Tribune*, June 25, 1923, page 5.
25. *Pocatello Tribune*, October 4, 1923, page 10.
26. *Pocatello Tribune*, December 13, 1923, page 5.

27

1. *Pocatello Tribune*, August 9, 1924, page 3.
2. *Pocatello Tribune*, July 14, 1924, page 2.
3. *Pocatello Tribune*, September 16, 1924, page 10.
4. *Pocatello Tribune*, November 11, 1924, page 8.
5. *Pocatello Tribune*, December 18, 1924, page 1.
6. *Pocatello Tribune*, February 27, 1924, page 12.
7. *Pocatello Tribune*, May 17, 1924, page 1.
8. *Pocatello Tribune*, July 17, 1924, page 5.
9. *Pocatello Tribune*, July 30, 1924, page 1.
10. *Pocatello Tribune*, August 6, 1924, page 3.
11. *Pocatello Tribune*, August 8, 1924, page 12.
12. *Pocatello Tribune*, September 11, 1924, page 5.
13. *Pocatello Tribune*, June 1, 1924, page 5.
14. *Pocatello Tribune*, July 29, 1924, page 3.
15. *Pocatello Tribune*, May 21, 1924, page 3.
16. *Pocatello Tribune*, July 23, 1924, page 1.
17. *Pocatello Tribune*, July 28, 1924, page 5.
18. *Pocatello Tribune*, April 18, 1924, page 8.
19. *Pocatello Tribune*, January 13, 1925, page 5.
20. *Pocatello Tribune*, March 4, 1924, page 12 and March 16, 1924, page 5.

CITY OF POCATELLO

EXHIBIT 148

July 17, 1924 The Pocatello Tribune article

Subcase Nos.

all 38

 Footnoted in Pocy [illegible]

July 17, 1924

Admitted
29-271 et al
(Subcase No.)
EXHIBIT
Poc. 148
Date: 2/26/07

TRIBUNE MAN

CONSOLIDATION OF N. POCATELLO AND FAIRVIEW

Villages Adjoining Pocatello on North Consolidate and Will Be Known As Alameda.

LOCAL MEN TO ATTEND MEETING OF EXECUTIVES

Pocatello Shop Officials Invited to Conference at Estes Park on July 21 to 26.

Town Talk

LEFT FOR RUPERT.

Attorney U. L. Tyler left this afternoon by auto for a short business trip to Rupert.

PASSED THROUGH.

Sheriff O. V. Mason of Canyon county passed through the city today en route from Caldwell to Salt Lake City.

ON VACATION TRIP.

HOME FROM TRIP.

Mr. and Mrs. C. E. Warner have returned from a week's trip through Yellowstone park. Mr. Warner reports the fishing good.

LEFT FOR ST. LOUIS.

UNDERWENT OPERATION

RUNAWAY LADS.

FUNERAL TODAY.

FISHING TRIP

LICENSES ISSUED.

HOME BURGLARIZED.

ON EXTENDED TRIP.

COMMITTEE APPOINTED

PERSONALS

Young Students Appear in Piano Recital

SWIMMING CLASSES FOR MEN AND WOMEN BEGIN NEXT WEEK

NOTED SPEAKER ON LEAGUE TO ADDRESS FORUM

Professor Irving Fisher of Yale to Visit Pocatello August 6 and Speak at Chamber.

THE WEATHER

Former Pocatello Man Dies at Salt Lake City

ANNOUNCEMENTS

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MAN

refinery in Idaho
...al of that money
...ll except that for
...eight.
...over 68,000 ...
... and trucks in
...sumption of gaso-
...k two gallons per
...gallons per
...he third of these
... in southern Idaho
...than 41,000 gallons
... "One eighth of
eastern Idaho will
output. No con-
...ven the tourist
...tection facilities
... further extension
...unlimited."
...ns to send J. C.
...at some time next
...er machinery.

...gine.
...nced J. A. Hu-
...catello's chamber
... the chamber of
department store,
...ch is a stock-
...n; that every bit
...h commission to
...early dividends;
...business is deter
...much interest its

CONSOLIDATION OF N. POCATELLO AND FAIRVIEW

Villages Adjoining Pocatello on North Consolidate and Will Be Known As Alameda.

The villages of North Pocatello and Fairview which adjoin Pocatello on the north and lie just outside the city limits have consolidated and the one village will now bear the name of Alameda. Action was taken at a joint meeting Wednesday evening of the chairmen, and the boards of trustees of the twin villages. The ordinance declaring the consolidation will become effective on the 31st day of July.

The consolidation of the two villages was put into effect for the purpose of adjusting funds for the purchase of the Fairview water system which is owned by the Pocatello Realty and Investment company. The water works are valued at thirty thousand dollars and the combined villages will sell bonds to raise this amount.

LOCAL MENTO...

Town...

LEFT F...
Attorney O. ... afternoon by auto ... trip to Hupett.

PASSED ...
Sheriff O. Y. ... county passed th... en route from C... City.

ON VACA...
Miss Nora Hul... in the office of ... engines, left toda... to Montreal.

HOME F...
Mr. and Mrs. ... returned from a ... Yellowstone park ... ports the fishing ...

LEFT FO...
Gene Hebubert, ... tel Bannock, has ... other middle west... ...

UNDERWEN...
Hette Wel's, yo... and Mrs. Charle... an operation We... moval of her tons... be getting along ...

CITY OF POCATELLO

EXHIBIT 150

7/20/1952 Alameda Enterprise news article

Subcase Nos.

all 38

Alameda Enterprise 7/20/52

001616

EXHIBIT
29-271 d.al
Admitted Ac 150
2-26-07

...Wallace E. Gareis, I S C director of journalism, said today.

Most coveted of the awards are two cups, one for the best printed paper, contributed by the Salt Lake Tribune, and the other for the best mimeographed paper, gift of the Deseret News.

Five plaques will also be awarded as follows: High school paper with best news, Minidoka County News; best editorials, Idaho State Journal; best sports pages, Idaho Falls Post-Register; best feature, Salt Lake Tribune; best columns, I S C publications committee.

The girl editor of the best paper submitted for judging by a jury of high school teachers will receive a pendant from the Idaho Press Women. This award was initiated last year.

High school students will also compete for places in a radio broadcast program. A number of scripts dramatizing a news event has been submitted, and the best will be selected for broadcast.

The convention program will include several panel discussions by prominent Idaho weekly and daily newspapermen. High school students and teachers will also take part in a number of panels.

FRAMED . . . In Oakland, Calif., Richard Fernandez, artist, gave himself away when he left self-portrait in car after fleeing from a hit-and-run accident.

UNCERTAIN . . . Los Angeles war widow Mrs. Peggy Paulsen, insisted that husband's casket be opened because she wasn't sure body was his. Relatives looked, assured her it was.

Raviola Dinner Set For Sunday

The 20th annual Raviola dinner will be held Sunday from 1 to 8 p.m. in the Memorial Bldg., it was announced by the Rev. Father L. M. Dougherty and his cochairman, Mrs. Hugh B. McMonigle.

Although no reservations are needed, James H. Grayson, ticket chairman, advised those wishing to attend to purchase their tickets early, as they are selling rapidly.

Reservations will be made for large parties, he said. Tickets may be purchased from Mr. Grayson or Mrs. Wally Kelly.

Knights Pledge New Members

Intercollegiate Knights of Idaho State College have pledged six new members. Initiation ceremonies will continue through most of

Kiwanians Hear Talk On Alameda History

A. Y. Satterfield, pioneer resident of Alameda, was speaker at the Thursday noon meeting of the Alameda Kiwanis Club.

Choosing as his subject "The History of Alameda," the speaker recounted incidents which occurred in the development of Pocatello and Alameda.

Taking his listeners back to the early history of the country, Mr. Satterfield reminded his audience that the first white men claiming ownership of the county were the French, in 1663, who later gave the territory to Spain in 1762. The United States acquired the territory in 1803 through the Louisiana Purchase.

When Lewis and Clark came here they discovered Soda Springs and the hot springs and later camped here, a part of their company stopping here on their return trip. Indians and explorers came from all parts of the country, he said, largely because of the fact that the winters were warmer than in other regions of the country.

The villages of Fairview and North Pocatello were consolidated to form Alameda in 1924, he said, with the first ordinance being signed by J. B. Wegnetts, chairman of the board, and Dan Hockley, clerk. Other additions, including the Buena Vista addition, Park, Globe, Victory, Martin and others, later became a part of Alameda.

"All the village board chairmen and mayors from the first to the present mayor have been progressive individuals who were interested in seeing the city grow," Mr. Satterfield said, and pointed out that only five of the city's streets now remain unpaved.

In commenting on the city water system, the speaker pointed out that the first well was dug to a depth of 65 feet, providing a good supply of water, but during the term of Mr. Freckleton, Alameda's first mayor, the well was drilled down to 100 ft. and another 65 ft. well was dug later.

The water is exceptionally pure, he said, and has never had to be chlorinated. Frequent tests are taken of the water to insure its purity and it has been found to be 99.8 per cent pure.

The first big business started in what is now Alameda was the brick company, which furnished bricks for the Pocatello House.

Mr. Satterfield, who came to the area in 1905, was introduced by his son, Homer Satterfield.

College Coeds

Rollnicks Plan New I. F. Store

Construction is getting underway on a new building at Idaho Falls which will be occupied by Rollnicks Shoe Store, Lou Lambrou, district manager for the company, announced this week.

The building will be a 30x94-ft. structure, completely modern and with terra cotta facing, Mr. Lambrou said. Cedric Allen, local architect, planned the building, the district manager said.

Mr. Lambrou, who went to Idaho Falls Tuesday evening to assist in getting construction underway, said the opening date for the new business was indefinite, but would take place just as soon as the building is completed.

Mr. Allen also planned the remodeling work which is now underway at the Pocatello store.

Idaho Industrial Safety Group Plans Conference

... Industrial Safety Conference will be held ... in the convention hall at the Labor Temple, according to announcement made today by Francis R. Sherman, chairman.

The meeting will convene at 7 p.m. and is open to all individuals and businessmen who are interested in the advancement of safety.

In recognition of the continuing need for advancement of industrial safety education, a representative group of industrialists, labor union officials, state officials, insurance companies, and federal agencies met at Pocatello in December in cooperation with the safety department of the Idaho State Labor Commission, the chairman said.

"It has been proposed that the Eastern Idaho Industrial Safety Conference become a permanent organization for the advancement of accident prevention," Mr. Sherman said. "The great endeavor of humanitarianism is being furthered by this conference as its prime objective. By the collective efforts of every organization, the fine and noble aim of making our industries as accident free as possible can be attained."

Speakers will include W. L. Robison, commissioner, Idaho State Labor Dept.; Francis R. Sherman, secretary, Pocatello Building and Construction Trades Council; L. M. McKay, safety engineer, Idaho Compensation Co.; Leo Houtz, State Industrial Accident Board; Angus Walker...

Hospitality

Recently Mr. and Mrs. D. L. Holmberg entertained a friend, George ... of Caldwell, Idaho, ... evening showing ... ing town, Alameda.

The following ... a letter received ...

"Dear Mr. and ...

"I realize this letter is very late and I feel guilty about it. I should have written a long time ago, this letter has been on my mind but no progress has been made as to writing it.

"I wish to thank you folks for the wonderful time shown me the evening I spent in your wonderful city. I say "wonderful city" because after being shown the city I am convinced that you have a place to live that you can well be proud of and really enjoy living in.

"Once again, thanks for the wonderful time I had."

Local Nurseryman Gets Touch of Fever of Spring

Elvis Hart, proprietor of Hart's Nursery, says he's getting a touch of "spring fever," or rather a "fever for spring."

Getting anxious because of the late winter which has retarded spring planting operations ... of ...

"We know the weather is not good for planting," the local nurseryman said, "but nevertheless, its time to think about your spring needs."

As a special inducement to get his customers to order their needs now, he is offering a 20 per cent discount on the evergreens to those who will have them laid away now for future pickup.

The car which recently arrived is the first of five expected this season, he said.

"You can have the pick of the carload if you choose yours now," Mr. Hart concluded.

Large Crowd Visits Lombard Motor at New Car Showing

"We were exceptionally pleased with the turnout at the showing of our new 1952 Kaiser Manhattan last week," Jack Lombard, proprietor of Lombard Motor Co. in Alameda, said this week.

Those attending the showing were impressed with the seven-point protection features of the new automobile, Mr. Lombard said.

The 1952 Kaiser Manhattan features: 1. Narrow ... corner posts to eliminate "blind" spots. 2. Exclusive safety-mounted windshield designed to push outward in case of severe impact. 3. Safety cushion padded instrument panel...

CITY OF POCATELLO

EXHIBIT 151

"Alameda The Fastest Growing City in the State..." Polk's Pocatello City Directory 1962

Subcase Nos.

all 38

Polk's Pocatello City Directory 1962

ALAMEDA

THE FASTEST GROWING CITY

IN THE STATE

WHERE

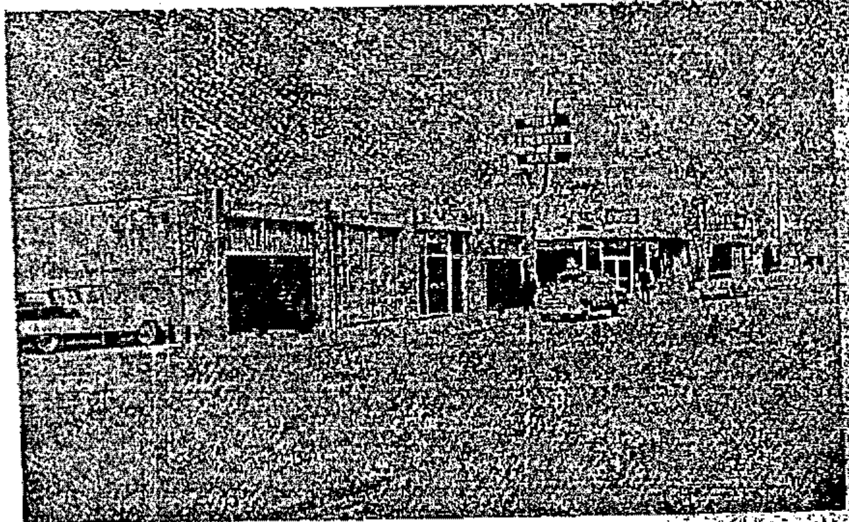
SATISFIED CITIZENS ARE OUR

MOST VALUABLE ASSET

WITH

THE MOST MODERN MAIN STREET

IN THE STATE



ALAMEDA'S MIRACLE MILE

CITY GOVERNMENT

The City of Alameda is governed by a Mayor and six Councilmen. The area is divided into three wards with two councilmen representing each ward.

This thriving city of 11,939 people, under the guidance of a progressive and farsighted administration, has a modern fire department, police department, a modern sanitary landfill for garbage and refuse, and ten wells pumping 14,788,000 gallons of sparkling, pure, cold water into the water lines of this expanding metropolis each day.

DESCRIPTION OF THE CITY—A PICTURE OF GROWTH

The City of Alameda is located in Southeastern Idaho at the point where the Portneuf Valley passes through the mountains and opens into the Snake River Plain. Lying adjacent to Pocatello, the area is a natural crossroads with U. S. Highways 91, 191, and 30 North having junctions at Alameda. Sun Valley, Yellowstone National Park, the Grand Tetons and other recreational areas are but a few hours away by automobile on the National Highways. The Yellowstone Highway cutoff from the new Interstate Highway will be located at Alameda.

Founded on July 16, 1924, by the merger of the villages of Fairview and North Pocatello, at that time Alameda consisted of an area equalling

three quarters of a square mile. Today the City of Alameda consists of an area covering approximately four square miles.

The population in 1940 was 2,100. By 1950 it had increased to [illegible]705. The present population, from the census of 1960, is 10,587. The rate of growth has been about 12 per cent per year, or 125 per cent over ten years. Alameda is presently the ninth largest city in the State of Idaho.

766

BUILDING PERMITS

	RESIDENTIAL		NON RESIDENTIAL		ADDITIONS & ALT.	
YEAR	NO	VALUE	NO	VALUE	NO	VALUE
1958	172	$1,970,425	72	$459,250	49	$ 90,025
1959	190	2,414,155	64	206,756	60	147,220
1960	162	2,078,130	97	166,164	114	110,916
1961	139	1,498,750	61	600,655	70	143,490

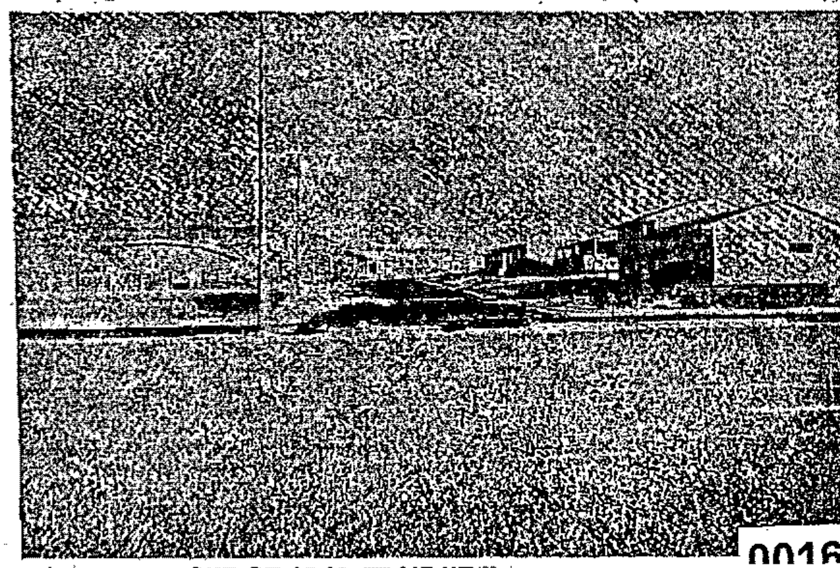
TOTAL PERMITS ISSUED

YEAR	NO	VALUE
1958	293	$2,519,700
1959	314	2,768,131
1960	373	2,355,210
1961	270	2,242,895

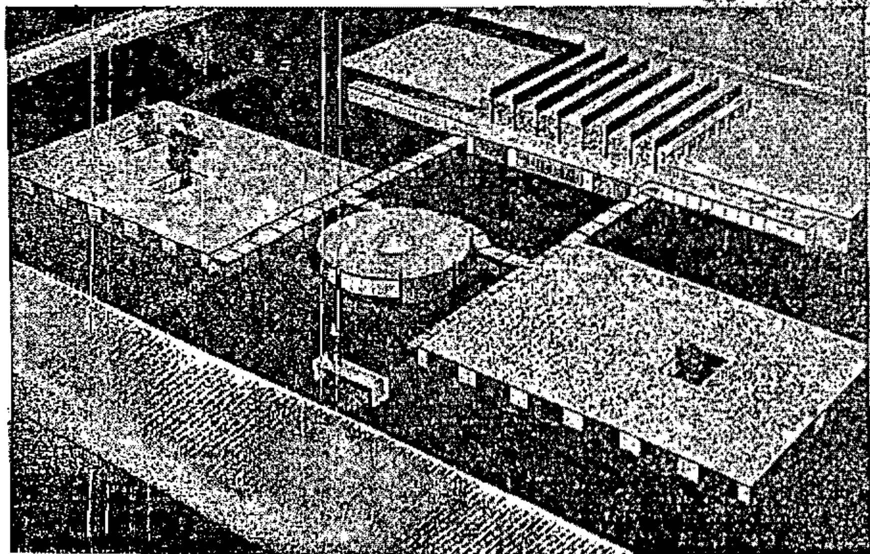
Many of the nicest residential areas serving the large industrial employers of the area are found in Alameda. Several new subdivisions are under development at the present time. Much of the residential growth of metropolitan Pocatello area is in the City of Alameda.

The properties are 55 per cent owner occupied; the rental range is from $35 to $150 with an average of $60 to $65. Selling prices range from $3,000 to $50,000 with an average of $13,000 to $18,000. Ample land and materials are at hand for construction of additional dwellings.

Class A, Independent School District No. 25, which includes Alameda, consists of ten elementary grade schools, three junior high schools, and one high school. Four elementary schools and one junior high are located in Alameda. Organized on a 6-2-4 plan, a 6-3-3 plan was adopted in 1955 to allow greater attention to the individual student.



ALAMEDA IS PROUD OF ITS SCHOOLS



MOCK-UP of NEW HIGH SCHOOL

Residents of School District No. 25 passed a $2,140,000.00 bond proposal. Which will be used to build a Community High School in Alameda. The plant will house 40 teaching stations, a gymnasium seating 2,500 and a combination cafeteria and auditorium. Also improvements will be made on Tyhee, Lincoln and Irving Schools.

Idaho State College with over 3,000 students is located in the immediate adjacent community of Pocatello, Idaho State College has a college of Liberal Arts, a college of Pharmacy, a school of Trade and Industrial Education and divisions of Agriculture, Engineering and Forestry. The campus of 350 acres has well developed lawns, shade trees, tennis courts, and driveways. At present there are twenty-seven permanent buildings.

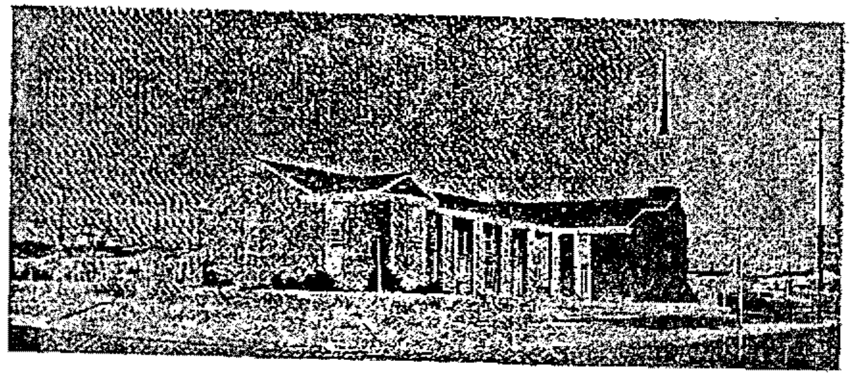
In 1955-56 Class A School District No. 25 had an enrollment of 8,437. In 1960-61 the officially estimated enrollment is 10,522. This is an increase of 2,085. It has been estimated that 50 per cent of this increase has been within the city limits of Alameda.

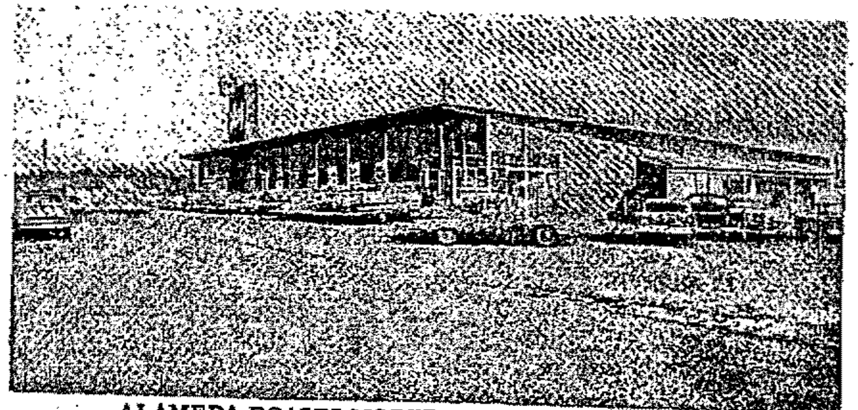
NUMEROUS DENOMINATIONS ARE FOUND WITHIN THE CITY OF ALAMEDA

The Alameda-Pocatello area has a total of 45 churches, representing twenty-three denominations, non-denominational community churches, and non-sectarian religious orders:

Alameda Community
African Methodist Episcopal
Hebrew
Greek Orthodox
Assembly of God
Baptist
Christian
Christian Science
Church of Christ
Church of God
Church of Jesus Christ of Latter-day Saints
Congregational
Episcopal
Full Gospel
Jehovah's Witnesses
Lutheran
Methodist
Nazarene
Presbyterian
Roman Catholic
Salvation Army
Seventh-Day Adventist
Unitarian

7667



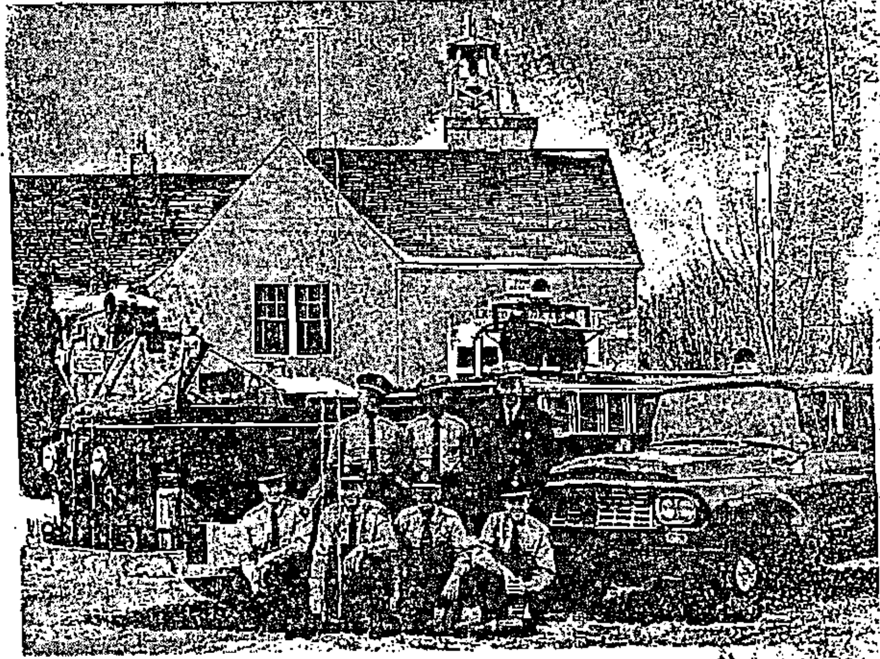


ALAMEDA BOASTS MODERN SHOPPING DISTRICTS

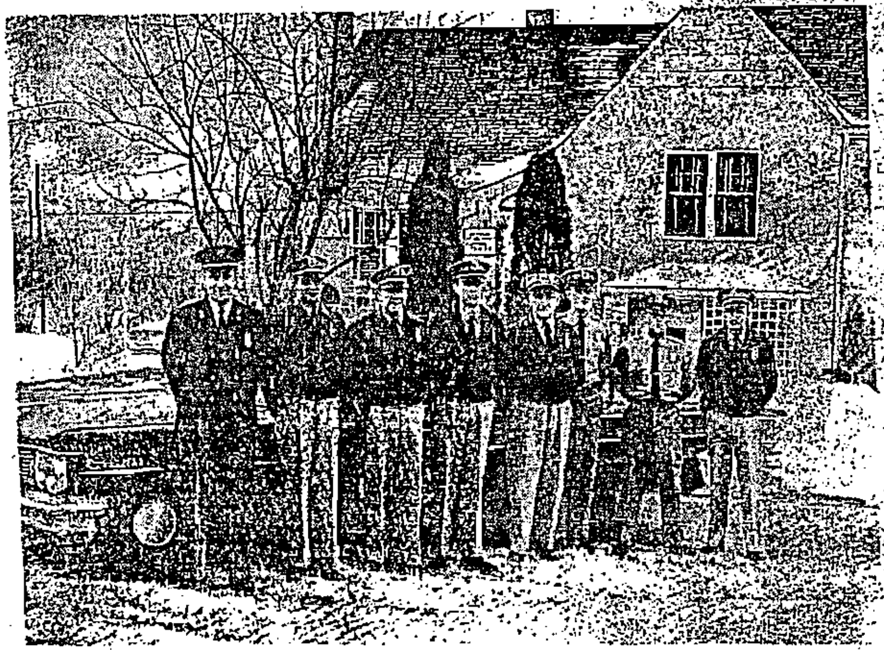
ALAMEDA POST OFFICE

001619

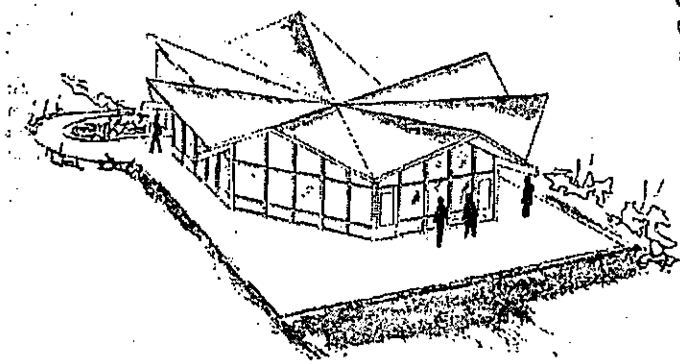
LAMEDA PROVIDES MODERN FIRE AND POLICE PROTECTION



Alert, efficient and capable Fire and Police protection is available 24 hours a day. A civil service system has been adopted for police and fire department personnel in order to attract career police and firemen with high standards of training and experience. Alameda has the only fire department in the area equipped to fight class one flamable liquid or petroleum fires. The police department is also equipped with the most modern equipment known to law enforcement including the most modern radar equipment.



7668



ARCHITECT'S DRAWING of CLUB HOUSE.

RECREATION SPOTS ARE ABUNDANT IN ALAMEDA

In July, 1960, the citizens of Alameda approved a $185,000 bond issue for two large parks and a modern eighteen-hole municipal golf course. When completed, this will give the City of Alameda five parks and one eighteen-hole golf course.

Proposed golf course is a professional layout of 18 holes, 6625 yards long. Designed by George Von Elm, nationally known golf course architect, the course also will feature a practice green, practice and teaching fairway, minimum Clubhouse facilities and maintenance building.

SCARDINO PARK

Scardino Park consists of 12 acres, half of which was donated to the City, the other six acres selling for a total of $2,400. Plans call for the development of eight acres at the present time. This will include toilet facilities, a lighted softball field, playground, and picnic facilities. Landscaping will consist of seeding and planting of trees and shrubs. A sprinkling system will be included to water the planted area.

AMMON PARK

Ammon Park contains approximately 10 acres of relatively uneven ground. The entire area will be graded and landscaped. A lighted softball field will be constructed, and picnic and playground areas with sanitary facilities provided. Development of this park will be substantially the same as Scardino Park.

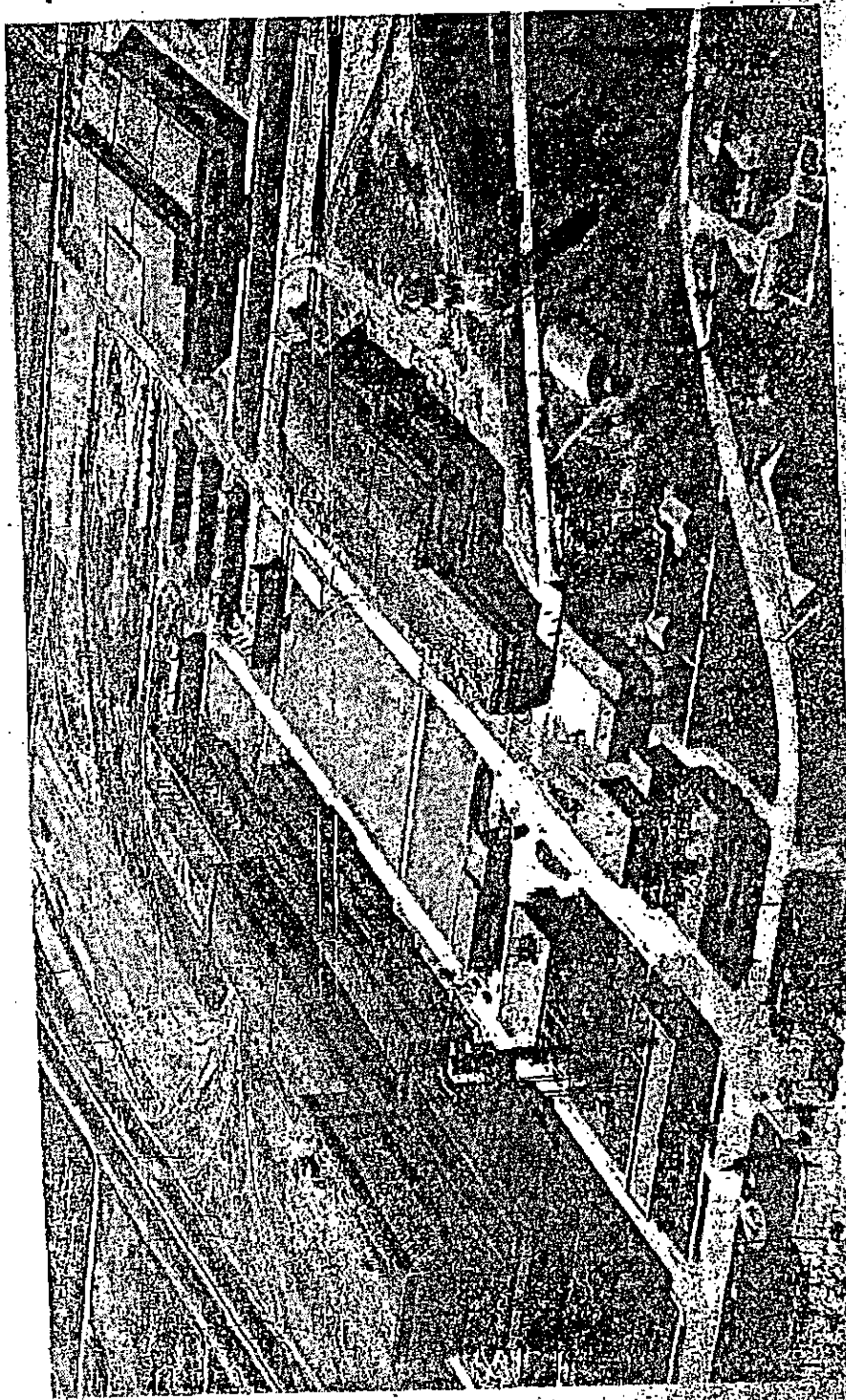
BUSINESS AND INDUSTRY HAVE CONTRIBUTED TO ALAMEDA'S GROWTH

001620

Principal industries which have contributed to the rapid growth of this area are railroad yards, the development of phosphate fertilizers and elemental phosphorus, cement and cement products, poultry and livestock feeds.

The most important railroad junction in Idaho is in the Alameda-Pocatello area. Terminals, shops and famous assembly yards for trains are also located here.

Westvaco Mineral Products Division of Food Machinery and Chemical Corporation is located about five miles west of Alameda. Westvaco produces over 120 million pounds of elemental phosphorus annually for use in many chemical industries including detergents and fertilizers. West-



NAVAL ORDNANCE PLANT

Minerals and Chemical Division of J. R. Simplot Company is also located five miles west of Alameda. Simplot employs about 310 and has an annual fertilizer production of 75,000 tons. This amount will be increased by 364,000 tons within the present year. This increase will also bring an increase in employment in the area.

The only Portland Cement Plant in Idaho, located ten miles from Alameda, has recently doubled its production capacity.

Alameda is a good location for future industrial sites. The entire surrounding area is on a firm terrain underlain with deep deposits of rock, gravel and sand, an extremely fine base for heavy buildings and machinery. This land is quite level with good drainage and a low water table. An abundance of hydro-electric power is available. Natural gas is also available and an unending supply of excellent water may be obtained from both surface and deep well sources.

On the 22nd of November, 1961, the Justice Department gave approval for the sale of the Pocatello Naval Ordnance Plant to the Industrial Lands, Inc. of Pocatello. Industrial Lands in turn signed an agreement to lease the facility to the Thiokol Chemical Corporation for missile and rocket work. Dr. Harold W. Ritchey, Thiokol vice president, predicted a payroll of 525 to 3,000. This will be a big boost to Alameda.

In addition to being a good area for industrial sites, Alameda is also rich in agriculture. There is a great supply of underground water in the area which has been put to work through deep well pumping. These wells along with Portneuf River provide the water necessary for the agricultural development.

The area is a rich trading territory for livestock and crops, including the famous Idaho potatoes.

Transportation has played an important part in the development of the area. Railroad, airlines, bus lines and trucking concerns have taken advantage of the area's position as a natural crossroads. These facilities place markets and raw materials within easy reach of local industries. Metropolitan areas may be reached overnight by plane.

Alameda has access to the following transportation facilities:

Union Pacific Railroad
Western Airlines
West Coast Airlines
Greyhound Buslines
Garrett Freightlines
And other truck lines

Telephone and telegraph service is furnished to the area by the Mountain States Telephone and Telegraph Company which employs about 290 persons in the area. The following growth in telephone connections has taken place in the past five years:

Date	Number of Phones
June, 1960	16,864
June, 1959	16,305
June, 1958	15,445
June, 1957	14,276
June, 1956	13,397

The City of Alameda has grown even more rapidly than the area surrounding it, thus these figures are not indicative of the per cent increase in the City of Alameda itself.

001621

CITY OF POCATELLO

EXHIBIT 153

City of Alameda Application for Permit

Subcase Nos.

all 38

SCANNED

APR 3 0 2001

Admitted 29-271 et al.
(Subcase No.)
EXHIBIT
Rc. 153
Date: 2/26/07

Address all communications to:

(Form No. 3)

Raymond J. Briggs, Engineer

P. O. 619 Grove Street, Boise, Idaho

APPLICATION FOR PERMIT

TO APPROPRIATE THE SUBTERRANEAN WATERS OF THE STATE OF IDAHO

Application No. G

Permit No. G

District No.

1. Name of applicant: City of Alameda
   Post office address 411 Washington Ave. Alameda County Bannock State Idaho
2. Quantity of water claimed: 6 c.f.s.
   (a) Rate of withdrawal in cubic feet per second 6 or Idaho Miner's inches or gallons per minute 2,700 g.p.m.
   (b) Annual withdrawal in acre feet per annum
3. Source of water supply: 3 drilled wells, completed and in use
4. Location of point of diversion or well is in the ¼ of the ¼ of Section See remarks, Twp. , Rge. , B. M., County of
5. Water is to be used for: Source of supply for municipal water system
6. If for municipal, industrial or recreational purposes give:
   (a) Point of use of water is in the ¼ of the ¼ of Section See remarks, Twp. , Rge. , B. M.
   (b) Waste water or sewage effluent is to be returned to Portneuf River, through Pocatello Creek at a point in the ¼ of the ¼ of Section , Twp. , Rge. , B. M.
7. Kind of Works: See remarks
8. Estimated cost of works: $20,000.00
9. (a) Is reservoir to be used? Yes - two now functioning, another one planned
   (b) Capacity of reservoir: See remarks
10. The time required for the completion of such work and complete application of the water to the proposed use is now completed years.

23171

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001641

11. If applicant is a corporation, give:

I. (a) Date and place of incorporation: ______________________________

(b) Amount of capital stock $__________________ (c) Amount paid in: $__________________

(d) Names and addresses of directors: **Mayor L. W. Thurston and City Council, all of Alameda, Bannock County, Idaho.**

____

____

II. The financial resources of the applicant are: (a) Cash on hand: $__________________

(b) Treasury stock: __________________ (c) Bonds to be issued: __________________

(d) Other resources: ______________________________

12. The land to be irrigated is described in the following tabulation:

(Give irrigable acreage in each 40-acre subdivision)

Twp.	Range	Sec.	NE¼				NW¼				SW¼				SE¼				Totals
			NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	

13. Existing water rights and/or valid permits appurtenant to the lands to be irrigated are: ______________________________

____

(a) ____6____ (cubic feet per second, ~~inches or gallons per minute~~) of the water herein applied for is to be supplemental to the existing water rights, **if any other rights exist**

(b) __________ (cubic feet per second, inches or gallons per minute) is for new lands.

7672

23171

Remarks: This application covers three wells, drilled and in use for varying periods of time past, all in corporate limits of Alameda and serving as source of supply for the City owned and operated municipal water system and constitute the only sources of supply for said system. Pumping by electrically operated pumps now in use. Waste is through existing municipal sanitary sewer system and treatment facility, discharging into Pocatello Creek which is tributary to Portneuf River.

Well No. 1 is 630 ft South and 220 ft West of center of Section 23, T 6 S., R. 34 E., B.M.; Well No. 2 at approximately same location; Well No. 3 is 25 ft South and 220 ft West of NE corner of SE 1/4 of NW 1/4, Section 23, T. 6 S., R. 34 E., B.M. all in corporate limits of City of Alameda.

Pumping capacities: Well No. 1 - 600 g.p.m.; Well No. 2 - 430 g.p.m.; Well No. 3 - 1650 g.p.m.

Existing reservoirs: one is circular steel, 275,000 gallon, the other rectangular concrete of 60,000 gallons, both at same site, operating at approx. 125' head and fed by pumps from the three wells.

Additional reservoir capacity, well(s) and pump(s) planned for future construction to meet growing need for more water, domestic, fire protection, etc.

BE IT KNOWN That the undersigned hereby makes application for permit to appropriate the public waters of the State of Idaho as herein set forth.

CITY OF ALAMEDA, IDAHO
Applicant

By Raymond J. Briggs, Agent
Raymond J. Briggs, Its Engineer

10/22/52

23171

7673

CITY OF POCATELLO

EXHIBIT 154

IDWR file for License 29-2324

Subcase Nos.

all 38

5297 29-2716 etal
(Subcase No.)
EXHIBIT
Admitted
Doc. 154
Date: 2/26/07

SCANNED
APR 30 2001

State of Idaho
License and Certificate of Water Right

Water License No. G-23171 Amount Six second feet

Water District No. .... Priority October 22, 1952

THIS IS TO CERTIFY that CITY OF ALAMEDA

of ALAMEDA, IDAHO, made application for a permit to appropriate the public waters of the State of Idaho, dated October 22, 19 52; that Permit No. G-23171 was issued under said application; that Certificate of Completion of works, with a carrying capacity of Six second feet, was issued thereunder on April 15, 19 54, showing that said works were completed on the 17th day of February, 19 54; and that on the 17th day of February, 19 54,

CITY OF ALAMEDA

of Alameda, State of Idaho, made proof to the satisfaction of the State Reclamation Engineer of Idaho, of the right to use the waters of three wells [illegible] subterranean flow, for the purpose of municipal water supply, under Use Permit No. G-23171 of the Department of Reclamation and that said right to the use of said waters has been perfected in accordance with the laws of Idaho, and is hereby confirmed by the State Reclamation Engineer of Idaho and entered of record in Volume 9 of Licenses at page 5247, on the 15th day of April, 19 54;

The right hereby confirmed dates from October 22, 19 52;

The Points of Diversion are located in the SE¼ NW¼ and NE¼ SW¼ [illegible] [illegible] . [illegible], Sec. 23, Tp. 6 S., R. 34 E., B.M. Bannock County

That the amount of water to which such right is entitled and hereby confirmed, for the purposes aforesaid, is limited to an amount actually needed and beneficially used for said purposes, and shall not exceed Six (6) cubic feet per second.

Description and location of use:

Twp.	Range	Sec.	Forty-acre Tract	No. Acres Described in Permit	No. Acres Actually Irrigated
			Place of use is within and adjacent to the corporate limits of the City of Alameda.		

The right to the use of the water aforesaid hereby confirmed is restricted to the lands or place of use herein described, as provided by the laws of Idaho.

WITNESS the seal and signature of the State Reclamation Engineer, affixed at Boise, Idaho, this 15th day of April, 19 54.

MARK R. KULP
State Reclamation Engineer

(SEAL)

29 2324

7675

5248

State of Idaho

License and Certificate of Water Right

Water License No. 20866 Amount Two (2) second feet.

Water District No. Priority January 7, 1949

THIS IS TO CERTIFY that RUSSELL V. JORDAN

of Nampa, Idaho, made application for a permit to appropriate the public waters of the State of Idaho, dated January 7, 1949; that Permit No. 20866 was issued under said application; that Certificate of Completion of works, with a carrying capacity of 2.2 second feet, was issued thereunder on February 24, 1949, showing that said works were completed on the 2nd day of February, 1949; and that on the 26th day of February, 1954,

RUSSELL V. JORDAN

of Nampa, State of Idaho, made proof to the satisfaction of the State Reclamation Engineer of Idaho, of the right to use the waters of a well ~~xxtributaryxxt~~ subterranean flow, for the purpose of Irrigation and domestic use, under Use Permit No. 20866 of the Department of Reclamation and that said right to the use of said waters has been perfected in accordance with the laws of Idaho, and is hereby confirmed by the State Reclamation Engineer of Idaho and entered of record in Volume 9 of Licenses at page 5248, on the 15th day of April, 1954;

The right hereby confirmed dates from January 7, 1949;

The Point of Diversion is located

in the SE ¼ SE ¼, Sec. 32, Tp. 4 N., R. 2 W., B. M. Canyon County

That the amount of water to which such right is entitled and hereby confirmed, for the purposes aforesaid, is limited to an amount actually needed and beneficially used for said purposes, and shall not exceed Two (2) cubic feet per second.

Description and location of use:

Twp.	Range	Sec.	Forty-acre Tract	No. Acres Described in Permit	No. Acres Actually Irrigated
4 N.	2 W.	32	NE¼ SE¼	33	27
			NW¼ SE¼	37	40
			SE¼ SE¼	40	40
			Number of Acres actually irrigated -		107

The right to the use of the water aforesaid hereby confirmed is restricted to the lands or place of use herein described, as provided by the laws of Idaho.

WITNESS the seal and signature of the State Reclamation Engineer, affixed at Boise, Idaho, this 15th day of April, 1954.

MARK R. KULP
State Reclamation Engineer

(SEAL)

7676

G-23171

29-2324

APPLICATION FOR PERMIT

To Appropriate the Subterranean Waters of The State of Idaho

Raymond J. Briggs, Engineer
619 Grove St. Boise, Idaho

Application No. G- 30939
Permit No. G- 23171
District No.

1. Name of Applicant: CITY OF ALAMEDA
   Postoffice address: 411 Washington Ave., Alameda County: Bannock State: Idaho

2. Quantity of water claimed:
   (a) Rate of withdrawal in cubic feet per second. Six (6) or Idaho Miners' inches or gallons per minute. 2,700 g.p.m.
   (b) Annual withdrawal in acre feet per annum

3. Source of water supply: Three drilled wells, completed and in use

4. Location of point of diversion or well is in the See Remarks ¼ of the ¼ of Section Twp. , Rge. , B.M., County of Bannock

5. Water is to be used for: Source of supply for municipal water system

6. If for municipal, industrial or recreational purposes, give:
   (a) Point of use of water is in the ¼ of the ¼ of Section , Twp. Rge. , B.M.
   (b) Waste water or sewage effluent is to be returned to at a point in the ¼ of the ¼ of Section , Twp. , Rge. , B.M.

7. Kind of works: See Remarks

8. Estimated cost of works: $ 20,000.00

9. (a) Is reservoir to be used? Yes- Two now functioning, another one planned
   (b) Capacity of reservoir: See Remarks

10. The time required for the completion of such work and complete application of the water to the proposed use is Now completed years.

11. If applicant is a corporation, give:
    I. (a) Date and place of incorporation:
    (b) Amount of capital stock: $ (c) Amount paid in: $
    (d) Names and addresses of directors: Mayor- L. M. Thurston and City Council, all of Alameda, Bannock County, Idaho
    II. The financial resources of the applicant are (a) Cash on hand: $
    (b) Treasury stock: (c) Bonds to be issued:
    (d) Other resources:

12. The land to be irrigated is described in the following tabulation:

13. Existing water rights and/or valid permits appurtenant to the lands to be irrigated are:
    (a) 6 (cubic feet per second, ~~inches or gallons per minute~~) of the water herein applied for is to be supplemental to the existing water rights. if any other rights exist.
    (b) (cubic feet per second, inches or gallons per minute) is for new lands.

7677

Remarks: This application covers three wells, drilled and in use for varying periods of time past, all in corporate limits of Alameda and serving as source of supply of the City owned and operated municipal water system, and constitute the only sources of supply for said system. Pumping by electrically operated pumps now in use. Waste is through existing municipal sanitary sewer system and treatment facility, discharging into Pocatello Creek which is tributary to Portneuf River. Well No. 1 is 630 feet South and 220 feet West of center of Section 23, T. 6 S., R. 34 E., B.M.; Well No. 2 at approximately same location; Well No. 3 is 25 feet South and 220 feet West of NE corner of SE¼ of NW¼ Section 23, T. 6 S., R. 34 E., B.M., all in corporate limits of City of Alameda. (Continued below)

BE IT KNOWN THAT The undersigned hereby makes application for permit to appropriate the public waters of the State of Idaho as herein set forth.

CITY OF ALAMEDA, IDAHO *Applicant.*

By Raymond J. Briggs *Agent.*
Its Engineer

Date of first receipt at Department of Reclamation: 1:45 P. M. October 22, 1952

Returned to applicant for correction:

Corrected application received:

Approval of State Reclamation Engineer

The number of this permit is G-23171

Recorded in Book 82 Page 23171 Approved October 29, 1952

This is to certify that I have examined the within application for a permit to appropriate the public waters of the State of Idaho, and hereby approve the same, subject to the following limitations and conditions:

Bond in the sum of $ to be filed on or before

Work to begin on or before December 29, 1952 and to continue diligently and uninterruptedly to completion, unless temporarily interrupted by circumstances over which the permit holder has no control.

One-fifth of the work above specified to be completed on or before October 29, 1953

The whole of said work to be completed and beneficial use of water appropriated in accordance herewith, to be made on or before October 29, 1954

Witness my hand this 29th day of October, 1952

MARK R. KULP
State Reclamation Engineer.

IN TESTIMONY WHEREOF, We, LEN JORDAN, Governor of the State of Idaho, and IRA H. MASTERS, Secretary of State of the State of Idaho, have caused this instrument to be executed in the name of the State of Idaho, and caused the Great Seal of the State of Idaho to be hereunto affixed, this 29th day of October, 19 52

Countersigned: STATE OF IDAHO

(SEAL)

By IRA H. MASTERS
Secretary of State.

By LEN JORDAN
Governor

12.

Twp.	Range	Sec.	NE¼ NE¼	NE¼ NW¼	NE¼ SW¼	NE¼ SE¼	NW¼ NE¼	NW¼ NW¼	NW¼ SW¼	NW¼ SE¼	SW¼ NE¼	SW¼ NW¼	SW¼ SW¼	SW¼ SE¼	SE¼ NE¼	SE¼ NW¼	SE¼ SW¼	SE¼ SE¼	Totals

REMARKS (Continued) Pumping capacities: Well No. 1- 600 g.p.m.; Well No. 2-430 g.p.m.; Well No. 3-1650 g.p.m.

Existing reservoirs: One is circular steel, 275,000 gallon; the other rectangular concrete of 60,000 gallons, both at same site operating at approx. 125' head and fed by pumps from the three wells. Additional reservoir capacity, well(s) and pump(s) planned for future construction to meet growing need for more water, domestic, fire protection, etc.

Permit No. G-23171
CERTIFICATE OF COMPLETION OF WORKS

TO ALL WHOM IT MAY CONCERN:

This is to certify that CITY OF ALAMEDA of Alameda, County of Bannock, and State of Idaho, the holder of Permit No. G-23171, issued upon Application No. 30939 bearing date of priority of October 22, 1952 authorizing the diversion of Six (6) second feet of the waters of three drilled wells (subterranean flow) County of Bannock, State of Idaho for municipal water supply purposes, has fully complied with the provisions of the laws of the State of Idaho relating to the proof of completion of the works of diversion set out and described in said Permit; that said works are adequate for diverting and conveying to the place of intended use Six (6) second feet of the waters of said wells; that the points of diversion of said waters are in the SE¼ NW¼ and NE¼ SW¼ Section 23, Township 6 South, Range 34 East B.M. and that the place of use of said water is within and adjacent to the corporate limits of the City of Alameda.

Witness my hand this 15th day of April, A. D. 1954.

MARK R. KULP
State Reclamation Engineer

Proof of completion of works made February 17, 1954
Certificate of Completion of Works issued April 15, 1954

LICENSE ISSUED FOR 6 SEC. FT.
4/5/47

7678

SCANNED

APR 3 0 2001

Address all communications to:

(Form No. 8)

Raymond J. Briggs, Engineer

P.O. 619 Grove Street, Boise, Idaho

APPLICATION FOR PERMIT

TO APPROPRIATE THE SUBTERRANEAN WATERS OF THE STATE OF IDAHO

Application No. G________

Permit No. G________

District No. ________

1. Name of applicant: City of Alameda

   Post office address 411 Washington Ave., Alameda County Bannock State Idaho

2. Quantity of water claimed: 6 c.f.s.

   (a) Rate of withdrawal in cubic feet per second 6 or Idaho Miner's inches ____ or gallons per minute 2,700 g.p.m.

   (b) Annual withdrawal in acre feet per annum ____

3. Source of water supply: 3 drilled wells, completed and in use

4. Location of point of diversion or well is in the ____ ¼ of the ____ ¼ of Section ____, See remarks

   Twp ____, Rge ____, B. M., County of ____

5. Water is to be used for: Source of supply for municipal water system

6. If for municipal, industrial or recreational purposes give:

   (a) Point of use of water is in the ____ ¼ of the ____ ¼ of Section See remarks,

   Twp. ____, Rge. ____, B. M.

   (b) Waste water or sewage effluent is to be returned to Portneuf River, through Pocatello Creek

   at a point in the ____ ¼ of the ____ ¼ of Section ____, Twp. ____, Rge. ____, B. M.

7. Kind of Works: See remarks

8. Estimated cost of works: $20,000.00

9. (a) Is reservoir to be used? Yes - two now functioning, another one planned

   (b) Capacity of reservoir: See remarks

10. The time required for the completion of such work and complete application of the water to the proposed use is now completed ____ years.

23171

7679

11. If applicant is a corporation, give:

I. (a) Date and place of incorporation: ____________________

(b) Amount of capital stock $____________ (c) Amount paid in: $____________

(d) Names and addresses of directors: Mayor L. W. Thurston and City Council, all of Alameda, Bannock County, Idaho.

II. The financial resources of the applicant are: (a) Cash on hand: $____________

(b) Treasury stock: ____________ (c) Bonds to be issued: ____________

(d) Other resources: ____________

12. The land to be irrigated is described in the following tabulation:

(Give irrigable acreage in each 40-acre subdivision)

Twp.	Range	Sec.	NE¼				NW¼				SW¼				SE¼				Totals
			NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	

13. Existing water rights and/or valid permits appurtenant to the lands to be irrigated are: ____________

(a) 6 (cubic feet per second, ~~inches or gallons per minute~~) of the water herein applied for is to be supplemental to the existing water rights, if any other rights exist

(b) ____________ (cubic feet per second, inches or gallons per minute) is for new lands.

23171

7680

Remarks: This application covers three wells, drilled and in use for varying periods of time past, all in corporate limits of Alameda and serving as source of supply for the City owned and operated municipal water system and constitute the only sources of supply for said system. Pumping by electrically operated pumps now in use. Waste is through existing municipal sanitary sewer system and treatment facility, discharging into Pocatello Creek which is tributary to Portneuf River.

Well No. 1 is 630 ft South and 220 ft West of center of Section 23, T 6 S., R. 34 E., B.M.; Well No. 2 at approximately same location; Well No. 3 is 25 ft South and 220 ft West of NE corner of SE 1/4 of NW 1/4, Section 23, T. 6 S., R. 34 E., B.M. all in corporate limits of City of Alameda.

Pumping capacities: Well No.1 - 600 g.p.m.; Well No. 2 - 430 g.p.m.; Well No. 3 - 1650 g.p.m.

Existing reservoirs: one is circular steel, 275,000 gallon, the other rectangular concrete of 60,000 gallons, both at same site, operating at approx. 125' head and fed by pumps from the three wells.

Additional reservoir capacity, well(s) and pump(s) planned for future construction to meet growing need for more water, domestic, fire protection, etc.

BE IT KNOWN That the undersigned hereby makes application for permit to appropriate the public waters of the State of Idaho as herein set forth.

CITY OF ALAMEDA, IDAHO, Applicant

By Raymond J. Briggs, Agent

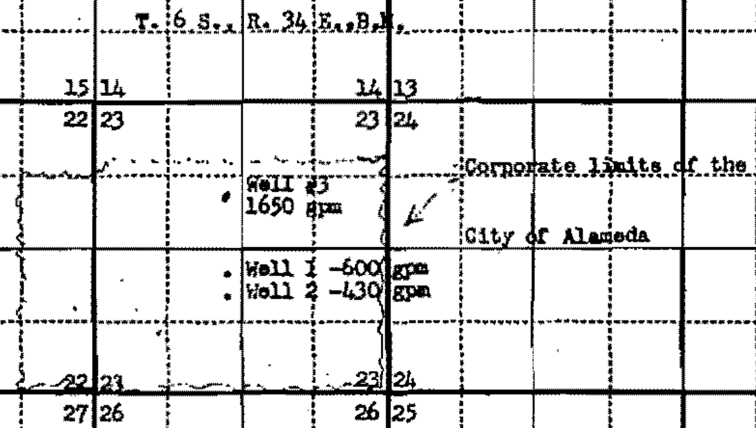
Raymond J. Briggs, Its Engineer

10/22/52

23171

7681

NAME OF APPLICANT City o lameda   Form No. 0



Wells 1 and 2 located 630 ft South and 220 ft West of the center of Section 23, T. 6 S., R. 34 E.,B.M.

Well No. 3 is located 25 ft. South and 220 ft. West of the NE corner of the SE 1/4 of NW 1/2, Section 23, T. 6 S., R. 34 E.,B.M.

Permit Map No. 6-23171
As Approved
OCT 29 1957
MARK R. KULP
State Reclamation Engineer

7682

SCALE: 2 Inches Equal 1 Mile. Draw Plan in Ink.

23171

Approval of State Reclamation Engineer

The number of this permit is G________________

Recorded in Book ____________ Page ____________ Approved ________________________

This is to certify that I have examined the within application for a permit to appropriate the public waters of the State of Idaho, and hereby approve the same, subject to the following limitations and conditions:

Bond in the sum of $______________ to be filed before ____

Work to begin on or before ____, and to continue diligently and uninterruptedly to completion, unless temporarily interrupted by circumstances over which the permit holder has no control.

One-fifth of the work above specified to be completed on or before ________________________________

The whole of said work to be completed and beneficial use of water appropriated in accordance herewith, to be made on or before ____

Witness my hand this ____________ day of ________________________, 195____

____
State Reclamation Engineer

IN TESTIMONY WHEREOF, We ____, Governor of the State of Idaho, and ____, Secretary of State of the State of Idaho, have caused this instrument to be executed in the name of the State of Idaho, and caused the Great Seal of the State of Idaho to be hereunto affixed, this ____________ day of ________________________, 195____

Countersigned:

By ________________________________
Secretary of State

STATE OF IDAHO

By ________________________________
Governor.

No. ____________

PERMIT

Date of first receipt at office of State Reclamation Engineer

Returned to applicant for correction

Corrected application received

Fees, $____________

FILING FEES FOR USE PERMIT:

For the first Sec. Ft. ____________ $5.00

For each additional Sec. Ft. or Fraction Thereof ____________ .25

23171

7683

August 5,1959

Mr. Max Whittier,
Box 282,
Pocatello, Idaho,

Dear Mr. Whittier:

We find only one filing of record in this office in the name of the City of Alameda, namely, Permit No. G-23171. This permit has been completed so far as completion of works is concerned and license has been issued to the City of Alameda for 6 cubic feet per second for waters from three wells, one in the SE¼NW¼ and two in the NE¼SW¼, in Section 23, Township 6 South, Range 34 E. B. M.

As requested, you will find enclosed three application forms for making additional filings on well water.

Very truly yours,

GEO. N. CARTER
State Reclamation Engineer

Encl.
GNC/pmk

23171
7684

April 19, 1954

RE: Permit No. G-23171

Mr. Carl C. Christensen
Attorney at Law
Pocatello, Idaho

Dear Mr. Christensen:

We enclose License and Certificate of Water Right and also Certificate of Completion of Works, issued under Permit No. G-23171 confirming the right of the City of Alameda to the use of 6 second feet of water from three wells in the SE¼ NW¼ and NE¼ SW¼ Section 23, Township 6 South, Range 34 East B.M. with priority of October 22, 1952 for municipal water supply for the City of Alameda.

We also enclose departmental receipt No. 26604 for the $10.00 fees paid in connection with Completion of Works and Beneficial use proofs.

Very truly yours,

MARK R. KULP
State Reclamation Engineer
By

Chief Clerk

A:HLL
Enc.

23171

7685

CARL C. CHRISTENSEN
ATTORNEY AND COUNSELOR AT LAW
POCATELLO, IDAHO

April 12, 1954

RECEIVED
APR 13 1954
Department of Reclamation

Idaho Department of Reclamation
Mark R. Kulp, Reclamation Engineer
State House
Boise, Idaho

Dear Mr. Kulp:

Re: Permit No. G-23171

In answer to your letter of April 10, 1954, I am enclosing herewith my check made payable to the Department of Reclamation of the State of Idaho in the amount of $10.00 in payment of $5.00 for Certificate of Completion of Works and $5.00 license fee.

Kindly issue the Certificate of Completion of Works and license to the City of Alameda and mail them to me.

Very truly yours,

Carl C. Christensen

CCC:et

Encl. Check

23171

7686

April 10, 1954

RE: Permit No. G-23171

Mr. Carl C. Christensen
Attorney at Law
Pocatello, Idaho

Dear Mr. Christensen:

The report of our field engineer on examination for completion of works and beneficial use on Permit No. G-23171 shows that wells of the City of Alameda will deliver 6 cubic feet of water per second.

Therefore, Certificate of Completion of Works and License can be issued for that amount upon receipt of the statutory fees amounting to $5.00 for Certificate of Completion of Works and $5.00 license fee, or a total of $10.00.

Very truly yours,

MARK R. KULP
State Reclamation Engineer
By

Chief Clerk

A:hll

23171

7687

Form 23

STATE OF IDAHO

DEPARTMENT OF RECLAMATION

BOISE

REPORT OF ENGINEER

PERMIT NO. G-23171

REPORT ON PROOF OF Completion of works and Beneficial Use

City of Alameda-(Pocatello) Idaho

7688

#3 at intersection
Warren & Cedar Str

14'x14'x 8'h. brick pump house

1000 gal in 40 sec.
1500 gpm.

440v, 100 hp 120.5a.
1765 Rpm JEJ 6789807

F. M. Pump PJ 7972

12" disch line into system

104' x 16" csd to bot.
74' = S.H. - nodd.

Call Briggs re
spec

INSTRUCTIONS TO EXAMINERS

1. Always carefully note the location of the point of diversion and accurately plat same.
2. When proof is for beneficial use, carefully check up the number of acres actually irrigated in each forty and accurately plat same.
3. Make a map showing the correct location of streams and ditches, and the irrigated lands, and any adjacent permanent landmarks, such as towns, lakes, large streams and public roads.
4. If any unusual conditions are discovered, make plain statement of them under remarks.
5. Always see the holder, if possible, and go over the whole ground with him and make your report only upon actual existing facts and conditions.
6. Give general characteristics of soils, topography, and crops raised.

City of Alameda
Alameda, Idaho

Permit No. G-23171

Examination for Completion of Works
and Beneficial Use
County Bannock

Q = 6.0 c.f.s.

S = 3 Wells.

P.D. = #1 & #2, approx. 630' S. & 220' W. of E¼ of Sec. 23;
#3, 25' S. & 220' W. of NE Cor. of SE NW, Sec. 23; all in T. 6S.-R.34E.

Use = Municipal

288"
9)2600
18
80
72
0

5.6
5)288
25
38

Prio: = Oct. 22, 1952
Due = Oct. 29, 1954

#1 100' x 10" csd to bottom
old well.
S.H. = 70' (est) (Alexander)

40 hp. U.S. Motor
209569 440V. 49 amps
1800 rpm.

Peerless Pump # 13262

600 gpm #1

350 gpm for #2
1350 " " #3.

Building a new conc block
Pump house. 12' x 24' x 8'h.

#2 25 hp. G.E motor
Peerless Pump 6"
Pumps down 100'

Washington & Willard

6892

L. W. Thurston, Mayor, and A. M. Alexander, City Clerk

Form 23

STATE OF IDAHO

DEPARTMENT OF RECLAMATION

BOISE, IDAHO

REPORT OF ENGINEER

Permit No. G-23171

This proof is for Completion of Works and Beneficial Use In Water District No.

1. Name of applicant City of Alameda, Idaho

2. Source of water supply: Subterranean from three wells

3. Location of point of diversion: Is in the SE¼NW¼, 220' W. of center and 630' S. and / of Section 23

T. 6 S. R. 34 E. County of Bannock

At the time of this inspection, pumps No. 1 and 2 were out of commission due to the construction of a new pump house over them and also the intention of doing some repair work on same. They are building a new concrete block pump house over the pump size 12' X 24' X 8' high.

Well No. 1 is 100 feet depp 10 inch diameter cased to the bottom. Static Hight of water is thought to be 70'. Pump is a Peerless pump No. 13262. Motor is a 40 H.P. U. S. Motor No. 209569, 440 V. 49 AMP. 1800 RPM.

Well No. 2 was covered with a tarp and partly with earth from the excavation until it was difficult to make an inspection. Peerless pump. Motor is 25 H.P. G. E. Both pumps have their bowls down 100'. These pumps are located on City ground at the corner of Washington and Willard Street

Well No. 3 is at the intersection of Warren and Cedar Streets.

Brick pump house size 14' X 14' X 8' high. Well is 104' deep by 16" diameter cased to the bottom. Static Height of water is 74', no draw-down. Fairbanks Morse pump No. PJ 7972, 100 H.P. 440 V., 120½ AMP., 1765 RPM Serial No. JEJ 6789807. Discharge is through a 12" pipe line into the system.

Briggs Engineering of Boise can give the details regarding the water system and pump capacities.

(Submit map on attached plat, showing location and details of above description.)

8. What large stream would the water here appropriated finally reach?

Remarks:

R. Briggs of Briggs Engr. Co. Boise says
well were measured before filing and that figures
are correct
#1 = 600 gpm
#2 = 430 "
#3 = 1650 "
2680 gpm

This examination was made on the 6 day of April, 1954

(Signed) E. N. Humphrey Examiner.

7690

23171

L. W. Thurston, M--or, and A. M. Alexander, City C'-rk

Form 23

STATE OF IDAHO

DEPARTMENT OF RECLAMATION

BOISE, IDAHO

REPORT OF ENGINEER

5. Water is used for: Municipal water supply

6. State whether or not water has been turned into works of diversion:

7. List legal subdivisions of lands to be irrigated. If proof is for beneficial use, give exact number of acres under cultivation in each forty-acre tract. (Describe manner and place of use if other than irrigation):

Place of use is within and adjacent to the corporate limits of the City of Alameda.

(Submit map on attached plat, showing location and details of above description.)

8. What large stream would the water here appropriated finally reach?

Remarks:

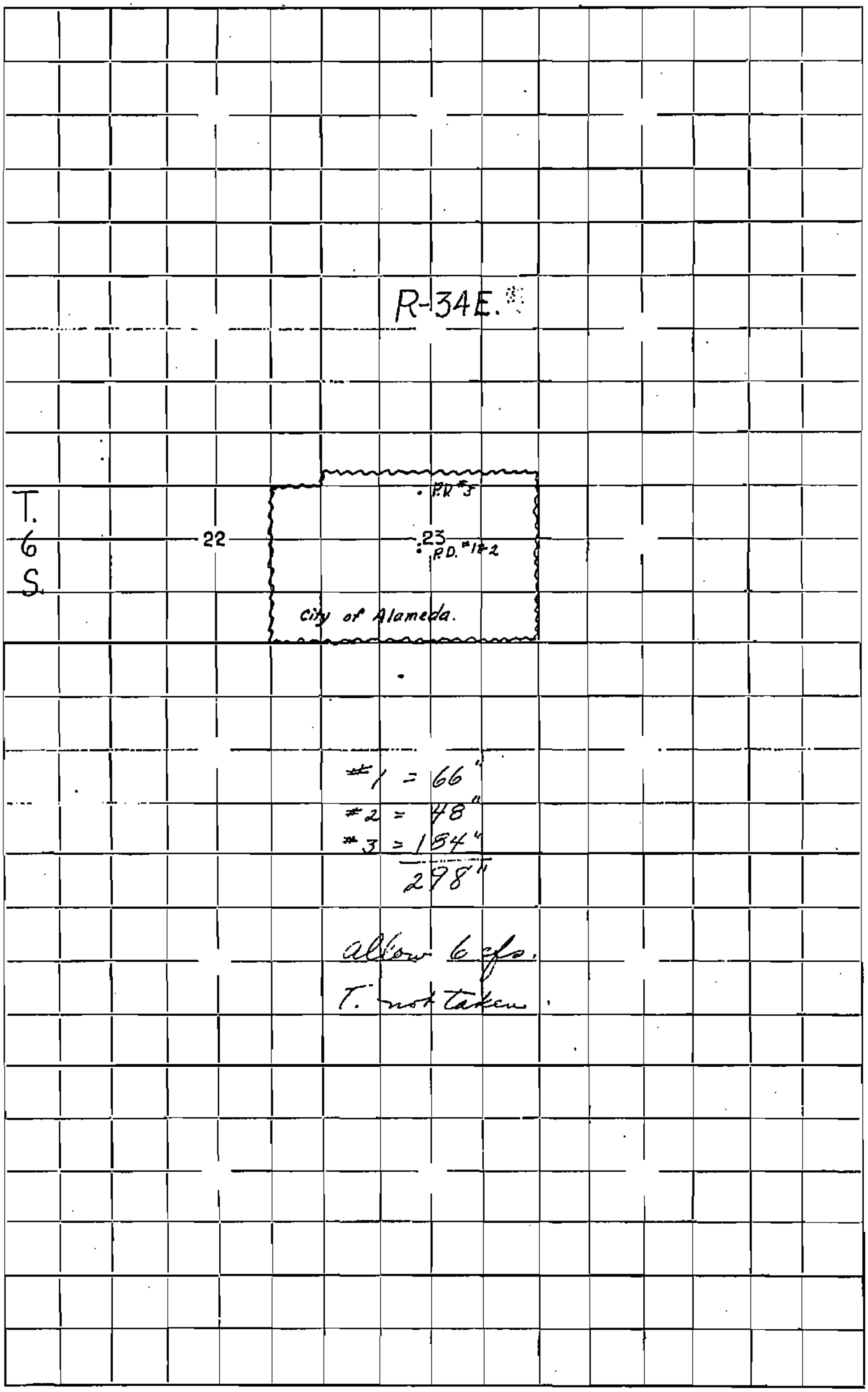
R. Briggs of Briggs Engr. Co. Boise says:
Wells were measured before filing and that figures
are correct.
#1 = 600 gpm
#2 = 430 "
#3 = 1650 "
2680 gpm

This examination was made on the 6 day of April, 1954

(Signed) E. N. Humphrey Examiner.

7691

23171



7692

Scale: 2 Inches Equals 1 Mile. Draw Map In Ink.

93171

March 27, 1954

RE: Permit No. G-23171

City of Alameda
Alameda
Idaho

Gentlemen:

State law requires an inspection of any Permit being brought to license. I intend to make inspection in connection with your permit no. G-23171 in the morning on April 7.

Please have someone familiar with the work accompany me on this inspection.

Yours truly,

MARK R. KULF
State Reclamation Engineer
By

Elmer Humphrey
Deputy State Reclamation Engineer

H:hll

23171

7693

February 25, 1954

RE: Permit No. G-23171

Mr. Carl C. Christensen
Attorney at Law
Pocatello, Idaho

Dear Mr. Christensen:

We have your letter of February 24th, enclosing affidavit of publication in the Idaho State Journal which completes the proof of Completion of Works and Beneficial Use on Permit No. G-23171 of the City of Alameda.

However, before final action is taken the law requires that a field examination be made by an engineer from this Department.

We cannot say just when this examination will be made, but our field engineer will contact the Mayor or City Clerk at the time he makes the examination in order that arrangments may be made to show him over the ground.

Very truly yours,

MARK R. KULP
State Reclamation Engineer
By

Chief Clerk

A:br

23171

7694

CARL C. CHRISTENSEN
ATTORNEY AND COUNSELOR AT LAW
POCATELLO, IDAHO

RECEIVED
FEB 25 1954
Department of Reclamation

February 24, 1954

State of Idaho Department of
Reclamation
State House
Boise, Idaho

Gentlemen: Re: Permit No. G-23171

In response to your letter dated February 19, 1954, I herewith enclose the Affidavit of Publication relating to the Alameda Water rights for the Municipal Water-works System.

Very truly yours,

Carl C. Christensen

CCC:et

Encl.

23171

7695

PROOF OF PUBLICATION

STATE OF IDAHO }
County of Bannock } ss.

Edith Berosek

being first duly sworn on oath deposes and says: That she was at all times herein mentioned a citizen of the United States of America, more than 21 years of age, and the Principal Clerk of THE IDAHO STATE JOURNAL, a daily newspaper, printed and published at Pocatello, Bannock County, Idaho, and having a general circulation therein.

That the document or notice, a true copy of which is attached, was published in the said IDAHO STATE JOURNAL, on the following dates, to-wit:

Jan 14, 1954	, 19
Jan 21, 1954	, 19
Jan 28, 1954	, 19
Feb 5, 1954	, 19
, 19	, 19

That said paper has been continuously and uninterruptedly published in said County for a period of seventy-eight weeks prior to the publication of said notice or advertisement and is a newspaper within the meaning of the laws of Idaho.

Edith Berosek

Subscribed and sworn to before me this 22nd

day of Feb, 1954.

Muriel L. Ruggles

Notary Public, State of Idaho
Residence: Pocatello, Idaho

23171

7696

PROOF OF PUBLICATION

STATE OF IDAHO }
County of Bannock } ss.

Legal Advertisement

NOTICE OF PROOF OF COMPLETION OF WORKS AND APPLICATION OF WATER TO BENEFICIAL USE

Notice is hereby given that at 7:30 p.m., on the 17th day of February, 1954, at Alameda City Hall, County of Bannock State of Idaho, before Carl C. Christensen proof will be submitted of the completion of works for the diversion of 6.0 cubic feet per second of the waters of Subterranean from 3 wells in Section 23, Twp. 6 S., Rge. 34 E., B. M. and of the application to beneficial use of said water, in accordance with the terms and conditions of Permit No. 23171 heretofore issued by the Department of Reclamation of the State of Idaho.

1. The name and postoffice address of the person or corporation holding said permit are the City of Alameda, Alameda City Hall, Pocatello, Idaho.
2. Said works of diversion will be fully completed on the date set for such completion, and the amount of water which said works are capable of conveying to the place of use, in accordance with the plans accompanying the application for such permit, is 6.0 cubic feet per second.
3. The use to which said water has been applied is municipally owned water system purposes, and the amount applied to beneficial use is 6.0 cubic feet per second.
4. The place where said water is used is within and adjacent to the corporate limits of the City of Alameda.
5. The date of priority which said user is prepared to establish is October 22, 1952.

MARK R. KULP
State Reclamation Engineer
Jan. 14, 21, 28, Feb. 4.

Edith Berosek

being first duly sworn on oath deposes and says: That she was at all times herein mentioned a citizen of the United States of America, more than 21 years of age, and the Principal Clerk of THE IDAHO STATE JOURNAL, a daily newspaper, printed and published at Pocatello, Bannock County, Idaho, and having a general circulation therein.

That the document or notice, a true copy of which is attached, was published in the said IDAHO STATE JOURNAL, on the following dates, to-wit:

Jan. 14, 19 54 ...., 19...
Jan. 21, 19 54 ...., 19...
Jan 28, 19 54 ...., 19...
Feb 5, 19 54 ...., 19...
........, 19... ...., 19...

That said paper has been continuously and uninterruptedly published in said County for a period of seventy-eight weeks prior to the publication of said notice or advertisement and is a newspaper within the meaning of the laws of Idaho.

[illegible signature]

Subscribed and sworn to before me this 22nd day of Feb, 1954.

....

Notary Public, State of Idaho
Residence: Pocatello, Idaho

23171

7697

February 19, 1954

RE: Permit No. G-23171

Mr. Carl C. Christensen
Attorney at Law
Pocatello, Idaho

Dear Mr. Christensen:

We acknowledge receipt of your letter of February 18, enclosing depositions of L. W. Thurston and two witnesses, all in proof of completion of works and beneficial use proof on Permit No. G-23171.

However, the affidavit of publication is a necessary part of these proofs and if you have not received same from the Idaho State Journal, we suggest that you get in touch with them at once.

No fees are required until after inspection has been made by a field engineer from this department at which time we shall notify you.

Very truly yours,

MARK R. KULP
State Reclamation Engineer
By

Chief Clerk

A:hll

23171

7698

CARL C. CHRISTENSEN
ATTORNEY AND COUNSELOR AT LAW
POCATELLO, IDAHO

February 18, 1954

RECEIVED
FEB 19 1954
Department of Reclamation

State of Idaho,
Department of Reclamation
State House
Boise, Idaho

Attention of Mark R. Kulp

Gentlemen: Re: Permit No. G-23171

I enclose herewith the original and one copy of the deposition of L. W. Thurston, Mayor of the City of Alameda; Alton M. Alexander, City Clerk of the City of Alameda; and E. L. Davidson, City Councilman of the City of Alameda, all relating to the proof of application of water to beneficial use and completion of works relating to the above numbered permit.

If there are any more fees or expenses relating to this matter, please advise me and we will forward it to you.

Kindly advise me when this matter has been finally completed and send any certificates or other papers to me.

Very truly yours,

Carl C. Christensen

Carl C. Christensen

CCC:et

Ida State Journal

23171

7699

Form 16.

STATE OF IDAHO
DEPARTMENT OF RECLAMATION
BOISE, IDAHO

Permit No. G-23171

Proof of Application of Water to Beneficial Use
AND COMPLETION OF WORKS.

Deposition of Holder

Ques. 1. State your name, residence, occupation and postoffice address.

Ans. L. W. Thurston, Mayor, City Hall, Alameda, Bannock County, Idaho

Ques. 2. If acting in behalf of corporation, state its name, principal place of business (if a foreign corporation, give name of postoffice of statutory agent), your position with reference to same, and your authority for appearing in its behalf.

Ans. Mayor, City of Alameda, under statutory authority.

Ques. 3 State number and date of permit, and date of priority you propose to establish under the permit.

Ans. Permit No. G-23171, priority as of October 22, 1952.

Ques. 4. State source of water supply and give exact location of point of diversion.

Ans. Three wells: 1 - 630' S. and 220' W. of Ctr. of Sec. 23; 2 - approx. same location; 3- 25' S. and 220' W. of NE Cor. of SE 1/4 NW 1/2, Sec. 23; all in T. 6 S. R. 34 E.,B.M. and in Alameda corporate limits.

Ques. 5. Describe your works of diversion, and state amount of water they are capable of conveying from point of diversion to place of use, and give name of canal or ditch or other works by which water is conducted to such place of use. If a well, state depth of well, depth and size of casing and depth to water. If pump is used, state discharge of pump and tell how it was measured or determined.

Ans. The 3 wells supply the Alameda municipally owned and operated city water system, pump capacities measured and reported by City Engineer: Well No. 1 - 600 gpm; No. 2 - 430 gpm; No. 3 - 1650 gpm. In closed circuit with mains is one 275,000 gallon steel reservoir and one 60,000 gallon concrete reservoir.

Ques. 6. State for what purpose water is used and describe place of use. (If for irrigation, name each subdivision in which used, and number of acres in each subdivision that have actually been irrigated with said water.) State whether cultivated or natural meadow land and the nature of all improvements which have been made as a direct result of said use.

Ans. Domestic, fire protection, commercial, industrial, sprinkling and all uses by water users connected to City water system.

23171

7700

Ques. 7. If for other than irrigation purposes; state how applied, amount of horse power generated, etc.

Ans. Same as No. 6 above

Ques. 8. What is the minimum amount of water required for the purpose specified above?

Ans. 4.0 c.f.s. firm source of supply

Ques. 9. If you are not the person or representative of the corporation to whom above mentioned permit was originally issued, please state how ownership was acquired by present holder.

Ans.

Ques. 10. State when, how, in what amount and to what extent the water diverted under above mentioned permit has been used.

Ans. Same as No. 6 above

Ques. 11. State when, how, in what amount and to what extent waters other than those diverted under the above mentioned permit have been diverted and applied to beneficial use upon the lands herein described. Give full particulars regarding such other appropriations and rights claimed thereunder.

Ans. Presently the three wells comprise total water supply for the City water system.

(Sign) R W Thurston

I hereby certify that the foregoing testimony was read to the above subscribed before its signing, that I believe him to be the person he represents himself to be, and that said testimony was subscribed and sworn to before me, at my office in Alameda, County of Bannock State of Idaho, on this 17th day of February, A. D. 1954.

L.W. Thompson

L.W. Thompson, Mayor, City of Alameda

My commission expires Feb. 14, 1955 Notary Public for Idaho Residing at Pocatello Idaho

23171

7701

Form 16.

STATE OF IDAHO
DEPARTMENT OF RECLAMATION
BOISE, IDAHO

Permit No. G-23171

Proof of Application of Water to Beneficial Use
AND COMPLETION OF WORKS.

Deposition of Holder

Ques. 1. State your name, residence, occupation and postoffice address.

Ans. L. W. Thurston, Mayor, City Hall, Alameda, Bannock County, Idaho

Ques. 2. If acting in behalf of corporation, state its name, principal place of business (if a foreign corporation, give name of postoffice of statutory agent), your position with reference to same, and your authority for appearing in its behalf.

Ans. Mayor, City of Alameda, under statutory authority.

Ques. 3 State number and date of permit, and date of priority you propose to establish under the permit.

Ans. Permit No. G-23171, priority as of October 22, 1952.

Ques. 4. State source of water supply and give exact location of point of diversion.

Ans. Three wells: 1 - 630' S. and 220' W. of Ctr. of Sec. 23; 2 - approx. same location; 3- 25' S. and 220' W. of NE Cor. of SE 1/4 NW 1/2, Sec. 23; all in T. 6 S. R. 34 E., B.M. and in Alameda corporate limits.

Ques. 5. Describe your works of diversion, and state amount of water they are capable of conveying from point of diversion to place of use, and give name of canal or ditch or other works by which water is conducted to such place of use. If a well, state depth of well, depth and size of casing and depth to water. If pump is used, state discharge of pump and tell how it was measured or determined.

Ans. The 3 wells supply the Alameda municipally owned and operated city water system, pump capacities measured and reported by City Engineer: Well No. 1 - 600 gpm; No. 2 - 430 gpm; No. 3 - 1650 gpm. In closed circuit with mains is one 275,000 gallon steel reservoir and one 60,000 gallon concrete reservoir.

Ques. 6. State for what purpose water is used and describe place of use. (If for irrigation, name each subdivision in which used, and number of acres in each subdivision that have actually been irrigated with said water.) State whether cultivated or natural meadow land and the nature of all improvements which have been made as a direct result of said use.

Ans. Domestic, fire protection, commercial, industrial, sprinkling and all uses by water users connected to City water system.

23171

7702

Ques. 7. If for other than irrigation purposes; state how applied, amount of horse power generated, etc.

Ans. Same as No. 6 above

Ques. 8. What is the minimum amount of water required for the purpose specified above?

Ans. 6.0 c.f.s. firm source of supply

Ques. 9. If you are not the person or representative of the corporation to whom above mentioned permit was originally issued, please state how ownership was acquired by present holder.

Ans.

Ques. 10. State when, how, in what amount and to what extent the water diverted under above mentioned permit has been used.

Ans. Same as No. 6 above

Ques. 11. State when, how, in what amount and to what extent waters other than those diverted under the above mentioned permit have been diverted and applied to beneficial use upon the lands herein described. Give full particulars regarding such other appropriations and rights claimed thereunder.

Ans. Presently the three wells comprise total water supply for the City water system.

(Sign) L W Thurston

I hereby certify that the foregoing testimony was read to the above subscribed before its signing, that I believe him to be the person he represents himself to be, and that said testimony was subscribed and sworn to before me, at my office in Alameda County of Bannock State of Idaho, on this 17th day of February, A. D. 1954.

L.W. Thurston, Mayor, City of Alameda

My commission expires Feb 14, 1955 Notary Public for Idaho Residing at Pocatello, Idaho

23171

7703

Form 17.

STATE OF IDAHO
DEPARTMENT OF RECLAMATION
BOISE, IDAHO

Permit No. G-23171

Proof of Application of Water to Beneficial Use AND COMPLETION OF WORKS.

Deposition of Witness

The deposition of two witnesses, on this form, taken separately, required in each case.

Ques. 1. State your name, age, residence, occupation and postoffice address.

Ans. E.L. Davidson, Alameda City Councilman; over 21 years of age; residing in Alameda, Idaho

Ques. 2. Are you acquainted with The City of Alameda, the holder of Permit No. G-23171? How long have you known him and where does he reside?

Ans. I have resided in Alameda since 1925 and have been a member of the City Council since 1945

Ques. 3. Have you read or heard read said Permit No. G-23171, and are you familiar with its provisions and conditions?

Ans. Yes

Ques. 4. State source of water supply, place of diversion, and describe works for conveying water from point of diversion to place of use.

Ans. Water supply is from 3 wells in the City of Alameda, located as stipulated in Permit No. G-23171, providing water for the municipal water system and serving water users as recited in said Permit No. G-23171.

Ques. 5. How many second feet of water do you estimate said works will safely conduct to place of use, and how much water have you seen being so conveyed?

Ans. The City Engineer reports 6.0 c.f.s. capacity, as he certified in said Permit No. G-23171.

Ques. 6. (Pumps) How much water in cubic feet per second, miner's inches, or gallons per minute have you seen the pump deliver, and how did you measure or estimate the amount?

Ans. The City Engineer measured pump flows and certified the quantities listed in Permit No. G-23171. I accept his representations as no one here is better qualified.

23171

7704

Ques. 7. State for what purpose water is used and at what place. (If for irrigation, give each subdivision in which water has been used and number of acres irrigated in each subdivision.) State whether cultivated or natural meadow land and the nature of all improvements which have been made as a direct result of said use.

Ans. Municipal water supply as set forth in Permit No. G-23171.

Ques. 8. If for power or other purposes than irrigation, state how water has been applied and to what etxent.

Ans. No power production

Ques. 9. (If for irrigation) state character of land that has been reclaimed, and give your estimate of the amount of water required for its profitable cultivation.

Ans. Sprinkling by some water users

Ques. 10. Have you any interest in the works, water or lands above mentioned? If so, in what way and to what extent?

Ans. I own residence property in Alameda

Ques. 11. State when, how, in what amount and to what extent you have witnessed the application to beneficial use of water diverted under said permit.

Ans. As a City Councilman it is my responsibility to know about the water supply, transmission and use and that the water used is as stated in Permit No. G-23171.

(Signed) E. L. Davidson

I hereby certify that the foregoing testimony was read to the above subscriber before its signing, that I believe him to be the person he represents himself to be, and that said testimony was subscribed and sworn to before me in Alameda, County of Bannock, State of Idaho, on this 17th day of February, A. D. 1957.

[signature]
Notary Public for Idaho

My commission expires Feb. 14, 1955 — Residing at Pocatello, Idaho

23171

7705

Form 17.

STATE OF IDAHO
DEPARTMENT OF RECLAMATION
BOISE, IDAHO

Permit No. G-23171

Proof of Application of Water to Beneficial Use AND COMPLETION OF WORKS.

Deposition of Witness

The deposition of two witnesses, on this form, taken separately, required in each case.

Ques. 1. State your name, age, residence, occupation and postoffice address.

Ans. E.L. Davidson, Alameda City Councilman; over 21 years of age; residing in Alameda, Idaho.

Ques. 2. Are you acquainted with The City of Alameda, the holder of Permit No. G-23171? How long have you known him and where does he reside?

Ans. I have resided in Alameda since 1925 and have been a member of the City Council since 1945

Ques. 3. Have you read or heard read said Permit No. G-23171, and are you familiar with its provisions and conditions?

Ans. Yes

Ques. 4. State source of water supply, place of diversion, and describe works for conveying water from point of diversion to place of use.

Ans. Water supply is from 3 wells in the City of Alameda, located as stipulated in Permit No. G-23171, providing water for the municipal water system and serving water users as recited in said Permit No. G-23171.

Ques. 5. How many second feet of water do you estimate said works will safely conduct to place of use, and how much water have you seen being so conveyed?

Ans. The City Engineer reports 6.0 c.f.s. capacity, as he certified in said Permit No. G-23171.

Ques. 6. (Pumps) How much water in cubic feet per second, miner's inches, or gallons per minute have you seen the pump deliver, and how did you measure or estimate the amount?

Ans. The City Engineer measured pump flows and certified the quantities listed in Permit No. G-23171. I accept his representations as no one here is better qualified.

23171

7706

Ques. 7. State for what purpose water is used and at what place. (If for irrigation, give each subdivision in which water has been used and number of acres irrigated in each subdivision.) State whether cultivated or natural meadow land and the nature of all improvements which have been made as a direct result of said use.

Ans. Municipal water supply as set forth in Permit No. G-23171.

Ques. 8. If for power or other purposes than irrigation, state how water has been applied and to what etxent.

Ans. No power production

Ques. 9. (If for irrigation) state character of land that has been reclaimed, and give your estimate of the amount of water required for its profitable cultivation.

Ans. Sprinkling by some water users

Ques. 10. Have you any interest in the works, water or lands above mentioned? If so, in what way and to what extent?

Ans. I own residence property in Alameda

Ques. 11. State when, how, in what amount and to what extent you have witnessed the application to beneficial use of water diverted under said permit.

Ans. As a City Councilman it is my responsibility to know about the water supply, transmission and use and that the water used is as stated in Permit No. G-23171.

(Signed) E. L. Davidson

I hereby certify that the foregoing testimony was read to the above subscriber before its signing, that I believe him to be the person he represents himself to be, and that said testimony was subscribed and sworn to before me in Alameda, County of Bannock, State of Idaho, on this 17th day of February, A. D. 1954

[signature]
Notary Public for Idaho
Residing at Pocatello, Idaho

My commission expires Feb. 14, 1955

23171

7707

Form 17.

STATE OF IDAHO
DEPARTMENT OF RECLAMATION
BOISE, IDAHO

Permit No. G-23171

Proof of Application of Water to Beneficial Use AND COMPLETION OF WORKS.

Deposition of Witness

The deposition of two witnesses, on this form, taken separately, required in each case.

Ques. 1. State your name, age, residence, occupation and postoffice address.

Ans. A. M. Alexander, City Clerk of Alameda; over 21 years of age; residing in Alameda, Idaho.

Ques. 2. Are you acquainted with the City of Alameda, the holder of Permit No. G-23171? How long have you known him and where does he reside?

Ans. I have resided in Alameda since April, 1936 and have been the Alameda City Clerk since May 2, 1945

Ques. 3. Have you read or heard read said Permit No. G-23171, and are you familiar with its provisions and conditions?

Ans. Yes

Ques. 4. State source of water supply, place of diversion, and describe works for conveying water from point of diversion to place of use.

Ans. Water supply is from 3 wells in the City of Alameda located as stipulated in Permit No. G-23171, providing water for the municipal water system and serving water users as recited in said Permit No. G-23171.

Ques. 5. How many second feet of water do you estimate said works will safely conduct to place of use, and how much water have you seen being so conveyed?

Ans. The City Engineer reports 6.0 c.f.s. capacity, as he certified in said Permit No. G-23171.

Ques. 6. (Pumps) How much water in cubic feet per second, miner's inches, or gallons per minute have you seen the pump deliver, and how did you measure or estimate the amount?

Ans. The City Engineer measured pump flows and certified the quantities listed in Permit No. G-23171. I accept his representations, as no one else here is better qualified.

23171

7708

Ques. 7. State for what purpose water is used and at what place. (If for irrigation, give each subdivision in which water has been used and number of acres irrigated in each subdivision.) State whether cultivated or natural meadow land and the nature of all improvements which have been made as a direct result of said use.

Ans. Municipal water supply as set forth in Permit No. G-23171.

Ques. 8. If for power or other purposes than irrigation, state how water has been applied and to what etxent.

Ans. No power production

Ques. 9. (If for irrigation) state character of land that has been reclaimed, and give your estimate of the amount of water required for its profitable cultivation.

Ans. Sprinkling by some water users

Ques. 10. Have you any interest in the works, water or lands above mentioned? If so, in what way and to what extent?

Ans. I own residence property in Alameda

Ques. 11. State when, how, in what amount and to what extent you have witnessed the application to beneficial use of water diverted under said permit.

Ans. As City Clerk I prepare all water bills, collect charges made and have knowledge that the water used from the system is as stated in Permit No. G-23171.

(Signed) A. M. Alexander

I hereby certify that the foregoing testimony was read to the above subscriber before its signing, that I believe him to be the person he represents himself to be, and that said testimony was subscribed and sworn to before me in Alameda, County of Bannock, State of Idaho, on this 17th day of February, A. D. 1954.

Notary Public for Idaho

My commission expires Feb. 14, 1955

7709

23171

Form 17.

STATE OF IDAHO
DEPARTMENT OF RECLAMATION
BOISE, IDAHO

Permit No. G-23171

Proof of Application of Water to Beneficial Use
AND COMPLETION OF WORKS.

Deposition of Witness

The deposition of two witnesses, on this form, taken separately, required in each case.

Ques. 1. State your name, age, residence, occupation and postoffice address.

Ans. A. M. Alexander, City Clerk of Alameda; over 21 years of age; residing in Alameda, Idaho.

Ques. 2. Are you acquainted with the City of Alameda, the holder of Permit No. G-23171? How long have you known him and where does he reside?

Ans. I have resided in Alameda since April, 1936 and have been the Alameda City Clerk since May 2, 1945

Ques. 3. Have you read or heard read said Permit No. G-23171, and are you familiar with its provisions and conditions?

Ans. Yes

Ques. 4. State source of water supply, place of diversion, and describe works for conveying water from point of diversion to place of use.

Ans. Water supply is from 3 wells in the City of Alameda located as stipulated in Permit No. G-23171, providing water for the municipal water system and serving water users as recited in said Permit No. G-23171.

Ques. 5. How many second feet of water do you estimate said works will safely conduct to place of use, and how much water have you seen being so conveyed?

Ans. The City Engineer reports 6.0 c.f.s. capacity, as he certified in said Permit No. G-23171.

Ques. 6. (Pumps) How much water in cubic feet per second, miner's inches, or gallons per minute have you seen the pump deliver, and how did you measure or estimate the amount?

Ans. The City Engineer measured pump flows and certified the quantities listed in Permit No. G-23171. I accept his representations, as no one else here is better qualified.

7710

23171

Ques. 7. State for what purpose water is used and at what place. (If for irrigation, give each subdivision in which water has been used and number of acres irrigated in each subdivision.) State whether cultivated or natural meadow land and the nature of all improvements which have been made as a direct result of said use.

Ans. Municipal water supply as set forth in Permit No. G-23171.

Ques. 8. If for power or other purposes than irrigation, state how water has been applied and to what etxent.

Ans. No power production

Ques. 9. (If for irrigation) state character of land that has been reclaimed, and give your estimate of the amount of water required for its profitable cultivation.

Ans. Sprinkling by some water users

Ques. 10. Have you any interest in the works, water or lands above mentioned? If so, in what way and to what extent?

Ans. I own residence property in Alameda

Ques. 11. State when, how, in what amount and to what extent you have witnessed the application to beneficial use of water diverted under said permit,

Ans. As City Clerk I prepare all water bills, collect charges made and have knowledge that the water used from the system is as stated in Permit No. G-23171.

(Signed) A. M. Alexander

I hereby certify that the foregoing testimony was read to the above subscriber before its signing, that I believe him to be the person he represents himself to be, and that said testimony was subscribed and sworn to before me in Alameda, County of Bannock, State of Idaho, on this 17th day of February, A. D. 1954.

[signature]
Notary Public for Idaho
Residing at Pocatello Idaho.

My commission expires Feb. 14, 1955

23171

7711

Form 36

NOTICE OF PROOF OF COMPLETION OF WORKS
and
APPLICATION OF WATER TO BENEFICIAL USE

Notice is hereby given that at 7:30 P. M., on the 17th day of February, 1954, at Alameda City Hall, County of Bannock State of Idaho, before Carl C. Christensen proof will be submitted of the completion of works for the diversion of 6.0 cubic feet per second of the waters of Subterranean from 3 wells and of the application to beneficial use of said water, in accordance with the terms and conditions of Permit No. 23171 heretofore issued by the Department of Reclamation of the State of Idaho.

1. The name and postoffice address of the person or corporation holding said permit are The City of Alameda ~~Alameda~~ City Hall, ~~Alameda, Idaho~~ Pocatello, Idaho.

2. Said works of diversion will be fully completed on the date set for such completion, and the amount of water which said works are capable of conveying to the place of use, in accordance with the plans accompanying the application for such permit, is 6.0 cubic feet per second.

3. The use to which said water has been applied is municipally owned water system purposes, and the amount applied to beneficial use is 6.0 cubic feet per second.

4. The place where said water is used is within and adjacent to the corporate limits of the City of Alameda

5. The date of priority which said user is prepared to establish is October 22, 1952.

State Reclamation Engineer

23171

7712

STATE OF IDAHO

DEPARTMENT OF RECLAMATION

BOISE, IDAHO

Re: Permit No. 23171

Date: January 11, 1954

Idaho State Journal

Pocatello, Idaho

Gentlemen:

Enclosed you will find notice for publication once a week for four consecutive weeks prior to February 17, 1954 the date set for proof, the expense of the publication to be paid by the applicant, City of Alameda, C/o Carl C. ~~xxx~~ of Christensen, Pocatello, Idaho, to whom you should furnish proof of publication on or prior to the date set for proof.

Please acknowledge receipt of this notice, and furnish this office with a copy of the first publication, in order that we may check same.

Very truly yours,

MARK R. KULP

State Reclamation Engineer

By

Chief Clerk

23171

7713

Form 36

NOTICE OF PROOF OF COMPLETION OF WORKS
and
APPLICATION OF WATER TO BENEFICIAL USE

Notice is hereby given that at 7:30 P. M., on the 17th day of February, 1954, at Alameda City Hall, County of Bannock State of Idaho, before Carl C. Christensen proof will be submitted of the completion of works for the diversion of 6.0 cubic feet per second of the waters of Subterranean from 3 wells Section 23, Twp.6 S., Rge. 34 E., B.M. and of the application to beneficial use of said water, in accordance with the terms and conditions of Permit No. 23171 heretofore issued by the Department of Reclamation of the State of Idaho.

1. The name and postoffice address of the person or corporation holding said permit are The City of Alameda, Alameda City Hall, Pocatello, Idaho

2. Said works of diversion will be fully completed on the date set for such completion, and the amount of water which said works are capable of conveying to the place of use, in accordance with the plans accompanying the application for such permit, is 6.0 cubic feet per second.

3. The use to which said water has been applied is municipally owned water system purposes, and the amount applied to beneficial use is 6.0 cubic feet per second.

4. The place where said water is used is within and adjacent to the corporate limits of the City of Alameda

5. The date of priority which said user is prepared to establish is October 22, 1952.

MARK R. KULP
State Reclamation Engineer

23171

7714

December 19, 1953

RE: Permit No. 23171

Mr. Carl C. Christensen
Attorney At Law,
Pocatello, Idaho

Dear Mr. Christensen:

We have your letter of December 18th, enclosing notice in connection with proof of Completion of Works and Beneficial Use on Permit No. 23171 of the City of Alameda.

A copy of the notice will be sent to the Idaho State Journal in ample time for four weeks publication prior to February 17, 1954. We shall instruct the newspaper to publish it once a week for four weeks prior to that date, and to send the affidavit of publication together with statement of costs to the City of Alameda, in your care.

We enclose the nedessary forms of deposition to be used in making this proof and at the time set a representative of the City of Alameda, together with two disinterested witnesses who are familiar with the terms of the permit and the work done thereunder, should appear before you for the purpose of executing the dep sitions.

Very truly yours,

MARK R. KULP
State Reclamation Engineer
By

Chief Clerk

A/re

23171

7715

Form No. 11

NOTICE TO ACCOMPANY THIS LETTER MUST BE MADE IN DUPLICATE

(Date) City of Alameda, December 18, 1953

(P. O.) 411 Washington Avenue, Pocatello, Idaho

TO THE STATE RECLAMATION ENGINEER:

Boise, Idaho.

Dear Sir:

You are hereby authorized to have the attached notice published at my expense in the Idaho State Journal of Pocatello, Idaho published in the county in which the works are situated.

City of Alameda
By A. M. Alexander
A. M. Alexander, Alameda City Clerk

(In case of canals or other works designed to divert and carry more than 50 cubic feet of water per second, the following certificate must be signed by a well-known and competent engineer.)

I hereby certify that the facts set forth in the attached notice ~~are~~ true.

Raymond J. Briggs
Engineer.

23171 7716

CARL C. CHRISTENSEN
ATTORNEY AND COUNSELOR AT LAW
POCATELLO, IDAHO

December 18, 1953

RECEIVED
DEC 19 1953
Department of Reclamation

Mr. Mark R. Kulp
State Reclamation Engineer
State House
Boise, Idaho

Dear Mr. Kulp:

I am enclosing herewith two forms number 11 authorizing you to publish notice relating to the water right to the City of Alameda wells. I am also enclosing herewith three forms number 36, being the notice of proof of completion of works and application of water to beneficial use.

Publication should be made in the Idaho State Journal at Pocatello, which is the official newspaper of the City of Alameda.

Any fees or charges will be paid either by Raymond J. Briggs, our Engineer, at Boise, or if you notify me, they will be paid by the City of Alameda direct.

Kindly acknowledge receipt of these forms.

Very truly yours,

Carl C. Christensen

CCC:et

Encls.

Briggs 33381

[illegible] to Briggs

23171

7717

Form No. 11

NOTICE TO ACCOMPANY THIS LETTER MUST BE MADE IN DUPLICATE

(Date) City of Alameda, December 18, 1953

(P. O.) 411 Washington Avenue, Pocatello, Idaho

TO THE STATE RECLAMATION ENGINEER:

Boise, Idaho.

Dear Sir:

You are hereby authorized to have the attached notice published at my expense in the Idaho State Journal of Pocatello, Idaho published in the county in which the works are situated.

City of Alameda
By A.M. Alexander
A. M. Alexander, Alameda City Clerk

(In case of canals or other works designed to divert and carry more than 50 cubic feet of water per second, the following certificate must be signed by a well-known and competent engineer.)

I hereby certify that the facts set forth in the attached notice ~~are~~ true.

Raymond J. Briggs
Engineer.

23171

7718

November 10, 1952

RE: Permit No. G-23171

Mr. Raymond J. Briggs
610 Grove Street
Boise, Idaho

Dear Mr. Briggs:

We enclose Permit No. G-23171 for the City of Alameda, together with departmental receipt No. 25036 for the $6.25 filing fee.

Although the application states that the works are completed, you will note that we have allowed two years within which to make the statutory proofs required to complete the water right. This is in accordance with the statute which sets a minimum of two years, but the proofs can be made at any earlier date that the applicant is prepared to make same.

Very truly yours,

MARK R. KULP
State Reclamation Engineer
By

Chief Clerk

A:fg
Enc.

23171

7719

MINING
Mine and Prospect
EXAMINATIONS, REPORTS
DEVELOPMENT, OPERATIONS
MECHANICAL
HEATING, AIR CONDITIONING
PLANT LAYOUT, MACHINE DESIGN
SHOP DRAWINGS, MATERIALS
DESIGN, SUPERVISION
INSPECTION

RAYMOND J. BRIGGS AND ASSOCIATES

CONSULTING ENGINEERS
BRIGGS ENGINEER BUILDING
619 GROVE STREET
TELEPHONE 3-3381
BOISE, IDAHO

CIVIL
Design, Appraisals
Investigations, Reports
Construction, Supervision
MUNICIPAL WATER SUPPLY
IRRIGATION AND DRAINAGE
HYDRAULIC INSTALLATIONS
SEWERS AND SEWAGE
ROADS AND STREETS
STRUCTURES OF CONCRETE, TIMBER, EARTH AND ROCK
REGISTERED:
IDAHO, OREGON, WASHINGTON, UTAH, NEVADA, CALIFORNIA

October 22, 1952

Mr. Mark R. Kulp
State Reclamation Engineer
Capitol Building
Boise, Idaho

Re: Application for Permit to Appropriate and Use Water, City of Alameda, Bannock County, Idaho

Dear Mr. Kulp:

I transmit to you herewith in the original and one copy Form No. 3, same being an application for permit to appropriate and use water from three wells now in use in the City of Alameda, Bannock County, Idaho.

The statutory filing fee in the amount of $6.25 is attached hereto in the form of my personal check drawn in that amount.

Kindly let me know if any corrections or amendments are necessary or desired in respect to subject application.

Very truly yours

Raymond J. Briggs

Raymond J. Briggs

RJB nh

Encls.

cc: Mr. A. M. Alexander, Clerk
City of Alameda, Idaho

RECEIVED
OCT 23 1952
1:45 pm
Department of Reclamation

23171

7720

Legal Ac[illegible]rtisement

NOTICE OF PROOF OF COMPLETIO[illegible] WORKS AND APPLICATI[illegible] [illegible] WATER TO BENEFIC[illegible] USE

Notice is hereby given that at 7:30 p.m., on the 17th day of February, 1954, at Alameda City Hall, County of Bannock State of Idaho, before Carl C. Christensen proof will be submitted of the completion of works for the diversion of 6.0 cubic feet per second of the waters of Subterranean from 3 wells in Section 23, Twp. 6 S., Rge. 34 E., B. M. and of the application to beneficial use of said water, in accordance with the terms and conditions of Permit No. [illegible] heretofore issued by the Department of Reclamation of the State of Idaho.

1. The name and postoffice address of the person or corporation holding said permit are the City of Alameda, Alameda City Hall, Pocatello, Idaho.

2. Said works of diversion will be fully completed on the date set for such completion, and the amount of water which said works are capable of conveying to the place of use, in accordance with the plans accompanying the application for such permit, is 6.0 cubic feet per second.

3. The use to which said water has been applied is municipally owned water system purposes, and the amount applied to beneficial use is 6.0 cubic feet per second.

4. The place where said water is used is within and adjacent to the corporate limits of the City of Alameda.

5. The date of priority which said user is prepared to establish is October 23, 1952.

MARK R. KULP 1/14/54
State Reclamation Engineer
Jan. 14, 21, 28, Feb. 4.

7721

MAY - 3 2005

29-271 et al.
(Subcase No.)
EXHIBIT
Poc. 155
Date: 2/26/07
Admitted

CITY OF POCATELLO

11th Annual POTW Biosolids Report

February 02, 2004

Submitted to: Region X
U.S. Environmental Protection Agency

Division of Environmental Quality
State of Idaho

Prepared by: Jon B. Herrick
Operations & Pretreatment Supervisor
City of Pocatello
Water Pollution Control Department

7722

002600

Pocatello
A MUNICIPAL CORPORATION OF IDAHO

WATER POLLUTION
CONTROL DEPARTMENT
P.O. Box 4169
Pocatello, Idaho 83205

SUPERINTENDENT'S OFFICE
(208) 234-6254
WASTEWATER
TREATMENT PLANT
(208) 234-6256
Fax: (208) 237-3927

February 02, 2004

Ms. Cindy Phung

US EPA - OW-133
Region 10
1200 Sixth Avenue
Seattle, WA 98101

RE: 11th Annual Biosolids Report

Dear Ms. Phung,

In compliance with Federal Sludge Regulations, 40-CFR 503, the City of Pocatello has prepared the 11th Annual Biosolids Report for the Pocatello Biosolids Beneficial Recycling/Reuse Site. A copy of this report is enclosed; copies have also been submitted to the State of Idaho Department of Environmental Quality.

If there are any questions regarding this report, please contact me at (208) 234-6256, extension 12.

Sincerely,

Brent Hokanson

Brent Hokanson
WPC Superintendent

Cc: Jon Herrick, WPC Supervisor
Greg Lanning, Pocatello Public Works Director
Roger Chase, Mayor, City of Pocatello
Mr. Lynn Van Every, IDHW-DEQ, Pocatello
File

C. 7723

Recycled Paper

1. NAME AND ADDRESS OF FACILITY

Facility Name: Pocatello Water Pollution Control
Address: 10733 N. Rio Vista Rd.
P.O. Box 4169
City: Pocatello, ID 83201
Facility Contact Signatory: Brent Hokanson (208) 234-6254

2. NAME AND ADDRESS OF FACILITY OWNER

Facility Owner's Nam: City of Pocatello
Address: 911 N. 7th Avenue
P.O. Box 4169
City: Pocatello, ID 83205-4169

3. REPORTING PERIOD

	YEAR	MO	DAY		YEAR	MO	DAY
FROM	2003	01	01	TO	2003	12	31

4. NPDES PERMIT NUMBER: ID-002178-4

5. SLUDGE PERMIT NUMBER: N/A

6. FACILITY STATUS

- ☒ Preparer of sewage sludge
- ☒ Land applier
- ☐ Owner/operator of surface disposal site
- ☐ Owner/operator of incinerator

7. TOTAL ANNUAL VOLUME OF SEWAGE SLUDGE

___,___,__2,218

Units: ☒ (metric tons; dry weight)
☐ Other ____________

8. FINAL USE AND DISPOSAL METHODS

- ☒ Land application
- ☐ Surface disposal
  - ☐ Unlined or ☐ Lined
- ☐ Incineration
- ☐ Other, explain ____________

9. Name and address of persons performing final use or disposal (attach additional sheets if necessary)

☒ Same as preparer

Facility Name ____ Address ____ City ____ State __ Zip ____ Facility Contact ____ Volume of sludge received from preparer ____ Final use/disposal method for sludge ____	Facility Name ____ Address ____ City ____ State __ Zip ____ Facility Contact ____ Volume of sludge received from preparer ____ Final use/disposal method for sludge ____
Facility Name ____ Address ____ City ____ State __ Zip ____ Facility Contact ____ Volume of sludge received from preparer ____ Final use/disposal method for sludge ____	Facility Name ____ Address ____ City ____ State __ Zip ____ Facility Contact ____ Volume of sludge received from preparer ____ Final use/disposal method for sludge ____

10. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information submitted, it is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information.

Name and Official Title *(type or print)*: Brent Hokanson, WPC Superintendent

Signature: Brent Hokanson

Area Code and Phone: (208) 234-6254

Date Signed: 02/04/04

7724

AMSA Part 503 Reporting Forms

002602

1. NAME AND ADDRESS OF FACILITY

Facility Name: Pocatello Water Pollution Control
Address: 10733 N. Rio Vista Rd.
P.O. Box 4169
City: Pocatello, ID 83201
Facility Contact: Brent Hokanson (208) 234-6254

2. NAME AND ADDRESS OF FACILITY OWNER

Facility Owner's Name: City of Pocatello
Address: 911 N. 7th Ave.
PO Box 4169
City: Pocatello State: ID Zip: 83201

3. MONITORING PERIOD

	YEAR	MO	DAY		YEAR	MO	DAY
FROM	2003	06	25	TO			

ID-002178-4
4. NPDES PERMIT NUMBER

NA
5. SLUDGE PERMIT NUMBER

6. INSTRUCTIONS: Complete the form based on the results of all analyses performed during the monitoring period using approved analytical methods. Complete a separate sheet for each monitoring period during the reporting period.

Parameter		Pollutant Concentration (dry Weight) Average	Units	Frequency of Analysis	Sample Type (Grab or composite)	Analytical Method
Arsenic	Sample Measurement	ND	mg/kg DB	1	composite	SW6010B
	Regulatory Requirement	41				
Cadmium	Sample Measurement	2	" "	1	composite	SW6010B
	Regulatory Requirement	39				
Chromium	Sample Measurement	24			composite	SW6010B
	Regulatory Requirement					
Copper	Sample Measurement	994	" "	1	composite	SW6010B
	Regulatory Requirement	1500				
Lead	Sample Measurement	36	" "	1	composite	SW6010B
	Regulatory Requirement	300				
Mercury	Sample Measurement	ND [1]	" "	1	composite	SW7471A
	Regulatory Requirement	17				
Molybdenum	Sample Measurement	8			composite	SW6010B
	Regulatory Requirement					
Nickel	Sample Measurement	16	" "	1	composite	SW6010B
	Regulatory Requirement	420				
Selenium	Sample Measurement	ND	" "	1	composite	SW6010B
	Regulatory Requirement	100				
Zinc	Sample Measurement	647	" "	1	composite	SW6010B
	Regulatory Requirement	2800				

7. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information submitted, it is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information.

Name and Official Title (type or print): Brent Hokanson, WPC Superintendent

Signature: Brent Hokanson

Area Code and Phone: (208) 234-6254

Date Signed: 02/04/04

AMSA Part 503 Reporting Form

0 7725

[redacted]

1. NAME AND ADDRESS OF FACILITY	2. NAME AND ADDRESS OF FACILITY OWNER
Facility Name: Pocatello Water Pollution Control	Facility Owner's Name: City of Pocatello
Address: 10733 N. Rio Vista Rd. P.O. Box 4169	Address: 911 N. 7th Ave. PO Box 4169
City: Pocatello, ID 83201	City: Pocatello State: ID Zip: 83201
Facility Contact: Brent Hokanson (208) 234-6254	

3. MONITORING PERIOD

	YEAR	MO	DAY		YEAR	MO	DAY
FROM	2003	08	06	TO			

4. NPDES PERMIT NUMBER: ID-002178-4

5. SLUDGE PERMIT NUMBER: NA

6. INSTRUCTIONS: Complete the form based on the results of all analyses performed during the monitoring period using approved analytical methods. Complete a separate sheet for each monitoring period during the reporting period.

Parameter		Pollutant Concentration (dry Weight) Average	Units	Frequency of Analysis	Sample Type (Grab or composite)	Analytical Method
Arsenic	Sample Measurement	8	mg/kg DB	1	composite	SW6020
	Regulatory Requirement	41				
Cadmium	Sample Measurement	2.3	" "	1	composite	SW6020
	Regulatory Requirement	39				
Chromium	Sample Measurement	34			composite	SW6020
	Regulatory Requirement					
Copper	Sample Measurement	943	" "	1	composite	SW6020
	Regulatory Requirement	1500				
Lead	Sample Measurement	25	" "	1	composite	SW6020
	Regulatory Requirement	300				
Mercury	Sample Measurement	0.3	" "	1	composite	SW7471A
	Regulatory Requirement	17				
Molybdenum	Sample Measurement	10.8			composite	SW6020
	Regulatory Requirement					
Nickel	Sample Measurement	18	" "	1	composite	SW6020
	Regulatory Requirement	420				
Selenium	Sample Measurement	6.5	" "	1	composite	SW6020
	Regulatory Requirement	100				
Zinc	Sample Measurement	702	" "	1	composite	SW6020
	Regulatory Requirement	2800				

7. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information submitted, it is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information.

Name and Official Title (type or print): Brent Hokanson, WPC Superintendent

Signature: Brent Hokanson

Area Code and Phone: (208) 234-6254

Date Signed: 02/04/04

AMSA Part 503 Reporting Forms

7726

002604

1. NAME AND ADDRESS OF FACILITY	
Facility Name	Pocatello Water Pollution Control
Address	10733 N. Rio Vista Rd.
	P.O. Box 4169
City	Pocatello, ID 83201
Facility Contact	Brent Hokanson (208) 234-6254

2. NAME AND ADDRESS OF FACILITY OWNER	
Facility Owner's Name	City of Pocatello
Address	911 N. 7th Ave.
	PO Box 4169
City	Pocatello State ID Zip 83201

3. MONITORING PERIOD

	YEAR	MO	DAY		YEAR	MO	DAY
FROM	2003	08	13	TO			

4. NPDES PERMIT NUMBER ID-002178-4

5. SLUDGE PERMIT NUMBER NA

6. INSTRUCTIONS: Complete the form based on the results of all analyses performed during the monitoring period using approved analytical methods. Complete a separate sheet for each monitoring period during the reporting period.

Parameter		Pollutant Concentration (dry Weight) Average	Units	Frequency of Analysis	Sample Type (Grab or composite)	Analytical Method
Arsenic	Sample Measurement	6.5	mg/kg DB	1	composite	SW6020
	Regulatory Requirement	41				
Cadmium	Sample Measurement	1.8	" "	1	composite	SW6020
	Regulatory Requirement	39				
Chromium	Sample Measurement	26			composite	SW6020
	Regulatory Requirement					
Copper	Sample Measurement	646	" "	1	composite	SW6020
	Regulatory Requirement	1500				
Lead	Sample Measurement	36.6	" "	1	composite	SW6010B
	Regulatory Requirement	300				
Mercury	Sample Measurement	0.91	" "	1	composite	SW7471A
	Regulatory Requirement	17				
Molybdenum	Sample Measurement	9.7			composite	SW6020
	Regulatory Requirement					
Nickel	Sample Measurement	13	" "	1	composite	SW6020
	Regulatory Requirement	420				
Selenium	Sample Measurement	4.	" "	1	composite	SW6020
	Regulatory Requirement	100				
Zinc	Sample Measurement	421	" "	1	composite	SW6020
	Regulatory Requirement	2800				

7. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information submitted, it is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information.

Name and Official Title *(type or print)*: Brent Hokanson, WPC Superintendent

Area Code and Phone: (208) 234-6254

Signature: Brent Hokanson

Date Signed: 02/04/04

7727

AMSA Part 503 Reporting Forms

002605

1. NAME AND ADDRESS OF FACILITY	2. NAME AND ADDRESS OF FACILITY OWNER
Facility Name: Pocatello Water Pollution Control Address: 10733 N. Rio Vista Rd. P.O. Box 4169 City: Pocatello, ID 83201 Facility Contact: Brent Hokanson (208) 234-6254	Facility Owner's Name: City of Pocatello Address: 911 N. 7th Ave. PO Box 4169 City: Pocatello State: ID Zip: 83201

3. MONITORING PERIOD

	YEAR	MO	DAY		YEAR	MO	DAY
FROM	2003	08	20	TO			

4. NPDES PERMIT NUMBER: ID-002178-4

5. SLUDGE PERMIT NUMBER: NA

6. INSTRUCTIONS: Complete the form based on the results of all analyses performed during the monitoring period using approved analytical methods. Complete a separate sheet for each monitoring period during the reporting period.

Parameter		Pollutant Concentration (dry Weight) Average	Units	Frequency of Analysis	Sample Type (Grab or composite)	Analytical Method
Arsenic	Sample Measurement	ND	mg/kg DB	1	composite	SW6020
	Regulatory Requirement	41				
Cadmium	Sample Measurement	2.2	" "	1	composite	SW6020
	Regulatory Requirement	39				
Chromium	Sample Measurement	ND			composite	SW6020
	Regulatory Requirement					
Copper	Sample Measurement	949	" "	1	composite	SW6010B
	Regulatory Requirement	1500				
Lead	Sample Measurement	29.5	" "	1	composite	SW6020
	Regulatory Requirement	300				
Mercury	Sample Measurement	0.6	" "	1	composite	SW7471A
	Regulatory Requirement	17				
Molybdenum	Sample Measurement	12.6			composite	SW6020
	Regulatory Requirement					
Nickel	Sample Measurement	50	" "	1	composite	SW6020
	Regulatory Requirement	420				
Selenium	Sample Measurement	4.9	" "	1	composite	SW6020
	Regulatory Requirement	100				
Zinc	Sample Measurement	479	" "	1	composite	SW6020
	Regulatory Requirement	2800				

7. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information submitted, it is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information.

Name and Official Title *(type or print)*: Brent Hokanson, WPC Superintendent

Signature: Brent Hokanson

Area Code and Phone: (208) 234-6254

Date Signed: 02/04/04

AMSA Part 503 Reporting Forms

7728

002606

1. NAME AND ADDRESS OF FACILITY

Facility Name: Pocatello Water Pollution Control
Address: 10733 N. Rio Vista Rd.
P.O. Box 4169
City: Pocatello, ID 83201
Facility Contact: Brent Hokanson (208) 234-6254

2. NAME AND ADDRESS OF FACILITY OWNER

Facility Owner's Name: City of Pocatello
Address: 911 N. 7th Ave.
PO Box 4169
City: Pocatello State: ID Zip: 83201

	3. MONITORING PERIOD						
	YEAR	MO	DAY		YEAR	MO	DAY
FROM	2003	08	27	TO			

ID-002178-4
4. NPDES PERMIT NUMBER

NA
5. SLUDGE PERMIT NUMBER

6. INSTRUCTIONS: Complete the form based on the results of all analyses performed during the monitoring period using approved analytical methods. Complete a separate sheet for each monitoring period during the reporting period.

Parameter		Pollutant Concentration (dry Weight) Average	Units	Frequency of Analysis	Sample Type (Grab or composite)	Analytical Method
Arsenic	Sample Measurement	ND	mg/kg DB	1	composite	SW6020
	Regulatory Requirement	41				
Cadmium	Sample Measurement	2.2	" "	1	composite	SW6020
	Regulatory Requirement	39				
Chromium	Sample Measurement	ND			composite	SW6020
	Regulatory Requirement					
Copper	Sample Measurement	860	" "	1	composite	SW6020
	Regulatory Requirement	1500				
Lead	Sample Measurement	32.9	" "	1	composite	SW6020
	Regulatory Requirement	300				
Mercury	Sample Measurement	2	" "	1	composite	SW7471A
	Regulatory Requirement	17				
Molybdenum	Sample Measurement	11.9		—	composite	SW6020
	Regulatory Requirement					
Nickel	Sample Measurement	20	" "	1	composite	SW6020
	Regulatory Requirement	420				
Selenium	Sample Measurement	6	" "	1	composite	SW6020
	Regulatory Requirement	100				
Zinc	Sample Measurement	459	" "	1	composite	SW6020
	Regulatory Requirement	2800				

7. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information submitted, it is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information.

Name and Official Title *(type or print)*: Brent Hokanson, WPC Superintendent
Area Code and Phone: (208) 234-6254
Signature: Brent Hokanson
Date Signed: 02/04/04

7729

AMSA Part 503 Reporting Forms

1. NAME AND ADDRESS OF FACILITY

Facility Name: Pocatello Water Pollution Control
Address: 10733 N. Rio Vista Rd.
P.O. Box 4169
City: Pocatello, ID 83201
Facility Contact: Brent Hokanson (208) 234-6254

2. NAME AND ADDRESS OF FACILITY OWNER

Facility Owner's Name: City of Pocatello
Address: 911 N. 7th Ave.
PO Box 4169
City: Pocatello State: ID Zip: 83201

	3. MONITORING PERIOD						
	YEAR	MO	DAY		YEAR	MO	DAY
FROM	2003	09	04	TO			

4. NPDES PERMIT NUMBER: ID-002178-4

5. SLUDGE PERMIT NUMBER: NA

6. INSTRUCTIONS: Complete the form based on the results of all analyses performed during the monitoring period using approved analytical methods. Complete a separate sheet for each monitoring period during the reporting period.

Parameter		Pollutant Concentration (dry Weight) Average	Units	Frequency of Analysis	Sample Type (Grab or composite)	Analytical Method
Arsenic	Sample Measurement	13	mg/kg DB	1	composite	SW6020
	Regulatory Requirement	41				
Cadmium	Sample Measurement	1.6	" "	1	composite	SW6020
	Regulatory Requirement	39				
Chromium	Sample Measurement	43			composite	SW6020
	Regulatory Requirement					
Copper	Sample Measurement	1070	" "	1	composite	SW6020
	Regulatory Requirement	1500				
Lead	Sample Measurement	46	" "	1	composite	SW6020
	Regulatory Requirement	300				
Mercury	Sample Measurement	ND	" "	1	composite	SW7471A
	Regulatory Requirement	17				
Molybdenum	Sample Measurement	11			composite	SW6020
	Regulatory Requirement					
Nickel	Sample Measurement	20	" "	1	composite	SW6020
	Regulatory Requirement	420				
Selenium	Sample Measurement	ND	" "	1	composite	SW6020
	Regulatory Requirement	100				
Zinc	Sample Measurement	704	" "	1	composite	SW6020
	Regulatory Requirement	2800				

7. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information submitted, it is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information.

Name and Official Title (*type or print*): Brent Hokanson, WPC Superintendent

Signature: Brent Hokanson

Area Code and Phone: (208) 234-6254

Date Signed: 02/04/04

7730

AMSA Part 503 Reporting Forms

002608

Pathogen Reduction - Class B - Alternative 2 (40 CFR 503.32(b)(3))

Facility Name Address City State	Pocatello Water Pollution Control 10733 N. Rio Vista Rd. Pocatello ID 83201	Facility Owner's Address City State	City of Pocatello 911 N. 7th Ave. Pocatello ID 83205-4169

Monitoring Period: From 01/01/03 To 12/31/03 Reporting Period: From 01/01/03 To 12/31/03

NPDES Permit No. ID-002178-4 Sludge Permit No. n/a
Facility Latitude 112° 31' 110" Facility Longitude 42° 54' 58"
Site Map Attached? ☒ yes ☐ no

1. Description of Pathogen Reduction Process:

Attach a description of pathogen reduction processes that identifies specific treatment units or activities and the operating parameters for all units or activities. Include variables such as size of treatment unit (in gallons), treatment capacity, sludge detention time, operating temperature, pH, percent solids, and radiation dose when applicable. Also include a description of standard procedures for regular evaluation of the operating parameters.

3 Number of pages attached Y Schematic diagram or drawing attached

2. Operation - *Complete only those questions applicable to processes used, write N/A for all others.*

Aerobic Digestion

NA

	yes	no
a. Was sewage sludge agitated with air or oxygen to maintain aerobic conditions?		
b. Was the detention time for the sludge in the digester between 40 days at 20 degrees Celsius and 60 days at 15 degrees Celsius?		

c. Provide the average detention time and average digester operating temperature for the reporting period ______ days at ______ degrees Celsius

d. Provide the frequency of temperature measurements (i.e., continuous, 1 per hour). ______________

e. Provide the frequency of dissolved oxygen measurements ______________

Air Drying

NA

	yes	no
a. Was the sewage sludge dried on sand beds or on paved or unpaved basins?		
b. Was the sewage sludge dried for a minimum of 3 months?		
c. Was the average ambient daily temperature above zero degrees Celsius during 2 months of the 3-month drying period?		

d. Provide the frequency of ambient air temperature measurements ______ per ______.

7731

Pathogen Reduction - Class B - Alternative 2 [40 CFR 503.32(b)(3)] (Continued)

Anaerobic Digestion

	yes	no
a. Was the residence time for the sewage sludge between 15 days at 35 to 55 degrees Celsius and 60 days at 20 degrees Celsius?	X	

b. Provide the frequency of temperature measurements (i.e., continuous, 1 per hour, etc.) continuous

c. Provide the average detention time and digester operating temperature for the reporting period 35 days at 35 degrees Celsius.

Composting

a. Check which composting method is used:

Within-vessel composting ☐ NA

Windrow composting method ☐

Static aerated pile composting ☐

	yes	no
b. Was the compost raised to at least 40 degrees Celsius or higher and maintained for a period of 5 days?		
c. For 4 hours during the 5-day period, did the temperature in the compost exceed 55 degrees Celsius?		

d. Provide the frequency of temperature measurement (i.e., continuous, 1 per hour, etc.) ____

Lime Stabilization

	yes	no
a. Did the application of lime raise the pH of the sewage sludge to 12 after 2 hours of contact?		

b. Report the frequency that pH was measured (i.e., continuous, 1 per hour) ____ per ____

CERTIFICATION

I certify under penalty of law that the pathogen requirements in 503.32(b)(3) ☐ have ☐ have not been met. This determination has been made under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information used to determine the pathogen requirements and site restrictions have been met. I am aware that there are significant penalties for false certification, including the possibility of fine and imprisonment.

Name and Official Title (*type or print*)	Area Code and Phone No.
Brent Hokanson, WPC Superintendent	(208) 234-6254
Signature: Brent Hokanson	Date Signed: 02/04/04

7732

002610

VECTOR ATTRACTION REDUCTION - LAND APPLICATION 40 CFR 503.33

1. Facility Name Pocatello Water Pollution Control Facility Owner's Name City of Pocatello
Address 10733 N. Rio Vista Rd. Address 911 N. 7th Ave., PO Box 4169
City Pocatello City Pocatello
State ID Zip 83201 State ID Zip 83205-4169

3. Monitoring Period: From 01/01/03 To 12/31/03 Reporting Period: From 01/01/03 To 12/31/03

4. NPDES Permit No. ID-002178-4 Sludge Permit No. NA

5. Facility Latitude 112° 31' 10" Facility Longitude 42° 54' 58"
Site Map Attached? ☒ yes ☐ no

6. Attach a description of vector attraction reduction procedures that identifies specific treatment units or activities and describes operating procedures. Include target values for all operating parameters such as treatment capacity, sludge detention time, operating temperature, pH, and percent solids. Also include a description of standard procedures for regular evaluation of the operating parameters.

____ Number of pages attached ____ Schematic diagram or drawing attached

7. For land application of sludge, one of the first ten vector attraction reduction requirements in 40 CFR 503.33 must be met. Indicate which vector attraction reduction alternative is being used to demonstrate compliance with the regulations. Refer to 40 CFR 503.33 for a description of each alternative. Circle each alternative used during the reporting period and answer the corresponding questions:

Alternative 1 (answer 7a)	Alternative 5 (answer 7e)	Alternative 9 (answer 7i)
Alternative 2 (answer 7b)	Alternative 6 (answer 7f)	Alternative 10 (answer 7j)
Alternative 3 (answer 7c)	Alternative 7 (answer 7g)	
Alternative 4 (answer 7d)	Alternative 8 (answer 7h)	

a. Alternative 1 [40 CFR 503.33(b)(1)]

	yes	no
Has the mass of volatile solids in the sewage sludge been reduced by at least 38 percent?	X	

Frequency volatile solids reduction is verified 1 x per week

b. Alternative 2 [40 CFR 503.33(b)(2)]

NA

	yes	no
Was it demonstrated that the volatile solids, in a portion of the previously anaerobically digested sewage sludge, were reduced by less than 17 percent after 40 days of additional digestion at a temperature between 30° Celsius and 37° Celsius in a bench-scale unit?		

Frequency volatile solids reduction is verified ________ per ________

7733

VECTOR ATTRACTION REDUCTION – LAND APPLICATION (Continued) 40 CFR 503.33

c. Alternative 3 [40 CFR 503.33(b)(3)]

Were the volatile solids in a portion of the previously aerobically digested sewage sludge that has a volatile solids content of 2 percent or less reduced by less than 15 percent after 30 days of additional digestion at 20° Celsius in a bench-scale unit?

yes	no

Frequency volatile solids reduction is verified _________ per _________ NA

d. Alternative 4 [40 CFR 503.33(b)(4)]

If sewage sludge is treated in an aerobic process, is the Specific Oxygen Uptake Rate (SOUR) equal to or less than 1.5 milligrams of oxygen per hour per gram of total solids (dry weight basis) at a temperature of 20 degrees Celsius?

yes	no

Frequency SOUR is evaluated _________ per _________ NA

e. Alternative 5 [40 CFR 503.33(b)(5)]

	yes	no
Is sewage sludge treated in an aerobic process for 14 days or longer?		
AND Is the temperature maintained above 40 degrees Celsius for 14 days or longer?		
AND Is the average temperature over the 14 day period above 45 degrees Celsius?		

Frequency temperature is evaluated _________ per _________ NA

f. Alternative 6 [40 CFR 503.33(b)(6)]

	yes	no
Is the pH of the sewage sludge raised to at least 12 by the addition of alkali?		
AND Without the addition of more alkali, did the mixture remain at a pH of 12 for 2 hours?		
AND After 2 hours at a pH of 12, did the sludge remain at a pH of 11.5 for an additional 22 hours?		

Frequency pH is verified _________ per _________ NA

g. Alternative 7 [40 CFR 503.33(b)(7)]

For sewage sludge that does not contain unstabilized solids generated in a primary wastewater treatment process(es), is the percent solids equal to or greater than 75 percent—based on the moisture content and total solids prior to mixing with other materials?

yes	no

Frequency percent solids is evaluated _________ per _________ NA

VECTOR ATTRACTION REDUCTION — LAND APPLICATION (Continued) 40 CFR 503.33

h. Alternative 8 [40 CFR 503.33(b)(8)]

	yes	no
For sewage sludge that <u>does</u> contain unstabilized solids generated in a primary wastewater treatment process(es), is the percent solids equal to or greater than 90 percent—based on the moisture content and total solids prior to mixing with other materials?		

Frequency percent solids is evaluated ________ per ________

NA

i. Alternative 9 [40 CFR 503.33(b)(9)]

NA

	yes	no
Is sewage sludge injected below the surface of the land?		
Is any significant amount of sewage sludge present on the land surface within 1 hour following the injection of sludge?		
If sewage sludge is Class A with respect to pathogens, was the sewage sludge injected below the land surface within 8 hours following the pathogen reduction process(es)?		

j. Alternative 10 [40 CFR 503.33(b)(10)]

	yes	no
Is sewage sludge, once applied to the land surface, mixed into the soil?		
Is the sludge incorporated into the soil within 6 hours following its application to the land surface?		
If sewage sludge is Class A with respect to pathogens, was the sewage sludge applied to or placed on the land within 8 hours following the pathogen reduction process(es)?		

NA

8. CERTIFICATION

I certify under penalty of law that one of the vector attraction requirements in 40 CFR 503.33 ☐ has ☐ has not been met. This determination has been made under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the vector attraction reduction requirements have been met. I am aware that there are significant penalties for false certification, including the possibility of fine and imprisonment.

Name and Official Title *(type or print)*	Area Code and Phone No.
Brent Hokanson, WPC Superintendent	(208) 234-6254
Signature: Brent Hokanson	Date Signed: 02/04/04

7735

Pathogen Reduction: Class B – Alternative 2

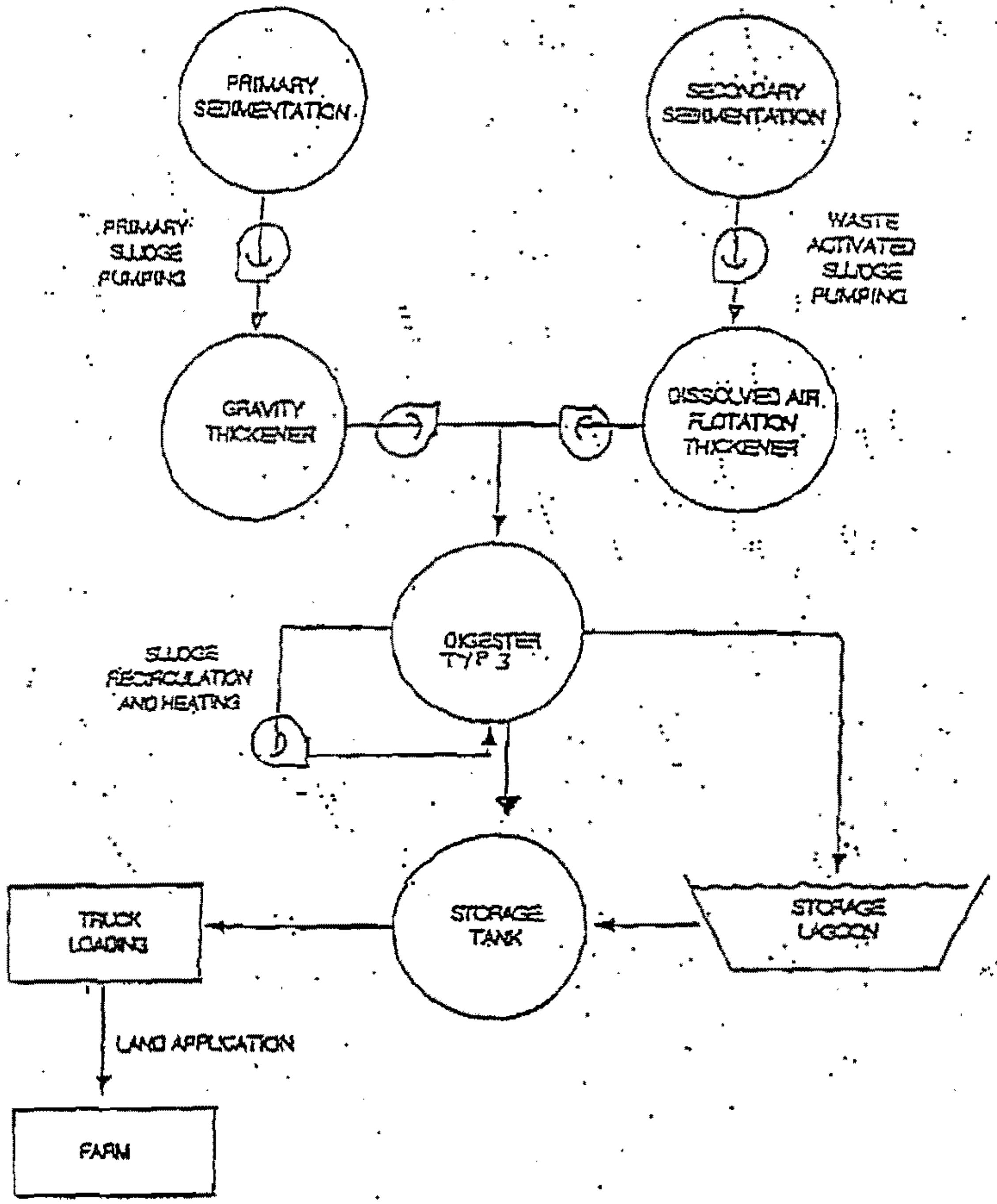
Pocatello's WWPT has three digesters which have the capacity of 71,000 ft. each. The total detention time for the digesters is 35 days at 35 degrees Celsius.

Vector Attraction: Alternative 1

Pocatello's anaerobic digestion and biosolids storage lagoon reduces the mass of volatile solids an average of 47%.

Pocatello's monthly averages for volatile solids reduction during 2003:

January	53%
February	43%
March	45%
April	41%
May	45%
June	49%
July	48%
August	50%
September	48%
October	49%
November	50%
December	39%
Average	47%



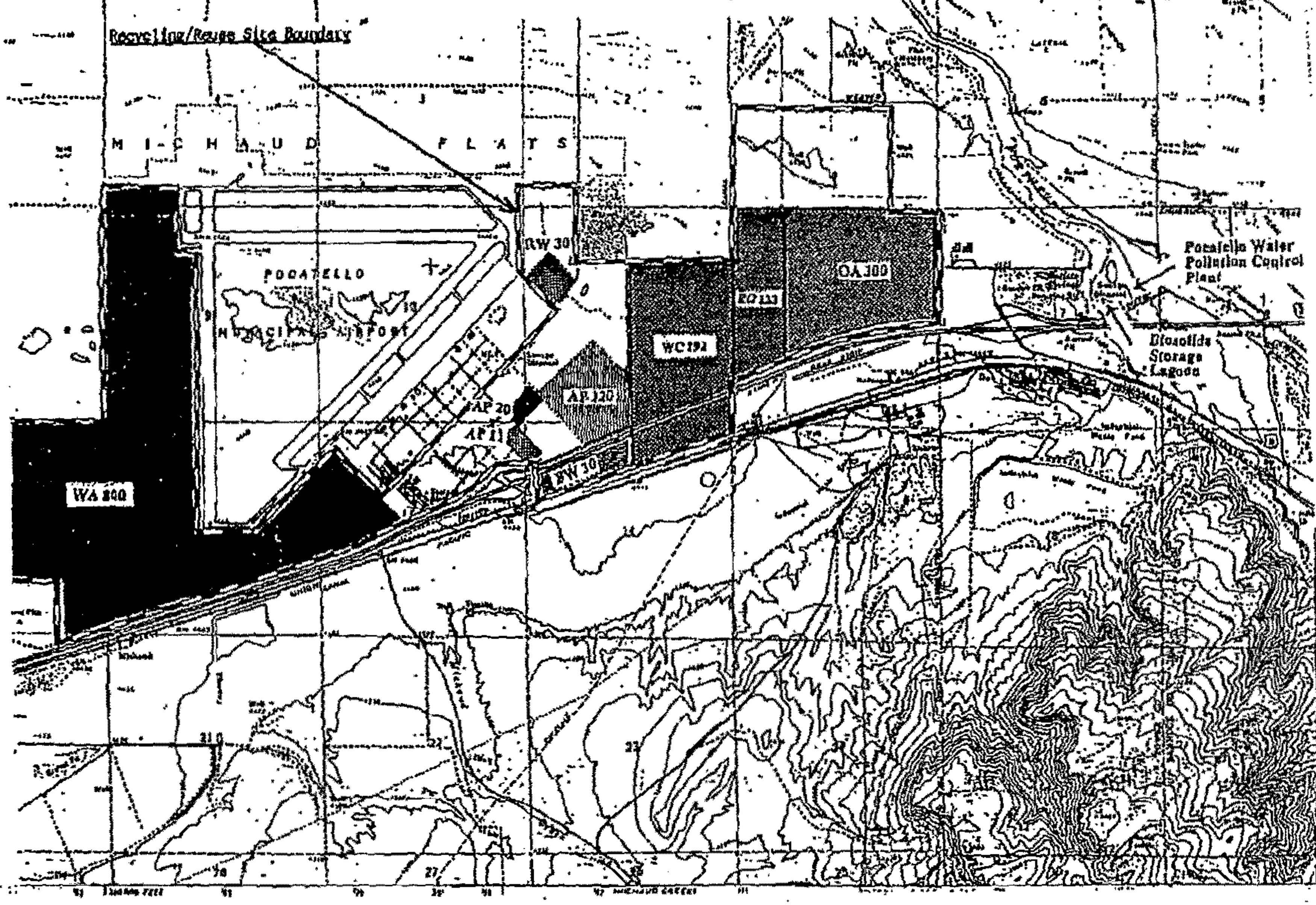
SLUDGE FLOW DIAGRAM FOR
POCATELLO WASTEWATER TREATMENT FACILITY

7737

002616

7738

Pocatello Biosolids Beneficial Recycling/Reuse Site
Agricultural Sites for Land Application



WPC NPDES Permit
expires Sept 04

Ex 4

United States Environmental Protection Agency
Region 10
1200 Sixth Avenue
Seattle, Washington 98101

Admitted

29-271 et al.
(Subcase No.)
EXHIBIT
Doc. 156
Date: 2/26/07

AUTHORIZATION TO DISCHARGE
AND LAND APPLY SEWAGE SLUDGE (BIOSOLIDS)
UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Clean Water Act, 33 U.S.C. §1251 et seq., as amended by the Water Quality Act of 1987, P.L. 100-4, the "Act",

City of Pocatello
Water Pollution Control Plant
10733 N. Rio Vista Road
Pocatello, ID 83201

is authorized to discharge from Outfall 001 at the wastewater treatment facility located at Pocatello, Idaho. Outfall 001 is located at latitude 42° 54' 58" and longitude 112° 31' 10"

to receiving waters named Portneuf River,

in accordance with discharge point(s), effluent limitations, monitoring requirements and other conditions set forth herein, and is authorized to land apply biosolids, in accordance with application sites, specific limitations, monitoring requirements, management practices, and other conditions set forth herein.

This permit shall become effective September 7, 1999.

This permit and the authorization to discharge and land apply biosolids shall expire at midnight, September 7, 2004.

Signed this 2nd day of August 1999.

Randall F. Smith
Director
Office of Water
U.S. Environmental Protection Agency, Region 10

RECEIVED
AUG - 5 1999
CITY OF POCATELLO
WPC DEPT.

7739

002617

TABLE OF CONTENTS

7740

I. SPECIFIC LIMITATIONS AND MONITORING REQUIREMENTS

A. Effluent Limitations

1. During the effective period of this permit, the permittee is authorized to discharge wastewater to the Portneuf River from Outfall 001 provided the discharge meets the limitations and monitoring requirements set forth herein. This permit does not authorize the discharge of any waste streams, including spills and other unintentional or non-routine discharges of pollutants, that are not part of the normal operation of the facility as disclosed in the permit application.

Table 1. Effluent Limitations Outfall 001

Parameter	Average Monthly Limit	Average Weekly Limit	Daily Maximum Limit
Biochemical Oxygen Demand (BOD_5)	30 mg/l	45 mg/l	—
	3000 lbs/day	4500 lbs/day	—
Total Suspended Solids (TSS)	30 mg/l	45 mg/l	—
	3000 lbs/day	4500 lbs/day	—
Fecal Coliform Bacteria[1]	200/100 ml	200/100 ml	800/100 ml
Effective Date of Permit through 12/31/2000: Total Residual Chlorine	—	—	500 μg/l
Effective 1/1/2001: Total Residual Chlorine[2]	25 μg/l	—	58 μg/l
	2.5 lbs/day		5.8 lbs/day
Effective 3/1/2004: Total Ammonia as N	4.4 mg/l	—	8.1 mg/l
	440 lbs/day		810 lbs/day

1. The average monthly fecal coliform count must not exceed a geometric mean of 200/100 ml based on a minimum of five (5) samples per month. The average shall be calculated as the average of all samples collected during the month. The average weekly fecal coliform count shall not exceed a geometric mean of 200/100 ml based on a minimum of five (5) samples per week.
2. The final effluent limitations for total residual chlorine are not quantifiable using EPA approved analytical methods. The Minimum Level (ML) for chlorine is 100 μg/l. When the daily maximum and average monthly effluent concentration is below the ML, EPA will consider the permittee in compliance with the total residual chlorine limitations. For the purposes of averaging, the permittee shall use actual values for all values measured above the method detection limit (MDL) of 10 μg/l. Values less than the MDL may be set equal to zero.

Jon

Jon

Jon

2. The pH range shall be between 6.0 - 9.0 standard units.

3. There shall be no discharge of floating solids or visible foam other than trace amounts.

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4. 85% Removal Requirements for BOD_5 and TSS: For any month, the monthly average effluent concentration for BOD_5 and TSS shall not exceed 15 percent of the monthly average influent concentration.

   Percent removal of BOD_5 and TSS shall be reported on the Discharge Monitoring Reports (DMRs). For each parameter, the monthly average percent removal shall be calculated from the arithmetic mean of the influent values and the arithmetic mean of the effluent values for that month.

B. Effluent Monitoring Requirements

During the period beginning on the effective date of this permit, and lasting through the expiration date, the following monitoring requirements shall apply.

Table 2. Monitoring Requirements for Outfall 001

Parameter[1]	Units	Sample Location	Sample Frequency	Sample Type	
Flow	mgd	Effluent	Continuous	Recording	
Temperature[2]	°C	Effluent	5 days/week	Grab	
pH[2]	s.u.	Effluent	5 days/week	Grab	
Biochemical Oxygen Demand (BOD_5)[3]	mg/l, lbs/day	Influent and Effluent	5 days/week	24-hour composite	
Total Suspended Solids (TSS)[3]	mg/l, lbs/day	Influent and Effluent	5 days/week	24-hour composite	
Fecal Coliform Bacteria	#/100ml	Effluent	5 days/week	Grab	
Total Residual Chlorine[4]	µg/l, lbs/day	Effluent	5 days/week	Grab	Jon
Total Ammonia as N before March 1,2004	mg/l, lbs/day	Effluent	1/week	24-hour composite	Jon
Total Ammonia as N after March 1,2004	mg/l, lbs/day	Effluent	5 days/week	24-hour composite	Jon
Dissolved Oxygen[2]	mg/l	Effluent	1/week	Grab	Jon
E. Coli Bacteria	#/100ml	Effluent	1/month	Grab	Jon

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Table 2. Monitoring Requirements for Outfall 001				
Parameter[1]	Units	Sample Location	Sample Frequency	Sample Type
Copper[5,6]	μg/l, lbs/day	Effluent	1/month	24-hour composite
Total Kjeldahl Nitrogen[6]	mg/l	Effluent	1/week	24-hour composite
Nitrate-Nitrite[6]	mg/l	Effluent	1/week	24-hour composite
Total Phosphorus[6]	mg/l	Effluent	1/week	24-hour composite
Ortho-Phosphate[6]	mg/l	Effluent	1/week	24-hour composite
Turbidity[6]	NTU	Effluent	1/week	24-hour composite
Hardness as $CaCO_3$[6]	mg/l	Effluent	1/week	24-hour composite
Whole Effluent Toxicity[7]	TUc	Effluent	2/year	24-hour composite

1. If an analytical value is "less than the method detection limit, the permittee shall report "< [numerical method detection limit]" on the DMR. For example, if the laboratory reports "not detected" for a sample, and states that the method detection limit is "5 μg/L" then the permittee shall report "< 5 μg/L" on the DMR
2. Permittee may implement continuous monitoring equipment for sampling of these parameters.
3. Influent and effluent composite samples shall be collected during the same 24-hour period.
4. The analytical method for TRC analysis shall achieve a method detection limit (MDL) of 10 μg/L.
5. The analytical method for copper analysis shall achieve a detection limit of 5 μg/L.
6. These parameters shall be analyzed for a period of one year. Monitoring shall start 90 days after the effective date of the permit.
7. See Section I.E. of the permit for additional information on WET monitoring requirements.

C. Ammonia Compliance Schedule

1. The permittee shall achieve compliance with the ammonia as N effluent limitations of Table 1 of this permit by March 1, 2004. Within six months of the effective date of this permit, the permittee shall develop a schedule of compliance which includes major milestones towards meeting the final compliance date. The schedule of compliance shall be submitted to Idaho Division of Environmental Quality (Pocatello Office) for review and approval.

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2. Reporting. The permittee shall submit an annual Report of Progress which outlines the progress made towards reaching the compliance date for the ammonia effluent limitations. The annual report shall include a report on the progress made towards implementation of the milestones identified in the schedule of compliance required under paragraph C.1. above. The annual report of progress shall be submitted with the January Discharge Monitoring Report (DMR) consistent with section II. C. of this permit. The first report is due with the January 2001 DMR and annually thereafter, until compliance with the effluent limit is achieved.

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D. Ambient Monitoring Requirements

The permittee shall implement an ambient monitoring program that meets the following requirements:

1. Monitoring stations shall be established on the Portneuf River as follows:

   a. Above the influence of the facility's discharge at Batise Road
   b. Below the facility's discharge at Siphon Road.

2. To the extent practicable, ambient sample collection shall occur concurrently with effluent sample collection.

3. River samples shall be spatially integrated grab samples

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4. Ambient sampling shall be conducted as follows at the two stations given in I.D.1.

Table 3. Ambient Monitoring

Parameter	Sampling Frequency
Flow, cfs	1/month
TSS, mg/L	1/month
Turbidity, NTU	1/month
Fecal Coliform Bacteria, colonies/100 mL	1/month
Total Phosphorus, mg/L	1/month
Ortho Phosphorus, mg/L	1/month
Total Ammonia as N, mg/L	1/month
Nitrate-Nitrite as N, mg/L	1/month
Total Kjeldahl Nitrogen as N, mg/L	1/month
Total Alkalinity as $CaCO_3$, mg/L	1/month

Table 3. Ambient Monitoring	
Parameter	Sampling Frequency
Sulphate, mg/L	1/month
Chloride, mg/L	1/month
Temperature, degrees C	1/hr[1]
pH, standard units	1/hr[1]
Dissolved Oxygen	1/hr[1]
1. 2 days/month Nov-April; 10 days/month May-October; when river flows < 1,000 cfs	

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5. Results of the ambient monitoring program for the period February 1998 through December 2000 will be submitted in accordance with reporting requirements specified in part II.C. of this permit. An annual report containing the preceding year's data will be submitted by May 1, 2000 and May 1, 2001. The 2001 report will include an evaluation of the ambient monitoring program and recommendations for future continuation, if needed, to document the impact of the facility's discharge on the Portneuf River.

Whole Effluent Toxicity Testing

Toxicity tests shall be performed semi-annually after the effective date of the permit through the year 2003. Test shall be performed once during the period from April 1 through October 31, and once during the period from November 1 through March 31 on 24-hour composite effluent samples. After January 1, 2004, tests shall be performed once per calender year quarter (4 tests per year). Samples shall be taken at the NPDES sampling location.

1. Organisms and protocols

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a. The permittee shall conduct short-term tests with the water flea, *Ceriodaphnia dubia* (survival and reproduction test), and the fathead minnow, *Pimephales promelas* (larval survival and growth test).

b. The presence of chronic toxicity shall be estimated as specified in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms* (the "manual"), Third Edition, EPA/600-4-91-002, July 1994.

c. Results shall be reported in TUc (chronic toxic units). TUc = 100/No Observed Effect Concentration (NOEC).

2. Toxicity Trigger

Chronic toxicity testing requirements are triggered when the NOEC exceeds..

3.3 TUc. When chronic toxicity testing requirements are triggered, the permittee shall comply with the requirements set out in paragraphs 4 and 5 below.

3. Quality Assurance

a. A series of five dilutions and a control shall be tested. The dilution series shall include 30 percent, 2 dilutions above 30 percent and 2 dilutions below 30 percent.

b. If organisms are not cultured in-house, concurrent testing with reference toxicants shall be conducted. Where organisms are cultured in-house, monthly reference toxicant testing is sufficient.

c. If either the reference toxicant tests or the effluent tests do not meet all test acceptability criteria (TAC) as specified in the test methods manual, then the permittee must re-sample and re-test as soon as possible.

d. Reference toxicant tests shall be conducted using the same test conditions as the effluent toxicity test (i.e., same test duration, etc.).

e. Control and dilution water shall be laboratory water as described in the manual. If the dilution water used is different from the culture water, a second control, using culture water shall also be used. Receiving water may be used as control and dilution water upon notification of EPA. In no case shall water that has not met test acceptability criteria be used as dilution water.

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f. Chemical testing for the parameters listed in Part I.A.1 of this permit shall be performed on a split sample collected for WET testing. To the extent that the timing of sample collection coincides with that of the sampling required in Part I.A.1. of this permit, chemical analysis of the split sample will fulfill the requirements of Part I.A.1.

4. Accelerated Testing

a. The accelerated testing requirements of this section are applicable to results of toxicity testing conducted after January 1, 2004.

b. If chronic toxicity testing requirements as defined in paragraph E.2. above are triggered, then the permittee shall conduct six more tests, bi-weekly (every two weeks), over a twelve-week period. Testing shall commence within two weeks of receipt of the sample results of the exceedance.

5. Toxicity Reduction Evaluation (TRE)

a. If chronic toxicity, as defined paragraph E.2, is detected in any of the six additional tests required under paragraph E.4.b, then the permittee shall develop and initiate a TRE workplan. Initiation of the TRE shall commence within thirty (30) days of receipt of the sample results of the

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exceedance. The document Toxicity Reduction Evaluation Protocol for Municipal Wastewater Treatment Plants, EPA/600/2-88/062, may be used in developing a TRE workplan for this facility.

b. If none of the six tests required under paragraph E.5.a. above indicates toxicity, then the permittee may return to the normal testing frequency.

6. Reporting:

a. Results of toxicity tests, including any accelerated testing conducted during the month, shall be reported on the Discharge Monitoring Report (DMR) for the month in which the tests are conducted.

b. The full report shall be submitted by the end of the month in which the DMR is submitted.

c. The full report shall consist of : (1) the toxicity test results; (2) the dates of sample collection and initiation of each toxicity test; (3) the flow rate at the time of sample collection; and (4) the results of the effluent analysis for chemical parameters required for the outfall as defined in Part I.A.1. of the permit.

d. Test results for chronic tests shall be reported according to the chapter on Report Preparation found in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*, Third Edition, EPA/600-4-91-002, July 1994.

F. Pretreatment Requirements

1. Metals and Cyanide Sampling: The permittee shall conduct sampling semi-annually, once during the dry season and once during the wet season, for arsenic, cadmium, chromium, copper, cyanide (total and weak acid dissociable), lead, mercury, nickel, silver, and zinc. At a minimum, sampling should achieve the following method detection limits:

Table 4. Method Detection Limits

Parameter	Method Detection Limit
Arsenic	0.5 µg/L
Cadmium	0.05 µg/L
Chromium	0.1 µg/L
Copper	5 µg/L
Cyanide	20 µg/L
Lead	0.7 µg/L

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Table 4. Method Detection Limits	
Parameter	Method Detection Limit
Mercury	0.2 µg/L
Nickel	0.6 µg/L
Silver	0.5 µg/L
Zinc	1 µg/L

2. Sampling Locations and Sample Type: Sampling shall be conducted on the influent, effluent, and final sludge. Influent and effluent samples shall be a 24-hour composite, except for cyanide (see D. 5., below). Final sludge samples shall be grab samples taken as the sludge leaves the treatment processes and before mixing with sludge of different age in drying beds or in storage.

3. Sampling Frequency: Influent and effluent samples shall be collected three consecutive days in one week (Monday through Friday). The sludge grab sample shall be collected during the same three day period.

4. Sampling Results: The analytical results for the influent and effluent samples shall be reported as total of the parameter in mg/L. Analytical results for sludge shall be reported in mg/kg (dry weight). Additionally, the permittee shall report the percent of solids in the sludge.

   Sampling results shall be submitted with the Pretreatment Annual Report (see section II.D. of this permit).

5. Cyanide Monitoring: Influent and effluent sampling for cyanide shall be conducted as follows. Eight discrete grab samples shall be collected over a 24-hour period. Each grab sample shall be at least 100 ml. Each sample shall be checked for the presence of interferences (sulfides and chlorine) and any interferences must be removed (refer to *Standard Methods*, 4500-CN B). The holding time for a sample is 24 hours unless the sulfides have been removed. If sulfides have been removed from a sample, the holding time is 14 days. After testing and treating for the sulfides and chlorine, the pH of each sample shall be adjusted, using sodium hydroxide, to 12.0 standard units. Each sample can then be composited into a larger container which has been chilled to 4 degrees Celsius, to allow for one analysis for the day. The permittee may elect to sample for cyanide prior to chlorination. Refer to Standard Methods, 4500-CN⁻ I, for weak acid dissociable cyanide method.

6. The permittee shall conduct a local limits re-evaluation taking into account water quality in the receiving stream, inhibition levels for biological processes in the treatment plants, and sludge quality goals. The pollutants addressed shall be, at a minimum, arsenic, cadmium, chromium, copper, cyanide, lead, mercury, nickel,

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silver, and zinc. The limits and supporting documentation shall be submitted to EPA for review and approval within six months after the effective date of this permit.

G. Sewage Sludge (Biosolids) Management Requirements

1. The permittee shall comply with all existing federal and state laws and regulations that apply to its biosolids use or disposal practice. Additionally, the permittee shall ensure that biosolids are used or disposed in accordance with the applicable requirements of 40 CFR Part 503 Subparts A, B, and D, and the Biosolids Management Plan identified in the Definitions section of this permit. The federal regulations shall be interpreted using this permit and the documents "Part 503 Implementation Guidance" EPA 833-R-95-001, and "Environmental Regulations and Technology, Control of Pathogens and Vector Attraction in Sewage Sludge" EPA/625/R-92/013.

2. The permittee shall handle and dispose of biosolids so the public health and the environment are protected from any reasonably anticipated adverse effects due to any toxic pollutants that may be present.

3. The Permittee shall ensure pollutants from the biosolids do not reach surface waters of the United States.

4. For this permit, the Permittee is considered the person who applies biosolids for the purposes of determining compliance with the permit and compliance with the 40 CFR Part 503. This includes having records on actual agronomic loadings and on types of crops grown.

5. Class B biosolids applied to the land shall meet the requirements in Table 5:

TABLE 5: Requirements for Biosolids Applied to Land

Disposal Method	Product	Requirements
Land Application	Class B biosolids only	1. Pollutants: • Monthly Average Concentrations 40 CFR § 503.13(a)(2)(ii)[1] • Ceiling Concentrations 40 CFR § 503.13(a)(1) 2. Pathogens: • Anaerobic Digestion, 40 CFR § 503.32(b)(3)[2], App B (A,3) 3. Vector Control: • >38% Volatile Solids Reduction, 40 CFR § 503.33(b)(1)[2], 4. Permittee must obtain EPA approval before land application for soil reclamation (above agronomic rates).

TABLE 5: Requirements for Biosolids Applied to Land	
1.	EPA may separately approve through minor permit modification or by letter, the method of controlling the accumulation of metals per 40 CFR § 503.13(a)(2)(i).
2.	EPA may separately approve through minor permit modification or by letter: Pathogen Treatment - any Class A process per 40 CFR § 503.32(a), Class B equivalency per 40 CFR § 503.32(b)(4), or Class B compost or liming per 40 CFR § 503.32(b)(3) App B(A.4-5), and Vector Control - compost or liming per 40 CFR § 503.33(b)(5) or (6). There are additional pathogen reduction and vector attraction reduction alternatives available in 40 CFR § 503.32 and 40 CFR § 503.33. If the permittee intends to use one of these additional alternatives, the EPA and the state DEQ must be notified at least 30 days prior to its use. Notification shall include a demonstration of the facility's ability to measure compliance with the alternative option. The city may begin using the new alternative 30 days after submittal of a complete process description unless notified otherwise by EPA.

6. Biosolids (sewage sludge) may not be applied in the fall or winter without a cover crop unless a nitrogen mobility analysis has been conducted which demonstrates that mobile forms of nitrogen will be retained in the soil and utilized by the subsequent (spring) crop. The nitrogen mobility analysis procedure shall be designed by a qualified professional. The analysis shall address all forms of nitrogen and the major soil types, soil profiles, and crops to which the sludge will be applied. The analysis shall be updated as necessary. Soil nitrogen shall be tested to validate the results of the nitrogen mobility analysis. The soil nitrogen testing program shall be designed by a qualified professional. A record shall be kept of the analysis and testing results. This requirement will become effective August 1, 2000.

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7. Biosolids may be distributed in the specific land application areas identified in Table 6 (See map in Appendix A). All of the approved land application areas are within the "Pocatello Biosolids Beneficial Reuse Site" (map in Appendix A). Additional land application sites may be developed within the Pocatello Biosolids Beneficial Reuse Site provided the following conditions are met.

   a) The Permittee shall submit an individual site plan to EPA 30 days prior to land applying biosolids to the new site. The site plan shall provide information on the site conditions and on the intended disposal practices at the site. The site plan shall be prepared in accordance with this permit and the Biosolids Management Plan.

   b) Prior to land-applying biosolids at a new site, the Permittee shall notify interested parties by publishing a notice in the newspaper, and/or by mailing or delivering information packets to each interested party. Information packets shall include a copy of the site plan. Newspaper notices shall direct readers to obtain copies of the site plan from the Permittee or its representative, and direct commenters to send their comments on the new land application site to:

   U.S. Environmental Protection Agency

1200 Sixth Avenue, OW-130
Seattle, WA 98103

At a minimum, interested parties shall include: 1) Land owners and occupants of any land adjacent to or abutting the new land application site; 2) The Shoshone-Bannock Indian Nation; 3) The local USDA Natural Resource Conservation Service; 4) The State Agricultural Extension Service; 5) The local Soil Conservation District;

c) Distribution of Class B biosolids to areas outside of the Pocatello Biosolids Recycling/Reuse Site is not authorized by this permit. To expand outside this distribution site the permittee shall submit a revised permit application to EPA (40 CFR 122.41(l)(1)(iii)).

d) Each new site plan shall report on a Permittee-conducted review of the site for potential endangered species habitat(s). The review shall consider the species currently listed by the US Government for the geographical area approved in this permit. The Permittee shall notify EPA immediately if any potential habitat is found. No biosolids may be applied to potential endangered species habitat without written approval from EPA.

Table 6. Pocatello Biosolids Beneficial Recycling/Reuse Site Agricultural Sites for Land Application

Site Name	Acreage	Map Reference (Appendix D)	Location	
			Latitude	Longitude
Old Airport	300	OA 300	112°32'30"	42°55'
Airport 120	120	AP 120	112°34'	42°54'
Airport 20	20	AP 20	112°34'	42°54'
Airport 11	11	AP 11	112°34'	42°54'
Freeway 30	30	FW 30	112°34'	42°54'
Runway 30	30	RW 30	112°34'	42°55'
West Airport 800	800	WA 800	112°34'	42°55'

8. The permittee may distribute Class B biosolids in crop trials of two acres or less. Crop trials may occur outside the land application sites listed in Table 6. Notification of planned crop trials shall be sent to the Environmental Protection Agency, Idaho Operations Office, the Idaho Division of Environmental Quality, Southeast Idaho Regional Office, if required by the state, and to the office of the Natural Resources Conservation Service of the U.S. Department of Agriculture closest to the crop trial site. Crop trials shall comply with all other requirements of the federal standards at 40 CFR Part 503.

9. The permittee shall submit a report to EPA on February 19 of each year that includes the following information:

a. if the biosolids from the facility were stockpiled (no use or disposal), and/or land applied during the previous year;

b. the location(s) biosolids was used or disposed (if applicable); and

c. if the permittee land applied biosolids, provide the information required at 40 CFR 503.18(a)(1).

H. Quality Assurance Requirements

1. The permittee shall develop and submit to EPA within ninety (90) days of the effective date of this permit, a Quality Assurance Plan for all monitoring requirements identified in the permit (ambient, influent, effluent, biosolids monitoring). The primary purpose of the Quality Assurance Plan shall be to assist in planning for the collection and analysis of samples in support of the permit and in explaining data anomalies when they occur. Dec 5th Cindy

2. Throughout all sample collection and analysis activities, the permittee shall use the EPA approved quality assurance, quality control, and chain-of-custody procedures described in:

   1) *Requirements for Quality Assurance Project Plans*, EPA QA/R-5 EPA, and

   2) *Guidance on Quality Assurance Project Plans*, EPA QA/G-5 .

   The following references may be helpful in preparing the Quality Assurance Plan for this permit:

   1) *You and Quality Assurance in Region 10*, EPA, Region 10, Quality and Data Management Program, March 1988,

   2) *The Volunteer Monitors Guide to Quality Assurance Project Plans* EPA 841-B-96-003, September 1996,

   3) *U.S. Environmental Protection Agency, Method 1669: Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels, 1995*, EPA-821-R-95-034, and

   4) *U.S. Environmental Protection Agency, Sampling Ambient and Effluent Waters for Trace Metals*, EPA-821-V-97-001.

3. The Permittee must maintain this plan for the life of the permit and must make this plan available to the EPA and DEQ upon request.

4. At a minimum the plan shall include the following:

   - Sampling techniques (field blanks, replicates, duplicates, control samples, etc).
   - Sampling preservation methods.

- Sampling shipment procedures.
- Instrument calibration procedures and preventive maintenance (frequency, standard, spare parts).
- Qualification and training of personnel.
- Analytical methods (including quality control checks, quantification/detection levels).
- Analytical test method that will be used to achieve the method detection limits in Section I.B.5.

5. Name(s), address(es) and telephone number(s) of the laboratories, used by or proposed to be used by the permittee, shall be specified in the Quality Assurance Plan.

I. Design Criteria Requirements.

The design criteria for the permitted facility is as follows:

Table 7: Design Criteria		
Criteria	Value	Units
Average Flow	12	mgd
Influent BOD5 Loading	28,000	lbs/day
Influent TSS Loading	20,000	lbs/day

Each month, beginning with January 2001, the permittee shall compute an annual average value for flow, and BOD_5 and TSS loading entering the facility based on the previous twelve months data. If the facility performs plant upgrades that affect design criteria listed in the table, only data collected after the upgrade should be used in determining the annual average value. When the average annual values exceed 85% of the design criteria values listed in Table 7, the permittee shall develop a facility plan and schedule within one year from the date of first exceedance. The plan must include the permittees strategy for continuing to maintain compliance with effluent limits and will be made available to the Director or authorized representative upon request

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J. Operation and Maintenance Plan Review. Within 180 days of the effective date of the permit, the permittee shall review its operation and maintenance (O&M) plan and ensure that it includes appropriate best management practices (BMPs); the plan must be reviewed annually thereafter. BMPs include measures which prevent or minimize the potential for the release of nutrients to the Portneuf River. The Plan shall be retained on site and made available to EPA and DEQ upon request.

Jon Crandy March 2000

The permittee shall develop a description of pollution prevention measures and controls appropriate for the facility. The appropriateness and priorities of controls in the Plan shall reflect identified potential sources of pollutants at the facility. The description of BMPs shall address, to the extent practicable, the following minimum components:

- Spill Prevention and control
- Optimization of chemical usage
- Preventive maintenance program
- Minimization of pollutant inputs from industrial users
- Research, develop and implement a public information and education program to control the introduction of household hazardous materials to the sewer system and
- Water conservation.

K. Definitions.

1. "Agronomic rate" is the whole sludge (biosolids) application rate (dry weight basis) designed: (1) to provide the amount of nitrogen needed by the food crop, feed crop, fiber crop, cover crop, or vegetation grown on the land; and (2) to minimize the amount of nitrogen in the sewage sludge (biosolids) that passes below the root zone of the crop or vegetation grown on the land to the ground water. Agronomic rate shall consider other sources of nitrogen, reasonable estimate of crop yields, and other practices appropriate to the site and crop.

2. "Annual Average" means the sum all values reported in a twelve month period divided by the number of values.

3. "Application Site or Land Application Site" means all contiguous areas of a users' property intended for biosolids application.

4. "Average monthly discharge limitation" means the highest allowable average of "daily discharges" over a calendar month, calculated as the sum of all "daily discharges" measured during a calendar month divided by the number of "daily discharges" measured during that month.

5. "Average weekly discharge limitation" means the highest allowable average of "daily discharges" over a calendar week, calculated as the sum of all "daily discharges" measured during a calendar week divided by the number of "daily discharges" measured during that week.

6. "Biosolids" means any sewage sludge or material derived from sewage sludge

7. "Biosolids Management Plan", for the purposes of this permit, means the sludge permit application and the Biosolids Management Plan submitted by the City of Pocatello to the U.S. EPA Region 10, dated February 1998.

8. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.

9. "Chronic toxicity" measures a sublethal effect (e.g., reduced growth, reproduction) to experimental test organisms exposed to effluent or ambient water compared to that of the control organism.

10. "Crop trial" means applying biosolids as a soil amendment on an area of land two (2) acres or less for the purpose of developing appropriate agricultural practices.

11. "Daily discharge" means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the "daily discharge" is calculated as the average measurement of the pollutant over the day.

12. A "grab" sample, for monitoring requirements, is a single "dip and take" sample or measurement taken at a specific time or over as short a period of time at a representative point anywhere in wastewater treatment or biosolids land application processes, as is feasible.

13. "Interim Minimum Level" is calculated when a method-specified ML does not exist. It is equal to 3.18 times the method-specified method detection limit rounded to the nearest multiple of 1, 2, 5, 10, 20, 50, etc.

14. "Land Application" is the spraying or spreading of biosolids onto the land surface; the injection of biosolids below the land surface; or the incorporation of biosolids into the land so that the biosolids can either condition the soil or fertilize crops or vegetation grown in the soil. Land application includes distribution and marketing (i.e., the selling or giving away of the biosolids).

15. "Local Limits" are specific limits to implement the general and specific prohibitions in 40 CFR 403.5 (a) and (b).

16. "Maximum daily discharge limitation" means the highest allowable "daily discharge."

17. "Minimum Level" (ML) is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method-specified sample weights, volumes, and processing steps have been followed.

18. "No Observed Effect Concentration" (NOEC) is the highest concentration of toxicant to which organisms are exposed in a full life-cycle or partial life-cycle test, that causes no observable adverse effects on the test organisms (i.e., the highest concentration of toxicant in which the values for the observed responses are not statistically significantly different form the controls). If in the calculation of a NOEC, two tested concentrations cause statistically adverse effects, but an intermediate concentration did not cause statistically significant effects, the test should be repeated or the lowest concentration must be used. For example, 6.25, 12.5, 25, 50 and 100% effluent concentrations are tested. The 12.5 and 50% concentrations are statistically significant, but the 25% concentrations is not statistically significant if the test is not repeated, then 6.25%, and not 12.5% must be reported as the NOEC.

19. "Pathogen" means an organism that is capable of producing an infection or disease in a susceptible host.

20. "Pollutant" for the purposes of this permit is an organic substance, an inorganic substance, a combination of organic and inorganic substances, or pathogenic organisms that, after discharge and upon exposure, ingestion, inhalation, or assimilation into an organism either directly from the environment or indirectly by ingestion through the food-chain, could, on the basis of information available to the Administrator of EPA, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunction in reproduction), or physical deformations in either organisms or offspring of the organisms.

21. "Runoff" is rainwater, leachate, or other liquid that drains overland on any part of a land surface and runs off of the land surface.

22. "Sewage Sludge" means solid, semi-solid, or liquid residue generated during the treatment of domestic sewage and/or a combination of domestic sewage and industrial waste of a liquid nature in a Treatment Works. Sewage sludge (biosolids) includes, but is not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment processes; and a material derived from biosolids. Biosolids does not include ash generated during the incineration of biosolids or grit and screenings generated during preliminary treatment of domestic sewage in a Treatment Works. These must be disposed of in accordance with 40 CFR 258.

23. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

24. A "24-hour composite" sample shall mean a flow-proportioned mixture of not less than 8 discrete aliquots. Each aliquot shall be a grab sample of not less than 100 ml and shall be collected and stored in accordance with procedures prescribed in the most recent edition of Standard Methods for the Examination of Water and Wastewater.

25. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

26. "Vector Attraction" is the characteristic of biosolids that attracts rodents, flies, mosquitos or other organisms capable of transporting infectious agents.

II. MONITORING, RECORDING AND REPORTING REQUIREMENTS

A. Representative Sampling.

1. Final effluent samples taken in compliance with the monitoring requirements established under Part I shall be collected from the effluent stream prior to discharge into the receiving waters. Samples and measurements shall be representative of the volume and nature of the monitored discharge.

2. Biosolids samples used to measure compliance with Part I of this permit shall be collected at location representative of the quality of biosolids generated at the treatment works and immediately prior to land application.

B. Monitoring Procedures. Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit.

C. Reporting of Monitoring Results. Monitoring results shall be summarized each month on the Discharge Monitoring Report (DMR) form (EPA No. 3320-1). The reports shall be submitted monthly and are to be postmarked by the 20th day of the following month. Legible copies of these, and all other reports, shall be signed and certified in accordance with the requirements of Part IV.J., Signatory Requirements, and submitted to the Director, Water Division and the State agency at the following addresses:

original to: United States Environmental Protection Agency (EPA) Region 10
1200 Sixth Avenue, OW-133
Seattle, Washington 98101

copy to: Division of Environmental Quality
1445 North Orchard
Boise, Idaho 83706.

D. Pretreatment Report. The permittee shall provide to the U.S. Environmental Protection Agency Region 10 an annual report that describes the permittee's program activities for the previous calendar year. One copy of this report shall be submitted to the following address no later than March 1 of each year:

Pretreatment Coordinator
U.S. Environmental Protection Agency (EPA) Region 10
1200 Sixth Avenue, OW-130
Seattle, WA 98101.

The report shall include:

1. An updated non-domestic user inventory, including those facilities that are no longer discharging (with explanation), and with new dischargers appropriately categorized and characterized. Categorical users should have the applicable category noted as well as cases where more stringent local limits apply instead of the categorical standard.

2. Results of wastewater sampling at the treatment plants as specified in Part I.E. In addition,

the permittee shall report calculated removal rates for each pollutant for each sample date and discuss whether existing local limits contained in the permittee's ordinance continue to be appropriate to prevent treatment plant interference and pass through of pollutants that could affect water quality or preclude beneficial uses of the biosolids. A comparison of the influent levels with the maximum allowable headworks loading used in the most recent local limits evaluation shall be included in the report.

3. Status of program implementation activities.

   a. Any planned modifications to the pretreatment program originally approved by the U.S. Environmental Protection Agency, including staffing and funding updates.

   b. Any interference, upset, or NPDES permit violations experienced at the POTW which were directly or indirectly attributable to non-domestic users including:
      1. date & time of the incident;
      2. description of the effect on the POTW's operation;
      3. effects on the POTW's effluent and biosolids quality;
      4. identification of suspected or known sources of the discharge causing the upset; and
      5. steps taken to remedy the situation and to prevent recurrence.

   c. Listing of non-domestic users inspected and/or monitored during the year with a summary of results.

   d. Listing of non-domestic users planned for inspection and/or monitoring for the coming year along with associated frequencies.

   e. Listing of non-domestic users notified of promulgated pretreatment standards and/or local standards, as required in 40 CFR 403.8(f)(2)(iii).

   f. Listing of non-domestic users whose permits have been issued, reissued or modified along with current permit expiration dates.

   g. Listing of non-domestic users notified of promulgated pretreatment standards or applicable local standards who are on compliance schedules. The listing should include the final date of compliance for each facility.

4. Status of enforcement activities.

   a. Listing of non-domestic users who violated applicable pretreatment standards or requirements, a summary of the violation(s), the enforcement action taken or planned by the City, and the present compliance status as of the date of preparation of the pretreatment annual report.

   b. Listing of non-domestic users in Significant non-compliance (SNC) as defined in 40 CFR §403.8(f)(2)(vii). A copy of all SNC public notices in the newspaper should be included in the report.

E. Additional Monitoring by the Permittee. If the permittee monitors any pollutant more frequently than required by this permit, using test procedures approved under 40 CFR 136 or as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR, Pretreatment, or Biosolids Report. Such increased frequency shall also be indicated.

F. Records Contents. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements;

2. The individual(s) who performed the sampling or measurements;

3. The date(s) analyses were performed;

4. The individual(s) who performed the analyses;

5. The analytical techniques or methods used; and

6. The results of such analyses.

G. Retention of Records. With the exception of biosolids, the permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least three years from the date of the sample, measurement, report or application. All biosolids records shall be retained for a period of five years. This period may be extended by request of the Director at any time. Data collected on-site, copies of Discharge Monitoring Reports, and a copy of this NPDES permit must be maintained on-site five years or the life of the permit, whichever is longer.

H. Twenty-four Hour Notice of Noncompliance Reporting.

1. The following occurrences of noncompliance shall be reported by telephone within 24 hours from the time the permittee becomes aware of the circumstances:

   a. any noncompliance which may endanger health or the environment;

   b. any unanticipated bypass which exceeds any effluent limitation in the permit (See Part III.G., Bypass of Treatment Facilities.);

   c. any upset which exceeds any effluent limitation in the permit (See Part III.H., Upset Conditions.); or

   d. violation of a maximum daily discharge limitation for any of the pollutants listed in the permit to be reported within 24 hours.

2. The permittee shall report transportation accidents, spills, and uncontrolled runoff from biosolid transfer or land application sites which may seriously endanger health or the environment as soon as possible, but no later than 24 hours from the time the permittee first became aware of the circumstances. The report shall be made to the EPA, Region 10, Emergency Response Branch at (206) 553-1263.

3. The following occurrences of noncompliance with biosolids requirements shall be reported by telephone to the EPA, Region 10, NPDES Compliance Unit in Seattle, Washington, by phone, (206) 553-1846 by the first workday (8:00 a.m. - 4:30 p.m. PST) following the day the permittee became aware of the circumstances:

   a. violation of any limits of 40 CFR 503.13, Table 1 (maximum individual sample) or Table 3 (monthly average);

   b. the pathogen limits;

   c. the vector attraction reduction limits; or

   d. the management practices for biosolids that has been land applied.

4. A written submission shall also be provided within five days of the time that the permittee becomes aware of the circumstances. The written submission shall contain:

   a. a description of the noncompliance and its cause;

   b. the period of noncompliance, including exact dates and times;

   c. the estimated time noncompliance is expected to continue if it has not been corrected; and

   d. steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

5. The Director may waive the written report on a case-by-case basis if the oral report has been received within 24 hours by the NPDES Compliance Unit in Seattle, Washington, by phone, (206) 553-1846.

6. Reports shall be submitted to the addresses in Part II.C., Reporting of Monitoring Results.

I. Other Noncompliance Reporting. Instances of noncompliance not required to be reported within 24 hours shall be reported at the time that monitoring reports for Part II.C. are submitted. The reports shall contain the information listed in Part II.H.4.

J. Inspection and Entry. The permittee shall allow the Director, or an authorized representative (including an authorized contractor acting as a representative of the Administrator), upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit including, but

not limited to, biosolids treatment, collection, storage facilities or area, transport vehicles and containers, and land application sites; and

4. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the Act, any substances or parameters at any location including, but not limited to, digested biosolids before dewatering, dewatered biosolids, biosolids transfer or staging areas, any ground or surface waters at the land application sites, or biosolids, soils, or vegetation on the land application sites.

5. The permittee sball make the necessary arrangements with the landowner or leaseholder to obtain permission or clearance, so that the Director, or authorized representative thereof, upon the presentation of credentials and other documents as may be required by law, will be permitted to enter without delay for the purposes of performing their responsibilities.

III. COMPLIANCE RESPONSIBILITIES

A. Duty to Comply. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

B. Penalties for Violations of Permit Conditions.

1. Civil and Administrative Penalties. Any person who violates a permit condition implementing sections 301, 302, 306, 307, 308, 318, or 405 of the Act shall be subject to a civil or administrative penalty, not to exceed the maximum amounts authorized by sections 309(d) and 309(g) of the Act and the Federal Civil Penalties Inflation Adjustment Act (28 U.S.C. § 2461 note) as amended by the Debt Collection Improvement Act (31 U.S.C. § 3701 note).

2. Criminal Penalties:

a. Negligent Violations. Any person who negligently violates a permit condition implementing sections 301, 302, 306, 307, 308, 318, or 405 of the Act; or negligently introduces into a sewer system or into a publicly owned treatment works any pollutant or hazardous substance which such person knew or reasonably should have known could cause personal injury or property damage or, other than in compliance with all applicable federal, state, or local requirements or permits, which causes such treatment works to violate any effluent limitation or condition in a permit issued to the treatment works under section 402 of this Act; shall, upon conviction, be punished by a fine and/or imprisonment as specified in section 309(c)(1) of the Act.

b. Knowing Violations. Any person who knowingly violates a permit condition implementing sections 301, 302, 306, 307, 308, 318, or 405 of the Act; or knowingly introduces into a sewer system or into a publicly owned treatment works any pollutant or hazardous substance which such person knew or reasonably should have known could cause personal injury or property damage or, other than in compliance with all applicable federal, state, or local requirements or permits, which causes such treatment works to violate any effluent limitation or condition in a permit issued to the treatment works under Section 402 of this Act; shall, upon conviction, be punished by a fine and/or imprisonment as specified in Section 309(c)(2) of the Act.

c. Knowing Endangerment. Any person who knowingly violates a permit condition implementing sections 301, 302, 306, 307, 308, 318, or 405 of the Act, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine and/or imprisonment as specified in section 309(c)(3) of the Act.

d. False Statements. Any person who knowingly makes any false material statement, representation, or certification in any application, record, report, plan, or other document filed or required to be maintained under this Act or who knowingly falsifies, tampers with, or renders inaccurate any monitoring device or method required to be maintained under this Act, shall upon conviction, be punished by a fine and/or imprisonment as specified in section 309(c)(4) of the Act.

Except as provided in permit conditions in Part III.G., Bypass of Treatment Facilities and Part III.H., Upset Conditions, nothing in this permit shall be construed to relieve the permittee of the civil or criminal penalties for noncompliance.

C. Need to Halt or Reduce Activity not a Defense. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

D. Duty to Mitigate. The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

E. Proper Operation and Maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

F. Removed Substances. Collected screenings, grit, solids, biosolids, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters shall be disposed of in a manner such as to prevent any pollutant from such materials from entering navigable waters.

G. Bypass of Treatment Facilities:

1. Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs 2 and 3 of this section.

2. Notice.

   a. Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least 10 days before the date of the bypass.

   b. Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required under Part II.H., Twenty-four Hour Notice of Noncompliance Reporting.

3. Prohibition of bypass.

   a. Bypass is prohibited and the Director may take enforcement action against a permittee for a bypass, unless:

      (1) the bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

      (2) there were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and

      (3) the permittee submitted notices as required under paragraph 2 of this section.

   b. the Director may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed above in paragraph 3.a. of this section.

H. Upset Conditions.

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of paragraph 2 of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

2. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

   a. An upset occurred and that the permittee can identify the cause(s) of the upset;

   b. The permitted facility was at the time being properly operated;

   c. The permittee submitted notice of the upset as required under Part II.H., Twenty-four Hour Notice of Noncompliance Reporting; and

   d. The permittee complied with any remedial measures required under Part III.D., Duty to Mitigate.

3. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

I. Pretreatment Program Requirements.

1. The permittee shall implement its Pretreatment Program in accordance with the legal authorities, policies, procedures, staffing levels and financial provisions described in its original approved pretreatment program submission entitled: City of Pocatello, Idaho, Industrial Waste Survey and Pretreatment Program, dated March 3, 1983; any program amendments submitted thereafter and approved by EPA; and the General Pretreatment Regulations (40 CFR 403) including any amendments. At a minimum, the following pretreatment implementation activities shall be undertaken by the permittee:

a. Enforce categorical pretreatment standards promulgated pursuant to sections 307(b) and (c) of the Act, prohibitive discharge standards as set forth in 40 CFR 403.5 or local limitations specified in Chapter 13.20 of the Revised and Compiled Ordinances of the City of Pocatello, whichever are more stringent or are applicable to non-domestic users discharging wastewater into the permittee's collection system. Locally derived limitations shall be defined as pretreatment standards under section 307(d) of the Act and shall not be limited to categorical industrial facilities.

b. Implement and enforce the requirements of the most recent and effective portions of local law and regulations (e.g. municipal code, sewer use ordinance) addressing the regulation of non-domestic users.

c. Update its inventory of non-domestic users at a frequency and diligence adequate to ensure proper identification of non-domestic users subject to pretreatment standards, but no less than once per year. The permittee shall notify these users of applicable pretreatment standards in accordance with 40 CFR § 403.8 (f) (2) (iii).

d. Issue, reissue and modify, in a timely manner, industrial wastewater discharge permits to at least all Significant Industrial Users (SIUs). These documents shall contain, at a minimum, conditions identified in 40 CFR § 403.8 (f)(1)(iii). The permittee shall follow the methods described in its implementation procedures for issuance of individual permits.

e. Develop and maintain a data management system designed to track the status of the permittee's non-domestic user inventory, non-domestic user discharge characteristics, and their compliance with applicable pretreatment standards and requirements. In accordance with 40 CFR § 403.12 (o), the permittee shall retain all records relating to its pretreatment program activities for a minimum of three (3) years and shall make such records available to the EPA upon request. The permittee shall also provide public access to information considered effluent data under 40 CFR Part 2.

f. Establish, where necessary, contracts or legally binding agreements with contributing jurisdictions to ensure compliance with applicable pretreatment requirements by non-domestic users within these jurisdictions. These contracts or agreements shall identify the agency responsible for the various implementation and enforcement activities to be performed in the contributing jurisdiction. In addition, the permittee may be required to develop a Memorandum of Understanding (Agreement) that outlines the specific roles, responsibilities and pretreatment activities of each jurisdiction.

g. Carry out inspections, surveillance, and monitoring on non-domestic users to determine compliance with applicable pretreatment standards and requirements. A thorough inspection of SIU(s) shall be conducted at least annually. Frequency of wastewater sampling for the SIU(s) shall be commensurate with the character and volume of the wastewater, but shall not be less than two (2) times per year. Sample collection and analysis shall be performed in accordance with 40 CFR § 403.12 (b)(5)(ii) through (v) and 40 CFR Part 136.

h. Enforce and obtain remedies for non-compliance by any non-domestic user with applicable pretreatment standards and requirements. This shall include timely and appropriate reviews of industrial reports to identify all violations of the user's permit or the permittee's local ordinance. Once violations have been uncovered, the permittee shall take timely and appropriate action to address the noncompliance. The permittee's enforcement actions shall comply with its approved enforcement response procedures.

i. Publish, at least annually in the largest daily newspaper in the permittee's service area, a list of all non-domestic users which, at any time in the previous 12 months, were in Significant Non-Compliance as defined in 40 CFR § 403.8 (f)(2)(vii).

j. Maintain adequate staff, funds and equipment to implement its pretreatment program.

2. The permittee shall implement an accidental spill prevention program to reduce and prevent spills and slug discharges of pollutants from non-domestic users.

3. If the permittee elects to conduct all the non-domestic user monitoring in lieu of requiring self-monitoring by its SIUs, the permittee shall conduct sampling, monitoring and analyses for all regulated pollutants in accordance with 40 CFR § 403.12 (b)(5)(ii) through (v), 40 CFR § 403.12 (g) and 40 CFR Part136. The frequency of sampling shall be commensurate with the character and volume of the discharge and shall provide the permittee with ample data to determine compliance, but in no case shall sampling be less than 2 times a year spaced at six (6) month intervals.

4. Whenever, on the basis of information provided to the U.S. Environmental Protection Agency, it has been determined that any source contributes pollutants to the permittee's treatment works in violation of subsection (b), (c), or (d) of section 307 of the Act, notification shall be provided to the permittee. Failure by the permittee to commence an appropriate enforcement action within 30 days of this notification may result in appropriate enforcement action by the EPA against the source and permittee.

5. If the permittee elects to modify any components of its pretreatment program, it shall comply with the requirements of 40 CFR § 403.18. No substantial program modification may be implemented prior to receiving written authorization from EPA.

6. Sampling - See Part I.F.

7. Reporting - See Part II.D.

IV. GENERAL REQUIREMENTS

A. Notice of Introduction of New Pollutants. The permittee shall provide adequate notice to the Director, Office of Water of:

1. Any introduction of new pollutants into the treatment works from an indirect discharger which would be subject to Sections 301 or 306 of the Act if it were directly discharging those pollutants; and

2. Any substantial change in the volume or character of pollutants being introduced into the treatment works by a source introducing pollutants into the treatment works at the time of issuance of the permit.

3. For the purposes of this section, adequate notice shall include information on:

a. The quality and quantity of effluent to be introduced into such treatment works; and

b. Any anticipated impact of the change on the quantity or quality of effluent to be discharged from such publicly owned treatment works.

B. Control of Undesirable Pollutants. Under no circumstances shall the permittee allow introduction of the following wastes into the waste treatment system:

1. Wastes which will create a fire or explosion hazard in the treatment works;

2. Wastes which will cause corrosive structural damage to the treatment works, but in no case, wastes with a pH lower than 5.0, unless the works is designed to accommodate such wastes;

3. Solid or viscous substances in amounts which cause obstructions to the flow in sewers, or interference with the proper operation of the treatment works;

4. Any pollutant, including oxygen demanding pollutants (BOD, etc.) released in a discharge of such volume or strength as to cause interference in the treatment works.

5. Heat in amount which will inhibit biological activity in the POTW resulting in interference, but in no case heat in such quantities that the temperature at the treatment works exceeds 40°C (104°F) unless the EPA Administrator, upon request of the treatment works, approves alternate temperature limits.

6. Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through.

7. Pollutants which result in the presence of toxic gases, vapors, or fumes within the treatment works in a quantity that may cause acute worker health and safety problems.

8. Any trucked or hauled pollutants, except at discharge points designated by the treatment works.

C. Requirements for Industrial Users. The permittee shall require any industrial user of these treatment works to comply with any applicable requirements of Sections 204(b), 307, and 308 of the Act, including any requirements established under 40 CFR Part 403.

D. Planned Changes. The permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when the alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are not subject to effluent limitations in the permit.

E. Anticipated Noncompliance. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

F. Permit Actions. This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

G. Duty to Reapply. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit. The application should be submitted at least 180 days before the expiration date of this permit.

H. Duty to Provide Information. The permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.

I. Other Information. When the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or any report to the Director, it shall promptly submit such facts or information.

J. Signatory Requirements. All applications, reports or information submitted to the Director shall be signed and certified.

1. All permit applications shall be signed by either a principal executive officer or ranking elected official.

2. All reports required by the permit and other information requested by the Director shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described above and submitted to the Director, and

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)

3. Changes to authorization. If an authorization under paragraph IV.J.2. is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph IV.J.2. must be submitted to the Director prior to or together with any reports, information, or applications to be signed by an authorized representative.

4. Certification. Any person signing a document under this section shall make the following certification:

> "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

K. Availability of Reports. Except for data determined to be confidential under 40 CFR Part 2, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the State water pollution control agency and the Director. As required by the Act, permit applications, permits and effluent data shall not be considered confidential.

L. Oil and Hazardous Substance Liability. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the Act.

M. Property Rights. The issuance of this permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.

N. Severability. The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

O. Transfers. This permit may be automatically transferred to a new permittee if:

1. The current permittee notifies the Director at least 30 days in advance of the proposed transfer date;

2. The notice includes a written agreement between the existing and new permittees containing a specific date for transfer of permit responsibility, coverage, and liability between them; and

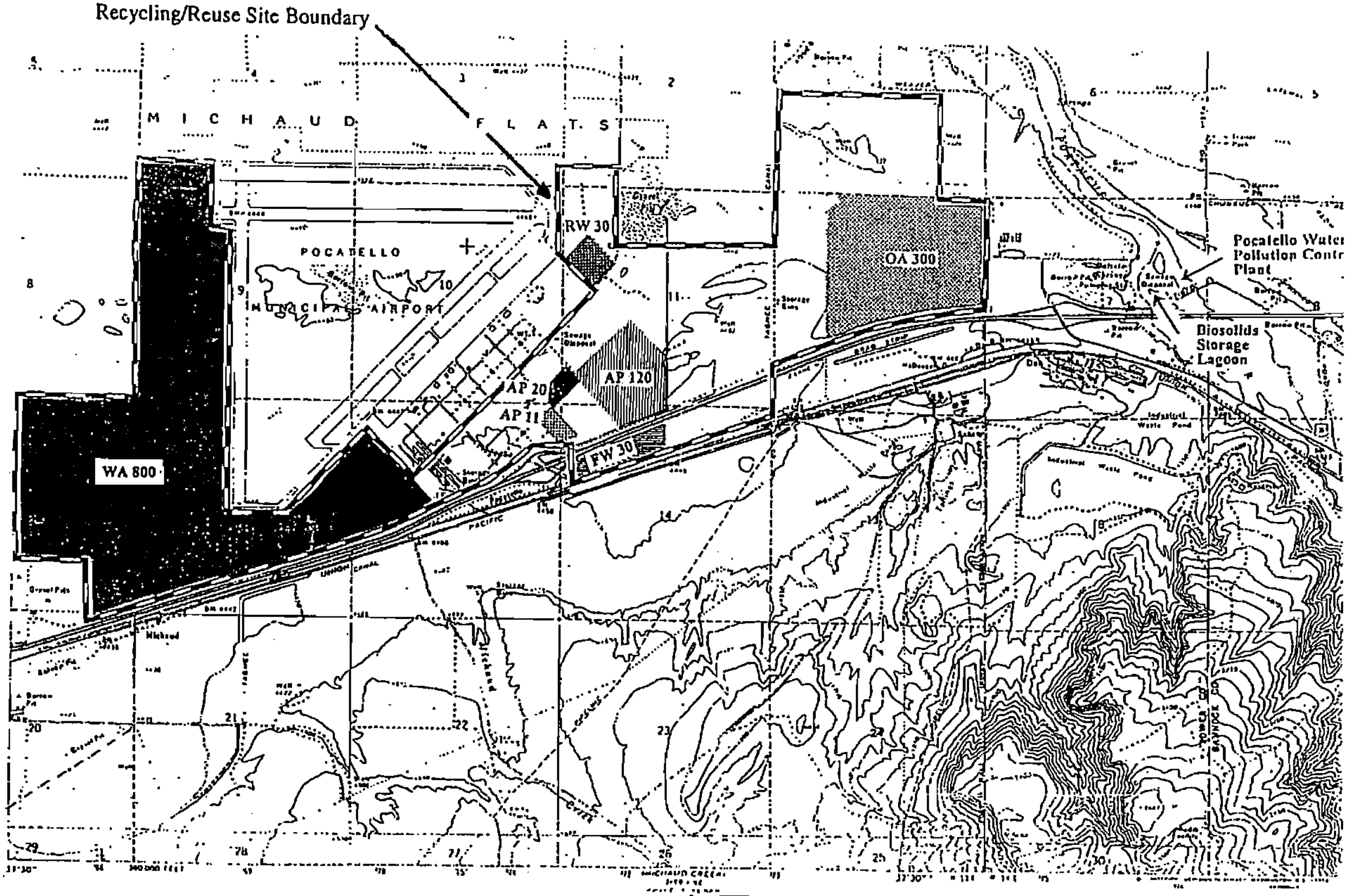
3. The Director does not notify the existing permittee and the proposed new permittee of his or her intent to modify, or revoke and reissue the permit. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in paragraph 2 above.

P. State Laws. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authority preserved by Section 510 of the Act.

Q. Reopener Provision. This permit is subject to modification, revocation and reissuance, or termination at the request of any interested person (including the permittee) or upon EPA initiative. However, permits may only be modified, revoked or reissued, or terminated for the reasons specified in 40 CFR §122.62 or 122.64, and 40 CFR §124.5. This includes new information which was not available at the time of permit issuance and would have justified the application of different permit conditions at the time of issuance, including but not limited to future monitoring results. All requests for permit modification must be addressed to EPA in writing and shall contain facts or reasons supporting the request.

<u>Appendix A</u>

Pocatello Biosolids Beneficial Recycling/Reuse Site
Agricultural Sites for Land Application



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Admitted 29-271 et al.
(Subcase No.)
EXHIBIT
Doc: 157
Date: 2/27/97

VH
Jerry

RECEIVED
NOV 30 1992
WASTE WATER MANAGEMENT AND ENFORCEMENT BRANCH
EPA – REGION 10

RECEIVED
DEC 03 1992
Div. of Environmental Quality
Permits & Enforcement

PART 503

FINAL RULE

SIGNED 11/25/92

New Sludge Rules

7772

002650

PART 257 — CRITERIA FOR CLASSIFICATION OF SOLID WASTE DISPOSAL FACILITIES AND PRACTICES

1. The authority citation for 40 CFR Part 257 continues to read as follows:

Authority: 42 U.S.C. 6907(a)(3), 6944(a) and 6949(c, 33 U.S.C. 1345 (d) and (e)

* * * * * * * * * * *

2. Section 257.1 is amended by revising paragraphs (b) and (c)(3) to read as follows and by adding a new paragraph (c)(11) to read as follows:

257.1 Scope and purpose

(b) These criteria also provide guidelines for the disposal of sewage sludge on the land when the sewage sludge is not used or disposed through a practice regulated in 40 CFR Part 503.

(c) * * *

(3) The criteria do not apply to the land application of domestic sewage or treated domestic sewage.

(4) through (10) * * *

(11) The criteria do not apply to the use or disposal sewage sludge on the land when the sewage sludge is used or disposed in accordance with 40 CFR Part 503.

* * * * * * * * * * *

3. Section 257.2 is amended by adding definitions in alphabetical order for "domestic septage" and "sewage sludge" to read as follows:

257.2 Definitions

"Domestic septage" is either liquid or solid material removed from a septic tank, cesspool, portable toilet, Type III marine sanitation device, or similar treatment works that receives only domestic sewage. Domestic septage does not include liquid or solid material removed from a septic tank, cesspool, or similar treatment works that receives either commercial wastewater or industrial wastewater and does not include grease removed from a grease trap at a restaurant.

"Sewage sludge" means solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in a treatment works. Sewage sludge includes, but is not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment processes; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screenings generated during preliminary treatment of domestic sewage in a treatment works.

* * * * * * * * * * *

4. Section 257.3-4 is amended by revising paragraph (b)(1) to read as follows:

257.3-4 Ground water

(b)(1) For purposes of section 1008(a)(3) of the Act or section 405(d) of the CWA, a party charged with open dumping or a violation of section 405(e) with respect to sewage sludge that is not used or disposed through a practice regulated in 40 CFR Part 503 may demonstrate that compliance should be determined at an alternative boundary in lieu of the solid waste boundary. The court shall establish an alternative boundary only if it finds that such a change would not result in contamination of ground water which may be needed or used for human consumption. This finding shall be based on analysis and consideration of all of the following factors that are relevant: . . .

* * * * * * * * * * *

PART 403--GENERAL PRETREATMENT REGULATIONS FOR EXISTING AND NEW SOURCES

1. The authority citation for 40 CFR Part 403 continues to read as follows:

Authority: Sec. 54(c)(2) of the Clean Water Act [illegible] 977, (Pub. L. 95-217) sections 204(b)(1)(C), 208(b)(2) [illegible], 301(b)(1)(A)(ii), 301(b)(2)(A)(ii), 301(b)(2)(C), [illegible], 301(i)(2), 304(e), 304(g), 307, 308, 309, 402(b) 40[illegible] and 501(a) of the Federal Water Pollution Control Act [illegible]b. L. 92-500) as amended by the Clean Water Act of 1977 ar[illegible] the Water Quality Act of 1987 (Pub. L. 100-4).

2. Section 403.7 is amended by adding text to the end of (a)(3)(iv) to read as follows:

403.7 Removal credits

(a) * * *

(3) * * *

(iv) * * * Removal credits may be made available for the following pollutants.

(A) For any pollutant listed in Appendix G-I for the use or disposal practice employed by the POTW, when the requirements in 40 CFR Part 503 for that practice are met.

(B) For any pollutant listed in Appendix G-II for the use or disposal practice employed by the POTW when the concentration for a pollutant listed in Appendix G-II in the sewage sludge that is used or disposed does not exceed the concentration for the pollutant in Appendix G-II.

(C) For any pollutant in sewage sludge when the POTW disposes all of its sewage sludge in a municipal solid waste landfill unit that meets the criteria in 40 CFR Part 258.

3. 40 CFR Part 403 is amended by adding Appendix G to the end thereof to read as follows:

APPENDIX G - POLLUTANTS ELIGIBLE FOR A REMOVAL CREDIT

I. REGULATED POLLUTANTS IN PART 503 ELIGIBLE FOR A REMOVAL CREDIT

	Use or Disposal Practice		
Pollutants	LA	SD	I
Arsenic	X	X	X
Beryllium			X
Cadmium	X		X
Chromium	X	X	X
Copper	X		
Lead	X		X
Mercury	X		X
Molybdenum	X		
Nickel	X	X	X
Selenium	X		
Zinc	X		
Total hydrocarbons			X(1)

KEY: LA - land application
SD - surface disposal site without a liner and leachate collection system
I - firing of sewage sludge in a sewage sludge incinerator

(1) The following organic pollutants are eligible for a removal credit if the requirements for total hydrocarbons in subpart E in 40 CFR Part 503 are met when sewage sludge is fired in a sewage sludge incinerator: Acrylonitrile, Aldrin/Dieldrin(total), Benzene, Benzidine, Benzo(a)pyrene, Bis(2-chloroethyl)ether, Bis(2-ethylhexyl)phthalate, Bromodichloromethane, Bromoethane, Bromoform, Carbon tetrachloride, Chlordane, Chloroform, Chloromethane, DDD,DDE,DDT, Dibromochloromethane, Dibutyl phthalate, 1,2-dichloroethane, 1,1-dichloroethylene, 2,4-dichlorophenol, 1,3-dichloropropene, Diethyl phthalate, 2,4-dinitrophenol, 1,2-diphenylhydrazine, Di-n-butyl phthalate, Endosulfan, Endrin, Ethylbenzene, Heptachlor, Heptachlor epoxide, Hexachlorobutadiene, Alpha-hexachlorocyclohexane, Beta-hexachlorocyclohexane, Hexachloropentadiene, Hexachloroethane, Hydrogen cyanide, Isophorone, Lindane, Methylene chloride, Nitrobenzene, N-Nitrosodimethylamine, N-Nitrosodi-n-propylamine, Pentachlorophenol, Phenol, Polychlorinated biphenyls, 2,3,7,8-tetrachlorodibenzo-p-dioxin, 1,1,2,2,-tetrachloroethane, Tetrachloroethylene, Toluene, Toxaphene, Trichloroethylene, 1,2,4-Trichlorobenzene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, and 2,4,6-Trichlorophenol.

PAGE 688

(TABLE G-II : ~~Remova~~
"Additional Pollutants Eligible
for a Removal Credit")

to be provided under separate
cover —

7777

Subchapter O in Chapter I of Title 40 of the Code of Federal Regulations is amended by adding Part 503, which reads as follows:

SUBCHAPTER O--SEWAGE SLUDGE

PART 503--STANDARDS FOR THE USE OR DISPOSAL OF SEWAGE SLUDGE

Subpart A--General Provisions

Subpart B--Land Application

Subpart C--Surface Disposal

Subpart D--Pathogens and Vector Attraction Reduction

Subpart E--Incineration

Authority: Sections 405 (d) and (e) of the Clean Water Act, as amended by Pub. L. 95-217, Sec. 54(d), 91 Stat. 1591 (33 U.S.C. 1345 (d) and (e)); and Pub. L. 100-4, Title IV, Sec. 406 (a), (b), 101 Stat., 71,72 (33 U.S.C. 1251 et. seq).

Subpart A--General Provisions

503.1 Purpose and applicability

(a) Purpose

This part establishes standards, which consist of general requirements, pollutant limits, management practices, and operational standards, for the final use or disposal of sewage sludge generated during the treatment of domestic sewage in a treatment works. Standards are included in this part for sewage sludge applied to the land, placed on a surface disposal site, or fired in a sewage sludge incinerator. Also included in this part are pathogen and alternative vector attraction reduction requirements for sewage sludge applied to the land or placed on a surface disposal site.

In addition, the standards in this part include the frequency of monitoring and recordkeeping requirements when sewage sludge is applied to the land, placed on a surface disposal site, or fired in a sewage sludge incinerator. Also included in this part are reporting requirements for Class I sludge management facilities, publicly owned treatment works (POTWs) with a design flow rate equal to or greater than one million gallons per day, and POTWs that serve 10,000 people or more.

(b) Applicability

(1) This part applies to any person who prepares sewage sludge, applies sewage sludge to the land, or fires sewage sludge in a sewage sludge incinerator and to the owner/operator of a surface disposal site.

(2) This part applies to sewage sludge applied to the land, placed on a surface disposal site, or fired in a sewage sludge incinerator.

(3) This part applies to the exit gas from a sewage sludge incinerator stack.

(4) This part applies to land where sewage sludge is applied, to a surface disposal site, and to a sewage sludge incinerator.

503.2 Compliance period

(a) Compliance with the standards in this part shall be achieved as expeditiously as practicable, but in no case later than [insert one year from the date of publication of this part]. When compliance with the standards requires construction of new pollution control facilities, compliance with the standards shall be achieved as expeditiously as practicable, but in no case later than [insert two years from the date of publication of this part].

(b) The requirements for frequency of monitoring, recordkeeping, and reporting in this part for total hydrocarbons in the exit gas from a sewage sludge incinerator are effective [insert one year from the date of publication of this part] or, if compliance with the operational standard for total hydrocarbons in this part requires the construction of new pollution control facilities, [insert two years from the date of publication of this part].

(c) All other requirements for frequency of monitoring, recordkeeping, and reporting in this part are effective on [insert 120 days after the effective date of this part].

503.3 Permits and direct enforceability

(a) Permits

The requirements in this part may be implemented through a permit: (1) issued to a "treatment works treating domestic sewage", as defined in 40 CFR 122.2, in accordance with 40 CFR Parts 122 and 124 by EPA or by a State that has a State sludge management program approved by EPA in accordance with 40 CFR Part 123 or 40 CFR Part 501 or (2) issued under subtitle C of the Solid Waste Disposal Act; part C of the Safe Drinking Water Act; the Marine Protection, Research, and Sanctuaries Act of 1972; or the Clean Air Act. "Treatment works treating domestic sewage" shall submit a permit application in accordance with either 40 CFR 122.21 or an approved State program.

(b) Direct enforceability

No person shall use or dispose of sewage sludge t ough any practice for which requirements are established i. this part except in accordance with such requirements.

503.4 Relationship to other regulations

Disposal of sewage sludge in a municipal solid waste landfill unit, as defined in 40 CFR 258.2, that complies with the requirements in 40 CFR Part 258 constitutes compliance with section 405(d) of the CWA. Any person who prepares sewage sludge that is disposed in a municipal solid waste landfill unit shall ensure that the sewage sludge meets the requirements in 40 CFR Part 258 concerning the quality of materials disposed in a municipal solid waste landfill unit.

503.5 Additional or more stringent requirements

(a) On a case-by-case basis, the permitting authority may impose requirements for the use or disposal of sewage sludge in addition to or more stringent than the requirements in this part when necessary to protect public health and the environment from any adverse effect of a pollutant in the sewage sludge.

(b) Nothing in this part precludes a State or political subdivision thereof or interstate agency from imposing requirements for the use or disposal of sewage sludge more stringent than the requirements in this part or from imposing additional requirements for the use or disposal of sewage sludge.

503.6 Exclusions

(a) Treatment processes

This part does not establish requirements for processes used to treat domestic sewage or for processes used to treat sewage sludge prior to final use or disposal, except as provided in 503.32 and 503.33.

(b) Selection of a use or disposal practice

This part does not require the selection of a sewage sludge use or disposal practice. The determination of the manner in which sewage sludge is used or disposed is a local determination.

(c) Co-firing of sewage sludge

This part does not establish requirements for sewage sludge co-fired in an incinerator with other wastes or for the incinerator in which sewage sludge and other wastes are co-fired. Other wastes do not include auxiliary fuel, as defined in 40 CFR 503.41(b), fired in a sewage sludge incinerator.

(d) Sludge generated at an industrial facility

This part does not establish requirements for the use or disposal of sludge generated at an industrial facility during the treatment of industrial wastewater, including sewage sludge generated during the treatment of industrial wastewater combined with domestic sewage.

(e) Hazardous sewage sludge

This part does not establish requirements for the use or disposal of sewage sludge determined to be hazardous in accordance with 40 CFR Part 261.

(f) Sewage sludge with high PCB concentration

This part does not establish requirements for the use or disposal of sewage sludge with a concentration of polychlorinated biphenyls (PCBs) equal to or greater than 50 milligrams per kilogram of total solids (dry weight basis).

(g) Incinerator ash

This part does not establish requirements for the use or disposal of ash generated during the firing of sewage sludge in a sewage sludge incinerator.

(h) Grit and screenings

This part does not establish requirements for the use or disposal of grit (e.g., sand, gravel, cinders, or other materials with a high specific gravity) or screenings (e.g., relatively large materials such as rags) generated during preliminary treatment of domestic sewage in a treatment works.

(i) Drinking water treatment sludge

This part does not establish requirements for the use or disposal of sludge generated during the treatment of either surface water or ground water used for drinking water.

(j) Commercial and industrial septage

This part does not establish requirements for the use or disposal of commercial septage, industrial septage, a mixture of domestic septage and commercial septage, or a mixture of domestic septage and industrial septage.

503.7 Requirement for a person who prepares sewage sludge

Any person who prepares sewage sludge shall ensure that the applicable requirements in this part are met when the sewage sludge is applied to the land, placed on a surface disposal site, or fired in a sewage sludge incinerator.

503.8 Sampling and analysis

(a) Sampling

Representative samples of sewage sludge that is applied to the land, placed on a surface disposal site, or fired in a sewage sludge incinerator shall be collected and analyzed.

(b) Analytical methods

The following methods shall be used to analyze samples of sewage sludge:

(1) Enteric viruses

ASTM Method D 4994-89, "Standard Practice for Recovery of Viruses From Wastewater Sludge", Annual Book of ASTM Standards: Section 11, Water and Environmental Technology, 1992.

(2) Fecal coliform

Part 9221 E or Part 9222 D, "Standard Methods for the Examination of Water and Wastewater", 18th edition, American Public Health Association, Washington, D.C., 1992.

(3) Helminth ova

Yanko, W.A., "Occurrence of Pathogens in Distribution and Marketing Municipal Sludges", EPA 600/1-87-014, 1987. NTIS PB 88-154273/AS, National Technical Information Service, Springfield, Virginia.

(4) Inorganic pollutants

Method SW-846 in "Test Methods for Evaluating Solid Waste", U.S. Environmental Protection Agency, November

1986.

(5) Salmonella sp. bacteria

Part 9260 D.1, "Standard Methods for the Examination of Water and Wastewater", 18th edition, American Public Health Association, Washington, D.C., 1992; or

Kenner, B.A. and H.A. Clark, "Determination and Enumeration of Salmonella and Pseudomonas aeruginosa", J. Water Pollution Control Federation, 46(9):2163-2171, 1974.

(6) Specific oxygen uptake rate

Part 2710 B, "Standard Methods for the Examination of Water and Wastewater", 18th edition, American Public Health Association, Washington, D.C., 1992.

(7) Total solids, fixed solids, and volatile solids.

Part 2540 G, "Standard Methods for the Examination of Water and Wastewater", 18th edition, American Public Health Association, Washington, D.C., 1992.

(c) Percent volatile solids reduction

Percent volatile solids reduction shall be calculated using a procedure in "Environmental Regulations and Technology - Control of Pathogens and Vectors in Sewage Sludge", EPA-625/R-92/013, U.S. Environmental Protection Agency, Cincinnati, Ohio, 1992.

503.9 General definitions

(a) Apply sewage sludge or sewage sludge applied to the land means land application of sewage sludge.

(b) Base flood is a flood that has a one percent chance of occurring in any given year (i.e., a flood with a magnitude equalled once in 100 years).

(c) Class I sludge management facility is any publicly owned treatment works (POTW), as defined in 40 CFR 501.2, required to have an approved pretreatment program under 40 CFR 403.8(a) (including any POTW located in a State that has elected to assume local program responsibilities pursuant to 40 CFR 403.10(e)) and any treatment works treating domestic sewage, as defined in 40 CFR 122.2, classified as a Class I sludge management facility by the EPA Regional Administrator, or, in the case of approved State programs, the Regional Administrator in conjunction with the State Director, because of the potential for its sewage sludge use or disposal practice to affect public health and the environment adversely.

(d) **Cover crop** is a small grain crop, such as oats, wheat, or barley, not grown for harvest.

(e) **CWA** means the Clean Water Act (formerly referred to as either the Federal Water Pollution Act or the Federal Wate: Pollution Control Act Amendments of 1972), Pub. L. 92-500, as amended by Pub. L. 95-217, Pub. L. 95-576, Pub. L. 96-483, Pub. L. 97-117, and Pub. L. 100-4.

(f) **Domestic septage** is either liquid or solid material removed from a septic tank, cesspool, portable toilet, Type III marine sanitation device, or similar treatment works that receives only domestic sewage. Domestic septage does not include liquid or solid material removed from a septic tank, cesspool, or similar treatment works that receives either commercial wastewater or industrial wastewater and does not include grease removed from a grease trap at a restaurant.

(g) **Domestic sewage** is waste and wastewater from humans or household operations that is discharged to or otherwise enters a treatment works.

(h) **Dry weight basis** means calculated on the basis of having been dried at 105 degrees Celsius until reaching a constant mass (i.e., essentially 100 percent solids content).

(i) **EPA** means the United States Environmental Protection Agency.

(j) **Feed crops** are crops produced primarily for consumption by animals.

(k) **Fiber crops** are crops such as flax and cotton.

(l) **Food crops** are crops consumed by humans. These include, but are not limited to, fruits, vegetables, and tobacco.

(m) **Ground water** is water below the land surface in the saturated zone.

(n) **Industrial wastewater** is wastewater generated in a commercial or industrial process.

(o) **Municipality** means a city, town, borough, county, parish, district, association, or other public body (including an intermunicipal Agency of two or more of the foregoing entities) created by or under State law; an Indian tribe or an authorized Indian tribal organization having jurisdiction over sewage sludge management; or a designated and approved management Agency under section 208 of the CWA, as amended. The definition includes a special district created under State law, such as a water district, sewer district, sanitary district, utility district, drainage district, or similar entity, or an integrated waste management facility as defined in section 201(e) of the CWA, as amended, that has as one of its principal responsibilities the treatment, transport, use, or disposal of sewage sludge.

(p) **Permitting authority** is either EPA or a State with an EPA-approved sludge management program.

(q) **Person** is an individual, association, partnership, corporation, municipality, State or Federal agency, or an agent or employee thereof.

(r) **Person who prepares sewage sludge** is either the person who generates sewage sludge during the treatment of domestic sewage in a treatment works or the person who derives a material from sewage sludge.

(s) **Place sewage sludge or sewage sludge placed** means disposal of sewage sludge on a surface disposal site.

(t) **Pollutant** is an organic substance, an inorganic substance, a combination of organic and inorganic substances, or a pathogenic organism that, after discharge and upon exposure, ingestion, inhalation, or assimilation into an organism either directly from the environment or indirectly by ingestion through the food chain, could, on the basis of information available to the Administrator of EPA, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunction in reproduction), or physical deformations in either organisms or offspring of the organisms.

(u) **Pollutant limit** is a numerical value that describes the amount of a pollutant allowed per unit amount of sewage sludge (e. g., milligrams per kilogram of total solids); the amount of a pollutant that can be applied to a unit area of land (e. g., kilograms per hectare); or the volume of a material that can be applied to a unit area of land (e.g., gallons per acre).

(v) **Runoff** is rainwater, leachate, or other liquid that drains overland on any part of a land surface and runs off of the land surface.

(w) **Sewage sludge** is solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in a treatment works. Sewage sludge includes, but is not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment processes; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screenings generated during preliminary treatment of domestic sewage in a treatment works.

(x) **State** is one of the United States of America, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, the Trust Territory of the Pacific Islands, the Commonwealth of the Northern Mariana Islands, and an Indian Tribe eligible for treatment as a State pursuant to regulations promulgated under the authority of section 518(e) of the CWA.

(y) **Store or storage of sewage sludge** is the placement of sewage sludge on land on which the sewage sludge remains for two years or less. This does not include the placement of sewage sludge on land for treatment.

(z) **Treat or treatment of sewage sludge** is the preparation of sewage sludge for final use or disposal. This includes, but is not limited to, thickening, stabilization, and dewatering of sewage sludge. This does not include storage of sewage sludge.

(aa) **Treatment works** is either a Federally owned, publicly owned, or privately owned device or system used to treat (including recycle and reclaim) either domestic sewage or a combination of domestic sewage and industrial waste of a liquid nature.

(bb) **Wetlands** means those areas that are inundated or saturated by surface water or ground water at a frequency and duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Subpart B--Land Application

503.10 Applicability

(a) This subpart applies to any person who prepares sewage sludge that is applied to the land, to any person who applies sewage sludge to the land, to sewage sludge applied to the land, and to the land on which sewage sludge is applied.

Bulk sewage sludge

(b)(1) The general requirements in 503.12 and the management practices in 503.14 do not apply when bulk sewage sludge is applied to the land if the bulk sewage sludge meets the pollutant concentrations in 503.13(b)(3), the Class A pathoge requirements in 503.32(a), and one of the vector attractic reduction requirements in 503.33(b)(1) through 503.33(b)(8)

(2) The Regional Administrator of EPA or, in the case of a Stat with an approved sludge management program, the Stat Director, may apply any or all of the general requirements i 503.12 and the management practices in 503.14 to the bul sewage sludge in 503.10(b)(1) on a case-by-case basis afte determining that the general requirements or managemen practices are needed to protect public health and th environment from any reasonably anticipated adverse effec that may occur from any pollutant in the bulk sewage sludge

(c)(1) The general requirements in 503.12 and the managemen practices in 503.14 do not apply when a bulk material derive from sewage sludge is applied to the land if the derived bul material meets the pollutant concentrations in 503.13(b)(3) the Class A pathogen requirements in 503.32(a), and one of th vector attraction reduction requirements in 503.33(b)(1 through 503.33(b)(8).

(2) The Regional Administrator of EPA or, in the case of a Stat with an approved sludge management program, the Stat Director, may apply any or all of the general requirements i: 503.12 or the management practices in 503.14 to the bul material in 503.10(c)(1) on a case-by-case basis afte: determining that the general requirements or managemen practices are needed to protect public health and th environment from any reasonably anticipated adverse effec that may occur from any pollutant in the bulk sewage sludge

(d) The requirements in this subpart do not apply when a bul material derived from sewage sludge is applied to the land i: the sewage sludge from which the bulk material is derive meets the pollutant concentrations in 503.13(b)(3), the Clas: A pathogen requirements in 503.32(a), and one of the vecto attraction reduction requirements in 503.33(b)(1) through 503.33(b)(8).

Sewage sludge sold or given away in a bag or other containe for application to the land

(e) The general requirements in 503.12 and the management practices in 503.14 do not apply when sewage sludge is sold or given away in a bag or other container for application to the land if the sewage sludge sold or given away in a bag or other container for application to the land meets the pollutant concentrations in 503.13(b)(3), the Class A pathogen requirements in 503.32(a), and one of the vector attraction reduction requirements in 503.33(b)(1) through 503.33(b)(8).

(f) The general requirements in 503.12 and the management practices in 503.14 do not apply when a material derived from sewage sludge is sold or given away in a bag or other container for application to the land if the derived material meets the pollutant concentrations in 503.13(b)(3), the Class A pathogen requirements in 503.32(a), and one of the vector attraction reduction requirements in 503.33(b)(1) through 503.3(b)(8).

(g) The requirements in this subpart do not apply when a material derived from sewage sludge is sold or given away in a bag or other container for application to the land if the sewage sludge from which the material is derived meets the pollutant concentrations in 503.13(b)(3), the Class A pathogen requirements in 503.32(a), and one of the vector attraction reduction requirements in 503.33(b)(1) through 503.33(b)(8).

503.11 Special definitions

(a) **Agricultural land** is land on which a food crop, a feed crop, or a fiber crop is grown. This includes range land and land used as pasture.

(b) **Agronomic rate** is the whole sludge application rate (dry weight basis) designed: (1) to provide the amount of nitrogen needed by the food crop, feed crop, fiber crop, cover crop, or vegetation grown on the land and (2) to minimize the amount of nitrogen in the sewage sludge that passes below the root zone of the crop or vegetation grown on the land to the ground water.

(c) **Annual pollutant loading rate** is the maximum amount of a pollutant that can be applied to a unit area of land during a 365 day period.

(d) **Annual whole sludge application rate** is the maximum amount of sewage sludge (dry weight basis) that can be applied to a unit area of land during a 365 day period.

(e) **Bulk sewage sludge** is sewage sludge that is not sold or given away in a bag or other container for application to the land.

(f) **Cumulative pollutant loading rate** is the maximum amount of an inorganic pollutant that can be applied to an area of land.

(g) **Forest** is a tract of land thick with trees and underbrush.

(h) **Land application** is the spraying or spreading of sewage sludge onto the land surface; the injection of sewage sludge below the land surface; or the incorporation of sewage sludge into the soil so that the sewage sludge can either condition the soil or fertilize crops or vegetation grown in the soil.

(i) **Monthly average** is the arithmetic mean of all measurements taken during the month.

(j) **Other container** is either an open or closed receptacle. This includes, but is not limited to, a bucket, a box, a carton, and a vehicle or trailer with a load capacity of one metric ton or less.

(k) **Pasture** is land on which animals feed directly on feed crops such as legumes, grasses, grain stubble, or stover.

(l) **Public contact site** is land with a high potential for contact by the public. This includes, but is not limited to, public parks, ball fields, cemeteries, plant nurseries, turf farms, and golf courses.

(m) **Range land** is open land with indigenous vegetation.

(n) **Reclamation site** is drastically disturbed land that is reclaimed using sewage sludge. This includes, but is not limited to, strip mines and construction sites.

503.12 General requirements

(a) No person shall apply sewage sludge to the land except in accordance with the requirements in this subpart.

(b) No person shall apply bulk sewage sludge subject to the cumulative pollutant loading rates in 503.13(b)(2) to agricultural land, forest, a public contact site, or a reclamation site if any of the cumulative pollutant loading rates in 503.13(b)(2) has been reached.

(c) No person shall apply domestic septage to agricultural land, forest, or a reclamation site during a 365 day period if the annual application rate in 503.13(c) has been reached during that period.

(d) The person who prepares bulk sewage sludge that is applied to agricultural land, forest, a public contact site, or a reclamation site shall provide the person who applies the bulk sewage sludge written notification of the concentration of total nitrogen (as N on a dry weight basis) in the bulk sewage sludge.

(e)(1) The person who applies sewage sludge to the land shall obtain information needed to comply with the requirements in this subpart.

(2)(i) Before bulk sewage sludge subject to the cumulative pollutant loading rates in 503.13(b)(2) is applied to the land, the person who proposes to apply the bulk sewage sludge shall contact the permitting authority for the State in which the bulk sewage sludge will be applied to determine whether bulk sewage sludge subject to the cumulative pollutant loading rates in 503.13(b)(2) has been applied to the site since [insert 120 days after the effective date of this part].

(ii) If bulk sewage sludge subject to the cumulative pollutant loading rates in 503.13(b)(2) has not been applied to the site since [insert 120 days after the effective date of this part], the cumulative amount for each pollutant listed in Table 2 may be applied to the site in accordance with 503.13(a)(2)(i).

(iii) If bulk sewage sludge subject to the cumulative pollutant loading rates in 503.13(b)(2) has been applied to the site since [insert 120 days after the effective date of this part] and the cumulative amount of each pollutant applied to the site in the bulk sewage sludge since that date is known, the cumulative amount of each pollutant applied to the site shall be used to determine the additional amount of each pollutant that can be applied to the site in accordance with 503.13(a)(2)(i).

(iv) If bulk sewage sludge subject to the cumulative pollutant loading rates in 503.13(b)(2) has been applied to the site since [insert 120 after the effective date of this part] and the cumulative amount of each pollutant applied to the site in the bulk sewage sludge since that date is not known, an additional amount of each pollutant shall not be applied to the site in accordance with 503.13(a)(2)(i).

(f) When a person who prepares bulk sewage sludge provides the bulk sewage sludge to a person who applies the bulk sewage sludge to the land, the person who prepares the bulk sewage sludge shall provide the person who applies the sewage sludge notice and necessary information to comply with the requirements in this subpart.

(g) When a person who prepares sewage sludge provides the sewage sludge to another person who prepares the sewage sludge, the person who provides the sewage sludge shall provide the person who receives the sewage sludge notice and necessary information to comply with the requirements in this subpart.

(h) The person who applies bulk sewage sludge to the land shall provide the owner or lease holder of the land on which the bulk sewage sludge is applied notice and necessary information to comply with the requirements in this subpart.

(i) Any person who prepares bulk sewage sludge that is applied to land in a State other than the State in which the bulk sewage sludge is prepared shall provide written notice, prior to the initial application of bulk sewage sludge to the land application site by the applier, to the permitting authority for the State in which the bulk sewage sludge is proposed to be applied. The notice shall include:

(1) The location, by either street address or latitude and longitude, of each land application site.

(2) The approximate time period bulk sewage sludge will be applied to the site.

(3) The name, address, telephone number, and National Pollutant Discharge Elimination System permit number (if appropriate) for the person who prepares the bulk sewage sludge.

(4) The name, address, telephone number, and National Pollutant Discharge Elimination System permit number (if appropriate) for the person who will apply the bulk sewage sludge.

(j) Any person who applies bulk sewage sludge subject to the cumulative pollutant loading rates in 503.13(b)(2) to the land shall provide written notice, prior to the initial application of bulk sewage sludge to a land application site by the applier, to the permitting authority for the State in which the bulk sewage sludge will be applied and the permitting authority shall retain and provide access to the notice. The notice shall include:

(1) The location, by either street address or latitude and longitude, of the land application site.

(2) The name, address, telephone number, and National Pollutant Discharge Elimination System permit number (if appropriate) of the person who will apply the bulk sewage sludge.

503.13 Pollutant limits

(a) Sewage sludge

(1) Bulk sewage sludge or sewage sludge sold or given away in a bag or other container shall not be applied to the land if the concentration of any pollutant in the sewage sludge exceeds the ceiling concentration for the pollutant in Table 1.

(2) If bulk sewage sludge is applied to agricultural land, forest, a public contact site, or a reclamation site, either:

(i) the cumulative loading rate for each pollutant shall not exceed the cumulative pollutant loading rate for the pollutant in Table 2, or .

(ii) the concentration of each pollutant in the sewage sludge shall not exceed the concentration for the pollutant in Table 3.

(3) If bulk sewage sludge is applied to a lawn or a home garden, the concentration of each pollutant in the sewage sludge shall not exceed the concentration for the pollutant in Table 3.

(4) If sewage sludge is sold or given away in a ba or other container for application to the land, either:

(i) the concentration of each pollutant in the sewage sludge shall not exceed the concentration for the pollutant in Table 3, or

(ii) the product of the concentration of each pollutant in the sewage sludge and the annual whole sludge application rate for the sewage sludge shall not cause the annual pollutant loading rate for the pollutant in Table 4 to be exceeded. The procedure used to determine the annual whole sludge application rate is presented in Appendix A of this part.

(b) Pollutant concentrations and loading rates - sewage sludge.

(1) Ceiling concentrations

TABLE 1 - CEILING CONCENTRATIONS

Pollutant	Ceiling Concentration (milligrams per kilogram)*
Arsenic	75
Cadmium	85
Chromium	3000
Copper	4300
Lead	840
Mercury	57
Molybdenum	75
Nickel	420
Selenium	100
Zinc	7500

* Dry weight basis

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(2) Cumulative pollutant loading rates

TABLE 2 - CUMULATIVE POLLUTANT LOADING RATES

Pollutant	Cumulative Pollutant Loading Rate (kilograms per hectare)
Arsenic	41
Cadmium	39
Chromium	3000
Copper	1500
Lead	300
Mercury	17
Molybdenum	18
Nickel	420
Selenium	100
Zinc	2800

(3) Pollutant concentrations

TABLE 3 - POLLUTANT CONCENTRATIONS

Pollutant	Monthly Average Concentration (milligrams per kilogram)*
Arsenic	41
Cadmium	39
Chromium	1200
Copper	1500
Lead	300
Mercury	17
Molybdenum	18
Nickel	420
Selenium	36
Zinc	2800

* Dry weight basis

(4) Annual pollutant loading rates

TABLE 4 - ANNUAL POLLUTANT LOADING RATES

Pollutant	Annual Pollutant Loading Rate (kilograms per hectare per 365 day period)
Arsenic	2.0
Cadmium	1.9
Chromium	150
Copper	75
Lead	15
Mercury	0.85
Molybdenum	0.90
Nickel	21
Selenium	5.0
Zinc	140

(c) Domestic septage

The annual application rate for domestic septage applied to agricultural land, forest, or a reclamation site shall not exceed the annual application rate calculated using equation (1).

$$AAR = \frac{N}{0.0026} \qquad (1)$$

Where:

AAR = Annual application rate in gallons per acre per 365 day period.

N = Amount of nitrogen in pounds per acre per 365 day period needed by the crop or vegetation grown on the land.

503.14 **Management practices**

(a) Bulk sewage sludge shall not be applied to the land if it is likely to adversely affect a threatened or endangered species listed under section 4 of the Endangered Species Act or its designated critical habitat.

(b) Bulk sewage sludge shall not be applied to agricultural land, forest, a public contact site, or a reclamation site that is flooded, frozen, or snow-covered so that the bulk sewage sludge enters a wetland or other waters of the United States, as defined in 40 CFR 122.2, except as provided in a permit issued pursuant to section 402 or 404 of the CWA.

(c) Bulk sewage sludge shall not be applied to agricultural land, forest, or a reclamation site that is 10 meters or less from waters of the United States, as defined in 40 CFR 122.2, unless otherwise specified by the permitting authority.

(d) Bulk sewage sludge shall be applied to agricultural land, forest, a public contact site, or a reclamation site at a whole sludge application rate that is equal to or less than the agronomic rate for the bulk sewage sludge, unless, in the case of a reclamation site, otherwise specified by the permitting authority.

(e) Either a label shall be affixed to the bag or other container in which sewage sludge that is sold or given away for application to the land, or an information sheet shall be provided to the person who receives sewage sludge sold or given away in an other container for application to the land. The label or information sheet shall contain the following information:

(1) The name and address of the person who prepared the sewage sludge that is sold or given away in a bag or other container for application to the land.

(2) A statement that application of the sewage sludge to the land is prohibited except in accordance with the instructions on the label or information sheet.

(3) The annual whole sludge application rate for the sewage sludge that does not cause any of the annual pollutant loading rates in Table 4 to be exceeded.

503.15 Operational standards - pathogens and vector attraction reduction

(a) Pathogens - sewage sludge

(1) The Class A pathogen requirements in 503.32(a) or the Class B pathogen requirements and site restrictions in 503.32(b) shall be met when bulk sewage sludge is applied to agricultural land, forest, a public contact site, or a reclamation site.

(2) The Class A pathogen requirements in 503.32(a) shall be met when bulk sewage sludge is applied to a lawn or a home garden.

(3) The Class A pathogen requirements in 503.32(a) shall be met when sewage sludge is sold or given away in a bag or other container for application to the land.

(b) Pathogens - domestic septage

The requirements in either 503.32(c)(1) or 503.32(c)(2) shall be met when domestic septage is applied to agricultural land, forest, or a reclamation site.

(c) Vector attraction reduction - sewage sludge

(1) One of the vector attraction reduction requirements in 503.33(b)(1) through 503.33(b)(10) shall be met when bulk sewage sludge is applied to agricultural land, forest, a public contact site, or a reclamation site.

(2) One of the vector attraction reduction requirements in 503.33(b)(1) through 503.33(b)(8) shall be met when bulk sewage sludge is applied to a lawn or a home garden.

(3) One of the vector attraction reduction requirements in 503.33(b)(1) through 503.33(b)(8) shall be met when sewage sludge is sold or given away in a bag or other container for application to the land.

(d) Vector attraction reduction - domestic septage

The vector attraction reduction requirements in 503.33(b)(9), 503.33(b)(10), or 503.33(b)(12) shall be met when domestic septage is applied to agricultural land, forest, or a reclamation site.

503.16 Frequency of monitoring

(a) Sewage sludge

(1) The frequency of monitoring for the pollutants listed in Table 1, Table 2, Table 3, and Table 4; the pathogen density requirements in 503.32(a) and in 503.32(b)(2) through 503.32(b)(4); and the vector attraction reduction requirements 503.33(b)(1) and 503.33(b)(8) shall be the frequency in Table 5.

TABLE 5 - FREQUENCY OF MONITORING - LAND APPLICATION

Amount of sewage sludge* (metric tons per 365 day period)	Frequency
Greater than zero but less than 290	once per year
Equal to or greater than 290 but less than 1,500	once per quarter (four times per year)
Equal to or greater than 1,500 but less than 15,000	once per 60 days (six times per year)
Equal to or greater than 15,000	once per month (12 times per year)

* Either the amount of bulk sewage sludge applied to the land or the amount of sewage sludge received by a person who prepares sewage sludge that is sold or given away in a bag or other container for application to the land (dry weight basis).

(2) After the sewage sludge has been monitored for two years at the frequency in Table 5, the permitting authority may reduce the frequency of monitoring for pollutant concentrations and for the pathogen density requirements in 503.32(a)(5)(ii) and 503.32(a)(5)(iii), but in no case shall the frequency of monitoring be less than once per year when sewage sludge is applied to the land.

(b) Domestic septage

If either the pathogen requirements in 503.32(c)(2) or the vector attraction reduction requirements in 503.33(b)(12) are met when domestic septage is applied to agricultural land, forest, or a reclamation site, each container of domestic septage applied to the land shall be monitored for compliance with those requirements.

503.17 Recordkeeping

(a) Sewage sludge

(1) The person who prepares the sewage sludge in 503.10(b)(1) or in 503.10(e) shall develop the following information and shall retain the information for five years:

(i) The concentration of each pollutant listed in Table 3 in the sewage sludge.

(ii) The following certification statement:

"I certify, under penalty of law, that the Class A pathogen requirements in 503.32(a) and the vector attraction reduction requirement in [insert one of the vector attraction reduction requirements in 503.33(b)(1) through 503.33(b)(8)] have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements and vector attraction reduction requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."

(iii) A description of how the Class A pathogen requirements in 503.32(a) are met.

(iv) A description of how one of the vector attraction reduction requirements in 503.33(b)(1) through 503.33(b)(8) is met.

(2) The person who derives the material in 503.10(c)(1) or in 503.10(f) shall develop the following information and shall retain the information for five years:

(i) The concentration of each pollutant listed in Table 3 in the material.

(ii) The following certification statement:

"I certify, under penalty of law, that the Class A pathogen requirements in 503.32(a) and the vector attraction reduction requirement in [insert one of the vector attraction reduction requirements in 503.33(b)(1) through 503.33(b)(8)] have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements and the vector attraction reduction requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."

(iii) A description of how the Class A pathogen requirements in 503.32(a) are met.

(iv) A description of how one of the vector attraction reduction requirements in 503.33(b)(1) through 503.33(b)(8) is met.

(3) If the pollutant concentrations in 503.13(b)(3), the Class A pathogen requirements in 503.32(a), and the vector attraction reduction requirements in either 503.33(b)(9) or 503.33(b)(10) are met when bulk sewage sludge is applied to agricultural land, forest, a public contact site, or a reclamation site:

(i) The person who prepares the bulk sewage sludge shall develop the following information and shall retain the information for five years.

(A) The concentration of each pollutant listed in Table 3 in the bulk sewage sludge.

(B) The following certification statement:

"I certify, under penalty of law, that the pathogen requirements in 503.32(a) have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."

(C) A description of how the pathogen requirements in 503.32(a) are met.

(ii) The person who applies the bulk sewage sludge shall develop the following information and shall retain the information for five years.

(A) The following certification statement:

"I certify, under penalty of law, that the management practices in 503.14 and the vector attraction reduction requirement in [insert either 503.33(b)(9) or 503.33(b)(10)] have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the management practices and vector attraction reduction requirements have been met. I am aware that there are significant penalties for false certification including fine and imprisonment."

(B) A description of how the management practices in 503.14 are met for each site on which bulk sewage sludge is applied.

(C) A description of how the vector attraction reduction requirements in either 503.33(b)(9) or 503.33(b)(10) are met for each site on which bulk sewage sludge is applied.

(4) If the pollutant concentrations in 503.13(b)(3) and the Class B pathogen requirements in 503.32(b) are met when lk sewage sludge is applied to agricultural land, forest a public contact site, or a reclamation site:

(i) The person who prepares the bulk sewage sludge shall develop the following information and shall retain the information for five years:

(A) The concentration of each pollutant listed in Table 3 in the bulk sewage sludge.

(B) The following certification statement:

"I certify under, penalty of law, that the Class B pathogen requirements in 503.32(b) and the vector attraction reduction requirement in [insert one of the vector attraction reduction requirements in 503.33(b)(1) through 503.33(b)(8) if one of those requirements is met] have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements [and vector attraction reduction requirements if applicable] have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."

(C) A description of how the Class B pathogen requirements in 503.32(b) are met.

(D) When one of the vector attraction reduction requirements in 503.33(b)(1) through 503.33(b)(8) is met, a description of how the vector attraction reduction requirement is met.

(ii) The person who applies the bulk sewage sludge shall develop the following information and shall retain the information for five years.

(A) The following certification statement:

"I certify, under penalty of law, that the management practices in 503.14, the site restrictions in 503.32(b)(5), and the vector attraction reduction requirements in [insert either 503.33(b)(9) or 503.33(b)(10), if one of those requirements is met] have been met for each site on which bulk sewage sludge is applied. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the management practices and site restrictions [and the vector attraction reduction requirements if applicable] have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."

(B) A description of how the management practices in 503.14 are met for each site on which bulk sewage sludge is applied.

(C) A description of how the site restrictions in 503.32(b)(5) are met for each site on which bulk sewage sludge is applied.

(D) When the vector attraction reduction requirement in either 503.33(b)(9) or 503.33(b)(10) is met, a description of how the vector attraction reduction requirement is met.

(5) If the requirements in 503.13(a)(2)(i) are met when bulk sewage sludge is applied to agricultural land, forest, a public contact site, or a reclamation site:

(i) The person who prepares the bulk sewage sludge shall develop the following information and shall retain the information for five years.

(A) The concentration of each pollutant listed in Table 1 in the bulk sewage sludge.

(B) The following certification statement:

"I certify, under penalty of law, that the pathogen requirements in [insert either 503.32(a) or 503.32(b)] and the vector attraction reduction requirement in [insert one of the vector attraction reduction requirements in 503.33(b)(1) through 503.33(b)(8) if one of those requirements is met] have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the pathogen imprisonment."

(G) A description of how the requirements to obtain information in 503.12(e)(2) are met.

(H) The following certification statement:

"I certify, under penalty of law, that the management practices in 503.14 have been met for each site on which bulk sewage sludge is applied. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the management practices have been met. I am aware that there are significant penalties for false certification including fine and imprisonment."

(I) A description of how the management practices in 503.14 are met for each site on which bulk sewage sludge is applied.

(J) The following certification statement when the bulk sewage sludge meets the Class B pathogen requirements in 503.32(b):

"I certify, under penalty of law, that the site restrictions in 503.32(b)(5) have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the site restrictions have been met. I am aware that there are significant penalties for false certification including fine and imprisonment."

(K) A description of how the site restrictions in 503.32(b)(5) are met for each site on which Class B bulk sewage sludge is applied.

(L) The following certification statement when the vector attraction reduction requirement in either 503.33(b)(9) or 503.33(b)(10) is met:

"I certify, under penalty of law, that the vector attraction reduction requirement in [insert either 503.33(b)(9) or 503.33(b)(10)] has been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the vector attraction reduction requirement has been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."

(M) If the vector attraction reduction requirements in either 503.33(b)(9) or 503.33(b)(10) are met, a description of how the requirements are met.

(6) If the requirements in 503.13(a)(4)(ii) are met when sewage sludge is sold or given away in a bag or other container for application to the land, the person who prepares the sewage sludge that is sold or given away in a bag or other container shall develop the following information and shall retain the information for five years:

(i) The annual whole sludge application rate for the sewage sludge that does not cause the annual pollutant loading rates in Table 4 to be exceeded.

(ii) The concentration of each pollutant listed in Table 4 in the sewage sludge.

(iii) The following certification statement:

"I certify, under penalty of law, that the management practice in 503.14(e), the Class A pathogen requirement in 503.32(a), and the vector attraction reduction requirement in [insert one of the vector attraction reduction requirements in 503.33(b)(1) through 503.33(b)(8)] have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the management practice, pathogen requirements, and vector attraction reduction requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."

(iii) A description of how the Class A pathogen requirements in 503.32(a) are met.

(iv) A description of how one of the vector attraction requirements in 503.33(b)(1) through 503.33(b)(8) is met.

(b) Domestic septage

When domestic septage is applied to agricultural land, forest, or a reclamation site, the person who applies the domestic septage shall develop the following information and shall retain the information for five years:

(1) The location, by either street address or latitude and longitude, of each site on which domestic septage is applied.

(2) The number of acres in each site on which domestic septage is applied.

(3) The date and time domestic septage is applied to each site.

(4) The nitrogen requirement for the crop or vegetation grown on each site during a 365 day period.

(5) The rate, in gallons per acre per 365 day period, at which domestic septage is applied to each site.

(6) The following certification statement:

"I certify, under penalty of law, that the pathogen requirements in [insert either 503.33(c)(1) or 503.33(c)(2)] and the vector attraction reduction requirements in [insert 503.33(b)(9), 503.33(b)(10), or 503.33(b)(12)] have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements and vector attraction reduction requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."

(7) A description of how the pathogen requirements in either 503.33(c)(1) or 503.33(c)(2) are met.

(8) A description of how the vector attraction reduction requirements in 503.33(b)(9), 503.33(b)(10), or 503.33(b)(12) are met.

503.18 Reporting

(a) Class I sludge management facilities, POTWs (as defined in 40 CFR 501.2) with a design flow rate equal to or greater than one million gallons per day, and POTWs that serve 10,000 people or more shall submit the following information to the permitting authority:

(1) The information in 503.17(a), except the information in 503.17(a)(3)(ii), 503.17(a)(4)(ii) and in 503.17(a)(5)(ii), for the appropriate requirements on [insert the month and day of the date of publication of this part] of each year.

(2) The information in 503.17(a)(5)(ii)(A) through 503.17(a)(5)(ii)(G) on [insert the month and day from the date of publication of this part] of each year when 90 percent or more of any of the cumulative pollutant loading rates in Table 2 is reached at a site.

Subpart C--Surface Disposal

503.20 Applicability

(a) This subpart applies to any person who prepares sewage sludge that is placed on a surface disposal site, to the owner/operator of a surface disposal site, to sewage sludge placed on a surface disposal site, and to a surface disposal site.

(b) This subpart does not apply to sewage sludge stored on the land or to the land on which sewage sludge is stored. It also does not apply to sewage sludge that remains on the land for longer than two years when the person who prepares the sewage sludge demonstrates that the land on which the sewage sludge remains is not an active sewage sludge unit. The demonstration shall include the following information, which shall be retained by the person who prepares the sewage sludge for the period that the sewage sludge remains on the land:

(1) The name and address of the person who prepares the sewage sludge.

(2) The name and address of the person who either owns the land or leases the land.

(3) The location, by either street address or latitude and longitude, of the land.

(4) An explanation of why sewage sludge needs to remain on the land for longer than two years prior to final use or disposal.

(5) The approximate time period when the sewage sludge will be used or disposed.

(c) This subpart does not apply to sewage sludge treated on the land or to the land on which sewage sludge is treated.

503.21 Special definitions

(a) **Active sewage sludge unit** is a sewage sludge unit that has not closed.

(b) **Aquifer** is a geologic formation, group of geologic formations, or a portion of a geologic formation capable of yieldin ground water to wells or springs.

(c) **Contaminate an aquifer** means to introduce a substance tha causes the maximum contaminant level for nitrate in 40 CF 141.11 to be exceeded in ground water or that causes th existing concentration of nitrate in ground water to increas when the existing concentration of nitrate in the ground wate exceeds the maximum contaminant level for nitrate in 40 CF 141.11.

(d) **Cover** is soil or other material used to cover sewage sludg placed on an active sewage sludge unit.

(e) **Displacement** is the relative movement of any two sides of a fault measured in any direction.

(f) **Fault** is a fracture or zone of fractures in any materials along which strata on one side are displaced with respect to strata on the other side.

(g) **Final cover** is the last layer of soil or other material placed on a sewage sludge unit at closure.

(h) **Holocene time** is the most recent epoch of the Quaternary period, extending from the end of the Pleistocene epoch to the present.

(i) **Leachate collection system** is a system or device installed immediately above a liner that is designed, constructed, maintained, and operated to collect and remove leachate from a sewage sludge unit.

(j) **Liner** is soil or synthetic material that has a hydraulic conductivity of 1×10^{-7} centimeters per second or less.

(k) **Lower explosive limit for methane gas** is the lowest percentage of methane gas in air, by volume, that propagates a flame at 25 degrees Celsius and atmospheric pressure.

(l) **Qualified ground-water scientist** is an individual with a baccalaureate or post-graduate degree in the natural sciences or engineering who has sufficient training and experience in ground-water hydrology and related fields, as may be demonstrated by State registration, professional certification, or completion of accredited university programs, to make sound professional judgments regarding ground-water monitoring, pollutant fate and transport, and corrective action.

(m) **Seismic impact zone** is an area that has a 10 percent or greater probability that the horizontal ground level acceleration of the rock in the area exceeds 0.10 gravity once in 250 years.

(n) **Sewage sludge unit** is land on which only sewage sludge is placed for final disposal. This does not include land on which sewage sludge is either stored or treated. Land does not include waters of the United States, as defined in 40 CFR 122.2.

(o) **Sewage sludge unit boundary** is the outermost perimeter of an active sewage sludge unit.

(p) **Surface disposal site** is an area of land that contains one or more active sewage sludge units.

(q) **Unstable area** is land subject to natural or human-induced forces that may damage the structural components of an active sewage sludge unit. This includes, but is not limited to, land on which the soils are subject to mass movement.

503.22 General requirements

(a) No person shall place sewage sludge on an active sewage sludge unit unless the requirements in this subpart are met.

(b) An active sewage sludge unit located within 60 meters of a fault that has displacement in Holocene time; located in an unstable area; or located in a wetland, except as provided in a permit issued pursuant to section 402 of the CWA, shall close by [insert one year after the effective date of this part], unless, in the case of an active sewage sludge unit located within 60 meters of a fault that has displacement in Holocene time, otherwise specified by the permitting authority.

(c) The owner/operator of an active sewage sludge unit shall submit a written closure and post closure plan to the permitting authority 180 days prior to the date that the active sewage sludge unit closes. The plan shall describe how the sewage sludge unit will be closed and, at a minimum, shall include:

(1) A discussion of how the leachate collection system will be operated and maintained for three years after the sewage sludge unit closes if the sewage sludge unit has a liner and leachate collection system.

(2) A description of the system used to monitor for methane gas in the air in any structures within the surface disposal site and in the air at the property line of the surface disposal site, as required in 503.24(j)(2).

(3) A discussion of how public access to the surface disposal site will be restricted for three years after the last sewage sludge unit in the surface disposal site closes.

(d) The owner of a surface disposal site shall provide written notification to the subsequent owner of the site that sewage sludge was placed on the land.

503.23 Pollutant limits (other than domestic septage)

(a) Active sewage sludge unit without a liner and leachate collection system

(1) Except as provided in 503.23(a)(2) and 503.23(b), the concentration of each pollutant listed in Table 6 in sewage sludge placed on an active sewage sludge unit shall not exceed the concentration for the pollutant in Table 6.

TABLE 6 - POLLUTANT CONCENTRATIONS - ACTIVE SEWAGE SLUDGE UNIT WITHOUT A LINER AND LEACHATE COLLECTION

Pollutant	Concentration (milligrams per kilogram*)
Arsenic	73
Chromium	600
Nickel	420

* Dry weight basis

(2) Except as provided in 503.23(b), the concentration of each pollutant listed in Table 6 in sewage sludge placed on an active sewage sludge unit whose boundary is less than 150 meters from the property line of the surface disposal site shall not exceed the concentration determined using the following procedure.

(i) The actual distance from the active sewage sludge unit boundary to the property line of the surface disposal site shall be determined.

(ii) The concentration of each pollutant listed in Table 7 in the sewage sludge shall not exceed the concentration in Table 7 that corresponds to the actual distance in 503.23(a)(2)(i).

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TABLE 7 - POLLUTANT CONCENTRATIONS - ACTIVE SEWAGE SLUDGE UNIT WITHOUT A LINER AND LEACHATE COLLECTION SYSTEM THAT HAS A UNIT BOUNDARY TO PROPERTY LINE DISTANCE LESS THAN 150 METERS

Unit boundary to property line distance (meters)	Pollutant concentration* Arsenic (mg/kg)	Chromium (mg/kg)	Nickel (mg/kg)
0 to less than 25	30	200	210
25 to less than 50	34	220	240
50 to less than 75	39	260	270
75 to less than 100	46	300	320
100 to less than 125	53	360	390
125 to less than 150	62	450	420

* Dry weight basis

(b) Active sewage sludge unit without a liner and leachate collection system - site-specific limits

(1) At the time of permit application, the owner/operator of a surface disposal site may request site-specific pollutant limits in accordance with 503.23(b)(2) for an active sewage sludge unit without a liner and leachate collection system when the existing values for site parameters specified by the permitting authority are different from the values for those parameters used to develop the pollutant limits in Table 6 and when the permitting authority determines that site-specific pollutant limits are appropriate for the active sewage sludge unit.

(2) The concentration of each pollutant listed in Table 6 in sewage sludge placed on an active sewage sludge unit without a liner and leachate collection system shall not exceed either the concentration for the pollutant determined during a site-specific assessment, as specified by the permitting authority, or the existing concentration of the pollutant in the sewage sludge, whichever is lower.

503.24 Management practices

(a) Sewage sludge shall not be placed on an active sewage sludge unit if it is likely to adversely affect a threatened or endangered species listed under section 4 of the Endangered

Species Act or its designated critical habitat.

(b) An active sewage sludge unit shall not restrict the flow of a base flood.

(c) When a surface disposal site is located in a seismic impact zone, an active sewage sludge unit shall be designed to withstand the maximum recorded horizontal ground level acceleration.

(d) An active sewage sludge unit shall be located 60 meters or more from a fault that has displacement in Holocene time, unless otherwise specified by the permitting authority.

(e) An active sewage sludge unit shall not be located in an unstable area.

(f) An active sewage sludge unit shall not be located in a wetland, except as provided in a permit issued pursuant to section 402 or 404 of the CWA.

(g) (1) Run-off from an active sewage sludge unit shall be collected and shall be disposed in accordance with National Pollutant Discharge Elimination System permit requirements and any other applicable requirements.

(2) The run-off collection system for an active sewage sludge unit shall have the capacity to handle run-off from a 24-hour, 25-year storm event.

(h) The leachate collection system for an active sewage sludge unit that has a liner and leachate collection system shall be operated and maintained during the period the sewage sludge unit is active and for three years after the sewage sludge unit closes.

(i) Leachate from an active sewage sludge unit that has a liner and leachate collection system shall be collected and shall be disposed in accordance with the applicable requirements during the period the sewage sludge unit is active and for three years after the sewage sludge unit closes.

(j) (1) When a cover is placed on an active sewage sludge unit, the concentration of methane gas in air in any structure within the surface disposal site shall not exceed 25 percent of the lower explosive limit for methane gas during the period that the sewage sludge unit is active and the concentration of methane gas in air at the property line of the surface disposal site shall not exceed the lower explosive limit for methane gas during the period that the sewage sludge unit is active.

(2) When a final cover is placed on a sewage sludge unit at closure, the concentration of methane gas in air in any structure within the surface disposal site shall not exceed 25 percent of the lower explosive limit for methane gas for three years after the sewage sludge unit closes and the concentration of methane gas in air at the property line of the surface disposal site shall not exceed the lower explosive limit for methane gas for three years after the sewage sludge unit closes, unless otherwise specified by the permitting authority.

(k) A food crop, a feed crop, or a fiber crop shall not be grown on an active sewage sludge unit, unless the owner/operator of the surface disposal site demonstrates to the permitting authority that through management practices public health and the environment are protected from any reasonably anticipated adverse effects of pollutants in sewage sludge when crops are grown.

(l) Animals shall not be grazed on an active sewage sludge unit, unless the owner/operator of the surface disposal site demonstrates to the permitting authority that through management practices public health and the environment are protected from any reasonably anticipated adverse effects of pollutants in sewage sludge when animals are grazed.

(m) Public access to a surface disposal site shall be restricted for the period that the surface disposal site contains an active sewage sludge unit and for three years after the last active sewage sludge unit in the surface disposal site closes.

(n)(1) Sewage sludge placed on an active sewage sludge unit shall not contaminate an aquifer.

(2) Results of a ground-water monitoring program developed by a qualified ground-water scientist or a certification by a qualified ground-water scientist shall be used to demonstrate that sewage sludge placed on an active sewage sludge unit does not contaminate an aquifer.

503.25 Operational standards - pathogens and vector attraction reduction.

(a) Pathogens - sewage sludge (other than domestic septage)

The Class A pathogens requirements in 503.32(a) or one of the Class B pathogen requirements in 503.32(b)(2) through (b)(4) shall be met when sewage sludge is placed on an active sewage sludge unit, unless the vector attraction reduction requirement in 503.33(b)(11) is met.

(b) Vector attraction reduction - sewage sludge (other than domestic septage)

- One of the vector attraction reduction requirements in 503.33(b)(1) through 503.33(b)(11) shall be met when sewage sludge is placed on an active sewage sludge unit.

(c) Vector attraction reduction - domestic septage

One of the vector attraction reduction requirement in 503.33(b)(9) through 503.33(b)(12) shall be met when domestic septage is placed on an active sewage sludge unit.

503.26 Frequency of monitoring

(a) Sewage sludge (other than domestic septage)

(1) The frequency of monitoring for the pollutants in Tables 6 and 7; the pathogen density requirements in 503.32(a) and in 503.32(b)(2) through 503.32(b)(4); and the vector attraction reduction requirements in 503.33(b)(1) through 503.33(b)(8) for sewage sludge placed on an active sewage sludge unit shall be the frequency in Table 8.

TABLE 8 - FREQUENCY OF MONITORING - SURFACE DISPOSAL

Amount of sewage sludge* (metric tons per 365 day period)	Frequency
Greater than zero but less than 290	once per year
Equal to or greater than 290 but less than 1,500	once per quarter (four times per year)
Equal to or greater than 1,500 but less than 15,000	once per 60 days (six times per year)
Equal to or greater than 15,000	once per month (12 times per year)

* Amount of sewage sludge placed on an active sewage sludge unit (dry weight basis).

(2) After the sewage sludge has been monitored for two years at the frequency in Table 8, the permitting authority may reduce the frequency of monitoring for pollutant concentrations and for the pathogen density requirements in 503.32(a)(5)(ii) and 503.32(a)(5)(iii), but in no case shall the frequency of monitoring be less than once per year when sewage sludge is

placed on an active sewage sludge unit.

(b) Domestic septage

- If the vector attraction reduction requirements in 503.33(b)(12) are met when domestic septage is placed on an active sewage sludge unit, each container of domestic septage shall be monitored for compliance with those requirements.

(c) Air

Air in structures within a surface disposal site and at the property line of the surface disposal site shall be monitored continuously for methane gas during the period that the surface disposal site contains an active sewage sludge unit on which the sewage sludge is covered and for three years after a sewage sludge unit closes when a final cover is placed on the sewage sludge.

503.27 Recordkeeping

(a) When sewage sludge (other than domestic septage) is placed on an active sewage sludge unit:

(1) The person who prepares the sewage sludge shall develop the following information and shall retain the information for five years.

(i) The concentration of each pollutant listed in Table 6 in the sewage sludge when the pollutant concentrations in Table 6 are met.

(ii) The following certification statement:

"I certify, under penalty of law, that the pathogen requirements in [insert 503.32(a), 503.32(b)(2), 503.32(b)(3), or 503.32(b)(4) when one of those requirements is met] and the vector attraction reduction requirements in [insert one of the vector attraction reduction requirements in 503.33(b)(1) through 503.33(b)(8) when one of those requirements is met] have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine the [pathogen requirements and vector attraction reduction requirements if appropriate] have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."

(iii) A description of how the pathogen requirements in 503.32(a), 503.32(b)(2), 503.32(b)(3), or 503.32(b)(4) are met when one of those requirements is met.

(iv) A description of how one of the vector attraction reduction requirements in 503.33(b)(1) through 503.33(b)(8) is met when one of those requirements is met.

(2) The owner/operator of the surface disposal site shall develop the following information and shall retain that information for five years.

(i) The concentration of each pollutant listed in Table 7 in the sewage sludge when the pollutant concentrations in Table 7 are met or when site-specific pollutant limits in 503.23(b) are met.

(ii) The following certification statement:

"I certify, under penalty of law, that the management practices in 503.24 and the vector attraction reduction requirement in [insert one of the requirements in 503.33(b)(9) through 503.33(b)(11) if one of those requirements is met] have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the management practices [and the vector attraction reduction requirements if appropriate] have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."

(iii) A description of how the management practices in 503.24 are met.

(iv) A description of how the vector attraction reduction requirements in 503.33(b)(9) through 503.33(b)(11) are met if one of those requirements is met.

(b) When domestic septage is placed on a surface disposal site:

(1) If the vector attraction reduction requirements in 503.33(b)(12) are met, the person who places the domestic septage on the surface disposal site shall develop the following information and shall retain the information for five years:

(i) The following certification statement:

"I certify, under penalty of law, that the vector attraction reduction requirements in 503.33(b)(12) have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the vector attraction requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."

(ii) A description of how the vector attraction reduction requirements in 503.33(b)(12) are met.

(2) The owner/operator of the surface disposal site shall develop the following information and shall retain that information for five years:

(i) The following certification statement:

"I certify, under penalty of law, that the management practices in 503.24 and the vector attraction reduction requirements in [insert 503.33(b)(9) through 503.33(b)(11) when one of those requirements is met] have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the management practices [and the vector attraction reduction requirements if appropriate] have been met. I am aware that there are significant penalties for false certification including the possibility of fine or imprisonment."

(ii) A description of how the management practices in 503.24 are met.

(iii) A description how the vector attraction reduction requirements in 503.33(b)(9) or 503.33(b)(11) are met if one of those requirements in met.

503.28 Reporting

(a) Class I sludge management facilities, POTWs (as defined in 40 CFR 501.2) with a design flow rate equal to or greater than one million gallons per day, and POTWs that serve 10,000 people or more shall submit the information in 503.27(a) to the permitting authority on [insert the month and day from the date of publication of this part] of each year.

Subpart D--Pathogens and Vector Attraction Reduction

503.30 Scope

(a) This subpart contains the requirements for a sewage sludge to be classified either Class A or Class B with respect to pathogens.

(b) This subpart contains the site restrictions for land on which a Class B sewage sludge is applied.

(c) This subpart contains the pathogen requirements for domestic septage applied to agricultural land, forest, or a reclamation site.

(d) This subpart contains alternative vector attraction reduction requirements for sewage sludge that is applied to the land or placed on a surface disposal site.

503.31 Special definitions.

(a) **Aerobic digestion** is the biochemical decomposition of organic matter in sewage sludge into carbon dioxide and water by microorganisms in the presence of air.

(b) **Anaerobic digestion** is the biochemical decomposition of organic matter in sewage sludge into methane gas and carbon dioxide by microorganisms in the absence of air.

(c) **Density of microorganisms** is the number of microorganisms per unit mass of total solids (dry weight) in the sewage sludge.

(d) **Land with a high potential for public exposure** is land that the public uses frequently. This includes, but is not limited to, a public contact site and a reclamation site located in a populated area (e.g, a construction site located in a city).

(e) **Land with a low potential for public exposure** is land that the public uses infrequently. This includes, but is not limited to, agricultural land, forest, and a reclamation site located in an unpopulated area (e.g., a strip mine located in a rural area).

(f) **Pathogenic organisms** are disease-causing organisms. These include, but are not limited to, certain bacteria, protozoa, viruses, and viable helminth ova.

(g) **pH** means the logarithm of the reciprocal of the hydrogen ion concentration.

(h) **Specific oxygen uptake rate (SOUR)** is the mass of oxygen consumed per unit time per unit mass of total solids (dry weight basis) in the sewage sludge.

(i) **Total solids** are the materials in sewage sludge that remain as residue when the sewage sludge is dried at 103 to 105 degrees Celsius.

(j) **Unstabilized solids** are organic materials in sewage sludge that have not been treated in either an aerobic or anaerobic treatment process.

(k) **Vector attraction** is the characteristic of sewage sludge that attracts rodents, flies, mosquitos, or other organisms capable of transporting infectious agents.

(l) **Volatile solids** is the amount of the total solids in sewage sludge lost when the sewage sludge is combusted at 550 degrees Celsius in the presence of excess air.

503.32 Pathogens

(a) Sewage sludge - Class A

(1) The requirement in 503.32(a)(2) and the requirements in either 503.32(a)(3), 503.32(a)(4), 503.32(a)(5), 503.32(a)(6), 503.32(a)(7), or 503.32(a)(8) shall be met for a sewage sludge to be classified Class A with respect to pathogens.

(2) The Class A pathogen requirements in 503.32(a)(3) through 503.32(a)(8) shall be met either prior to meeting or at the same time the vector attraction reduction requirements in 503.33, except the vector attraction reduction requirements in 503.33(b)(6) through 503.33(b)(8), are met.

✓ (3) Class A - Alternative 1

(i) Either the density of fecal coliform in the sewage sludge shall be less than 1000 Most Probable Number per gram of total solids (dry weight basis), or the density of Salmonella sp. bacteria in the sewage sludge shall be less than three Most Probable Number per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or give away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in 503.10(b), 503.10(c), 503.10(e), or 503.10(f).

(ii) The temperature of the sewage sludge that is used or disposed shall be maintained at a specific value for a period of time.

(A) When the percent solids of the sewage sludge is seven percent or higher, the temperature of the sewage sludge shall be 50 degrees Celsius or higher; the time period shall be 20 minutes or longer; and the temperature and time period shall be determined using equation (3), except when small particles of sewage sludge are heated by either warmed gases or an immiscible liquid.

$$D = \frac{131,700,000}{10^{0.1400t}} \qquad (3)$$

Where,

D = time in days.

t = temperature in degrees Celsius.

(B) When the percent solids of the sewage sludge is seven percent or higher and small particles of sewage sludge are heated by either warmed gases or an immiscible liquid, the temperature of the sewage sludge shall be 50 degrees Celsius or higher; the time period shall be 15 seconds or longer; and the temperature and time period shall be determined using equation (3).

(C) When the percent solids of the sewage sludge is less than seven percent and the time period is at least 15 seconds, but less than 30 minutes, the temperature and time period shall be determined using equation (3).

(D) When the percent solids of the sewage sludge is less than seven percent; the temperature of the sewage sludge is 50 degrees Celsius or higher; and the time period is 30 minutes or longer, the temperature and time period shall be determined using equation (4).

$$D = \frac{50,070,000}{10^{0.1400t}} \qquad (4)$$

Where,

D = time in days.

t = temperature in degrees Celsius.

(4) Class A - Alternative 2

(i) Either the density of fecal coliform in the sewage sludge shall be less than 1000 Most Probable Number per gram of total solids (dry weight basis), or the density of Salmonella sp. bacteria in the sewage sludge shall be less than three Most Probable Number per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or give away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in 503.10(b), 503.10(c), 503.10(e), or 503.10(f).

(ii)(A) The pH of the sewage sludge that is used or disposed shall be raised to above 12 and shall remain above 12 for 72 hours.

(B). The temperature of the sewage sludge shall be above 52 degrees Celsius for 12 hours or longer during the period that the pH of the sewage sludge is above 12.

(C) At the end of the 72 hour period during which the pH of the sewage sludge is above 12, the sewage sludge shall be air dried to achieve a percent solids in the sewage sludge greater than 50 percent.

(5) Class A - Alternative 3

(i) Either the density of fecal coliform in the sewage sludge shall be less than 1000 Most Probable Number per gram of total solids (dry weight basis), or the density of Salmonella sp. bacteria in sewage sludge shall be less than three Most Probable Number per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or give away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in 503.10(b), 503.10(c), 503.10(e), or 503.10(f).

(ii)(A) The sewage sludge shall be analyzed prior to pathogen treatment to determine whether the sewage sludge contains enteric viruses.

(B) When the density of enteric viruses in the sewage sludge prior to pathogen treatment is less than one Plaque-forming Unit per four grams of total solids (dry weight basis), the sewage sludge is Class A with respect to enteric viruses until the next monitoring episode for the sewage sludge.

(C) When the density of enteric viruses in the sewage sludge prior to pathogen treatment is equal to or greater than one Plaque-forming Unit per four grams of total solids (dry weight basis), the sewage sludge is Class A with respect to enteric viruses when the density of enteric viruses in the sewage sludge after pathogen treatment is less than one Plaque-forming Unit per four grams of total solids (dry weight basis) and when the values or ranges of values for the operating parameters for the pathogen treatment process that produces the sewage sludge that meets the enteric virus density requirement are documented.

(D) After the enteric virus reduction in (ii)(C) of this subsection is demonstrated for the pathogen treatment process, the sewage sludge continues to be Class A with respect to enteric viruses when the values for the pathogen treatment process operating parameters are consistent with the values or ranges of values documented in (ii)(C) of this subsection.

(iii)(A) The sewage sludge shall be analyzed prior to pathogen treatment to determine whether the sewage sludge contains viable helminth ova.

(B) When the density of viable helminth ova in the sewage sludge prior to pathogen treatment is less than one per four grams of total solids (dry weight basis), the sewage sludge is Class A with respect to viable helminth ova until the next monitoring episode for the sewage sludge.

(C) When the density of viable helminth ova in the sewage sludge prior to pathogen treatment is equal to or greater than one per four grams of total solids (dry weight basis), the sewage sludge is Class A with respect to viable helminth ova when the density of viable helminth ova in the sewage sludge after pathogen treatment is less than one per four grams of total solids (dry weight basis) and when the values or ranges of values for the operating parameters for the pathogen treatment process that produces the sewage sludge that meets the viable helminth ova density requirement are documented.

(D) After the viable helminth ova reduction in (iii)(C) of this subsection is demonstrated for the pathogen treatment process, the sewage sludge continues to be Class A with respect to viable helminth ova when the values for the pathogen treatment process operating parameters are consistent with the values or ranges of values documented in (iii)(C) of this subsection.

✓ (6) Class A - Alternative 4

(i) Either the density of fecal coliform in the sewage sludge shall be less than 1000 Most Probable Number per gram of total solids (dry weight basis), or the density of Salmonella sp. bacteria in the sewage sludge shall be less than three Most Probable Number per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or give away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in 503.10(b), 503.10(c), 503.10(e), or 503.10(f).

(ii) The density of enteric viruses in the sewage slu[illegible] shall be less than one Plaque-forming Unit per four gr[illegible] of total solids (dry weight basis) at the time the sewa[illegible] sludge is used or disposed; at the time the sewage sludge [illegible]s prepared for sale or give away in a bag or other [illegible]ntainer for application to the land; or at the time the se[illegible]ge sludge or material derived from sewage sludge is prepar[illegible] to meet the requirements in 503.10(b), 503.10(c), 503.10(e), or 503.10(f), unless otherwise specified by the permitting authority.

(iii) The density of viable helminth ova in the sewage sludge shall be less than one per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or give away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in 503.10(b), 503.10(c), 503.10(e), or 503.10(f), unless otherwise specified by the permitting authority.

(7) Class A - Alternative 5

(i) Either the density of fecal coliform in the sewage sludge shall be less than 1000 Most Probable Number per gram of total solids (dry weight basis), or the density of Salmonella, sp. bacteria in the sewage sludge shall be less than three Most Probable Number per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or give away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in 503.10(b), 503.10(c), 503.10(e), or 503.10(f).

(ii) Sewage sludge that is used or disposed shall be treated in one of the Processes to Further Reduce Pathogens described in Appendix B.

(8) Class A - Alternative 6

(i) Either the density of fecal coliform in the sewage sludge shall be less than 1000 Most Probable Number per gram of total solids (dry weight basis), or the density of Salmonella, sp. bacteria in the sewage sludge shall be less than three Most Probable Number per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or give away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in 503.10(b), 503.10(c), 503.10(e), or 503.10(f).

(ii) Sewage sludge that is used or disposed shall be treated in a process that is equivalent to a Process to Further Reduce Pathogens, as determined by the permitting authority.

(b) Sewage sludge - Class B

(1)(i) The requirements in either 503.32(b)(2), 503.32(b)(3), or 503.32(b)(4) shall be met for a sewage sludge to be classified Class B with respect to pathogens.

(ii) The site restrictions in 503.32(b)(5) shall be met when sewage sludge that meets the Class B pathogen requirements in 503.32(b)(2), 503.32(b)(3), or 503.32(b)(4) is applied to the land.

(2) Class B - Alternative 1

(i) Seven samples of the sewage sludge shall be collected at the time the sewage sludge is used or disposed.

(ii) The geometric mean of the density of fecal coliform in the samples collected in (2)(i) of this subsection shall be less than either 2,000,000 Most Probable Number per gram of total solids (dry weight basis) or 2,000,000 Colony Forming Units per gram of total solids (dry weight basis).

(3) Class B - Alternative 2

Sewage sludge that is used or disposed shall be treated in one of the Processes to Significantly Reduce Pathogens described in Appendix B.

(4) Class B - Alternative 3

Sewage sludge that is used or disposed shall be treated in a process that is equivalent to a Process to Significantly Reduce Pathogens, as determined by the permitting authority.

(5) Site Restrictions

(i) Food crops with harvested parts that touch the sewage sludge/soil mixture and are totally above the land surface shall not be harvested for 14 months after application of sewage sludge.

(ii) Food crops with harvested parts below the surface of the land shall not be harvested for 20 months after application of sewage sludge when the sewage sludge remains on the land surface for four months or longer prior to incorporation into the soil.

(iii) Food crops with harvested parts below the surface of the land shall not be harvested for 38 months after application of sewage sludge when the sewage sludge remains on the land surface for less than four months prior to incorporation into the soil.

(iv) Food crops, feed crops, and fiber crops shall not be harvested for 30 days after application of sewage sludge.

(v) Animals shall not be allowed to graze on the land for 30 days after application of sewage sludge.

(vi) Turf grown on land where sewage sludge is applied shall not be harvested for one year after application of the sewage sludge when the harvested turf is placed on either land with a high potential for public exposure or a lawn, unless otherwise specified by the permitting authority.

(vii) Public access to land with a high potential for public exposure shall be restricted for one year after application of sewage sludge.

(viii) Public access to land with a low potential for public exposure shall be restricted for 30 days after application of sewage sludge.

(c) Domestic septage

(1) The site restrictions in 503.32(b)(5) shall be met when domestic septage is applied to agricultural land, forest, or a reclamation site; or

(2) The pH of domestic septage applied to agricultural land, forest, or a reclamation site shall be raised to 12 or higher by alkali addition and, without the addition of more alkali, shall remain at 12 or higher for 30 minutes and the site restrictions in 503.32(b)(5)(i) through (b)(5)(iv) shall be met.

503.33 Vector attraction reduction

(a)(1) One of the vector attraction reduction requirements in 503.33(b)(1) through 503.33(b)(10) shall be met when bulk sewage sludge is applied to agricultural land, forest, a public contact site, or a reclamation site.

(2) One of the vector attraction reduction requirements in 503.33(b)(1) through 503.33(b)(8) shall be met when bulk

sewage sludge is applied to a lawn or a home garden.

(3) One of the vector attraction reduction requirements in 503.33(b)(1) through 503.33(b)(11) shall be met when sewage sludge (other than domestic septage) is placed on an active sewage sludge unit.

(4) One of the vector attraction reduction requirements in 503.33(b)(9), 503.33(b)(10), or 503.33(b)(12) shall be met when domestic septage is applied to agricultural land, forest, or a reclamation site and one of the vector attraction reduction requirements in 503.33(b)(9) through 503.33(b)(12) shall be met when domestic septage is placed on an active sewage sludge unit.

(b)(1) The mass of volatile solids in the sewage sludge shall be reduced by a minimum of 38 percent.

(2) When the 38 percent volatile solids reduction requirement in 503.33(b)(1) cannot be met for an anaerobically digested sewage sludge, vector attraction reduction can be demonstrated by digesting a portion of the previously digested sewage sludge anaerobically in the laboratory in a bench-scale unit for 40 additional days at a temperature between 30 and 37 degrees Celsius. When at the end of the 40 days, the volatile solids in the sewage sludge at the beginning of that period is reduced by less than 17 percent, vector attraction reduction is achieved.

(3) When the 38 percent volatile solids reduction requirement in 503.33(b)(1) cannot be met for an aerobically digested sewage sludge, vector attraction reduction can be demonstrated by digesting a portion of the previously digested sewage sludge that has a percent solids of two percent or less aerobically in the laboratory in a bench-scale unit for 30 additional days at 20 degrees Celsius. When at the end of the 30 days, the volatile solids in the sewage sludge at the beginning of that period is reduced by less than 15 percent, vector attraction reduction is achieved.

(4) The specific oxygen uptake rate (SOUR) for sewage sludge treated in an aerobic process shall be equal to or less than 1.5 milligrams of oxygen per hour per gram of total solids (dry weight basis) at a temperature of 20 degrees Celsius.

(5) Sewage sludge shall be treated in an aerobic process for 14 days or longer. During that time, the temperature of the sewage sludge shall be higher than 40 degrees Celsius and the average temperature of the sewage sludge shall be higher than 45 degrees Celsius.

(6) The pH of sewage sludge shall be raised to 12 or higher by

alkali addition and, without the addition of more alkali, shall remain at 12 or higher for two hours and then at 11.5 or higher for an additional 22 hours.

(7) The percent solids of sewage sludge that does not contain unstabilized solids generated in a primary wastewater treatment process shall be equal to or greater than [illegible] percent based on the moisture content and total solids prior to mixing with other materials.

(8) The percent solids of sewage sludge that contains unstabilized solids generated in a primary wastewater treatment process shall be equal to or greater than 90 percent based on the moisture content and total solids prior to mixing with other materials.

(9)(i) Sewage sludge shall be injected below the surface of the land.

(ii) No significant amount of the sewage sludge shall be present on the land surface within one hour after the sewage sludge is injected.

(iii) When the sewage sludge that is injected below the surface of the land is Class A with respect to pathogens, the sewage sludge shall be injected below the land surface within eight hours after being discharged from the pathogen treatment process.

(10)(i) Sewage sludge applied to the land surface or placed on a surface disposal site shall be incorporated into the soil within six hours after application to or placement on the land.

(ii) When sewage sludge that is incorporated into the soil is Class A with respect to pathogens, the sewage sludge shall be applied to or placed on the land within eight hours after being discharged from the pathogen treatment process.

(11) Sewage sludge placed on an active sewage sludge unit shall be covered with soil or other material at the end of each operating day.

(12) The pH of domestic septage shall be raised to 12 or higher by alkali addition and, without the addition of more alkali, shall remain at 12 or higher for 30 minutes.

Subpart E--Incineration

503.40 Applicability

(a) This subpart applies to a person who fires sewage sludge in a sewage sludge incinerator, to a sewage sludge incinerator, and to sewage sludge fired in a sewage sludge incinerator.

(b) This subpart applies to the exit gas from a sewage sludge incinerator stack.

503.41 Special definitions

(a) **Air pollution control device** is one or more processes used to treat the exit gas from a sewage sludge incinerator stack.

(b) **Auxiliary fuel** is fuel used to augment the fuel value of sewage sludge. This includes, but is not limited to, natural gas, fuel oil, coal, gas generated during anaerobic digestion of sewage sludge, and municipal solid waste (not to exceed 30 percent of the dry weight of sewage sludge and auxiliary fuel together). Hazardous wastes are not auxiliary fuel.

(c) **Control efficiency** is the mass of a pollutant in the sewage sludge fed to an incinerator minus the mass of that pollutant in the exit gas from the incinerator stack divided by the mass of the pollutant in the sewage sludge fed to the incinerator.

(d) **Dispersion factor** is the ratio of the increase in the ground level ambient air concentration for a pollutant at or beyond the property line of the site where the sewage sludge incinerator is located to the mass emission rate for the pollutant from the incinerator stack.

(e) **Fluidized bed incinerator** is an enclosed device in which organic matter and inorganic matter in sewage sludge are combusted in a bed of particles suspended in the combustion chamber gas.

(f) **Hourly average** is the arithmetic mean of all measurements taken during a hour. At least two measurements must be taken during the hour.

(g) **Incineration** is the combustion of organic matter and inorganic matter in sewage sludge by high temperatures in an enclosed device.

(h) **Monthly average** is the arithmetic mean of the hourly averages for the hours a sewage sludge incinerator operates during the month.

(i) **Risk specific concentration** is the allowable increase in the average daily ground level ambient air concentration for a pollutant from the incineration of sewage sludge at or beyond the property line of the site where the sewage sludge incinerator is located.

(j) **Sewage sludge feed rate** is either the average daily amount of sewage sludge fired in all sewage sludge incinerators within the property line of the site where the sewage sludge incinerators are located for the number of days in a 365 day period that each sewage sludge incinerator operates, or the average daily design capacity for all sewage sludge incinerators within the property line of the site where the sewage sludge incinerators are located.

(k) **Sewage sludge incinerator** is an enclosed device in which only sewage sludge and auxiliary fuel are fired.

(l) **Stack height** is the difference between the elevation of the top of a sewage sludge incinerator stack and the elevation of the ground at the base of the stack when the difference is equal to or less than 65 meters. When the difference is greater than 65 meters, stack height is the creditable stack height determined in accordance with 40 CFR 51.100 (ii).

(m) **Total hydrocarbons** means the organic compounds in the exit gas from a sewage sludge incinerator stack measured using a flame ionization detection instrument referenced to propane.

(n) **Wet electrostatic precipitator** is an air pollution control device that uses both electrical forces and water to remove pollutants in the exit gas from a sewage sludge incinerator stack.

(o) **Wet scrubber** is an air pollution control device that uses water to remove pollutants in the exit gas from a sewage sludge incinerator stack.

503.42 General Requirements

No person shall fire sewage sludge in a sewage sludge incinerator except in compliance with the requirements in this subpart.

503.43 Pollutant limits.

(a) Firing of sewage sludge in a sewage sludge incinerator shall not violate the requirements in the National Emission Standard for Beryllium in subpart C of 40 CFR Part 61.

(b) Firing of sewage sludge in a sewage sludge incinerator shall not violate the requirements in the National Emission Standard for Mercury in subpart E of 40 CFR Part 61.

(c) Pollutant limit - lead.

(1) The daily concentration of lead in sewage sludge fed to a sewage sludge incinerator shall not exceed the concentration

calculated using Equation (5).

$$C = \frac{0.1 \times NAAQS \times 86{,}400}{DF \times (1 - CE) \times SF} \qquad (5)$$

Where:

C = Daily concentration of lead in sewage sludge in milligrams per kilogram of total solids (dry weight basis).

NAAQS = National Ambient Air Quality Standard for lead in micrograms per cubic meter.

DF = Dispersion factor in micrograms per cubic meter per gram per second.

CE = Sewage sludge incinerator control efficiency for lead in hundredths.

SF = Sewage sludge feed rate in metric tons per day (dry weight basis).

(2)(i) When the sewage sludge stack height is 65 meters or less, the actual sewage sludge incinerator stack height shall be used in an air dispersion model specified by the permitting authority to determine the dispersion factor (DF) in equation (5).

(ii) When the sewage sludge incinerator stack height exceeds 65 meters, the creditable stack height shall be determined in accordance with 40 CFR 51.100 (ii) and the creditable stack height shall be used in an air dispersion model specified by the permitting authority to determine the dispersion factor (DF) in equation (5).

(3) The control efficiency (CE) in equation (5) shall be determined from a performance test of the sewage sludge incinerator, as specified by the permitting authority.

(d) Pollutant limit - arsenic, cadmium, chromium, and nickel.

(1) The daily concentration for arsenic, cadmium, chromium, and nickel in sewage sludge fed to a sewage sludge incinerator each shall not exceed the concentration calculated using equation (6).

$$C = \frac{RSC \times 86{,}400}{DF \times (1 - CE) \times SF} \qquad (6)$$

Where:

C = Daily concentration of arsenic, cadmium, chromium, or nickel in sewage sludge in milligrams per kilogram of total solids (dry weight basis).

CE = Sewage sludge incinerator control efficiency for arsenic, cadmium, chromium, or nickel in hundredths.

DF = Dispersion factor in micrograms per cubic meter per gram per second.

RSC = Risk specific concentration in micrograms per cubic meter.

SF = Sewage sludge feed rate in metric tons per day (dry weight basis).

(2) The risk specific concentrations for arsenic, cadmium, and nickel used in equation (6) shall be obtained from Table 9.

TABLE 9 - RISK SPECIFIC CONCENTRATION - ARSENIC, CADMIUM, AND NICKEL

Pollutant	Risk Specific Concentration (micrograms per cubic meter)
Arsenic	0.023
Cadmium	0.057
Nickel	2.0

(3) The risk specific concentration for chromium used in equation (6) shall be obtained from Table 10 or shall be calculated using equation (7), as specified by the permitting authority.

TABLE 10 - RISK SPECIFIC CONCENTRATION - CHROMIUM

Type of Incinerator	Risk Specific Concentration (micrograms per cubic meter)
Fluidized bed with wet scrubber	0.65
Fluidized bed with wet scrubber and wet electrostatic precipitator	0.23
Other types with wet scrubber	0.064
Other types with wet scrubber and wet electrostatic precipitator	0.016

$$RSC = \frac{0.0085}{r} \qquad (7)$$

Where:

RSC = risk specific concentration for chromium in micrograms per cubic meter used in equation (6).

r = decimal fraction of the hexavalent chromium concentration in the total chromium concentration measured in the exit gas from the sewage sludge incinerator stack in hundredths.

(4)(i) When the sewage sludge incinerator stack height is equal to or less than 65 meters, the actual sewage sludge incinerator stack height shall be used in an air dispersion model, as specified by the permitting authority, to determine the dispersion factor (DF) in equation (6).

(ii) When the sewage sludge incinerator stack height is greater than 65 meters, the creditable stack height shall be determined in accordance with 40 CFR 51.100 (ii) and the creditable stack height shall be used in an air dispersion model, as specified by the permitting authority, to determine the dispersion factor (DF) in equation (6).

(5) The control efficiency (CE) in equation (6) shall be determined from a performance test of the sewage sludge incinerator, as specified by the permitting authority.

503.44 **Operational standard - total hydrocarbons.**

(a) The total hydrocarbons concentration in the exit gas from a sewage sludge incinerator shall be corrected for zero percent moisture by multiplying the measured total hydrocarbons concentration by the correction factor calculated using equation (8).

$$\text{Correction factor (percent moisture)} = \frac{1}{(1 - X)} \qquad (8)$$

Where:

X = decimal fraction of the percent moisture in the sewage sludge incinerator exit gas in hundredths.

(c) The total hydrocarbons concentration in the exit gas from a sewage sludge incinerator shall be corrected to seven percent oxygen by multiplying the measured total hydrocarbons concentration by the correction factor calculated using equation (9).

$$\text{Correction factor (oxygen)} = \frac{14}{(21 - Y)} \qquad (9)$$

Where:

Y = Percent oxygen concentration in the sewage sludge incinerator stack exit gas(dry volume/dry volume).

(b) The monthly average concentration for total hydrocarbons in the exit gas from a sewage sludge incinerator stack, corrected for zero percent moisture using the correction factor from equation (8) and to seven percent oxygen using the correction factor from equation (9), shall not exceed 100 parts per million on a volumetric basis when measured using the instrument required by 503.45(a).

503.45 **Management practices.**

(a)(1) An instrument that measures and records the total hydrocarbons concentration in the sewage sludge incinerator stack exit gas continuously shall be installed, calibrated, operated, and maintained for each sewage sludge incinerator, as specified by the permitting authority.

(2) The total hydrocarbons instrument shall employ a flame ionization detector; shall have a heated sampling line

maintained at a temperature of 150 degrees Celsius or higher at all times; and shall be calibrated at least once every 24-hour operating period using propane.

(b) An instrument that measures and records the oxygen concentration in the sewage sludge incinerator stack exit gas continuously shall be installed, calibrated, operated, and maintained for each sewage sludge incinerator, as specified by the permitting authority.

(c) An instrument that measures and records information used to determine the moisture content in the sewage sludge incinerator stack exit gas continuously shall be installed, calibrated, operated, and maintained for each sewage sludge incinerator, as specified by the permitting authority.

(d) An instrument that measures and records combustion temperatures continuously shall be installed, calibrated, operated, and maintained for each sewage sludge incinerator, as specified by the permitting authority.

(e) The maximum combustion temperature for a sewage sludge incinerator shall be specified by the permitting authority and shall be based on information obtained during the performance test of the sewage sludge incinerator to determine pollutant control efficiencies.

(f) The values for the operating parameters for the sewage sludge incinerator air pollution control device shall be specified by the permitting authority and shall be based on information obtained during the performance test of the sewage sludge incinerator to determine pollutant control efficiencies.

(g) Sewage sludge shall not be fired in a sewage sludge incinerator if it is likely to adversely affect a threatened or endangered species listed under section 4 of the Endangered Species Act or its designated critical habitat.

503.46 Frequency of monitoring

(a) Sewage sludge

(1) The frequency of monitoring for beryllium and mercury shall be specified by the permitting authority.

(2) The frequency of monitoring for arsenic, cadmium, chromium, lead, and nickel in sewage sludge fed to a sewage sludge incinerator shall be the frequency in Table 11.

TABLE 11 - FREQUENCY OF MONITORING - INCINERATION

Amount of sewage sludge* (metric tons per 365 day period)	Frequency
Greater than zero but less than 290	once per year
Equal to or greater than 290 but less than 1,500	once per quarter (four times per year)
Equal to or greater than 1,500 but less than 15,000	once per 60 days (six times per year)
Equal to or greater than 15,000	once per month (12 times per year)

* Amount of sewage sludge fired in a sewage sludge incinerator (dry weight basis).

(4) After the sewage sludge has been monitored for two years at the frequency in Table 11, the permitting authority may reduce the frequency of monitoring for arsenic, cadmium, chromium, lead, and nickel, but in no case shall the frequency of monitoring be less than once per year when sewage sludge is fired in a sewage sludge incinerator.

(b) Total hydrocarbons, oxygen concentration, information to determine moisture content, and combustion temperatures.

The total hydrocarbons concentration and oxygen concentration in the exit gas from a sewage sludge incinerator stack, the information used to measure moisture content in the exit gas, and the combustion temperatures for the sewage sludge incinerator shall be monitored continuously.

(c) Air pollution control device operating parameters.

The frequency of monitoring for the sewage sludge incinerator air pollution control device operating parameters shall be specified by the permitting authority.

503.47 Recordkeeping

(a) The person who fires sewage sludge in a sewage sludge incinerator shall develop the information in 503.47(b) through 503.47(n) and shall retain that information for five years.

(b) The concentration of lead, arsenic, cadmium, chromium, and nickel in the sewage sludge fed to the sewage sludge incinerator.

(c) The total hydrocarbons concentrations in the exit gas from the sewage sludge incinerator stack.

(d) Information that indicates the requirements in the National Emission Standard for beryllium in subpart C of 40 CFR Part 61 are met.

(e) Information that indicates the requirements in the National Emission Standard for mercury in subpart E of 40 CFR Part 61 are met.

(f) The combustion temperatures, including the maximum combustion temperature, for the sewage sludge incinerator.

(g) Values for the air pollution control device operating parameters.

(h) The oxygen concentration and information used to measure moisture content in the exit gas from the sewage sludge incinerator stack.

(i) The sewage sludge feed rate.

(j) The stack height for the sewage sludge incinerator.

(k) The dispersion factor for the site where the sewage sludge incinerator is located.

(l) The control efficiency for lead, arsenic, cadmium, chromium, and nickel for each sewage sludge incinerator.

(m) The risk specific concentration for chromium calculated using equation (7), if applicable.

(n) A calibration and maintenance log for the instruments used to measure the total hydrocarbons concentration and oxygen concentration in the exit gas from the sewage sludge incinerator stack, the information needed to determine moisture content in the exit gas, and the combustion temperatures.

503.48 Reporting

(a) Class I sludge management facilities, POTWs (as defined in 40 CFR 501.2) with a design flow rate equal to or greater than one million gallons per day, and POTWs that serve a population of 10,000 people or greater shall submit the information in 503.47(b) through 503.47(h) to the permitting authority on (insert the month and day from the date of publication of Part 503) of each year.

APPENDIX A - PROCEDURE TO DETERMINE THE ANNUAL WHOLE SLUDGE APPLICATION RATE FOR A SEWAGE SLUDGE

Section 503.13(a)(4)(ii) requires that the product of the concentration for each pollutant listed in Table 4 in sewage sludge sold or given away in a bag or other container for application to the land and the annual whole sludge application rate (AWSAR) for the sewage sludge not cause the annual pollutant loading rate for the pollutant in Table 4 to be exceeded. This appendix contains the procedure used to determine the AWSAR for a sewage sludge that does not cause the annual pollutant loading rates in Table 4 to be exceeded.

The relationship between the annual pollutant loading rate (APLR) for a pollutant and the annual whole sludge application rate (AWSAR) for a sewage sludge is shown in equation (1).

$$APLR = C \times AWSAR \times 0.001 \qquad (1)$$

Where:

APLR = Annual pollutant loading rate in kilograms per hectare per 365 day period.

C = Pollutant concentration in milligrams per kilogram of total solids (dry weight basis).

AWSAR = Annual whole sludge application rate in metric tons per hectare per 365 day period (dry weight basis).

0.001 = A conversion factor.

To determine the AWSAR, equation (1) is rearranged into equation (2):

$$AWSAR = \frac{APLR}{C \times 0.001} \qquad (2)$$

The procedure used to determine the AWSAR for a sewage sludge is presented below.

PROCEDURE:

1. Analyze a sample of the sewage sludge to determine the concentration for each of the pollutants listed in Table 4 in the sewage sludge.

2. Using the pollutant concentrations from Step 1 and the APLRs

from Table 4, calculate an AWSAR for each pollutant using equation (2) above.

3. The AWSAR for the sewage sludge is the lowest AWSAR calculated in Step 2.

APPENDIX B - PATHOGEN TREATMENT PROCESSES

A. PROCESSES TO SIGNIFICANTLY REDUCE PATHOGENS (PSRP)

1. Aerobic digestion

   Sewage sludge is agitated with air or oxygen to maintain aerobic conditions for a specific mean cell residence time at a specific temperature. Values for the mean cell residence time and temperature shall be between 40 days at 20 degrees Celsius and 60 days at 15 degrees Celsius.

2. Air drying

   Sewage sludge is dried on sand beds or on paved or unpaved basins. The sewage sludge dries for a minimum of three months. During two of the three months, the ambient average daily temperature is above zero degrees Celsius.

3. Anaerobic digestion

   Sewage sludge is treated in the absence of air for a specific mean cell residence time at a specific temperature. Values for the mean cell residence time and temperature shall be between 15 days at 35 to 55 degrees Celsius and 60 days at 20 degrees Celsius.

4. Composting

   Using either the within-vessel, static aerated pile, or windrow composting methods, the temperature of the sewage sludge is raised to 40 degrees Celsius or higher and remains at 40 degrees Celsius or higher for five days. For four hours during the five days, the temperature in the compost pile exceeds 55 degrees Celsius.

5. Lime stabilization

   Sufficient lime is added to the sewage sludge to raise the pH of the sewage sludge to 12 after two hours of contact.

B. PROCESSES TO FURTHER REDUCE PATHOGENS (PFRP)

1. Composting

   Using either the within-vessel composting method or the static aerated pile composting method, the temperature of the sewage sludge is maintained at 55 degrees Celsius or higher for three days.

   Using the windrow composting method, the temperature of the sewage sludge is maintained at 55 degrees or higher for 15 days or longer. During the period when the compost is maintained at 55 degrees or higher, there shall be a minimum of five turnings of the windrow.

2. Heat drying

Sewage sludge is dried by direct or indirect contact with hot gases to reduce the moisture content of the sewage sludge to 10 percent or lower. Either the temperature of the sewage sludge particles exceeds 80 degrees Celsius or the wet bulb temperature of the gas in contact with the sewage sludge as the sewage sludge leaves the dryer exceeds 80 degrees Celsius.

3. Heat treatment

Liquid sewage sludge is heated to a temperature of 180 degrees Celsius or higher for 30 minutes.

4. Thermophilic aerobic digestion

Liquid sewage sludge is agitated with air or oxygen to maintain aerobic conditions and the mean cell residence time of the sewage sludge is 10 days at 55 to 60 degrees Celsius.

5. Beta ray irradiation

Sewage sludge is irradiated with beta rays from an accelerator at dosages of at least 1.0 megarad at room temperature (ca. 20 degrees Celsius).

6. Gamma ray irradiation

Sewage sludge is irradiated with gamma rays from certain isotopes, such as Cobalt 60 and Cesium 137, at room temperature (ca. 20 degrees Celsius).

7. Pasteurization

The temperature of the sewage sludge is maintained at 70 degrees Celsius or higher for 30 minutes or longer.

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Biosolids Management Plan

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U.S. Environmental Protection Agency
Seattle, Washington

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7841

002719

TABLE OF CONTENTS

7842

002720

I. INTRODUCTION

The City of Pocatello is permitted by the U.S. Environmental Protection Agency (USEPA) and the State of Idaho Division of Environmental Quality (Idaho DEQ) to discharge treated wastewater to the Portneuf River (Permit No. ID-002178-4). A by-product of the wastewater treatment process is sludge, or as it is generally called, "biosolids." Biosolids consist of the stabilized solid material that remains after wastewater is treated for discharge to the river. Biosolids contain nutrients and trace elements required for production of agricultural crops. The stabilization process in the treatment plant produces a generally non-offensive thickened liquid that can be beneficially applied to raise crops. Under proper management, biosolids have value as a soil conditioner and fertilizer that can be usefully applied to agricultural land with maximum benefit to the environment.

The general objectives of the City of Pocatello's Municipal Biosolids Treatment and Land Application Program are: (1) to ensure that the quality of biosolids applied to agricultural land for beneficial reuse and the quality of fertilizer derived is reasonably consistent with the protection of human and environmental health, and (2) to establish procedures to ensure that the biosolids practices and limits outlined in 40 CFR 503 and the State of Idaho Guidelines for Land Application of Municipal Biosolids are followed. The combination of Pocatello's high quality sludge with the close proximity of agricultural fields enables the City to utilize biosolids derived from its wastewater treatment process in an efficient and economical manner.

Pocatello's biosolids are of high quality, well below the listed pollutant concentrations and ceiling pollutant concentrations in 40 CFR 503. The biosolids meet Class B pathogen reduction criteria and vector attraction reduction alternatives and are well-suited for land application for agricultural purposes.

The purpose of this management plan is to describe the procedures used in Pocatello for the beneficial recycling/reuse of biosolids through land application on agricultural fields. This five-year plan covers the period 1998-2003.

II. BIOSOLIDS CHARACTERISTICS

A. Sludge Sources, Fate and Quantities

The Pocatello Water Pollution Control (WPC) Plant produces sludge from two sources: (1) Primary sludge from sedimentation processes; (2) Waste activated sludge from secondary activated sludge processes. Attachment A shows the sludge flows in use at the Pocatello WPC Plant.

Primary sludge is thickened by gravity, waste activated sludge is thickened by dissolved air flotation. After thickening, primary and waste activated sludge are pumped to anaerobic digesters. In the anaerobic digester, the sludge is processed by bacteria in the absence of oxygen. The digestion process is aided by external heat. After a residence time of about a month, digested sludge is transferred to a lined storage lagoon. Sludge is stored in this lagoon up to one year. From the lagoon sludge is dredged to a storage tank. Tank trucks transport from this storage tank to nearby agricultural lands owned by the City. Sludge is spread on the soil surface and incorporated into the soil by discing with a tractor.

The total quantity of biosolids generated by the Pocatello Water Pollution Control Plant during 1997 was approximately 2,000 dry metric tons (see Attachment B).

B. Inorganic Pollutant Concentrations

Anaerobic digester sludge produced at the Pocatello Pollution Control Plant is routinely analyzed for nutrient values and inorganic pollutants. Heavy metals, a common concern in land application operations, are extremely low in Pocatello's stabilized sludge, allowing agricultural reuse to be a sustainable means for recycling the biosolids produced by the wastewater treatment process. In fact, Pocatello's biosolids are well below the Pollutant Concentrations in 40 CFR 503.13(b)(3) and Pollutant Ceiling Concentrations in 40 CFR 503.13(b)(1). (See Attachment E) These low levels of inorganic pollutants exclude Pocatello from cumulative pollutant loading rates specified in 40 CFR 503.13(b)(2).

A factor which has contributed to the low levels of inorganic pollutant contents of Pocatello's stabilized sludge is the implementation of an Industrial Pretreatment Program, which became fully operational in 1985 in the cities of Pocatello and Chubbuck. The Pretreatment Program limits generation at the source of toxic pollutants discharged by industrial users.

For purposes of Land Application for agricultural use of Pocatello's sludge, total nitrogen is the limiting factor for application rates; therefore the heavy metals are not the primary concern in development of maximum application rates.

C. Sludge Processing Description

High rate anaerobic sludge digestion is the process used to stabilize sludge at the Pocatello WPC Plant. The digesters are operated in parallel using sludge recirculation pumps and external spiral heat exchangers for heating and gas recirculation units for mixing. At the Pocatello WWTP three digesters are 71,000 cu. ft. capacity each, detention time averages 33 days at 95°F.

D. Pathogen Reduction

The presence of bacterial pathogens in liquid sewage sludge is well documented. Although conditions in digesters are unfavorable for the multiplication of most pathogenic organisms, they are not lethal, and the principal bacterialcidal effect appears to be related to a natural die off with time.

Anaerobic digestion of sludge results in a significant reduction in numbers of pathogens. Anaerobic digestion is listed as a process to significantly reduce pathogens (PSRP) in 40 CFR, Part 503 and 40 CFR, Part 257, Appendix II.A. Pocatello's stabilized sludge meets Class B pathogen reduction standards of 40 CFR 503.

As required by the Part 503 regulations, a statement is made on an annual basis that appropriate pathogen reduction procedures have been followed to allow the biosolids to qualify as Class B - Alternative 2 (see Certification, Attachment C).

E. Vector Attraction Reduction

Vector attraction characteristics is a component of Sludge Quality. Vectors are animals and insects (e.g., rodents, flies, birds) that potentially could transmit pathogenic organisms from the sewage sludge to humans. Vectors may be attracted to sludge by its odor. Reducing the attractiveness of biosolids to vectors reduces the potential for transmitting diseases from pathogens in biosolids. At Pocatello these characteristics are reduced by using Option One in Federal Regulations 40 CFR 503.33(b).

The mass of volatile solids in the sludge is reduced by a minimum of 38 percent. Pocatello's anaerobic digestion and lagoon storage processes reduce the mass of volatile solids an average of 63 percent.

As required by the Part 503 regulations, a statement is made on an annual basis that appropriate vector attraction reduction procedures have been followed to allow the biosolids to qualify as Class B - Alternative 2 (see Certification, Attachment C).

III. LAND APPLICATION CONSIDERATIONS

Application to agricultural lands of municipal sludges is a well established practice, which has proven to be a viable method of beneficial reuse, provided that the necessary precautions are taken and the program is well managed. This section addresses considerations related to land application of biosolids on Pocatello's agricultural fields.

A. Sludge Characteristics

Pocatello's stabilized sewage sludge contains comparatively low concentrations of inorganic pollutants. All heavy metal pollutants are below the limits in Appendix 3 of 40 CFR 503, Sub part B. Attachment D compares average metal concentrations in Pocatello's stabilized sludge against the Table 3 Federal standards, which define the characteristics of the class of sludge designated as "Pollutant Concentration." Pocatello's sludge meets the Class B pathogen reduction requirements and Criterion One for vector attraction reduction. This allows Pocatello to land apply it's sludge for agricultural purposes without annual or cumulative pollutant limits provided that all general requirements, management practices (i.e., not exceeding agronomic rates for nitrogen), record keeping, monitoring, and reporting requirements are met. In short, Pocatello's biosolids meet the classification of ~~"Class B Clean Sludge," which~~ is suited for bulk application within specified siting requirements. Class B sludge is sufficiently "clean" that the USEPA does not require specific tracking of pollutants spread to the application site.

B. Soils

Soils in the Pocatello area, within a ten mile radius of the WWTP site are characterized as (1) Bahem series, and (2) Pocatello series. These soils are classified as generally very deep, highly alkaline, moderate organic content, slope of 2-4%, well drained, with groundwater greater than 6 feet from soil surface and silty loams.

The soils that are sludge amended are all City owned. Crops produced are small grains (e.g., wheat and canola) and alfalfa. Irrigation is accomplished by sprinkler systems.

The soils used for beneficial reuse of sludge have gentle slopes, which are short with a closed drainage system, thick soils with no saturated zones for extensive time periods, and no porous material with a depth of 5 feet. High cation exchange capacity (CEC) generally exceeds 15.

These soils are described as ideal for land application.

C. Potential Impacts on Ground and Surface Waters

Pocatello's biosolids reuse sites have been selected to minimize impacts on ground and surface waters. The groundwater table beneath the biosolids reuse site is generally about 50 feet beneath the surface. The permeability rates of the upper 2-4 feet of soil are moderate. These factors, combined with the high evaporation and low precipitation values of the area, result in a minimum amount of leaching of water from the surface layers to the water table. Agricultural fields recently or actively in production make up the majority of the biosolids site -- there are no known wetlands. Biosolids application is limited to agronomic rates as confirmed by soil testing. These procedures are designed to keep nutrients from entering the groundwater. All active wells near the reuse site are believed to draw water from an artesian system, which is isolated from the shallow water system. Thus, no contamination of the aquifer is expected in conjunction with the biosolids reuse project.

The agricultural fields are essentially flat with slopes < 2%. The only surface drainage feature is the Portneuf River which lies a minimum of 0.3 miles to the northwest of the closest field (see Site Map, Attachment J). The reach of Portneuf River in the vicinity of Pocatello's Sewage Treatment Plant and biosolids application site has extensive riparian vegetation. As illustrated on the Site Map, an irrigation aqueduct (Taghee Canal) traverses the biosolids application area, but it does not function to convey surface drainage because the canal is raised several feet above the grade of the farm fields. Impacts of river flooding are confined to the Portneuf River corridor, as illustrated by the 100-year flood map given in Attachment G.

Biosolids application includes sufficient setbacks to prevent accidental spray drift or other unauthorized land application without advance regulatory and land owner notification.

D. Land Application Requirements

Land application is limited to City-owned property which is contracted out to area farmers. The area can generally be described as the Tyhee and Michaud Flats, which lie in Power County to the south of American Falls Reservoir, an impoundment of the Snake River. The areas are sufficient to provide the land necessary for a long term sludge amending program. The City presently applies biosolids to about 800 acres of farm land (see Attachment I). Within the Pocatello Biosolids Recycling/Reuse Site, an

7847

additional 1,000 acres are available for development. The City is pursuing development of about one-third of these additional acres within the current five-year planning period. These fields are within the beneficial biosolids recycling/reuse site and have characteristics similar to existing fields. Site selection and operating criteria for biosolids reuse on these additional acreages will be identical to the fields currently used as application sites.

This Plan covers sites where biosolids are currently applied, as well as other potential sites within the Pocatello Biosolids Beneficial Recycling/Reuse Site. All of Pocatello's biosolids are applied at the site shown in Attachment J. Pocatello has no plans to distribute or market its biosolids outside of this dedicated recycling/reuse site.

E. Application Rates

The agronomic rate is the amount of sludge that is needed in order to supply the recommended amount of nitrogen (N) for a particular type of crop without allowing excess N to migrate below the root zone and into the groundwater. Federal Regulation 40 CFR Part 503.14.d states that sludge shall not be applied at rates above agronomic rates.

The agronomic rate is calculated as the ratio of the sewage sludge nitrogen used for the crop (dry weight per unit area), divided by the available nitrogen in the sludge (dry weight).

$$Agronomic\ Rate = \frac{Biosolids\ N\ Consumed\ by\ Crop}{Available\ N\ of\ Biosolids}$$

In evaluating N needed for a crop, residual N from previous biosolids applications are considered. A mineralization rate of organic nitrogen is factored into the equation by assuming a 20% rate for the current year, and 10%, 5%, 3% rate for previous years, respectively. Residual N in the soil from mineralization of organic N is verified by soil sampling.

In determining available N in biosolids, a volatilization factor of 0.5 is used for surface application and subsequent expected volatilization rates of NH_4^+.

The nitrogen content available to plants in biosolids is then used to calculate the application rate for biosolids needed to supply adequate nitrogen to the crop of interest. The estimated agronomic rate for Pocatello's fields based on wheat applied at 200 lb per acre is 3.7 tons per acre (see Attachment F).

7848

002726

Cumulative or annual pollutant loading rates for inorganic pollutants are not required for Pocatello's biosolids under the Federal Regulation due to the low level of heavy metal content. Heavy metal content of Pocatello's sludge for the past two years is compared against allowable pollutant loads in Attachment E.

Pocatello's Industrial Pretreatment Program activities will continue to emphasize reduction of heavy metals in effluent from industrial users. Discharge characteristics of potential new commercial dischargers will be evaluated to ensure their compatibility with the long-term sustainability of the biosolids reuse program

F. Additional Site Restrictions

When a Class B pathogen alternative is used, such as in the case of Pocatello, then various site restrictions must be met. Listed below are the site restrictions that apply to Pocatello.

1. Crops are selected so that harvested parts are above ground (e.g., wheat, alfalfa, canola). Crops are not grown in which harvested parts are in direct contact with applied biosolids (e.g., root crops such as potatoes).

2. Animals will not graze on the land for 30 days after application of sludge.

3. Public access with a low potential (i.e., private property, remote) for public exposure will be restricted for 30 days after application of sludge. An example of restricted access is remoteness, which applies to Pocatello's biosolids reuse site.

G. Management Practices

The following management practices shall apply to Pocatello's land applied biosolids:

1. Biosolids shall not be applied to flooded, frozen, or snow covered ground so that sewage sludge enters wetlands or other waters of the U.S. unless authorized by the permitting authority.

2. Biosolids shall not be applied at rates above agronomic rates, with the exception of reclamation projects when authorized by the permitting authority.

3. Biosolids shall not be applied if likely to adversely affect a threatened or endangered species.

4. Biosolids shall not be applied less than 10 meters from waters of the U.S.

H. Land Application of Biosolids

Although biosolids are produced on a daily basis year-round by the wastewater treatment process, the handling and processing of biosolids follows a seasonal cycle. Pocatello has a large sludge storage lagoon that is capable of storing six months of accumulated biosolids. In late summer (usually about August 15th), after the contract farmers complete their grain crop harvest, an intensive biosolids hauling and application period begins that typically lasts no more than eight weeks. Biosolids are dredged and pumped to tanker trucks, which transport the thickened liquid (about 3.5-4.5% solids) to the farm fields, a distance of less than six miles. When wheat is grown as the crop, the biosolids hauling is confined to a window in early fall after harvest and prior to planting the next year's crop. Southeast Idaho's climate ideally coincides with this application window because rainfall is typically sparse during mid-August through mid-October.

A second intensive application period occurs for up to eight weeks beginning in early May. Biosolids are applied to alfalfa and fallow fields.

The seasonal pattern of biosolids application is intended to minimize impacts associated with application of biosolids to land that is flooded, frozen, or snow-covered. Applying biosolids during early autumn and late spring is aimed to promote desirable conditions in the farm fields. Traffic on wet soils during or immediately following rainfall may result in compaction that reduces crop yields. Muddy soils tend to complicate vehicle operation and create public nuisances by carrying mud out of the fields onto roadways.

I. Endangered Species

The land involved in Pocatello's biosolids reuse program is considered consistent with protection of endangered species and their habitat. The land has been in agricultural use for decades and is not thought to represent critical habitat for endangered species. Only two bird species listed as endangered in Idaho are known to occur near the project area. They are the Bald Eagle and the Peregrine Falcon. Their activities are mainly confined to the Portneuf River - American Falls Reservoir area, but some feeding may take place on the biosolids reuse sites. No negative impacts to endangered species is expected to be associated with implementation of this biosolids reuse Plan because the land included on the site has characteristics similar to adjacent land covering thousands of acres.

J. Land Ownership

Land used for Pocatello's biosolids recycling/reuse program is owned by the City. This City-owned land is within Indian reservation boundaries but the land is not within the definition of Indian country or Indian land. Ownership of the land by the City reduces exposure associated with possible liability related to operation of the biosolids reuse program. To provide adequate long-term capacity the City is considering acquisition of additional land within the boundaries shown on the map in Attachment J. Development of this additional land will increase flexibility with respect to scheduling land application of biosolids and ensuring that the agronomic rate is not exceeded.

K. Effect on Existing Land Uses

No residential areas are located on the City owned lands and only a few farm houses are located within a half mile of any land application site included in this Plan. Implementation of the Plan will not alter any residential areas. Application of biosolids to farmland according to the Plan will tend to preserve and protect prime agricultural land by utilizing the sites for long-term agricultural uses.

L. System Reliability and Contingency Plans

Pocatello's biosolids recycling/reuse system has been designed to minimize the chance that unplanned events could have adverse effects on the successful operation of the program. Several factors contribute to reliability of the system.

1. **Land Ownership** - The farm land used on the Pocatello Biosolids Beneficial Recycling/Reuse Site is owned by the City. Municipal ownership eliminates potential problems that can occur when biosolids are applied on privately owned lands. The City has control over the manner in which biosolids is applied, what crops are grown, and how the fields are irrigated. Economically successful farming is influenced by uncertainties involving weather and market prices for crops. The biosolids reuse program can continue to operate unaffected during periods of economic

adversity because the City owns the land, and if need be can operate the farm even if it means taking a loss on the crop. The primary objective of the program is to recycle/reuse biosolids in a manner that is consistent with the protection of health, environmental, and aesthetic values.

2. **Location** - Pocatello is fortunate to have its Water Pollution Control Plant adjacent to the agricultural fields used for recycling biosolids. The biosolids reuse site lies on ground zoned agricultural-industrial that is adjacent to the Interstate highway and in a zone of airport noise impact. As can be seen in the compatible recommended use plan for the Pocatello Municipal Airport shown in Attachment H present zoning in the project area call for a mix of industrial and agricultural uses. This project will help maintain the agricultural nature of the area. Such a location is ideal because it is unlikely to be encroached on by residential development. The low residential density contributes to the low potential for public exposure and the long-term sustainability of the site. The close proximity of the points of biosolids generation and recycling means that land application will remain a reliable and economical means of reusing the biosolids produced in Pocatello's wastewater treatment process.

3. **High Quality Biosolids** - Pocatello's fully implemented industrial pretreatment program ensures that the pollutant content of our biosolids will remain low. High quality biosolids provide a critical foundation to the long-term sustainability and reliability of the biosolids reuse program. A further safeguard against upsets in the reuse program is the Accidental Spill Prevention Program (ASPP), which is designed to prevent the unplanned introduction of pollutants into the wastewater collection system. The City's ASPP. makes it unlikely that a major spill could occur that jeopardizes the quality of Pocatello's biosolids.

4. **Large Biosolids Storage Facility** - With a minimum of 6 months of storage (under 2015 design conditions) biosolids do not need to be hauled in winter or during inclement weather. Further, the lagoon's relatively large capacity helps to ensure that unforeseen mechanical problems with the dredge or tanker trucks will not adversely affect the overall schedule of land application of biosolids. Potential problems with scheduling of equipment and labor by private contractors are eliminated because the hauling is done be WPC operations staff using City-owned equipment.

M: Public Notification - This plan will be public noticed as part of the NPDES Permit reissuance procedure.

IV. MONITORING

A. Routine Process Monitoring

Data on digester temperature and flows are collected daily by the duty operator, who also collects samples of waste activated sludge (WAS) and the gravity thickener. These samples are collected for determination of Total Suspended Solids and Volatile Suspended Solids. Digester samples are collected on a weekly basis for determination of volatile solids reduction, nitrogen (ammonia, organic nitrogen, and nitrate) and phosphorus (total and ortho)

B. Required Monitoring

Monitoring for pollutants is conducted once every two months on the 10 inorganic pollutants listed in 40CFR 503. This frequency is based on amount of sludge per year, which is projected to be 2000 metric tons (dry).

C. Additional Requirements

In addition to monitoring for the listed inorganics, an Organic Priority Pollutant Scan will be conducted every 5 years. Operating parameters of the anaerobic digestion process will be monitored (i.e., detention time, temperature, volatile solids reduction, etc.) In addition, records will be kept to ensure that standards for pathogen reduction and vector attraction reduction alternatives are met.

D. Monitoring Procedures

Sludge will be monitored bimonthly by sampling the digested sludge on three occasions prior to the storage lagoon, and three times during our annual biosolids dredging and application program.

Requirements for Class B Pathogens are being met by daily temperature monitoring of our three anaerobic digesters to ensure adequate detention time at 35° C.

Vector attraction requirements are monitored monthly to ensure that the mass of volatile solids is reduced by at least 38% during the treatment of the sewage sludge.

All sampling and sample preservation techniques will follow USEPA-approved procedures, thus ensuring that a representative sample is collected and that the results are valid.

E. Analytical Techniques and Quality Assurance/Quality Control

All analyses to comply with Part 503 will be conducted using methods specified in Part 503.

Quality Assurance (QA) Programs will be implemented that address the following:

1. Proper sample procedures, equipment, preservation methods, and chain of custody procedures.

2. Proper sample preparation procedures, instruments, equipment, and methods used for the analysis of samples.

3. Proper procedures and schedules for the calibration and maintenance of equipment and instruments associated with the collection and analysis of samples.

4. Proper record keeping to produce accurate and complete records and reports when required.

Quality Control (QC) procedures will be followed to control accuracy and precision of all analytical measurements made.

F. Reporting Requirements

The City will submit to USEPA an annual biosolids report. The document will report the total annual volume of sewage biosolids as well as the average pollutant concentration of ten heavy metals on a dry weight basis (Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Molybdenum, Nickel, Selenium, and Zinc). The annual report will include certifications related to reduction of pathogens as well as vector attraction reduction (see Attachment C)

G. Soil Testing

Soils testing at the sites of biosolids application provides empirical data to help determine whether a crop's agronomic rates have not been exceeded. Empirical data are used to verify the actual quantity of residual nitrogen available in the soil. Soils monitoring is done a minimum of once every two years with results quantified in a comprehensive soil report that addresses all compounds of agronomic interest.

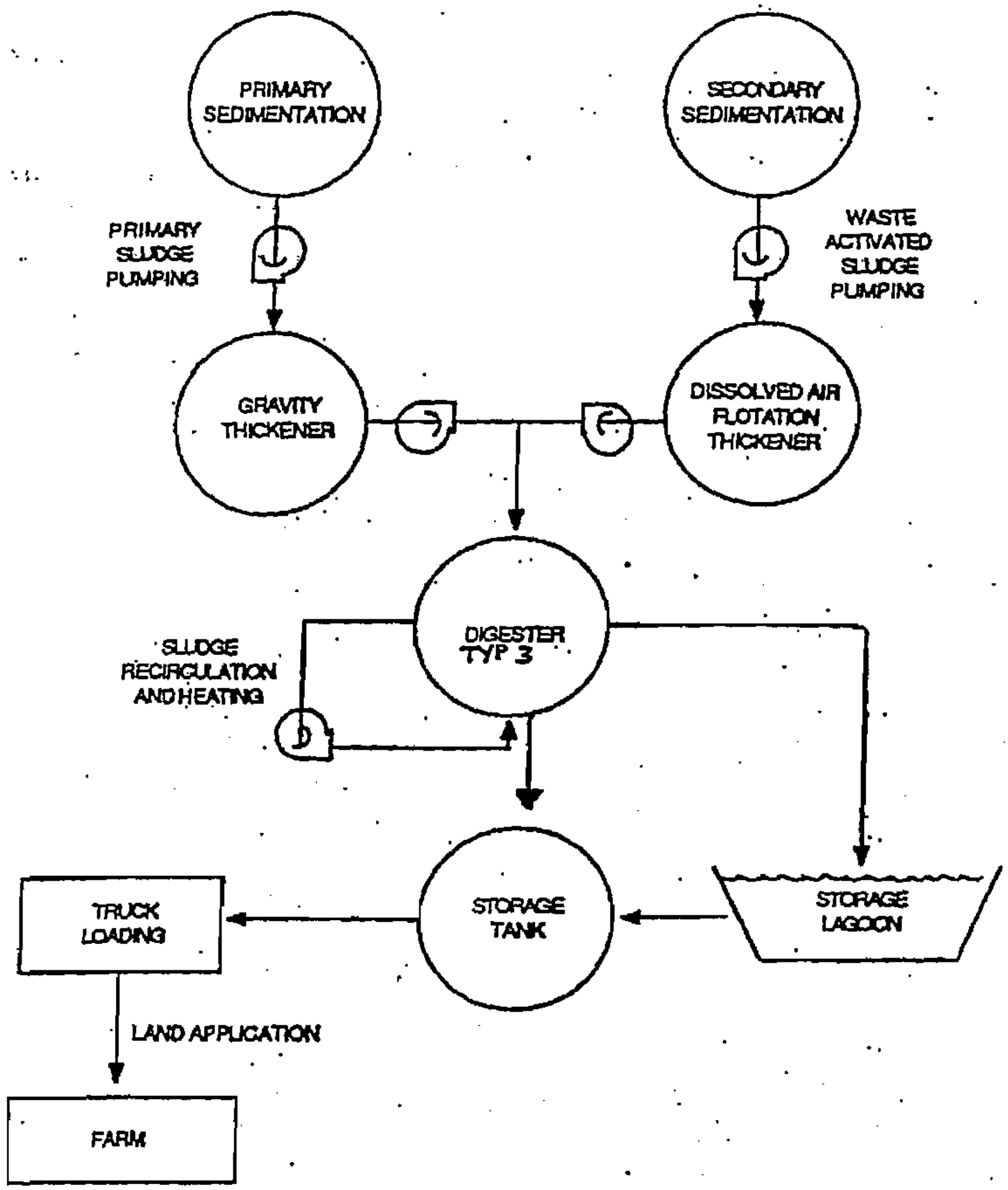
V. CERTIFICATION OF COMPLIANCE WITH BIOSOLIDS MANAGEMENT PLAN

I certify that the City of Pocatello will comply with the terms of this Biosolids Management Plan, as approved by the USEPA. I certify further that the Plan will be amended to reflect any applicable practices or limits EPA promulgates pursuant to Section 405 of the Act.

Signature of Officer:	Brent N Hokanson
Name of Officer:	Brent N. Hokanson
Official Title of Officer:	Superintendent, Water Pollution Control Dept
Telephone Number:	208-234-6254
Date Signed:	27 February 1998

List of Attachments

Attachment A



SLUDGE FLOW DIAGRAM FOR POCATELLO WASTEWATER TREATMENT FACILITY

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Attachment B

Volume and characteristics of sludge at Pocatello WWTP based on monthly average data for 1997

Sludge Type	Total Solids (lbs/day)	Volatile Solids (lbs/day)	Moisture Content (%)	Total Volume (gal/day)
1) **Primary:** a) **before thickening**	7,800	5,900	96	23,381
b) **after thickening**	7,800	5,900	94	15,587
2) **Activated:** a) **before thickening**	10,958	8,220	99.6	328,418
b) **after thickening**	10,958	8,220	96	32,847
3) **Digester Loading**	18,758	14,120	95.2	46,857

Primary Digester Capacity = 71,000 cu. ft.

Primary Digester Volatile Solids Loading Ratio = 0.066 lbs volatile / cu. ft./ day

Digester Detention Time = 33 days

Expected Volatile Solids Content of Digested Sludge = 60%

Attachment C

Pathogen Requirements Certification

CERTIFICATION	
I certify under penalty of law that the pathogen requirements in 503.32(b)(3) ☐ have ☐ have not been met. This determination has been made under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information used to determine the pathogen requirements and site restrictions have been met. I am aware that there are significant penalties for false certification, including the possibility of fine and imprisonment.	
Name and Official Title *(type or print)* Jon B. Herrick, WPC Operations & Pretreatment Supervisor	Area Code and Phone No. (208) 234-6256
Signature	Date Signed 1-29-98

Vector Requirements Certification

CERTIFICATION	
I certify under penalty of law that one of the vector attraction requirements in 40 CFR 503.33 ☐ has ☐ has not been met. This determination has been made under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the vector attraction reduction requirements have been met. I am aware that there are significant penalties for false certification, including the possibility of fine and imprisonment.	
Name and Official Title *(type or print)* Jon B. Herrick, Operations/Pretreatmt Supervisor	Area Code and Phone No. ( ) 208-234-6256
Signature	Date Signed 1-29-98

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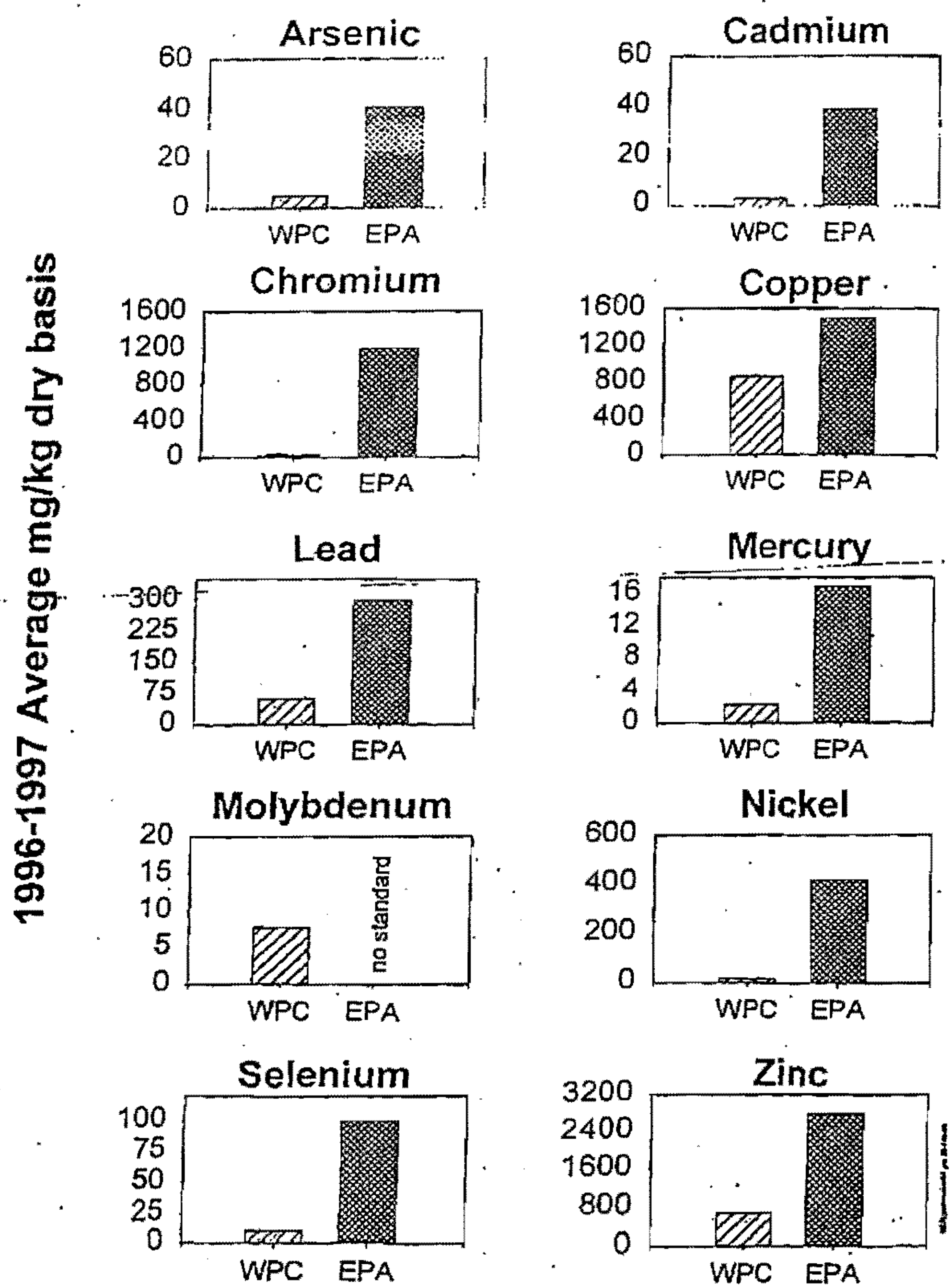
Heavy Metal Content of Pocatello WPC Digested Sludge Compared with USEPA Standards [40 CFR 503.13(3)]



Attachment E

Concentration of Heavy Metals in Pocatello Stabilized Sludge (mg/kg dry basis)

Date	Code:	As	Cd	Cr	Cu	Pb	Hg	Ni	Zn	Se	Mo
28-Feb-96	S	30 k	3.2	34	850	46	37 k	16	880	30 k	5.8
16-May-96	S	19 k	3.7	27	820	49	3.6	14	830	19 k	5.4
31-July-96	S	19 k	3.8	41	1200	81	24 k	20	920	19 k	7.6
28-Aug-96	S	4.7	3.7	37	1000	67	1.9	18	800	3	7
25-Sept-96	S	11	1.1	9.4	280	20	0.3	4.4	210	7.6	1.8
30-Oct-96	S	22 k	2.8	30	910	46	2	19	750		
25-Mar-97	S	180 k	8.9 k	21	790	170	1.9	16 k	730	180 k	35 k
06-June-97	S	4.8 k	3.1	24	820	53	4.4	17	730	19 k	8
25-Aug-97	S	6.3	3.6	33	1000	66	2.8	19	820	3 k	7.9
24-Sept-97	S	3.7	4.2 k	41	1100	72	2.5	23	960	11 k	18
11-Dec-97	S	2.5 k	2.4 k	27	810	38	1.9	13	670	5.3	9.4 k
22-Dec-97	S	2	2.5	23	760	30	1.5	13	480	4.6	5.6
k = undetectable											
Average		25.4	3.6	29.0	860	61	7.0	16.2	690	27.4	9.3
Maximum		180.0 k	8.9	41.0	1200	170	37.0 k	23.0	960	180.0 k	35.0 k
Minimum		2.0	1.1	9.4	280	20	0.3	4.4	210	3.0	1.8
Table 3 of 40 CFR 503.13 Pollutant Concentration		41	39	1200	1500	300	17	420	2800	100	Not required
Table 1 of 40 CFR 503.13 Ceiling Concentration		75	85	3000	4300	840	57	420	7500	100	75

EXAMPLE DESIGN WORKSHEET 1—FOR THE AGRONOMIC RATE

Key to Symbols and Abbreviations

$NH4+-N$	=	Ammonium nitrogen content of the sewage sludge obtained from analytical testing of the sewage sludge, kg/mt (dry weight basis).
Kv	=	Volatilization factor estimating ammonium nitrogen remaining after atmospheric losses.
Org-N	=	Organic nitrogen content of the sewage sludge obtained from analytical testing or determined by subtracting NH_4-N from TKN, kg/mt (dry weight basis).
NO_3-N	=	Nitrate nitrogen content of the sewage sludge obtained from analytical testing, kg/mt (dry weight basis)
F_{0-1}	=	Mineralization rate for the sewage sludge during the first year of application, in percent of organic nitrogen expressed as a fraction (e.g., 20% = 0.2).

Helpful Conversions

mg/kg	= lb/ton x 500		Pocatello Data	kg/mt
kg/ha	= lbs/acre x 1.12		Ammonia	26.27
kg/ha	= tons/acre x 2242		TKN	71.32
mt/ha	= tons/acre x 2.24		Organic-N	45.05

1.	Total available nitrogen from sewage sludge.		
	a. Ammonium nitrogen. *Calculated with the following formula: analytical result for NH_4^+ - N (kg/mt) x Kv (Kv obtained from Exhibit E-2)*	13.13	kg/mt
	b. Mineralized organic nitrogen for first year of application. *Calculated with the following formula: Org-N x F_{0-1} (F_{0-1} obtained from Exhibit E-3)*	9.01	kg/mt
	c. Nitrate nitrogen. *Use analytical result for NO_3-N*	-0-	kg/mt
	d. Total	22.14	kg/mt
2.	Available nitrogen in the soil. *(Use whichever is greater a or b)* a. Soil test results of background nitrogen in soil b. Estimate of available nitrogen from previous sewage sludge applications *(From Worksheet 2)*	40	kg/ha
3.	Nitrogen supplied from other sources (optional, but recommended):		
	a. Nitrogen from supplemental fertilizers (if appropriate)	-0-	kg/ha
	b. Nitrogen from irrigation water (if appropriate)	-0-	kg/ha
	c. Nitrogen from previous crop (unless #2 is based on soil testing)	-0-	kg/ha
	d. Other (if appropriate) (specify): ______	-0-	kg/ha
	e. Total (add a, b, c, d, if available).	-0-	kg/ha
4.	Total nitrogen available from existing sources. *Add 2 and 3e*	40	kg/ha
5.	Available nitrogen loss to denitrification (optional) *(check with regulatory authority before using this site-specific factor)*	-0-	kg/ha
6.	Adjusted nitrogen available *Subtract 5 from 4*	40	kg/ha
7.	Total nitrogen requirement of crop *(obtain information from agricultural extension agents or other agronomy professionals)* 200#/acre for wheat	224	kg/ha
8.	Supplemental nitrogen needed from sewage sludge. *Subtract 4 or 6 from 7*	184	kg/ha
9.	Agronomic loading rate. *Divide 8 by 1*	8.3	mt/ha
		3.7	ton/acre

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Calculation of Available Mineralized Organic Nitrogen for Pocatello Biosolids

(A) Year		(B) Starting ORG-N kg/ha	(C) Mineralization Rate	(D) Mineralized ORG-N kg/ha	(E) Org-N Remaining
0	Current Year Application		0.20		
1-2	2nd Year after Application		0.10		
1-3	3rd Year after Application		0.05		

1996				
1996	336	0.20	67.2	268.8
1997	268.8	0.10	26.88	241.9
1998	241.9	0.05	12.1	222.8

1997				
1997	336	0.20	67.2	268.8
1998	268.8	0.10	26.88	241.9
1999	241.9	0.05	12.1	222.8

1998 Mineralized ORG-N Residual From Previous Years Application = 40 kg/ha

Exhibit E-2. Example Volatilization Factors (Kv)

If Sewage Sludge Is:	Factor Kv Is:
Liquid and surface applied	.50
Liquid and injected into the soil	1.0
Dewatered and applied in any manner	.50*

*Use value obtained from State regulatory agencies if available.

Exhibit E-3. Example Mineralization Rates*

Time After Sewage Sludge Application (Year)	Fraction of Org-N Mineralized From Stabilized Primary and Waste Activated Sewage Sludge	Fraction of Org-N Mineralized From Aerobically Digested Sewage Sludge	Fraction of Org-N Mineralized From Anaerobically Digested Sewage Sludge	Fraction of Org-N Mineralized From Composted Sewage Sludge
0-1	.40	.30	.20	.10
1-2	.20	.15	.10	.05
2-3	.10	.08	.05	.03

*Fraction of Org-N present mineralized during the time interval shown.

Note: The volatilization factors and mineralization rate were obtained from the *Process Design Manual for the Land Application of Sewage Sludge* (EPA, 1983). Many States have developed different values for volatilization and mineralization based on local research. Check with the State authority or local agricultural extension agent for additional guidance.

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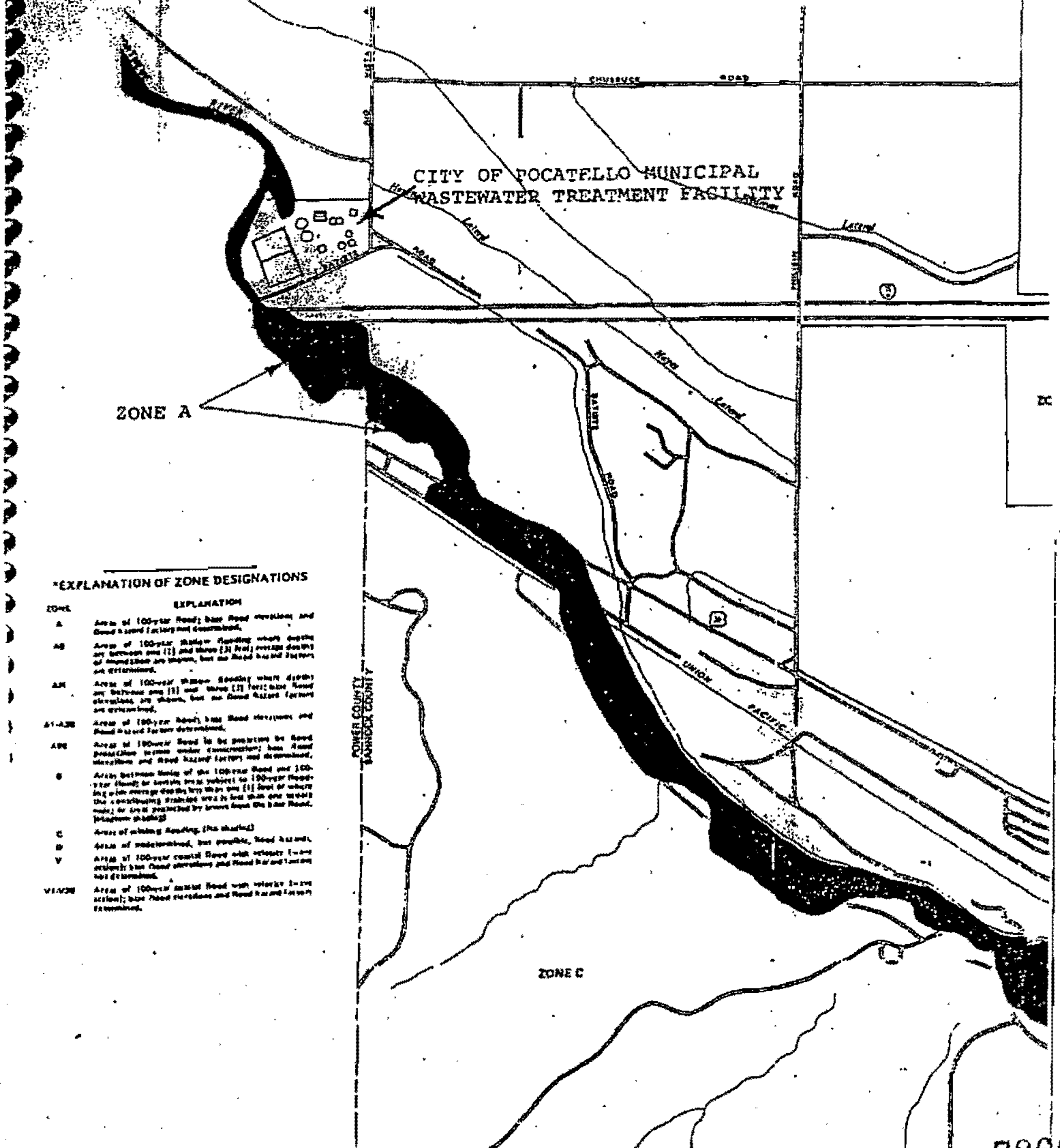
Attachment G

100 Year Flooding Map for Portneuf River in Vicinity of Pocatello Water Pollution Control Plant



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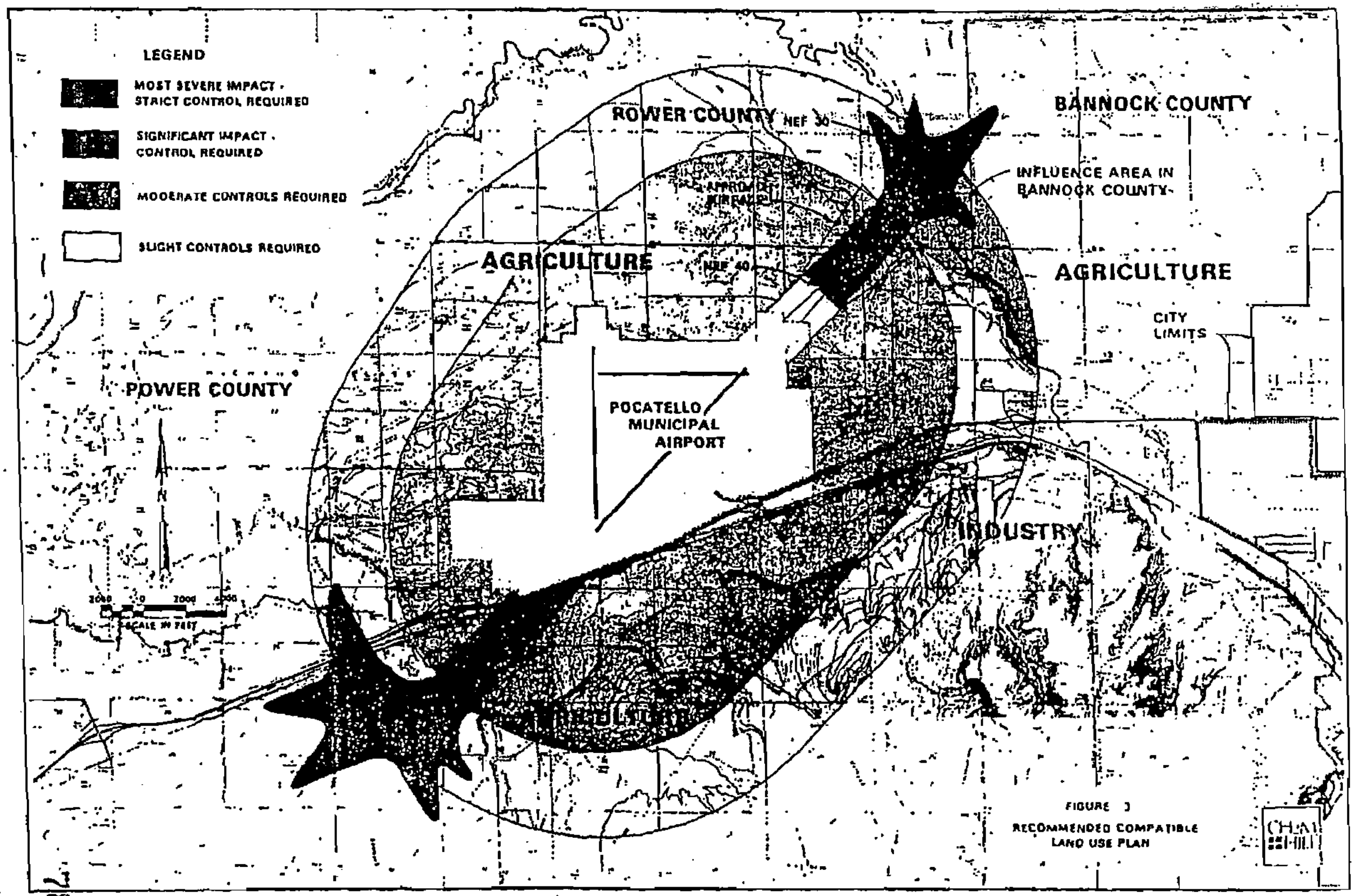
Attachment H

Zoning map for Pocatello Municipal Airport impact area



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Attachment I

Agricultural Sites Used for Land Application -- Pocatello Biosolids Beneficial Reuse Site

(Question No. given in [ ])

Site Name [C.1.a.]	Acreage	Location [C.1.b]		Owner/Applier [C.2.]	Site Type [C.4.]	Crop [C.5.a]	Nitrogen Requirement lb/ac [C.5.b.]
		Latitude	Longitude				
Old Airport	300	112° 32' 30"	42° 55'	City of Pocatello	Agricultural Land	Wheat, Canola	200-300
Airport 120	120	112° 34'	42° 54'	City of Pocatello	Agricultural Land	Wheat	200
Airport 20	20	112° 34'	42° 54'	City of Pocatello	Agricultural Land	Wheat	200
Airport 11	11	112° 34'	42° 54'	City of Pocatello	Agricultural Land	Alfalfa, Wheat Rotation	200
Freeway 30	30	112° 34'	42° 54'	City of Pocatello	Agricultural Land	Alfalfa, Wheat Rotation	200
Runway 30	30	112° 34'	42° 55'	City of Pocatello	Agricultural Land	Alfalfa, Wheat Rotation	200
West Airport 800	800	112° 34'	42° 55'	City of Pocatello	Agricultural Land	Alfalfa, Wheat Rotation	200
Future Acquired Land[1]	500			City of Pocatello	Agricultural Land	Alfalfa, Wheat Rotation	200

This land is in the process of being acquired.

City of Pocatello
Water Pollution Control Department

12 August 1999
NPDES Permit ID-002178-4

Addendum to Pocatello Biosolids Recycling/Reuse Site Plan

Introduction

Biosolids are a byproduct of the City's wastewater treatment facility. They consist of stabilized solid material that remains after wastewater is treated prior to discharge to the Portneuf River. Biosolids generated by the wastewater treatment facility are beneficially reused on irrigated agricultural fields of the Pocatello Biosolids Recycling/Reuse Site. Pocatello's biosolids are of exceptionally high quality with respect to pollutant contaminants. The biosolids are used as a soil conditioner by farmers on City-owned wheat and alfalfa fields. Biosolids applications to the sites are carried out by WPC Department staff using City-owned equipment.

Pocatello's current land application program for biosolids is described in the City's Biosolids Management Plan (February 1998; the "Biosolids Plan"), which was submitted to Region X of the U.S. Environmental Protection Agency. The Biosolids Management Plan contains seven agricultural sites within the Pocatello Biosolids Beneficial Reuse Site that USEPA has approved for land application of biosolids. Comprising about 1331 acres, these seven sites are listed in Table 5 of Pocatello's NPDES Permit, which was issued on ___July? 1999..

Description of Site Additions

This August 1999 Addendum to the Biosolids Management Plan augments the February 1998 Plan by the addition of two parcels, one 133 acres and the other 192 acres, within the Pocatello Biosolids Beneficial Reuse Site (see Figure 1) These parcels (EC 133 and WC192) straddle the Michaud Canal and lie between two fields (AP120 and OA300) that receive regular annual applications of biosolids. Table 1 contains a listing of agricultural sites used for the Biosolids Pragram that has been updated to include the two new sites. Once EC133 and WC192 are added, total area of agricultural land available for biosolids reuse is 1636 acres.

The Land Application Considerations (Part III of the Biosolids Plan) for the two new sites are similar to those described in Part III of the February 1998 Plan. Application considerations are summarized in the following Table 2. The two new sites introduce no additional environmental or cultural issues over those discussed in the February 1988 plan.

The primary effect of the enlargement of biosolids recycling/reuse areas will be to provide better contol over scheduling of biosolids applications. The leases for the new sites will include greater flexibility and provision for the land to be fallow during some years.

Table 1. Agricultural Sites Used for Land Application – Pocatello Biosolids Beneficial Reuse Site (Question No. given in [ ]).

Site Name [C.1.a.]	Acreage	Location [C.1.b.]		Owner/Applier [C.2.]	Site Type [C.4.]	Crop [C.5.a.]	Nitrogen Requirement lb/ac [C.5.b.]
		Latitude	Longitude				
Old Airport	300	112° 32' 30"	42° 55'	City of Pocatello	Agricultural Land	Wheat, Canola	200 – 300
Airport 120	120	112° 34'	42° 54'	City of Pocatello	Agricultural Land	Wheat	200
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Freeway 30	30	112° 34'	42° 54'	City of Pocatello	Agricultural Land	Alfalfa, Wheat Rotation	200 – 300
Runway 30	30	112° 34'	42° 55'	City of Pocatello	Agricultural Land	Alfalfa, Wheat Rotation	200 – 300
West Airport 800	800	112° 34'	42° 55'	City of Pocatello	Agricultural Land	Alfalfa, Wheat Rotation	200 – 300
West Canal 192	192	112° 34'	42° 55'	City of Pocatello	Agricultural Land	Alfalfa, Wheat Rotation	200 – 300
East Canal 133	133	112° 34'	42° 55'	City of Pocatello	Agricultural Land	Alfalfa, Wheat Rotation	200 – 300

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Table 2. Land application considerations as they apply to Parcels EC133 and WC192 being added to Pocatello Biosolids Management

Consideration	Comment
Sludge Characteristics	No annual or cumulative pollutant limits. Same high quality Class B Sludge will be applied on these fields as adjoining acreages, no specific tracking of pollutants required
Soils	Similar to adjoining fields, well drained Thick soils with no zones saturated for extended periods
Potential Impact on Ground Water	Groundwater level is approx. 50 ft below surface Concrete lined irrigation canal adjacent to sites is raised several feet above grade. Sprinkler irrigated, no direct irrigation return flows to surface waters.
Application Rates	Agronomic rate for wheat of 200 lb/acre allows for 2.4 tons/acre of sludge per year. Soil testing will be accomplished prior to application
Endangered Species	No change in existing impacts from biosolids reuse site with respect to endangered species.
Existing Land Use	Sites are presently farmed. Existing land use will be maintained Only change is application of biosolids instead of commercial fertilizer.

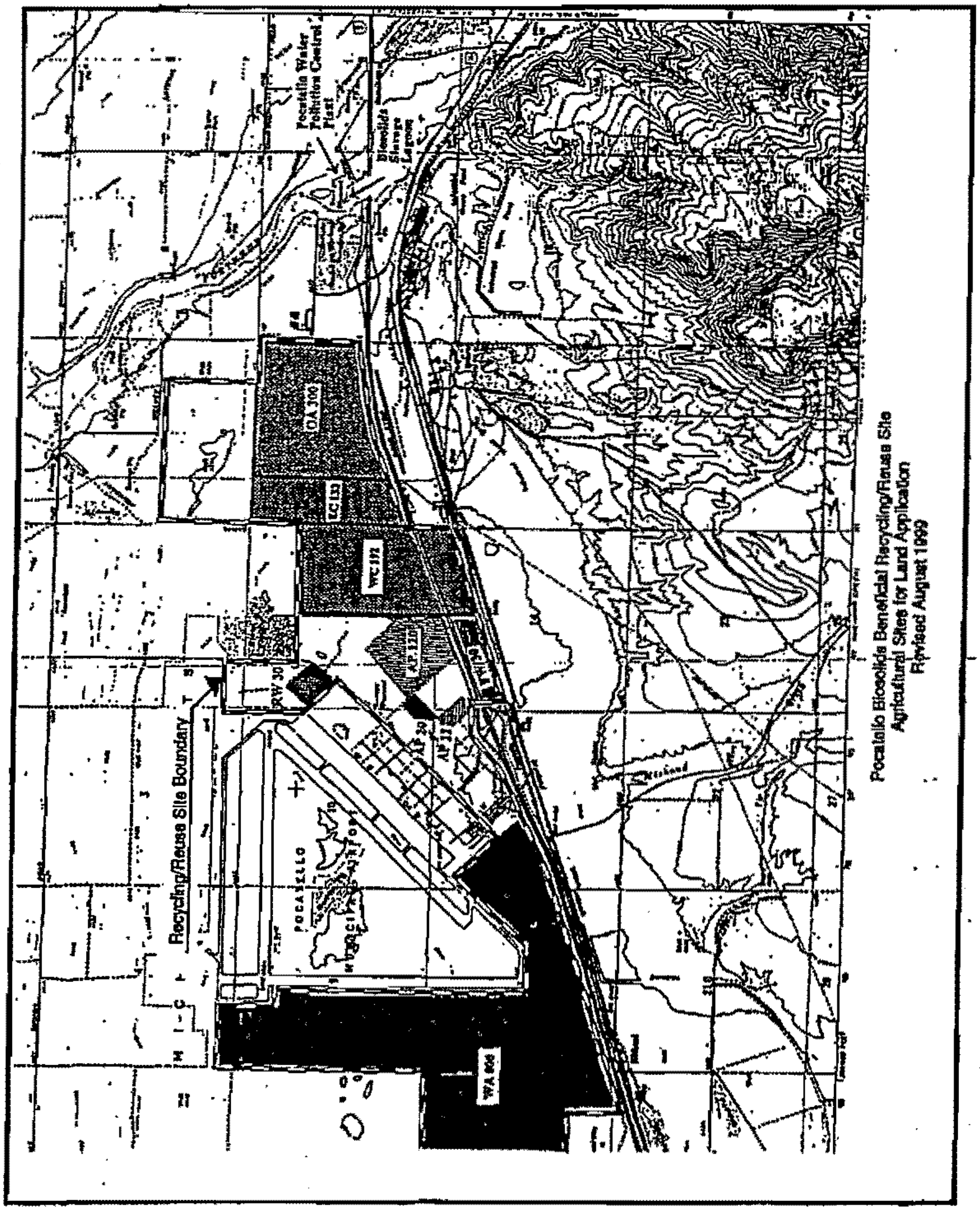

Figure 1 Pocatello Biosolids Beneficial Reuse Site

City of Pocatello WPC
Crop Management Plan
May 17, 2005

This plan is to cover the years 2005-2009.

OA 300

SE section 87.5 acres is currently planted in Alfalfa until 2008 when it will be planted with Wheat.

SW section 67.5 acres is currently planted in Alfalfa until 2006 when it will be planted with Wheat.

NW section 61.5 acres is currently planted in wheat until 2009 when it will be planted with Alfalfa.

NE section is currently planted in wheat and will continue until 2009.

WC 192

East section 68 acres is currently planted in Alfalfa and will be planted in Wheat in 2006.

West section 55 acres is currently planted in Alfalfa and will be planted in Wheat in 2006.

South section 45 acres is currently planted in Alfalfa and will be planted in Wheat in 2006.

WA 140

East section 65 acres is currently fallow and will be planted in Potatoes in 2006 and Wheat in 2008. Fallow in 2007 and 2009.

West section 77 acres is currently planted in Potatoes and will be planted in Wheat in 2007and 2009. Fallow in 2006 and 2008.

EC 133

This field is currently planted in Wheat and will continue to be until 2009.

AP 120

This field is currently planted in Wheat and will be planted in Alfalfa in 2006 until 2009.

AP 20

This field is currently planted in Wheat and will continue to be until 2009.

WA 800

These field are currently rotated between Wheat and Potatoes and will continue to be until 2009.

CITY OF POCATELLO

EXHIBIT 163

Transfer No. 5452

Subcase Nos. (25)

29-00271
29-00272
29-00273
29-02274
29-02338
29-02401
29-02499
29-04221
29-04222
29-04223
29-04224
29-04225
29-04226
29-07106
29-07322
29-07375
29-11339
29-11348
29-13558
29-13559
29-13560
29-13561
29-13562
29-13637
29-13639

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

TRANSFER OF WATER RIGHT

TRANSFER NO. 5452
WATER RIGHT NO(S). 29-02274/29-02338/29-07375

This is to certify that: CITY OF POCATELLO
PO BOX 4169
POCATELLO ID 83205

has requested a change to the above captioned water right(s). This change in water right(s) is authorized pursuant to the provisions of Section 42-222, Idaho Code, provided the conditions listed below are met.

BENEFICIAL USE	PERIOD OF USE	DIVERSION RATE
Right No. 29-02274 :		
MUNICIPAL	01/01 to 12/31	21.00 CFS
Priority: 06/15/1948		
Right No. 29-02338 :		
MUNICIPAL	01/01 to 12/31	14.76 CFS
Priority: 09/01/1953		
Right No. 29-07375 :		
MUNICIPAL	01/01 to 12/31	3.34 CFS
Priority: 02/24/1977		
	TOTAL:	* 39.10 CFS

SOURCE
GROUNDWATER

LOCATION OF POINT(S) OF DIVERSION:

NESE , Sec. 10, Township 06S, Range 33E
BANNOCK County
NESE , Sec. 12, Township 06S, Range 33E
POWER County
SWNE , Sec. 15, Township 06S, Range 33E
NWSW , Sec. 15, Township 06S, Range 34E
NENW , Sec. 26, Township 06S, Range 34E
NWSE , Sec. 27, Township 06S, Range 34E
SENE , Sec. 35, Township 06S, Range 34E
SENE , Sec. 35, Township 06S, Range 34E
NWSE , Sec. 35, Township 06S, Range 34E
SESE , Sec. 1, Township 07S, Range 34E
SWSW , Sec. 16, Township 07S, Range 35E
BANNOCK County

TRANSFER NO. 5452
WATER RIGHT NO(S). 29-02274/29-02338/29-07375

CONDITIONS OF APPROVAL AND REMARKS

1. Right holder shall comply with the drilling permit requirements of Section 42-235, Idaho Code.
2. Use of water under this approval shall comply with applicable water quality standards of the Division of Environmental Quality of the Idaho Department of Health and Welfare.
3. The right holder shall accomplish the change authorized by this transfer within one (1) year of the date of this approval.
4. Failure of the right holder to comply with the conditions of this transfer is cause for the Director to rescind approval of the transfer.
5. Approval of this transfer does not preclude the opportunity for review of the validity of the water right(s) in the ongoing Snake River Basin Adjudication.
6. The right holder shall measure and annually report diversions of water and/or other pertinent hydrologic and system information as required by Section 42-701, Idaho Code.
7. Prior to diversion of water under this approval, the right holder shall provide a means of measurement acceptable to the Department from all authorized points of diversion which will allow determination of the total rate of diversion.
8. * The total instantaneous diversion of water from all points of diversion under Transfer 5452 shall not exceed 39.10 cfs.
9. The well(s) previously used under these rights shall be abandoned in a manner which complies with Department well abandonment rules.
10. Place of use is located within the City of Pocatello and the surrounding service area.
11. Two (2) points of diversion are located within SENE, and three (3) points of diversion are located within NWSE, of S35, T06S, R34E.

Dated this 28th day of June, 1999

L. Glen Saxton
Chief, Water Allocation Bureau

7878
MICROFILMED
AUG 09 1999

CITY OF POCATELLO

EXHIBIT 164

License 29-7770

Subcase Nos.

29-7118
29-7119
29-7770

ADMITTED 29-271 et al
(Subcase No.)
EXHIBIT
Poc 164
Date: 2/28/07

State of Idaho
Department of Water Resources

Water Right License

WATER RIGHT NO. 29-07770

Priority: May 21, 1984

Maximum Diversion Rate: 4.46 CFS
Maximum Diversion Volume: 1,120.0 AF

It is hereby certified that CITY OF POCATELLO
PO BOX 4169
POCATELLO ID 83205 has complied with the terms and conditions of the permit, issued pursuant to Application for Permit dated May 21, 1984; and has submitted Proof of Beneficial Use on March 16, 1990. An examination indicates that the works have a diversion capacity of 4.46 cfs of water from:

SOURCE
GROUND WATER

and a water right has been established as follows:

BENEFICIAL USE	PERIOD OF USE	DIVERSION RATE	ANNUAL DIVERSION VOLUME
IRRIGATION	4/01 to 10/31	4.46 CFS	1,120.0 AF

LOCATION OF POINT OF DIVERSION:
GROUND WATER NE¼SE¼NE¼ Sec. 12, Twp 06S, Rge 33E, B.M., POWER County

PLACE OF USE: IRRIGATION

Twp Rge Sec	NE				NW				SW				SE				
	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	Totals
06S 33E 1															5.0		5.0
06S 33E 12	27.0	40.0	40.0	40.0	40.0			40.0	26.0				7.0	15.0			275.0

Total Acres: 280

CONDITIONS OF APPROVAL

1. This right when combined with all other rights shall provide no more than 0.02 cfs per acre nor more than 4.0 afa per acre at the field headgate for irrigation of the lands above.
2. The use of water under this right shall not give rise to any claim against the holder of a senior water right based upon the theories of forfeiture, abandonment, adverse possession, waiver, equitable estoppel, estoppel by laches or customary preference.

This license is issued pursuant to the provisions of Section 42-219, Idaho Code. The water right confirmed by this license is subject to all prior water rights and shall be used in accordance with Idaho law and applicable rules of the Department of Water Resources.

Signed and sealed this 2ND day of JANUARY, 2003.

Acting for KARL J. DREHER
Director

7880

CERTIFICATE OF SERVICE

I hereby certify that on January 3, 2003 I mailed a true and correct copy, postage prepaid, of the foregoing PRELIMINARY ORDER(Approved License) to the person(s) listed below:

RE: WATER RIGHT NO. 29-7770

CITY OF POCATELLO
PO BOX 4169
POCATELLO ID 83205

Kari Lynn Townsend

Kari Lynn Townsend
Secretary

7881

CITY OF POCATELLO

EXHIBIT 165

Permit 29-7770

Subcase Nos.

29-7118
29-7119
29-7770

29-271 et al.
(Subcase No.)
EXHIBIT
Doc. 1165
Date: 2/28/07
ADMITTED

State of Idaho
Department of Water Resources

Permit To Appropriate Water

NO. 29-07770

Proposed Priority: May 21, 1984 Maximum Diversion Rate: 5.72 CFS

This is to certify, that CITY OF POCATELLO
P.O. BOX 4169
POCATELLO, ID 83205

SCANNED
JUN 20 2001

has applied for a permit to appropriate water from: GROUNDWATER and a permit is APPROVED for development of water as follows:

BENEFICIAL USE	PERIOD OF USE	RATE OF DIVERSION
IRRIGATION	04/01 to 10/15	5.72 CFS

LOCATION OF POINT(S) OF DIVERSION: SENE Sec. 12, Township 06S, Range 33E
POWER County

PLACE OF USE: IRRIGATION

TWN	RGE	SEC		ACRES		ACRES		ACRES	TOTAL
06S	33E	1	SWSE	9	SESE	9			18
		12	NENE	40	NWNE	40	SWNE	40	
			SENE	25	NENW	40	SENW	40	
			NESW	25	NESE	3	NWSE	15	268

Total number of acres irrigated: 286

CONDITIONS/REMARKS:

1. Proof of construction of works and application of water to beneficial use shall be submitted on or before January 1, 1991.
2. Subject to all prior water rights.
3. Prior to the diversion of water under this permit a flow measurement port or other device as specified by the Department shall be installed to provide for the installation of measuring equipment and the determination of the rate of diversion by the Department.
4. Permit holder shall comply with the drilling permit requirements of Section 42-235, Idaho Code.
5. The right to the use of water acquired under this permit shall not give rise to any right or claim against the holder of a senior right based upon the theories of forfeiture, abandonment, adverse possession, waiver, equitable estoppel, estoppel by laches or customary preference.
6. The Director retains jurisdiction of the permit and any license subsequently issued to incorporate the use into a water district, require streamflow augmentation or other action needed to protect prior surface water and groundwater rights.
7. The rate of diversion of water for irrigation under this permit and all other water rights on the same land shall not exceed 0.02 cubic feet per second for each acre of land.

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DEC 14 1989

7883

State of Idaho
Department of Water Resources

Permit To Appropriate Water

NO. 29-07770

CONDITIONS/REMARKS:

8. The maximum rate of diversion for irrigation purposes under this permit shall not exceed 5.72 cfs.

This permit is issued pursuant to the provisions of Section 42-204, Idaho Code. Witness the seal and signature of the Director, affixed at Boise, this 7th day of December, 1989.

L. Glen Saxton
for R. Keith Higginson, Director

CITY OF POCATELLO

EXHIBIT 166

Application for Permit 29-7770

Subcase Nos.

29-7118
29-7119
29-7770

Form 202
3/78

May 10, 1984

Ident. No. 29-7770

ADMITTED
29-2716dal.
(Subcase No.)
EXHIBIT
Poc. 166
Date: 2/28/07

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

APPLICATION FOR PERMIT

To appropriate the public waters of the State of Idaho

1. Name of applicant City of Pocatello Phone (208) ~~232-4311~~ 234-6214 ext.175

   Post office address P. O. Box 4169 Pocatello, ID 83205

2. Source of water supply ground water which is a tributary of ____

3. Location of point of diversion is S.E. ¼ of N.E. ¼ of Section 12 Township 6 S.

   Range 33 E. B.M. Power County, additional points of diversion if any: ____

4. Water will be used for the following purposes:

   Amount ~~6.7~~ 5.72 for irrigation purposes from April 1 to Oct. 15 (both dates inclusive)
   (cfs or acre-feet per annum)

   Amount ____ for ____ purposes from ____ to ____ (both dates inclusive)
   (cfs or acre-feet per annum)

   Amount ____ for ____ purposes from ____ to ____ (both dates inclusive)
   (cfs or acre-feet per annum)

   Amount ____ for ____ purposes from ____ to ____ (both dates inclusive)
   (cfs or acre-feet per annum)

5. Total quantity to be appropriated:

   a. ~~6.7~~ 5.72 cubic feet per second and/or b. ____ acre-feet per annum.

6. Proposed diverting works:

   Description of ditches, flumes, pumps, headgates, etc. 20" diameter deep well with appropriate vertical turbine pump and motor to pump 6.7 cfs. various sizes of irrigation mainline to accommodate flow.

   b. Height of storage dam N/A feet, active reservoir capacity N/A acre-feet; total reservoir capacity N/A acre-feet, materials used in storage dam: N/A

   Period of year when water will be diverted to storage N/A (Month/Day) to N/A (Month/Day) inclusive.

   c. Proposed well diameter is 20 inches; proposed depth of well is 300 feet.

7. Time required for the completion of the works and application of the water to the proposed beneficial use is 1 years *(minimum 1 year — maximum 5 years).*

8. Description of proposed uses:

   a. If water is not for irrigation:

   (1) Give the place of use of water: ____ ¼ of ____ ¼ of Section ____ Township ____

   Range ____ B.M.

   (2) Amount of power to be generated: ____ horsepower under ____ feet of head.

   (3) List number of each kind of livestock to be watered ____

   (4) Name of municipality to be served ____, or number of families to be supplied with domestic water ____.

   (5) If water is to be used for other purposes describe: ____

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DEC 14 1989

7886

b. If water is for irrigation, indicate acreage in each subdivision in the tabulation below:

TP	RANGE	SEC.	NE¼ NE¼	NE¼ NW¼	NE¼ SW¼	NE¼ SE¼	NW¼ NE¼	NW¼ NW¼	NW¼ SW¼	NW¼ SE¼	SW¼ NE¼	SW¼ NW¼	SW¼ SW¼	SW¼ SE¼	SE¼ NE¼	SE¼ NW¼	SE¼ SW¼	SE¼ SE¼	TOTALS
	, E.	12	40	40	40	25	40			40	25				3	15			268
	33 E.	1															9	9	18

Total number of acres to be irrigated 286

c. Describe any other water rights used for the same purposes as described above. None

9. a. Who owns the property at the point of diversion City of Pocatello

b. Who owns the land to be irrigated or place of use City of Pocatello

c. If the property is owned by a person other than the applicant, describe the arrangement enabling the applicant to make this filing N/A

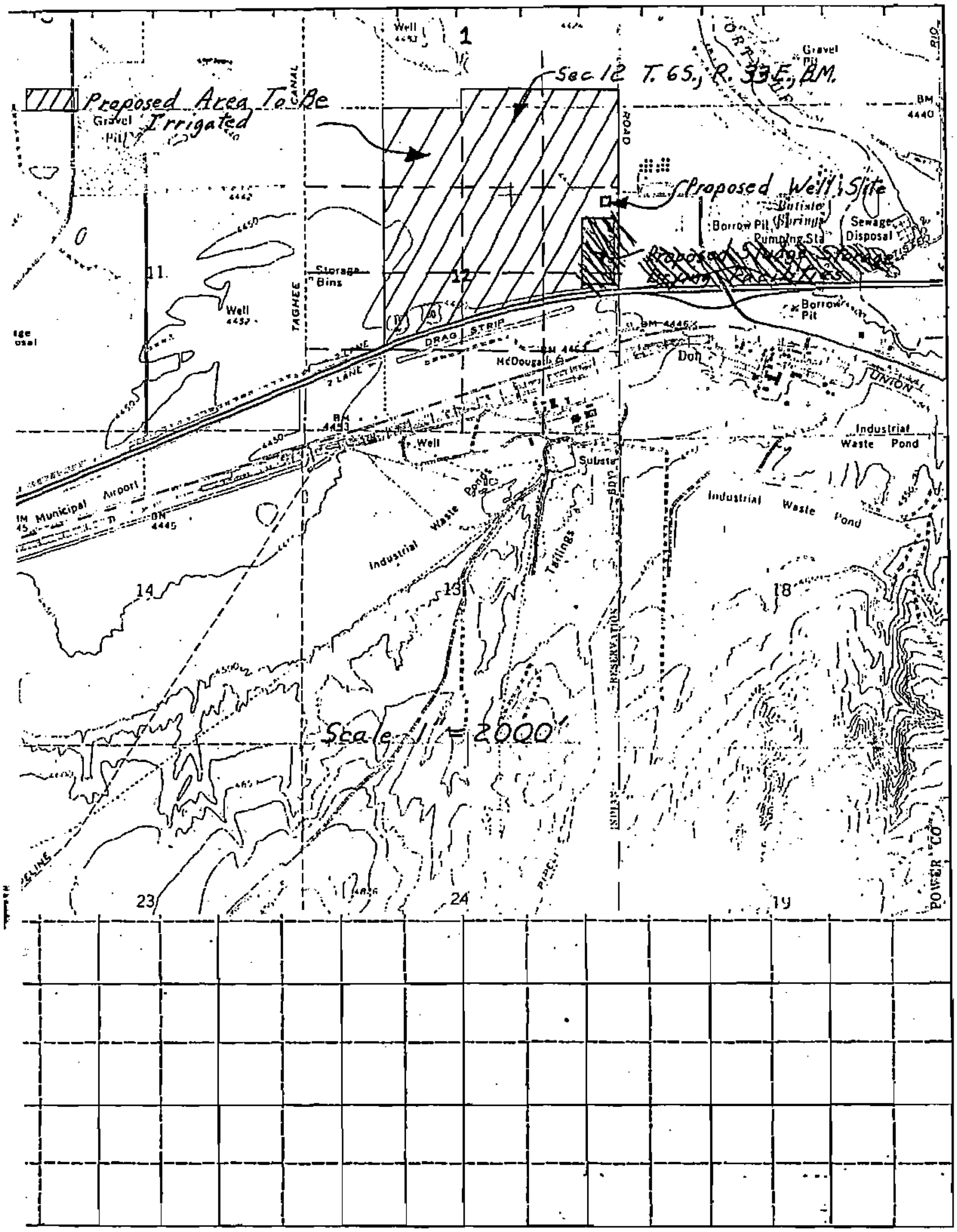
10. Remarks This permit is being requested so that a well can be drilled on City owned property to supply irrigation water for a 280 acre farming operation at the City's proposed sludge management site. Treated sludge from the City's wastewater treatment facility will be ~~stored during the winter months, then dried during the summer months and~~ applied to the farm land as fertilizer and soil conditioner. Water from the well will be necessary to irrigate the various yearly crops. All surface water runoff will be retained on the site.

* Change as per letter NWJ 10-17-89

7887

11. Map of proposed project: show clearly the proposed point of diversion, place of use, section number, township and range number.

See Attached USGS Map



Scale: 2 Inches equal 1 mile.

BE IT KNOWN that the undersigned hereby makes application for permit to appropriate the public waters of the State of Idaho as herein set forth.

(Applicant)

Director of Public Works

7888

Received by [redacted]w Cw Date 5-21-84 5-15-84 Time [redacted]:30 12:50

Preliminary check by HWJ Fee $ 145.00

Receipted by Cw Date 5-21-84 #33550

Publication prepared by AB Date

Published in Power County Press

Publication dates 9-21 & 28-89

Publication approved ______ Date ______

Protests filed by: none

Copies of protests forwarded by ______

Hearing held by ______ Date ______

Recommended for approval denial by HWJ

ACTION OF THE DIRECTOR, DEPARTMENT OF WATER RESOURCES

This is to certify that I have examined Application for Permit to appropriate the public waters of the State Idaho No. ______, and said application is hereby ______.

Approval of said application is subject to the following limitations and conditions:

a. SUBJECT TO ALL PRIOR WATER RIGHTS.

b. Proof of construction of works and application of water to beneficial use shall be submitted on or before ______, 19___.

c. The rate of diversion, if water is to be used for irrigation under this permit, when combined with all other water rights for the same land shall not exceed 0.02 cubic feet per second for each acre of land.

d. Other: ______

itness my hand this ______ day of ______, 19___.

______
Director

MICROFILMED

DEC 14 1989

7889

CITY OF POCATELLO

EXHIBIT 167

10/12/1989 Letter from Jay Ulrich to Harold Jones, IDWR, re: Permit #29-7770

Subcase Nos.

29-7118
29-7119
29-7770

City of Pocatello
POCATELLO, IDAHO 83205-4169

29-271 et al
(Subcase No.)
EXHIBIT
Poc. 167
Date: 2/28/07
ADMITTED

MUNICIPAL BUILDING
P.O. Box 4169
902 E. Sherman

October 12, 1989

RECEIVED
OCT 17 1989
Department of Water Resources
Eastern District Office

Harold W. Jones
Water Resource Supervisor
Dept. of Water Resources
Idaho Falls, Idaho 83401

RE: Permit #29-0770, Additional Information

Dear Mr. Jones,

Contained herein, please find answers and information for the referenced Permit Application in accordance with your transmittal of October 11, 1989. Our comments are as follows:

4,5,3,1,2.-	Please see attached map.		
4,5,3,1,3.-	We have installed a Center Pivot irrigation system to maximize irrigation efficiency.		
4,5,3,2,1.-	Peak diversion rate	-	1600 GPM
	Average use rate	-	1400 GPM
	Volume of Diversion/Year	-	600 AC. FT.
	Water use period	-	5/01 to 10/15
	Consumptive Use/Year	-	600 AC. FT.
4,5,3,2,2.-	Please see attached USGS Water Quality Information.		
4,5,3,6,2.-	The project has been developed for agricultural irrigation of a 300 acre parcel of arid land. The crop rotation will be hard red winter wheat, soft white wheat, and barley. Approximately 20% of the irrigable land will be summer fallowed annually.		

The permit application is in need of modification to reflect changes in the farm management plan which have occurred subsequent to filing the application. I have returned a copy of the permit with these changes. The modifications delete any reference to the storage or drying of sewage sludge upon the developed farm property.

7391

Harold W. Jones
Water Resources Supervisor
Page 2

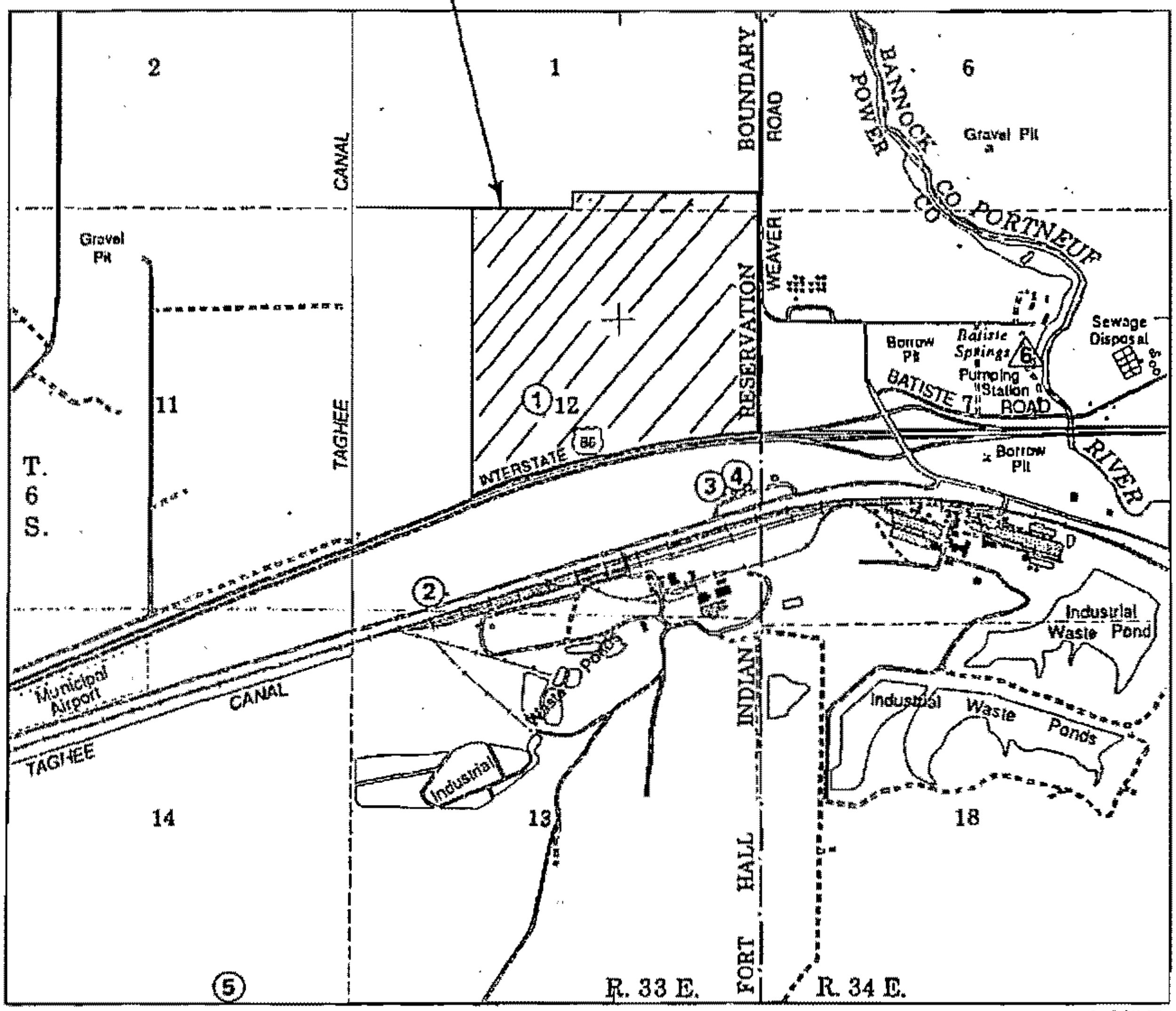
Please call or write if any additional information or clarification is necessary.

Sincerely,

Jay B. Ulrich
DEQ Superintendent

cc: File (2)

City of Pocatello - Permit # 29-0770



Base from U.S. Geological Survey 1:24,000, 1971

0 — 1 MILE
0 — 1 KILOMETER

EXPLANATION

①	Michaud 1	6S-33E-12BDD1
②	Russell Lindley	6S-33E-12CCD1
③	Old Pilot House	6S-33E-DAD1
④	New Pilot House	6S-33E-12DAD2
⑤	Idaho Power	6S-33E-14DCD1
△6	Batiste Springs	6S-34E-7ACA1S

Figure 3.--Locations of wells and springs.

7893

WATER-QUALITY DATA FOR SELECTED SITES ON MICHAUD FLATS, FORT HALL INDIAN RESERVATION, IDAHO, DECEMBER 1982 TO JULY 1987

U.S. GEOLOGICAL SURVEY
Open-File Report 89-71

Prepared in cooperation with
SHOSHONE-BANNOCK TRIBES
FORT HALL INDIAN RESERVATION

WATER-QUALITY DATA FOR SELECTED SITES ON MICHAUD FLATS, FORT HALL INDIAN RESERVATION, IDAHO, DECEMBER 1982 TO JULY 1987

By N.D. Jacobson

U.S. GEOLOGICAL SURVEY
Open-File Report 89-71

Prepared in cooperation with
SHOSHONE-BANNOCK TRIBES,
FORT HALL INDIAN RESERVATION

Boise, Idaho
1989

DEPARTMENT OF THE INTERIOR
MANUEL LUJAN, JR., Secretary
U.S. GEOLOGICAL SURVEY
Dallas L. Peck, Director

For additional information write to:

District Chief
U.S. Geological Survey, WRD
230 Collins Road
Boise, ID 83702

Copies of this report can be purchased from:

U.S. Geological Survey
Books and Open-File Reports
Federal Center, Bldg. 810
Box 25425
Denver, CO 80225

CONTENTS

ILLUSTRATIONS

TABLES

CONVERSION FACTORS

For the convenience of readers who may prefer to use metric (International System) units rather than the inch-pound units used in this report, values may be converted by using factors listed in the table below. Constituent concentrations are given in mg/L (milligrams per liter) or µg/L (micrograms per liter), which are equal to parts per million or parts per billion, respectively. Specific conductance is reported in µS/cm (microsiemens per centimeter at 25 degrees Celsius).

Multiply inch-pound unit	By	To obtain SI unit
acre	4,047	square meter
foot (ft)	0.3048	meter
mile (mi)	1.609	kilometer
square mile (mi^2)	2.590	square kilometer

Temperature in °C (degrees Celsius) can be converted to °F (degrees Fahrenheit) as follows:

$$°F = (1.8)(°C) + 32$$

Water temperatures are reported to the nearest 0.5 °C.

WATER-QUALITY DATA FOR SELECTED SITES ON MICHAUD FLATS, FORT HALL INDIAN RESERVATION, IDAHO, DECEMBER 1982 TO JULY 1987

By

N.D. Jacobson

ABSTRACT

Chemical and physical data were collected from five wells and one spring on Michaud Flats in the Fort Hall Indian Reservation, southeastern Idaho, from December 1982 to July 1987. The data were collected to monitor changes in ground-water quality and to detect any migration of contaminants.

INTRODUCTION

The Michaud Flats study area occupies about 20 mi^2 in eastern Power and northwestern Bannock Counties, Idaho (fig. 1). The area lies south of American Falls Reservoir and the Snake River, between the Portneuf River on the east and Bannock Creek on the west. Ground-water resources on the flats are substantial and are developed extensively for irrigation and industrial pumpage.

Large concentrations of some contaminants, principally arsenic, in water from wells on the flats first were detected in October 1972 (Balmer and Noble, 1979, p. 215). The Idaho Department of Health and Welfare conducted a study of selected chemical constituents in water from various domestic and industrial wells from October 1972 to October 1973. During the study, arsenic concentrations in water from several wells exceeded the U.S. Public Health Service recommended limit of 50 µg/L (Balmer and Noble, 1979, p. 215).

In 1980, the U.S. Geological Survey, in cooperation with the Shoshone-Bannock Tribes, began a two-phase study to (1) determine the occurrence and movement of ground water and describe the degree and extent of ground-water contamination, and (2) develop a monitoring program to periodically sample and analyze water from selected wells and springs to help determine the degree and fluctuation of ground-water contamination associated with industrial waste-water disposal practices.

The first phase of study described geohydrologic and water-quality conditions in the vicinity of a large industrial complex that processes phosphate ores in the eastern Michaud Flats area on and near the Fort Hall Indian Reservation (Jacobson, 1982).

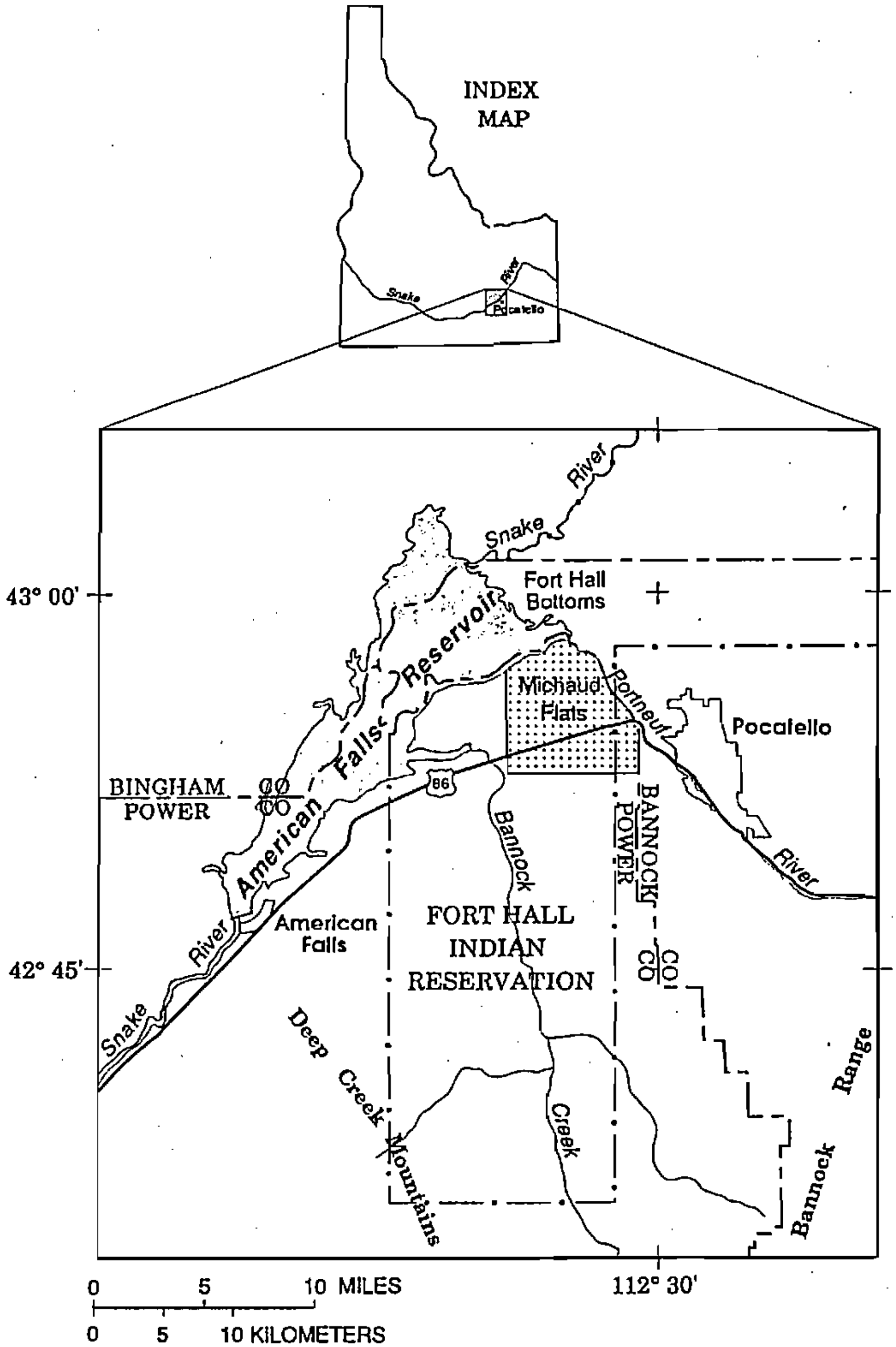


Figure 1.--Location of study area.

The second phase of study provided geophysical data, storage coefficients, specific capacities, and transmissivity values for the area; described procedures being implemented by the ore-processing plants to control ground-water contamination; and presented concentrations of selected chemical constituents, dissolved solids, stable isotopes, and tritium (Jacobson, 1984).

Purpose and Scope

The purpose of this report is to present water-quality data collected from selected wells and springs at strategic locations on Michaud Flats. Data were collected during the period December 1982 to July 1987.

Acknowledgments

The author is grateful to the Shoshone-Bannock Tribes for their cooperation in conducting this study. Thanks also are due to Mr. C.D. Holmes, FMC Corporation; Mr. Paul Evans, J.R. Simplot Company; Mr. Clint Buchanan, City of Pocatello; and Idaho Power Company.

Well- and Spring-Numbering System

The numbering system used by the U.S. Geological Survey in Idaho indicates the location of wells or springs within the official rectangular subdivision of the public lands, with reference to the Boise base line and Meridian. The first two segments of the number designate the township and range. The third segment gives the section number; three letters, which indicate the 1/4 section (160-acre tract), the 1/4-1/4 section (40-acre tract), and the 1/4-1/4-1/4 section (10-acre tract); and the serial number of the well within the tract. Quarter sections are lettered A, B, C, and D in counterclockwise order from the northeast quarter of each section (fig. 2). Within quarter sections, 40-acre and 10-acre tracts are lettered in the same manner. Well 6S-33E-12DAD1 is in the SE1/4NE1/4SE1/4, sec. 12, T. 6 S., R. 33 E., and was the first well inventoried in that tract. Springs are designated by the letter "S" following the last numeral; for example, 6S-34E-7ACA1S.

DATA COLLECTION

Water samples for chemical analyses were obtained from five wells and one spring (fig. 3). These sites were selected to provide necessary data to determine any changes in concentrations of constituents and to detect any migration of contaminants. The sites were sampled semiannually in December and July from 1982 to 1985 and annually in July from 1986 to 1987.

Site 1 is a shallow observation well drilled by the U.S. Geological Survey. It is completed in the water-table aquifer and was located to intercept contaminant

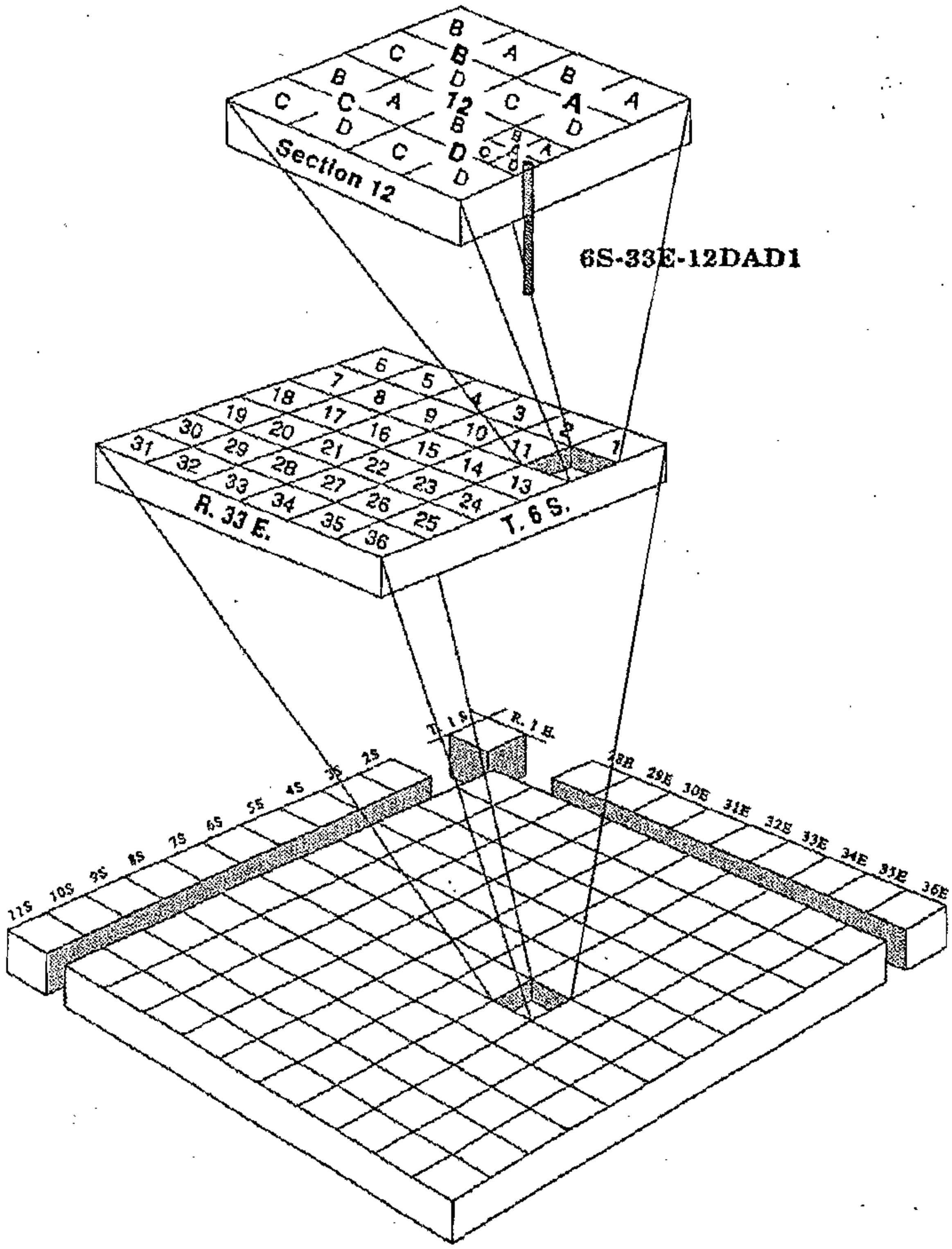
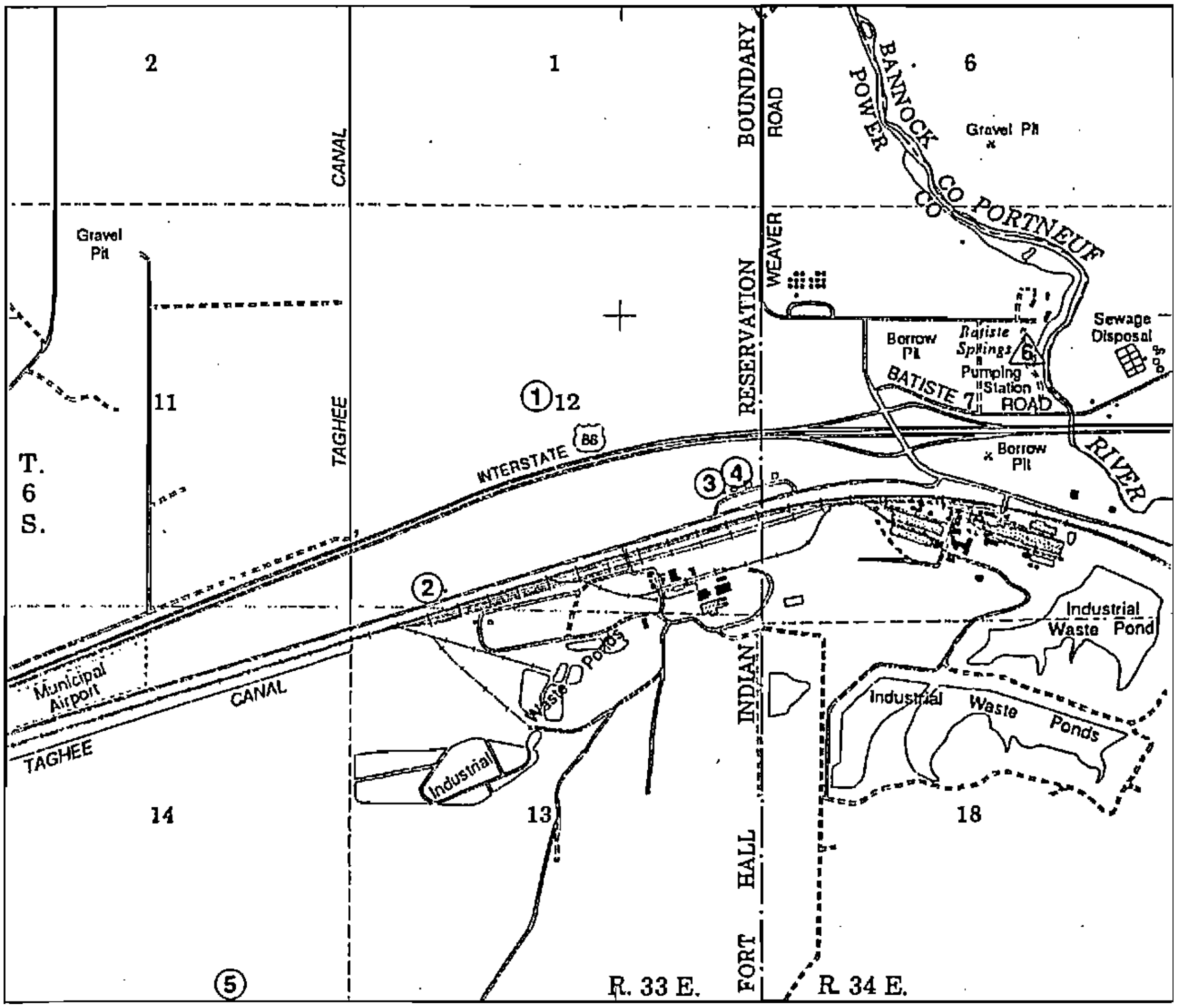


Figure 2.--Well- and spring-numbering system.



Base from U.S. Geological Survey
1:24,000, 1971

EXPLANATION

1	Michaud 1	6S-33E-12BDD1
2	Russell Lindley	6S-33E-12CCD1
3	Old Pilot House	6S-33E-DAD1
4	New Pilot House	6S-33E-12DAD2
5	Idaho Power	6S-33E-14DCD1
6	Batiste Springs	6S-34E-7ACA1S

Figure 3.--Locations of wells and springs.

migration. Site 2, a well completed in the water-table aquifer, has a history of poor water quality and is of use in determining water-quality trends. Site 3, a well also completed in the water-table aquifer, was the site first identified from chemical analysis where the concentration of arsenic in the water exceeded the U.S. Public Health Service water-quality limits. Site 4, a well completed in the deep artesian aquifer and immediately adjacent to site 3, was chosen to compare hydraulic heads between the two wells to indicate potential for leakage between aquifers, and to provide a representative water sample of the artesian aquifer. Site 5, a well completed in the artesian aquifer, is the farthest upgradient and is the only well available to determine background water quality. Batiste Springs was selected because of its proximity to the Portneuf River and industrial waste ponds. It has a long history of impaired water quality.

Water samples were analyzed for concentrations of hardness, dissolved calcium, magnesium, sodium, potassium, sulfate, chloride, fluoride, silica, solids, and nitrogen, total phosphorous, dissolved arsenic and boron, and dissolved and suspended gross alpha and gross beta. Determinations of specific conductance, pH, and air and water temperatures were made onsite.

RESULTS

Specific conductance ranged from 450 μS/cm in background well 14DCDl to 2,270 μS/cm in well 12CCDl. Arsenic concentrations at all sites ranged from 3 to 94 μg/L and exceeded the recommended limit (U.S. Environmental Protection Agency, 1977, p. 5) of 50 μg/L in one sample from Batiste Springs and in five samples from the Old Pilot House well. Concentrations of boron ranged from 60 to 910 μg/L. Dissolved gross alpha concentrations ranged from 1.1 to 49 μg/L.

Chemical and physical data are presented in table 1. Statistical summaries of selected water-quality data for each site are presented in table 2.

Headnotes for tables 1 and 2

Time:	24-hour
U-nat:	Uranium (natural)
susp.:	Suspended
pCi/L:	Picocuries per liter (curies x 10^{-12}). One curie is 3.7 x 10^{10} disintegrations per second.
Cs-137:	Cesium-137
Sr/Y-90:	Strontium/Yttrium-90
<:	Less than
--:	No data available
*:	Onsite analysis

Table 1.--*Chemical analyses of water from wells and springs*

6S-33E-12BDD1 Michaud Well 1

Date	Time	Depth below land surface (water level) (feet)	Depth of well, total (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature, air (°C)	Temperature, water (°C)	Hardness (mg/L as $CaCO_3$)	Calcium, dissolved (mg/L as Ca)	Magnesium, dissolved (mg/L as Mg)
12-20-82	0934	--	79.20	538	7.7	-2.5	13.5	180	50	14
7-18-83	0926	53.10	79.20	559	7.8	22.0	14.0	190	51	15
12-19-83	1152	52.30	79.20	524	7.5	-4.0	13.5	190	53	14
7-23-84	0930	52.50	79.20	545	7.6	25.0	13.5	200	52	16
12-17-84	0944	51.90	79.20	527	7.7	-10.0	13.5	200	54	15
7-10-85	0944	53.90	79.20	571	7.6	24.5	13.5	200	55	16
12-12-85	1311	52.50	79.20	556	8.1	-6.0	11.5	200	55	16
7-9-86	0922	53.55	79.20	578	7.7	20.0	13.5	190	53	15
7-21-87	0934	53.30	79.20	579	7.8	13.5	13.0	200	55	16

Date	Sodium, dissolved (mg/L as Na)	Percent sodium	Sodium adsorption ratio	Potassium, dissolved (mg/L as K)	Sulfate, dissolved (mg/L as SO_4)	Chloride, dissolved (mg/L as Cl)	Fluoride, dissolved (mg/L as F)	Silica, dissolved (mg/L as SiO_2)	Solids, sum of constituents, dissolved (mg/L)	Nitrogen, NO_2+NO_3 dissolved (mg/L as N)
12-20-82	35	28	1	6.9	53	43	1.2	35	330	0.56
7-18-83	35	28	1	6.7	52	40	1.1	35	340	.67
12-19-83	34	27	1	6.4	53	40	1.1	35	330	.66
7-23-84	36	28	1	6.4	57	40	1.1	36	340	.63
12-17-84	34	27	1	6.6	54	42	1.0	36	340	.71
7-10-85	35	26	1	6.9	56	40	1.0	35	340	.72
12-12-85	34	26	1	7.4	57	47	1.0	35	350	.77
7-9-86	32	26	1	6.7	58	44	1.1	34	340	.83
7-21-87	33	25	1	5.8	58	44	1.0	34	350	.79

Table 1.--*Chemical analyses of water from wells and springs*--Continued

6S-33E-12BDD1 Michaud Well 1--Continued

Date	Phos-phorus, total (mg/L as P)	Arsenic, dis-solved (µg/L as As)	Boron, dis-solved (µg/L as B)	Gross alpha, dis-solved (µg/L as U-nat)	Gross alpha, susp. total (µg/L as U-nat)	Gross beta, dis-solved (pCi/L as Cs-137)	Gross beta, susp. total (pCi/L as Cs-137)	Gross beta, dis-solved (pCi/L as Sr/ Y-90)	Gross beta, susp. total (pCi/L as Sr/ Y-90)
12-20-82	0.05	5	90	8.2	0.5	7.8	0.6	7.5	0.6
7-18-83	.22	5	90	7.9	<4	7.4	<4	7.1	<4
12-19-83	.01	4	90	7.0	<4	5.5	.6	4.7	.5
7-23-84	.02	3	90	7.7	<4	11	.5	9.1	<4
12-17-84	.03	4	90	7.5	<4	6.1	<4	5.3	<4
7-10-85	.02	4	90	7.7	<4	6.6	<4	5.7	<4
12-12-85	--	6	110	3.6	.6	8.4	.6	6.2	.6
7-9-86	.05	5	90	3.3	.8	7.3	.5	5.9	.5
7-21-87	<.01	4	90	1.5	<4	8.5	<4	6.4	<4

Table 1.--*Chemical analyses of water from wells and springs*--Continued

6S-33E-12CCD1 Russell Lindley Well

Date	Time	Depth of (well, total (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature, air (°C)	Temperature, water (°C)	Hardness (mg/L as $CaCO_3$)	Calcium, dissolved (mg/L as Ca)	Magnesium, dissolved (mg/L as Mg)	Sodium dissolved (mg/L as Na)
12-21-82	0934	103.00	1,650	7.4	6.0	13.0	560	140	51	140
7-19-83	0734	103.00	1,780	7.5	18.0	14.0	610	150	57	160
12-21-83	1313	103.00	2,080	7.6	-22.0	11.0	650	160	62	160
7-24-84	1014	103.00	2,230	7.3	42.0	11.0	610	150	57	170
12-18-84	0817	103.00	1,910	7.2	-6.0	10.0	600	150	54	150
7-10-85	1536	103.00	1,570	7.7	28.0	13.0	530	130	50	130
12-13-85	0818	103.00	1,870	7.4	-10.0	9.5	580	140	55	140
7- 9-86	1532	103.00	2,270	7.3	18.5	13.0	710	170	70	170
7-22-87	0914	103.00	1,920	7.5	23.0	14.0	620	150	59	140

Date	Percent sodium	Sodium adsorption ratio	Potassium, dissolved (mg/L as K)	Sulfate, dissolved (mg/L as SO_4)	Chloride, dissolved (mg/L as Cl)	Fluoride, dissolved (mg/L as F)	Silica, dissolved (mg/L as SiO_2)	Solids, sum of constituents, dissolved (mg/L)	Nitrogen, NO_2+NO_3 dissolved (mg/L as N)
12-21-82	34	3	15	170	310	0.5	46	1,000	6.3
7-19-83	36	3	15	200	360	.5	45	1,200	6.5
12-21-83	34	3	15	210	360	.5	42	1,200	6.5
7-24-84	37	3	18	210	350	.6	47	1,200	6.6
12-18-84	35	3	15	180	310	.4	47	1,100	5.8
7-10-85	34	3	14	180	290	.5	45	990	5.1
12-13-85	34	3	15	180	320	.5	47	1,100	6.2
7- 9-86	33	3	18	220	410	.5	47	1,300	7.0
7-22-87	32	3	15	180	340	.5	44	1,100	5.2

Table 1.--*Chemical analyses of water from wells and springs*--Continued

6S-33E-12CCD1 Russell Lindley Well--Continued

Date	Phos-phorus, total (mg/L as P)	Arsenic, dis-solved (µg/L as As)	Boron, dis-solved (µg/L as B)	Gross alpha, dis-solved (µg/L as U-nat)	Gross alpha, susp. total (µg/L as U-nat)	Gross beta, dis-solved (pCi/L as Cs-137)	Gross beta, susp. total (pCi/L as Cs-137)	Gross beta, dis-solved (pCi/L as Sr/Y-90)	Gross beta, susp. total (pCi/L as Sr/Y-90)
12-21-82	0.05	6	210	31	<0.4	18	0.7	17	0.7
7-19-83	.21	8	260	37	<.4	19	.6	18	.6
12-21-83	.03	7	260	38	<.4	21	1.3	18	1.2
7-24-84	.04	7	290	33	<.4	24	<.4	21	<.4
12-18-84	.02	6	250	31	<.4	22	.8	19	.8
7-10-85	.06	6	240	26	<.4	15	.6	13	.6
12-13-85	.03	7	240	7.8	<.4	18	.6	13	.6
7- 9-86	.04	9	310	16	.7	28	.6	19	.6
7-22-87	.03	6	270	12	<.4	27	<.4	17	<.4

Table 1.–*Chemical analyses of water from wells and springs*–Continued

6S-33E-12DAD1 Old Pilot House Well

Date	Time	Depth below land surface (water level) (feet)	Depth of well, total (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature, air (°C)	Temperature, water (°C)	Hardness (mg/L as $CaCO_3$)	Calcium, dissolved (mg/L as Ca)	Magnesium, dissolved (mg/L as Mg)
12-20-82	1117	–	113.00	1,340	7.2	0.0	18.5	360	76	42
7-18-83	1144	–	113.00	1,830	7.3	30.0	19.0	390	82	44
12-19-83	1346	66.00	113.00	1,790	7.3	.0	18.0	410	88	45
7-23-84	1113	66.50	113.00	1,760	7.3	27.0	17.5	420	87	49
12-17-84	1116	65.40	113.00	1,940	7.2	-8.0	16.0	430	93	49
7-10-85	1311	67.20	113.00	1,830	7.3	25.5	17.0	400	83	46
12-12-85	1200	66.45	113.00	1,970	7.5	-6.0	15.0	420	87	49
7- 9-86	1124	67.01	113.00	1,890	7.3	20.0	16.5	410	86	47
7-21-87	1121	66.85	113.00	1,960	7.4	13.5	15.5	430	89	50

Date	Sodium, dissolved (mg/L as Na)	Percent sodium	Sodium adsorption ratio	Potassium, dissolved (mg/L as K)	Sulfate, dissolved (mg/L as SO_4)	Chloride, dissolved (mg/L as Cl)	Fluoride, dissolved (mg/L as F)	Silica, dissolved (mg/L as SiO_2)	Solids, sum of constituents, dissolved (mg/L)	Nitrogen, NO_2+NO_3 dissolved (mg/L as N)
12-20-82	130	34	3	150	150	220	<0.1	66	1,100	6.0
7-18-83	130	34	3	130	160	200	<.1	63	1,000	7.6
12-19-84	140	35	3	120	160	210	<.1	63	1,100	6.5
7-23-84	150	35	3	140	160	250	.1	62	1,100	6.9
12-17-84	150	35	3	130	170	260	<.1	64	1,100	15.0
7-10-85	130	32	3	170	170	230	<.1	61	1,100	9.5
12-12-85	150	36	3	120	190	260	<.1	59	1,200	2.1
7- 9-86	150	36	3	140	180	260	<.1	57	1,100	11.0
7-21-87	150	36	3	120	190	250	.2	58	1,100	13.0

Table 1.--*Chemical analyses of water from wells and springs*--Continued

6S-33E-12DAD1 Old Pilot House Well--Continued

Date	Phos-phorus, total (mg/L as P)	Arsenic, dis-solved (µg/L as As)	Boron, dis-solved (µg/L as B)	Gross alpha, dis-solved (µg/L as U-nat)	Gross alpha, susp. total (µg/L as U-nat)	Gross beta, dis-solved (pCi/L as Cs-137)	Gross beta, susp. total (pCi/L as Cs-137)	Gross beta, dis-solved (pCi/L as Sr/Y-90)	Gross beta, susp. total (pCi/L as Sr/Y-90)
12-20-82	13.0	51	870	27	<0.4	150	<0.4	140	<0.4
7-18-83	12.0	47	850	28	<4	130	<4	120	<4
12-19-83	13.0	52	830	49	<4	120	.5	120	.5
7-23-84	16.0	51	810	28	<4	120	<4	120	<4
12-17-84	--	44	850	38	<4	130	<4	110	<4
7-10-85	10.0	26	770	23	.5	130	<4	110	<4
12-12-85	10.0	60	840	6.5	.6	160	.8	100	.6
7- 9-86	8.8	52	910	8.7	.7	190	.6	130	.6
7-21-87	7.5	45	870	3.9	<4	150	.6	100	.6

Table 1.--*Chemical analyses of water from wells and springs*--Continued

6S-33E-12DAD2 New Pilot House Well

Date	Time	Depth below land surface (water level) (feet)	Depth of well, total (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature, air (°C)	Temperature, water (°C)	Hardness (mg/L as $CaCO_3$)	Calcium, dissolved (mg/L as Ca)	Magnesium, dissolved (mg/L as Mg)
12-20-82	1232	--	212.00	489	7.8	0.0	13.5	180	48	14
7-18-83	1309	--	212.00	510	8.1	31.5	15.0	180	47	14
12-19-83	1448	64.90	212.00	452	7.8	-6.0	11.5	180	49	14
7-23-84	1306	65.10	212.00	485	7.9	27.0	15.0	190	50	16
12-17-84	1325	64.60	212.00	499	7.7	-8.5	12.5	190	50	15
7-10-85	1138	66.80	212.00	511	7.9	26.0	15.0	190	50	15
12-12-85	1108	67.12	212.00	515	8.0	-7.0	11.5	180	46	15
7- 9-86	1220	65.95	212.00	522	7.9	25.0	15.0	180	48	15
7-21-87	1308	65.96	212.00	511	7.9	13.5	14.5	190	50	16

Date	Sodium, dissolved (mg/L as Na)	Percent sodium	Sodium adsorption ratio	Potassium, dissolved (mg/L as K)	Sulfate, dissolved (mg/L as SO_4)	Chloride, dissolved (mg/L as Cl)	Fluoride, dissolved (mg/L as F)	Silica, dissolved (mg/L as SiO_2)	Solids, sum of constituents, dissolved (mg/L)	Nitrogen, NO_2+NO_3 dissolved (mg/L as N)
12-20-82	29	25	1	5.6	43	24	0.8	32	280	2.80
7-18-83	29	26	1	6.0	52	29	.9	31	300	.83
12-19-83	29	25	1	5.2	50	30	.9	31	300	.83
7-23-84	31	25	1	5.3	52	29	.9	32	310	.76
12-17-84	30	25	1	5.7	51	29	.8	33	290	.85
7-10-85	30	25	1	5.6	48	28	.8	32	300	.87
12-10-85	30	26	1	5.4	54	32	.8	30	310	.95
7- 9-86	28	24	.9	5.4	54	31	.9	31	310	.97
7-21-87	28	24	.9	4.7	54	30	.8	31	310	.99

Table 1.--*Chemical analyses of water from wells and springs*--Continued

6S-33E-12DAD2 New Pilot House Well--Continued

Date	Phos-phorus, total (mg/L as P)	Arsenic, dis-solved (µg/L as As)	Boron, dis-solved (µg/L as B)	Gross alpha, dis-solved (µg/L as U-nat)	Gross alpha, susp. total (µg/L as U-nat)	Gross beta, dis-solved (pCi/L as Cs-137)	Gross beta, susp. total (pCi/L as Cs-137)	Gross beta, dis-solved (pCi/L as Sr/Y-90)	Gross beta, susp. total (pCi/L as Sr/Y-90)
12-20-82	0.03	3	70	8.3	<0.4	5.6	0.4	5.4	0.5
7-18-83	.62	4	90	7.8	1.4	5.5	.8	5.3	.8
12-19-83	.01	3	80	8.6	<.4	4.6	<.4	3.9	<.4
7-23-84	.08	3	80	8.2	<.4	5.9	<.4	5.1	<.4
12-17-84	.01	3	80	6.4	<.4	6.3	<.4	5.5	<.4
7-10-85	.02	3	80	5.9	<.4	4.0	.5	3.5	.5
12-12-85	.04	3	80	2.9	.5	7.5	.6	5.8	.6
7- 9-86	.03	3	90	1.8	.5	4.9	.6	4.1	.6
7-21-87	<.01	3	80	3.3	<.4	5.9	<.4	4.5	<.4

Table 1.--*Chemical analyses of water from wells and springs*--Continued

6S-33E-14DCD1 Idaho Power Well

Date	Time	Depth below land surface (water level) (feet)	Depth of well, total (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature, air (°C)	Temperature, water (°C)	Hardness (mg/L as $CaCO_3$)	Calcium, dissolved (mg/L as Ca)	Magnesium, dissolved (mg/L as Mg)
12-20-82	1519	161.82	234.00	485	7.8	6.0	12.5	180	45	16
7-18-83	1531	162.00	234.00	471	8.1	32.0	17.5	180	44	16
12-19-83	1152	161.00	234.00	450	7.8	.0	14.0	170	45	15
7-23-84	1448	161.60	234.00	483	7.8	30.0	16.5	190	48	17
12-17-84	1416	160.10	234.00	475	7.8	-11.0	13.0	180	47	16
7-10-85	1403	161.60	234.00	507	7.9	32.5	16.0	180	46	17
12-12-85	1454	160.74	234.00	482	7.9	-8.0	14.0	180	46	17
7- 9-86	1418	161.60	234.00	498	7.8	22.0	16.5	180	45	16
7-21-87	1418	162.28	234.00	501	7.9	14.5	15.5	180	45	17

Date	Sodium, dissolved (mg/L as Na)	Percent sodium	Sodium adsorption ratio	Potassium, dissolved (mg/L as K)	Sulfate, dissolved (mg/L as SO_4)	Chloride, dissolved (mg/L as Cl)	Fluoride, dissolved (mg/L as F)	Silica, dissolved (mg/L as SiO_2)	Solids, sum of constituents, dissolved (mg/L)	Nitrogen, NO_2+NO_3 dissolved (mg/L as N)
12-20-82	25	22	0.8	8.3	18	34	0.5	60	300	0.94
7-18-83	25	23	.8	7.9	20	39	.4	58	310	1.00
12-19-83	25	23	.9	7.8	20	35	.5	58	310	1.00
7-23-84	26	22	.8	8.4	18	35	.5	60	310	.90
12-17-84	26	23	.9	8.0	18	37	.4	62	310	1.10
7-10-85	27	23	.9	11	20	36	.4	62	320	1.10
12-12-85	26	22	.9	8.5	16	42	.4	61	320	1.20
7- 9-86	26	23	.9	8.5	22	38	.4	58	310	1.30
7-21-87	26	23	.9	8.3	21	40	.4	58	320	1.20

Table 1.--*Chemical analyses of water from wells and springs*--Continued

6S-33E-14DCD1 Idaho Power Well--Continued

Date	Phosphorus, total (mg/L as P)	Arsenic, dissolved (µg/L as As)	Boron, dissolved (µg/L as B)	Gross alpha, dissolved (µg/L as U-nat)	Gross alpha, susp. total (µg/L as U-nat)	Gross beta, dissolved (pCi/L as Cs-137)	Gross beta, susp. total (pCi/L as Cs-137)	Gross beta, dissolved (pCi/L as Sr/Y-90)	Gross beta, susp. total (pCi/L as Sr/Y-90)
12-20-82	0.04	15	60	6.4	<0.4	9.8	<0.4	9.4	<0.4
7-18-83	.13	17	60	9.6	.5	9.0	.5	8.6	.5
12-19-83	.01	14	60	12	<4	11	<4	9.2	<4
7-23-84	.02	15	60	6.3	<4	6.1	.5	5.2	.5
12-17-84	.07	14	60	7.2	<4	9.0	<4	7.8	<4
7-10-85	.30	18	70	8.2	<4	12	<4	10	<4
12-12-85	.02	18	70	3.3	.5	12	.6	8.8	.6
7- 9-86	.03	18	60	8.4	.8	9.5	.6	7.9	.6
7-21-87	.03	15	60	9.1	<4	14	<4	10	<4

Table 1.--*Chemical analyses of water from wells and springs*--Continued

6S-34E-7ACA1S Batiste Springs

Date	Time	Specific conductance (µS/cm)	pH (standard units)	Temperature, air (°C)	Temperature, water (°C)	Hardness (mg/L as $CaCO_3$)	Calcium, dissolved (mg/L as Ca)	Magnesium, dissolved (mg/L as Mg)	Sodium, dissolved (mg/L as Na)
12-21-82	0816	1,290	6.8	5.5	14.0	470	120	42	80
7-19-83	0952	1,510	6.9	21.0	13.5	520	130	48	89
12-20-83	1010	1,290	6.9	-12.0	14.0	510	130	44	83
7-24-84	0824	1,350	6.8	24.5	14.5	530	130	49	95
12-18-84	0926	1,360	6.9	-8.5	14.0	480	120	44	86
7-11-85	0839	1,140	6.9	20.0	14.0	410	100	39	76
12-13-85	1000	1,160	6.8	.0	13.5	410	100	38	74
7-10-86	0819	1,320	6.8	17.0	14.0	440	110	40	80
7-22-86	1042	958	7.0	19.5	13.5	340	85	31	62

Date	Percent sodium	Sodium adsorption ratio	Potassium, dissolved (mg/L as K)	Sulfate, dissolved (mg/L as SO_4)	Chloride, dissolved (mg/L as Cl)	Fluoride, dissolved (mg/L as F)	Silica, dissolved (mg/L as SiO_2)	Solids, sum of constituents, dissolved (mg/L)	Nitrogen, NO_2+NO_3 dissolved (mg/L as N)
12-21-82	26	2	16	240	75	0.4	42	770	8.9
7-19-83	26	2	14	280	71	.4	41	840	9.8
12-20-83	26	2	13	240	72	.5	41	820	8.5
7-24-84	28	2	13	280	72	.4	43	880	10.0
12-18-84	27	2	13	230	79	.4	43	780	16.0
7-11-85	28	2	15	190	72	.4	42	680	6.0
12-13-85	28	2	13	200	75	.4	39	710	7.3
7-10-86	27	2	16	230	78	.4	41	770	10.0
7-22-86	27	2	13	140	65	.5	37	580	4.8

Table 1.--*Chemical analyses of water from wells and springs*--Continued

6S-34E-7ACA1S Batiste Springs--Continued

Date	Phos-phorus, total (mg/L as P)	Arsenic, dis-solved (µg/L as As)	Boron, dis-solved (µg/L as B)	Gross alpha, dis-solved (µg/L as U-nat)	Gross alpha, susp. total (µg/L as U-nat)	Gross beta, dis-solved (pCi/L as Cs-137)	Gross beta, susp. total (pCi/L as Cs-137)	Gross beta, dis-solved (pCi/L as Sr/Y-90)	Gross beta, susp. total (pCi/L as Sr/Y-90)
12-21-82	4.20	25	250	20	<0.4	16	<0.4	15	<4
7-19-83	4.30	20	250	24	<4	14	<4	13	<4
12-20-83	3.40	19	250	21	<4	17	<4	15	<4
7-24-84	9.80	36	260	24	<4	110	<4	96	<4
12-18-84	2.50	24	260	19	<4	19	<4	17	<4
7-11-85	.02	36	270	15	<4	15	<4	13	<4
12-13-85	3.80	31	260	7.5	.8	17	.5	11	.5
7-10-86	.16	36	290	16	.6	21	.4	16	.4
7-22-87	2.70	94	240	1.1	<4	17	<4	12	<4

Table 2.–*Statistical summary of selected water-quality data*

6S-33E-12BDD1 Michaud Well 1

Water-quality constituent	Data population	Median (50 percent)	Mean	Range of values Minimum	Maximum
*Specific conductance (µS/cm)	9	556	553	524	579
*pH (standard units)	9	7.7	7.7	7.5	8.1
*Temperature (°C)	9	13.5	13.0	11.5	14.0
Hardness (mg/L as $CaCO_3$)	9	195	194	180	200
Calcium, dissolved (mg/L as Ca)	9	53	53	50	55
Magnesium, dissolved (mg/L as Mg)	9	15	15	14	16
Sodium, dissolved (mg/L as Na)	9	34	34	32	36
Potassium, dissolved (mg/L as K)	9	6.7	6.6	5.8	7.4
Chloride, dissolved (mg/L as Cl)	9	42	42	40	47
Fluoride, dissolved (mg/L as F)	9	1.1	1.1	1.0	1.2
Silica, dissolved (mg/L as SiO_2)	9	35	35	34	36
Nitrogen, nitrite + nitrate, dissolved (mg/L as N)	9	.71	.70	.56	.83
Phosphorus, total (mg/L as P)	8	.02	.05	.01	.22
Arsenic, dissolved (µg/L as As)	9	4	4.5	3	6
Boron, dissolved (µg/L as B)	9	92	92	90	110
Gross alpha, dissolved (µg/L as U-nat)	9	7.6	6.6	3.3	8.2
Gross alpha, susp. total (µg/L as U-nat)	9	.40	.49	<.40	.80
Gross beta, dissolved (pCi/L as Cs-137)	9	7.4	7.5	5.5	11.0
Gross beta, susp. total (pCi/L as Cs-137)	9	.50	.50	<.40	.60
Gross beta, dissolved (pCi/L as Sr/Y-90)	9	6.0	6.4	4.7	9.1
Gross beta, susp. total (pCi/L as Sr/Y-90)	9	.45	.48	<.40	.60

Table 2.–*Statistical summary of selected water-quality data*--Continued

6S-33E-12CCD1 Russell Lindley Well

Water-quality constituent	Data population	Median (50 percent)	Mean	Range of values Minimum	Maximum
*Specific conductance (µS/cm)	9	1,910	1,920	1,570	2,270
*pH (standard units)	9	7.4	7.4	7.2	7.7
*Temperature (°C)	9	13.0	12.0	9.5	14.0
Hardness (mg/L as $CaCO_3$)	9	610	607	530	710
Calcium, dissolved (mg/L as Ca)	9	150	149	130	170
Magnesium, dissolved (mg/L as Mg)	9	57	57	50	70
Sodium, dissolved (mg/L as Na)	9	150	151	130	170
Potassium, dissolved (mg/L as K)	9	15	16	14	18
Chloride, dissolved (mg/L as Cl)	9	340	339	290	410
Fluoride, dissolved (mg/L as F)	9	.50	.50	.40	.60
Silica, dissolved (mg/L as SiO_2)	9	46	46	42	47
Nitrogen, nitrite + nitrate, dissolved (mg/L as N)	9	6.3	6.1	5.1	7.0
Phosphorus, total (mg/L as P)	9	.04	.05	.02	.21
Arsenic, dissolved (µg/L as As)	9	7.0	6.9	6.0	9.0
Boron, dissolved (µg/L as B)	9	260	259	210	310
Gross alpha, dissolved (µg/L as U-nat)	9	31	27	7.8	38
Gross alpha, susp. total (µg/L as U-nat)	9	.40	.44	<.40	.70
Gross beta, dissolved (pCi/L as Cs-137)	9	20	20	15	28
Gross beta, susp. total (pCi/L as Cs-137)	9	.60	.70	<.40	1.30
Gross beta, dissolved (pCi/L as Sr/Y-90)	9	18	17	13	21
Gross beta, susp. total (pCi/L as Sr/Y-90)	9	.60	.69	<.40	1.20

Table 2.--*Statistical summary of selected water-quality data*--Continued

6S-33E-12DAD1 Old Pilot House Well

Water-quality constituent	Data population	Median (50 percent)	Mean	Range of values Minimum	Range of values Maximum
*Specific conductance (µS/cm)	9	1,830	1,810	1,340	1,970
*pH (standard units)	9	7.3	7.3	7.2	7.5
*Temperature (°C)	9	17.0	17.0	15.0	19.0
Hardness (mg/L as $CaCO_3$)	9	410	410	360	430
Calcium, dissolved (mg/L as Ca)	9	86	86	76	93
Magnesium, dissolved (mg/L as Mg)	9	46	47	42	50
Sodium, dissolved (mg/L as Na)	9	145	142	130	150
Potassium, dissolved (mg/L as K)	9	130	135	120	170
Chloride, dissolved (mg/L as Cl)	9	240	240	200	260
Fluoride, dissolved (mg/L as F)	9	.12	.12	<.10	.20
Silica, dissolved (mg/L as SiO_2)	9	62	61	57	66
Nitrogen, nitrite + nitrate, dissolved (mg/L as N)	9	7.2	7.9	2.1	15
Phosphorus, total (mg/L as P)	8	10	11.2	7.5	16
Arsenic, dissolved (µg/L as As)	9	49	48	26	60
Boron, dissolved (µg/L as B)	9	845	844	810	910
Gross alpha, dissolved (µg/L as U-nat)	9	27	24	3.90	49
Gross alpha, susp. total (µg/L as U-nat)	9	.42	.47	<.40	.70
Gross beta, dissolved (pCi/L as Cs-137)	9	130	140	120	190
Gross beta, susp. total (pCi/L as Cs-137)	9	.42	.46	<.40	.60
Gross beta, dissolved (pCi/L as Sr/Y-90)	9	115	120	110	140
Gross beta, susp. total (pCi/L as Sr/Y-90)	9	.42	.47	<.40	.60

Table 2.–*Statistical summary of selected water-quality data*–Continued

6S-33E-12DAD2 New Pilot House Well

Water-quality constituent	Data population	Median (50 percent)	Mean	Range of values Minimum	Maximum
*Specific conductance (µS/cm)	9	511	499	452	522
*pH (standard units)	9	7.9	7.9	7.7	8.1
*Temperature (°C)	9	14.5	13.5	11.5	15.0
Hardness (mg/L as $CaCO_3$)	9	185	185	180	190
Calcium, dissolved (mg/L as Ca)	9	49	49	46	50
Magnesium, dissolved (mg/L as Mg)	9	15	15	14	16
Sodium, dissolved (mg/L as Na)	9	29	29	28	30
Potassium, dissolved (mg/L as K)	9	5.4	5.4	4.7	6.0
Chloride, dissolved (mg/L as Cl)	9	30	29	28	32
Fluoride, dissolved (mg/L as F)	9	.80	.80	.80	.90
Silica, dissolved (mg/L as SiO_2)	9	31	31	30	33
Nitrogen, nitrite + nitrate, dissolved (mg/L as N)	9	.87	1.09	.76	2.80
Phosphorus, total (mg/L as P)	9	.03	.09	.01	.62
Arsenic, dissolved (µg/L as As)	9	3	3	3	4
Boron, dissolved (µg/L as B)	9	80	80	70	90
Gross alpha, dissolved (µg/L as U-nat)	9	6.4	5.9	1.8	8.6
Gross alpha, susp. total (µg/L as U-nat)	9	.42	.57	<.40	1.40
Gross beta, dissolved (pCi/L as Cs-137)	9	5.5	5.5	4.0	7.5
Gross beta, susp. total (pCi/L as Cs-137)	9	.50	.53	<.40	.80
Gross beta, dissolved (pCi/L as Sr/Y-90)	9	5.1	4.7	3.5	5.8
Gross beta, susp. total (pCi/L as Sr/Y-90)	9	.50	.53	<.40	.80

Table 2.--*Statistical summary of selected water-quality data*--Continued

6S-33E-14DCD1 Idaho Power Well

Water-quality constituent	Data population	Median (50 percent)	Mean	Range of values Minimum	Range of values Maximum
*Specific conductance (µS/cm)	9	483	484	450	507
*pH (standard units)	9	7.8	7.9	7.8	8.1
*Temperature (°C)	9	15.5	15.0	12.5	17.5
Hardness (mg/L as $CaCO_3$)	9	180	180	170	190
Calcium, dissolved (mg/L as Ca)	9	45	45	44	48
Magnesium, dissolved (mg/L as Mg)	9	16	16	15	17
Sodium, dissolved (mg/L as Na)	9	26	26	25	27
Potassium, dissolved (mg/L as K)	9	8.3	8.5	7.8	11
Chloride, dissolved (mg/L as Cl)	9	37	37	34	42
Fluoride, dissolved (mg/L as F)	9	.42	.43	.40	.50
Silica, dissolved (mg/L as SiO_2)	9	60	60	58	62
Nitrogen, nitrite + nitrate, dissolved (mg/L as N)	9	1.10	1.08	.90	1.30
Phosphorus, total (mg/L as P)	9	.03	.07	.01	.30
Arsenic, dissolved (µg/L as As)	9	15	16	14	18
Boron, dissolved (µg/L as B)	9	62	62	60	70
Gross alpha, dissolved (µg/L as U-nat)	9	7.7	7.7	3.3	12
Gross alpha, susp. total (µg/L as U-nat)	9	.40	.48	<.40	.80
Gross beta, dissolved (pCi/L as Cs-137)	9	9.6	9.8	6.1	12
Gross beta, susp. total (pCi/L as Cs-137)	9	.45	.48	<.40	.60
Gross beta, dissolved (pCi/L as Sr/Y-90)	9	8.7	8.4	5.2	10
Gross beta, susp. total (pCi/L as Sr/Y-90)	9	.45	.48	<.40	.60

Table 2.--*Statistical summary of selected water-quality data*--Continued

6S-34E-7ACA1S Batiste Springs

Water-quality constituent	Data population	Median (50 percent)	Mean	Range of values Minimum	Maximum
*Specific conductance (µS/cm)	9	1,160	1,150	958	1,320
*pH (standard units)	9	6.8	6.9	6.8	7.0
*Temperature (°C)	9	13.5	13.5	13.5	14.0
Hardness (mg/L as $CaCO_3$)	9	470	456	340	530
Calcium, dissolved (mg/L as Ca)	9	120	114	85	130
Magnesium, dissolved (mg/L as Mg)	9	42	42	31	49
Sodium, dissolved (mg/L as Na)	9	80	81	62	95
Potassium, dissolved (mg/L as K)	9	13	14	13	16
Chloride, dissolved (mg/L as Cl)	9	75	73	65	79
Fluoride, dissolved (mg/L as F)	9	.40	.43	.40	.50
Silica, dissolved (mg/L as SiO_2)	9	41	41	37	43
Nitrogen, nitrite + nitrate, dissolved (mg/L as N)	9	8.9	9.0	4.8	16
Phosphorus, total (mg/L as P)	9	3.40	3.43	.02	9.80
Arsenic, dissolved (mg/L as As)	9	31	36	19	94
Boron, dissolved (mg/L as B)	9	260	263	240	290
Gross alpha, dissolved (µg/L as U-nat)	9	19.0	16.4	1.1	24
Gross alpha, susp. total (µg/L as U-nat)	9	.42	.47	<.40	.80
Gross beta, dissolved (pCi/L as Cs-137)	9	17	27	14	110
Gross beta, susp. total (pCi/L as Cs-137)	9	.40	.40	<.40	.50
Gross beta, dissolved (pCi/L as Sr/Y-90)	9	15	23	11	96
Gross beta, susp. total (pCi/L as Sr/Y-90)	9	.40	.40	<.40	.50

REFERENCES CITED

Balmer, D.K., and Noble, J.B., 1979, Water resources of the Fort Hall Indian Reservation, final report: Tacoma, Wash., Robinson and Noble, Inc., 227 p.

Jacobson, N.D., 1982, Ground-water conditions in the eastern part of Michaud Flats, Fort Hall Indian Reservation, Idaho: U.S. Geological Survey Water-Resources Investigations/Open-File Report 82-570, 35 p.

------- 1984, Hydrogeology of eastern Michaud Flats, Fort Hall Indian Reservation, Idaho: U.S. Geological Survey Water-Resources Investigations Report 84-4201, 31 p.

U.S. Environmental Protection Agency, 1977, National interim primary water regulations: Washington, U.S. Government Printing Office, 159 p.

CITY OF POCATELLO

EXHIBIT 168

11/1991 Farm Lease between City of Pocatello and Smith

Subcase Nos.

29-7118
29-7119
29-7770

FARM LEASE

THIS LEASE AGREEMENT, entered into this first day of November, 1991, between the CITY OF POCATELLO, a municipal corporation of Idaho, hereinafter called Lessor, and EDWARD ALVIN SMITH AND CHRISTINE SMITH, husband and wife, hereinafter called Lessee, of Power County, Idaho:

WITNESSETH:

ARTICLE I:

The Lessor, in consideration of the agreements set forth in this Lease to be kept and performed by the Lessee, rents and leases to the Lessee to occupy and to use for agricultural purposes, the following real estate located in the County of Power, State of Idaho, on property owned by the Lessor and described as follows:

1. Begining at the north 1/16 corner on the west line of Section 16 T.6S.R. 33 E.B.M.; thence east along the north 1/16 line of the said Section 16, 2250 feet more or less to a point which is 250 feet west of the west boundary of the N/S Runway; thence south parallel to the said west boundary 3210 feet to the northerly right-of-way line of U.S. Highway No. 30; thence in a southwesterly direction along the said right-of-way line 2363 feet to the west line of the said Section 16; thence continuing southwesterly along the said right-of-way line 1281 feet to a point which is 1220 feet west of the east line of Section 20, T.6S.R. 33 E.B.M.; thence north parallel to the east lines of Sections 20 and 17, 4323 feet more or less to the north 1/16 line of Section 17, T.6S.R. 33 E.B.M.; thence east 1220 feet to the point of beginning.

   The above tract of land is a part of Sections 16, 17 and 20, T.6S.R. 33 E.B.M. in Power County, Idaho and contains 300 acres more or less.

2. Beginning at the NE 1/16 corner of Sec. 17, T.6S., R. 33 E.B.M., thence east 100 feet to a point which is 1220 feet west of the east line of the said Sec. 17; thence S.4323 feet to the northerly right-of-way line of the U.S. Highway 30 N; thence south 72°17'W. along the said right-of-way line 105 feet to the E. 1/16 line of Sec. 20, T.6S.R. 34 E.B.M.; thence north along the E. 1/16 line of Sections 20 and 17, 4355 feet to the point of beginning. Containing 10 acres more or less.

   Also, the W. 1/2 of the SE 1/4 (80 acres); W. 1/2 of the S. 1/2 of the NE 1/4 (40 acres); SE 1/4 of the NW 1/4 (40 acres); E 1/2 of the SW 1/4 of the NW 1/4 (20 acres); E 1/2 of the NW 1/4 of the SW 1/4 (20 acres) and NE 1/4 of the SW 1/4 (40 acres), all within Sec. 17 T.6S.R. 33 E.B.M. containing 240 acres more or less.

   Save and except, however, 25 acres more or less containing a gravel pit and building foundation on the foregoing described land which leaves a total of 225 acres more or less of ground subject to this lease under this sub-paragraph #2.

3. Commencing at a point of intersection of the northerly right-of-way line of the Old Oregon Trail Highway and the centerline of Beechcraft Avenue of the Pocatello Regional Airport; thence South 72°30'W. along the said right-of-way line 742 feet to the point of beginning; thence continuing S. 72°30'W. 3967.5 feet; thence N. 2°42'E. 962 feet; thence N. 45°18' E. 966 feet; thence East 441 feet to the northeast corner of the F.A.A. Radar Tract; thence North 407 feet; thence N. 72°05'E. 1451 feet; thence S.43°42'E. 1783 feet to the point of beginning.

   The above described tract of land is part of Sections 15 and 16, T.6S., R.33 E.B.M. and contains 109.03 acres, as shown on the map on file in the Pocatello City Engineer's Office.

4. A tract of land in West 1/2 of Section 9 and NW 1/4 of Section 16, T.6S., R. 33 E.B.M., Power County, Idaho, more particularly described as follows:

   BEGINNING at a point on the West section line of Section 9, T.6S., R. 33 E.B.M., that is S.00°10'22'W, 1030.40 feet from a stone monument at Northwest corner of said Section 9;

Thence S 00°10'22"W on said West line of Section 9, 4254.50 feet to a stone monument at section corner that is common to Sections 8, 9, 16, and 17, T.6S., R.33 E.B.M.;

Thence S 00°13'52"W on West line of Section 16, T.6S., R.33 E.B.M., 1340.10 feet;

Thence S 89°44'08"E, 2311.30 feet, more or less, to a point 250.0 feet from centerline of the North/South Runway;

Thence N 00°15'52"E parallel to the North/South Runway, 5594.60 feet;

Thence N89°44'08"W., 2311.30 feet to the Point of Beginning and contains 297.0 acres, more or less.

NOTE: Bearings are from Department of Highways, the equation in Bearing are N 00°15'52"E, Idaho Department of Highway=North, Airport Bearing. Illustrated in the map attached hereto as an exhibit.

ARTICLE II--TERM:

The term of this lease shall be from the first day of November, 1991, and expiring the 31st day of October, 1996, subject to certain conditions hereinafter contained.

The terms of the Lease as herein set forth are to apply to and bind the heirs, executors, administrators and assigns of the respective parties hereto, except by mutual agreement otherwise.

ARTICLE III--RATE:

Lessee agrees to pay the Lessor cash rent of $55.00 per acre annually for the term of this lease. This annual rent is to be paid in two installments of one-half the total sum, once on March 31 and again on September 15 of each year.

Lessee agrees to pay the rental upon said premises promptly when due and, should Lessee fail to pay said rent after receiving written notice from Lessor to pay within ten (10) days from date of notice, Lessor has the right to re-enter and take possession of said premises without the necessity of resorting to litigation. Lessee reserves the right to re-enter for the limited purpose of preserving, irrigating, harvesting or removing any and all growing crops. If Lessor is required to water, fertilize, maintain, preserve, or harvest crops on this land, all right, title, and interest to said crops shall inure or be vested with Lessor. Any costs expended by Lessee on said crops prior to Lessor's required entry to water, fertilize, maintain, preserve, or harvest said crops shall be borne by Lessee and Lessee shall have no right to restitution in any manner whatsoever for said costs.

Lessee further agrees that this rental rate may be reviewed by Lessor at the beginning of each fiscal year. In the event that prices for agricultural commodities increase in any year, Lessor, at its option, may increase the rental rate proportionately. The Pocatello City Council shall be the ultimate decision-maker as to the reasonableness of any such increase. In no case shall rents be less than $55.00 per acre annually for the term of this Lease.

ARTICLE IV--GENERAL TERMS:

It is hereby mutually agreed that the Lessee shall be permitted to lease the foregoing land on the terms herein set forth.

Lessee may utilize the two wells on the premises (Water License No. 29-1118 and No. 29-7229), the pumping equipment, and the waterline owned by Lessor. Lessee agrees to bear all costs relating to operation of the well's water system during the lease term, including but not limited to maintenance, repair, power, and equipment replacement costs. Lessee further agrees that any replacement of any part of the well's water system shall attach to the real property herein leased and shall remain the property of the Lessor upon termination of this Lease.

It is further agreed that the Lessee shall follow a year-by-year crop rotation program acceptable to the Soil Conservation Service as a program of good farming practice for this land, thereby giving the Lessee the optimum yield without depleting the soil. Types of crops grown on the premises must be acceptable to the Airport Board and the State Department of Aeronautics. If a crop is inconsistent with airport operation (because of attraction to water fowl or any other reason), the Lessor may deny permission to plant such crop. The rental rate on those portions of the premises so restricted, may be renegotiated at the option of Lessee to reflect a fair market rental rate for such portions.

Lessee agrees further that it shall furnish all the machinery, equipment and labor necessary to farm the leased premises properly; to faithfully cultivate the farm in dutiful, thorough and business-like manner; not to assign this Lease to any person or persons or sublet any part of the premises without the written consent of the Lessor; to keep the said premises in as good a condition as they may be put during the term of this Lease; not to allow noxious weeds to go to seed on said premises, but to destroy the same; to fertilize in an acceptable manner the property concerned herein, as practicable; to prevent all unnecesssary waste or loss or damage to the property of the Lessor; to keep the farm neat and orderly at all times.

It is fully understood and agreed by the Lessee that the land leased herein belongs to the City of Pocatello, a municipal corporation of Idaho, and that said land is situated upon the Pocatello Municipal Airport property; that, as such, said lands are subject to certain Federal Regulations under the jurisdiction of the Federal Aviation Agency as well as regulations of the State Department of Transportation, and, as such, the Lessee agrees to abide by such regulations wherever they shall apply to the uses of the said land engaged in by the Lessee herein named. In this respect the Lessee acknowledges that if it causes any hazard to flying aircraft such as dust or other hazards, the Lessee shall take such necessary action to remove and/or abate such hazard immediately upon notice thereof.

ARTICLE V--APPLICATION OF BIO-SOLIDS

In the event the City of Pocatello is required to discharge excess bio-solids, the parties agree that Lessee shall allow discharge of such soil conditioners onto those portions of land as designated by Lessee. The parties further agree to negotiate the rate to be charged for the application of the nutrient bio-solids.

ARTICLE VI--TERMINATION

It is further fully understood and agreed that this lease agreement may be terminated by the Lessor upon thirty (30) days written notice, subject, however, to the Lessee having full right of ingress and egress to remove from said land any and all growing crops which might be contained thereon subject to the following conditions:

1. That the said lands are subject to development by the Lessor for industrial and commercial uses, and in such instance and event that the Lessor has a suitable and acceptable tenant for industrial or commercial lease, the Lessor has the granted power to terminate this agreement by written notice as above mentioned in order to apply said land to the higher use value;

2. That the Lessee fully understands and agrees that surrounding property, not only upon the Pocatello Municipal Airport but adjacent properties thereto, are presently being used industrially and commercially

and the Lessee enters into this agreement with full knowledge of the said uses and accepts full responsibility for any and all crop damage that might be occasioned by those industrial uses presently in existence and that might hereinafter be established.

Lessee further agrees that at any time this Lease is terminated with notice or by the natural termination of time, said land shall be reseeded to crested wheat grass at the expense of Lessee.

If the Lessee should fail to carry out substantially the terms of this Lease, or if death or physical or mental or financial incapacity prevents them from doing so, or if any other situation should arise which makes it impossible for Lessee to do so, the Lessor may serve written notice to the Lessee of the Lessee's failure to fulfill the terms of this rental agreement. If such notice is given, the Lessee agrees to vacate the premises but reserves the right to re-enter for the purpose of removing any and all growing crops, provided Lessor has not been required to re-enter to preserve, maintina, irrigate, or fertilize said crops.

The Lessee further agrees to carry a current comprehensive liability insurance policy on the leasehold, in the amount of $500,000 per event, for the term of this Lease agreement, to protect the Lessor from any and all public liability claims arising out of the Lease of land by this agreement. To this end, the Lessee expressly agrees to hold the Lessor City harmless from any and all claims of any kind whatsoever, which may arise out of or by reason of the occupancy and use by the Lessee of the land hereinbefore described.

It is further agreed that the Lessee shall not permit any livestock on the real property herein leased for grazing or any other purpose.

ARTICLE VII--RIGHT OF ENTRY FOR VIEWING

The Lessor reserves the right of its employees, assigns, prospective buyers, or those agents to enter upon the said premises at any time for the purpose of viewing the same, but shall not interfere with the occupancy of Lessee.

ARTICLE VIII--OPTION TO RENEW

It is further agreed that the Lessee is granted an option to renew this Lease for an additional five (5) year term, commencing November 1, 1996, subject to renegotiation of the rental payment.

Written notice of Lessee's intent to exercise such option shall be given to the Lessor not sooner than June 30, 1996, nor later than August 10, 1996. Upon receipt of the notice the parties agree to renegotiate the rental payment within thirty (30) days after receipt of the notice.

ARTICLE VIII--TAXES - FEES

Lessee shall pay all fees, charges or costs, if any, for governmental inspections or examinations relating to Lessee's use or occupancy of the leased premises. Furthermore, Lessee shall pay all taxes on personal property of the Lessee on the leased premises, and shall pay any and all taxes, if any, on the leasehold interest, created by this agreement.

Should Power County impose any tax upon Lessee's leasehold interest, it is agreed that Lessor City shall not assume any liability therefore. Should such tax be an excessive burden upon Lessee, the tax would constitute grounds for voiding this agreement. Whether said tax is an excessive burden is to be determined by the Pocatello City Council.

IN WITNESS WHEREOF, the parties have signed this Lease on the date first above written.

LESSOR: CITY OF POCATELLO, a Municipal corporation of Idaho

PETER J. ANGSTADT, Mayor

ATTEST:

PETER B. McDOUGALL, City Clerk

LESSEE:

EDWARD ALVIN SMITH

CHRISTINE SMITH

7935

STATE OF IDAHO)
: ss
County of Bannock)

On this ______ day of , 1991, before me, the undersigned, a Notary Public in and for the State, personally appeared Peter J. Angstadt and Peter B. McDougall, known to me to be the Mayor and City Clerk, respectively, of the City of Pocatello, a municipal corporation of Idaho, who executed the foregoing instrument on behalf of said municipal corporation, and acknowledged to me that such corporation executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year in this certificate first above written.

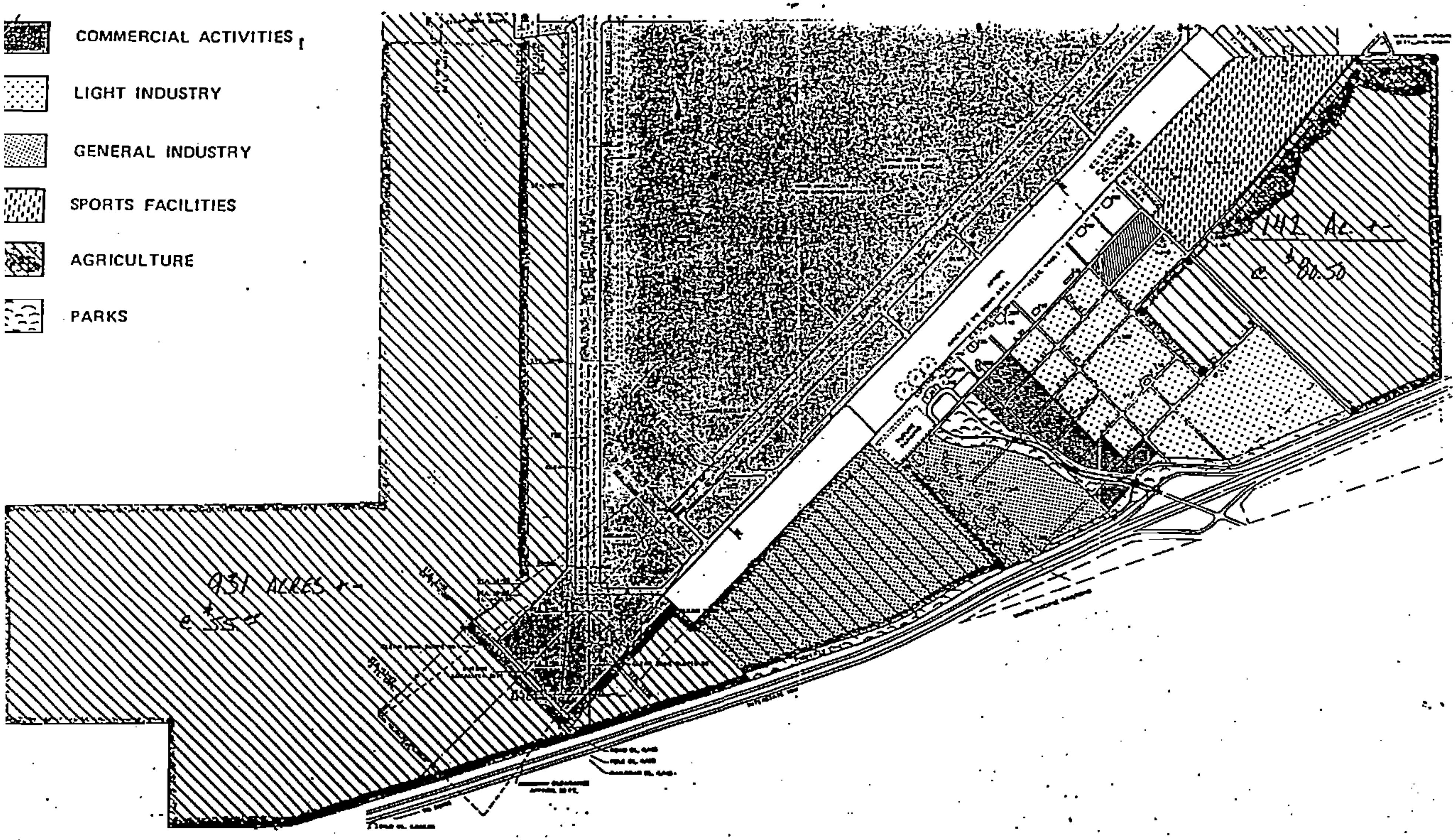
____
NOTARY PUBLIC FOR IDAHO
Residing in Pocatello, Idaho.
My commission expires

STATE OF IDAHO)
: ss
County of Bannock)

On this ______ day of , 1991, before me, the undersigned, a Notary Public in and for the State, personally appeared EDWARD ALVIN SMITH and CHRISTINE SMITH, known to me or proved to me to be the persons that executed the foregoing instrument, and acknowledged to me that they executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year in this certificate first above written.

____
NOTARY PUBLIC FOR IDAHO
Residing in Pocatello
My commission expires:


COMMERCIAL ACTIVITIES
LIGHT INDUSTRY
GENERAL INDUSTRY
SPORTS FACILITIES
AGRICULTURE
PARKS
931 ACRES +-
142 AC. +-

CITY OF POCATELLO

EXHIBIT 169

11/1991 Farm Lease between City of Pocatello and Smith (different document)

Subcase Nos.

29-7118
29-7119
29-7770

FARM LEASE

THIS LEASE is entered into this first day of November, 1991, between the CITY OF POCATELLO, a municipal corporation of Idaho, Lessor, and EDWARD ALVIN SMITH AND CHRISTINE SMITH, Lessees, of Power County, Idaho.

The Lessor, in consideration of the agreements set forth in this Lease to be kept and performed by the Lessee, rents and leases to the Lessee, to occupy and to use for agricultural purposes the following real estate located at the City of Pocatello Regional Airport in the County of Power, State of Idaho, on property owned by the Lessor and described as follows:

> All that farmable ground, consisting of 142 acres, as depicted on the attached map, located in the NW 1/4 of Section 14, T. 6 S., R. 33 E.B.M. and the SW 1/4 of Section 11 T. 6 S., R. 33 E.B.M; also including exclusive right to ingress, egress, and use of a water well known as Airport Well #2 located at the South West corner of the intersection of Boeing Avenue and Fortress Street in Section 10, T. 6 S., R. 33 E.B.M. at the Pocatello Regional Airport.

The term of this Lease shall be for a period of five (5) years, commencing November 1, 1991, and terminating October 31, 1996, subject, however, to certain conditions hereinafter contained. The Lessee will have the option of renewing this Lease for an additional five (5) year term; however, new rental payments will be negotiated at the time of renewal.

The terms of this Lease shall be binding on the heirs, executors, administrators and assigns of the Lessee in like manner as upon the original Lessee, except by mutual agreement otherwise.

The Lessee agrees to pay the Lessor City as annual cash rent for the above described lands the sum of $80.50 per acre for 142 acres, for a total yearly rent of $11,431.00. Said rent shall be due and payable in semi-annual payments, one half on March 15, and one half on September 15 of each year.

Lessee shall be responsible for fertilizing in an acceptable manner the property concerned herein as soon as practicable in each year.

The parties agree to application by the City of digested bio-solids as a soil conditioner in the amounts and at the times specified each year by the Lessee. Said soil conditioner will be injected into the soil or applied to the soil surface at the option of the Lessee or as weather conditions permit. The application amounts and method will be in accordance with U.S.D.A., U.S.E.P.A., and F.D.A. guidelines and as approved and directed by the State of Idaho Department of Health and Welfare. The City guarantees delivery and application of nitrogen and phosphate nutrient per the following schedule or as requested by the Lessee:

CROP	NITROGEN	PHOSPHATE
Potatoes	150 lbs/acre/year	75 lbs/acre/year
Wheat	100 lbs/acre/year	50 lbs/acre/year
Alfalfa	100 lbs/acre/year	50 lbs/acre/year
Pasture	150 lbs/acre/year	75 lbs/acre/year
Peas	100 lbs/acre/year	50 lbs/acre/year

The Lessee agrees to fully maintain and keep in a state of operation well #2 from which well the Lessee shall draw water for his farming operations and that any and all costs attributed to maintenance, repair, and electrical power are hereby assumed and agreed to be paid in their entirety by the Lessee.

It is further agreed that the Lessee shall follow a year-by-year crop rotation program acceptable to the Lessor as a program of good farming practice for this land, thereby giving the Lessee the optimum yield without depleting the soil. Potatoes or beets may not be grown two years in succession.

The Lessee agrees further that he shall furnish all the machinery, equipment, and labor necessary to farm the leased premises properly; to faithfully cultivate the farm in a dutifully thorough and business-like manner; not to assign this Lease to any person or persons or sublet any part of the premises without the written consent of the Lessor; to keep the said premises in as good a condition as they may be put during the term of this Lease; not to allow noxious weeds to go to seed on said premises, but to control the same in accordance with State of Idaho Noxious Weed Law, Title 22, Chapter 24, Idaho Code; to prevent all unnecessary waste or loss or damage to the property of the Lessor; and to keep the said farm neat and orderly at all times.

It is fully understood and agreed by the Lessor hereto that the land leased herein belongs to the City of Pocatello, a municipal corporation of Idaho, and that said land is situated upon the Pocatello Regional Airport property; that as such, said lands are subject to certain Federal Regulations adopted by Lessor City and as such the Lessee agrees to abide by such regulations wherever they shall apply to the uses of said land engaged in by the Lessee herein named.

It is further fully understood and agreed that this Agreement of Lease is terminable by the Lessor upon thirty days' written notice, subject, however, to the Lessee having full right of ingress and egress to remove from said land any and all growing crops which might therein be contained. If the crops cannot be fully harvested, the Lessor will compensate the Lessee for said unharvested and growing crops.

The tenant further accepts this Lease on the following conditions:

1. That said lands are subject to development by the Lessor for Industrial and Commercial uses and in such instance and event that the Lessor has a suitable and acceptable tenant for industrial or commerical Lease that the Lessor has the granted power to terminate this Agreement by written notice as above mentioned in order to apply said land to the higher use value;

2. That the Lessee fully understands and agrees that surrounding property not only upon the Pocatello Regional Airport but adjacent properties thereto are presently being used industrially and commercially and the Lessee enters into this Agreement will full knowledge of the said uses and accepts full responsibility for any and all crop damage that might be occasioned by those industrial uses presently in existence.

3. If a crop is inconsistent with airport operation (because of attraction to water fowl or any other reason), the Lessor may deny permission to plant such crop. The rental rate on the

7942

portions of the premises so restricted may be renegotiated at the option of Lessee to reflect a fair market rental rate for such property.

4. It is further understood that the Lessor assumes no responsibility for crop yields or the ultimate marketability of any crops grown on the above-described land.

The Lessee further agrees that at any time this Lease is terminated with Notice or by the natural termination of time that said land shall and will be reseeded to crested wheat grass, or such other as approved by Lessor at the expense of said Lessee and that any improvements made by the Lessee shall be removed by the Lessee within thirty days or become the property of the City.

The Lessee further agrees with the Lessor to carry adequate public liability insurance in an amount of $500,000.00 combined single limit to protect the Lessor from any and all public liability claims arising out of the lease of land by this agreement and to this end the Lessee agrees to hold the Lessor City harmless from any and all claims of any kind whatsoever which may arise out of or by reason of the occupancy of the land hereinbefore described by the Lessee.

If the Lessee should fail to carry out substantially the terms of this Lease or if death or physical or mental or financial incapacity prevents him from doing so, or if any other situation should arise which makes it impossible for him to do so, the Lessor may serve written notice to the Lessee of the Lessee's failure to fulfill the terms of this rental agreement. If such notice is given, the Lessee agrees to vacate from the premises within 30 days.

The Lessor reserves the right of its employees, assigns, prospective buyers, or those agents to enter upon said premises at any time for the purpose of viewing the same but shall not interfere with the occupancy of the Lessee. Provided, however, that in the event Lessee fails to water, fertilize, or harvest in a timely and productive manner, Lessor reserves the right to enter the premises and to perform such work in order to preserve any growing crop.

If Lessor is required to water, fertilize, maintain, preserve, or harvest crops on this land, all right, title, and interest to said crops shall inure or be vested with Lessor. Any costs expended by Lessee on said crops prior to Lessor's required entry to water, fertilize, maintain, preserve, or harvest said crops shall be borne by Lessee and Lessee shall have no right to restitution in any manner whatsoever for said costs.

IN WITNESS WHEREOF, the parties hereto have caused this lease to be signed by themselves or their duly-authorized representatives the day and year first above written.

LESSOR:

CITY OF POCATELLO, a Municipal Corporation of Idaho

PETER J. ANGSTADT, Mayor

ATTEST:

____
PETER B. McDOUGALL, City Clerk

LESSEE:

____
EDWARD ALVIN SMITH

____
CHRISTINE SMITH

STATE OF IDAHO)
: ss
County of Bannock)

On this ______ day of ____________________, 1991, before me, the undersigned, a Notary Public in and for the State, personally appeared Peter J. Angstadt and Peter B. McDougall, known to me to be the Mayor and City Clerk, respectively, of the City of Pocatello, a municipal corporation of Idaho, who executed the foregoing instrument on behalf of said municipal corporation, and acknowledged to me that such corporation executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year in this certificate first above written.

____
NOTARY PUBLIC FOR IDAHO
Residing in Pocatello, Idaho.
My commission expires:

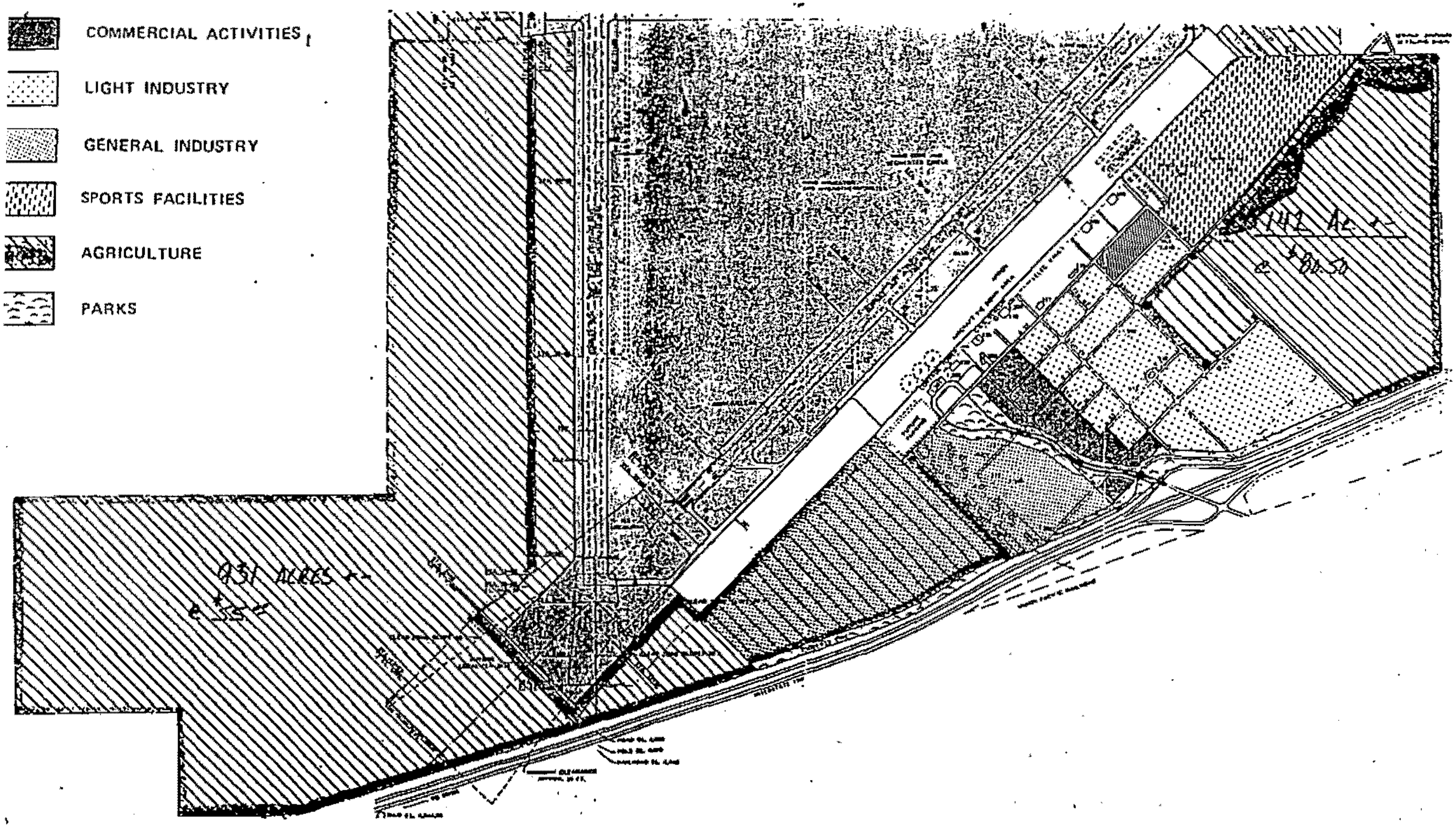
STATE OF)
: ss
County of)

On this ______ day of ________________, 1991, before me, the undersigned, a Notary Public in and for the State, personally appeared __________________ and ___________________, known to me or proved to me to be the persons whose names are subscribed to the foregoing instrument, and acknowledged to me that they executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year in this certificate first above written.

____
NOTARY PUBLIC FOR
Residing in
My commission expires

7946


COMMERCIAL ACTIVITIES
LIGHT INDUSTRY
GENERAL INDUSTRY
SPORTS FACILITIES
AGRICULTURE
PARKS
931 ACRES ±
142 AC ±

7947

2000 NOV 17 PM 02:00
DISTRICT COURT - SRBA
TWIN FALLS CO., IDAHO
FILED ____________

Admitted
29-27161.01
(Subcase No.)
EXHIBIT
Doc 172
Date: 2-27-07

IN THE DISTRICT COURT OF THE FIFTH JUDICIAL DISTRICT OF THE STATE OF IDAHO, IN AND FOR THE COUNTY OF TWIN FALLS

In Re SRBA Case No. 39576	PARTIAL DECREE PURSUANT TO I.R.C.P. 54(b) FOR Water Right 35-04071

NAME AND ADDRESS: CITY OF ABERDEEN
BOX 190
ABERDEEN, ID 83210

SOURCE: GROUNDWATER

QUANTITY: 1.71 CFS

PRIORITY DATE: 01/01/1959

POINT OF DIVERSION: T05S R31E S33 SWSWNE Within Bingham County
NWSWNE
NENWSW
NWSWSE

PURPOSE AND PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
Municipal	01-01 TO 12-31	1.71 CFS

PLACE OF USE:
OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

THIS PARTIAL DECREE IS SUBJECT TO SUCH GENERAL PROVISIONS NECESSARY FOR THE DEFINITION OF THE RIGHTS OR FOR THE EFFICIENT ADMINISTRATION OF THE WATER RIGHTS AS MAY BE ULTIMATELY DETERMINED BY THE COURT AT A POINT IN TIME NO LATER THAN THE ENTRY OF A FINAL UNIFIED DECREE. I.C. SECTION 42-1412(6).

RULE 54(b) CERTIFICATE

With respect to the issues determined by the above judgment or order, it is hereby CERTIFIED, in accordance with Rule 54(b), I.R.C.P., that the court has determined that there is no just reason for delay of the entry of a final judgment and that the court has and does hereby direct that the above judgment or order shall be a final judgment upon which execution may issue and an appeal may be taken as provided by the Idaho Appellate Rules.

B Wood
Barry Wood
Administrative District Judge
Presiding Judge of the
Snake River Basin Adjudication

RIGHTS FROM: SOURCE: GROUNDWATER

RIGHT NUMBER: 35-D4071

NAME & ADDRESS: CITY OF ABERDEEN
BOX 190
ABERDEEN ID 83210

SOURCE: GROUNDWATER

QUANTITY: 1.71 CFS

PRIORITY DATE: 01/01/1959

POINT OF DIVERSION: T05S R31E S33 NWSWNE Within BINGHAM County
SWSWNE
NENWSW
NWSWSE

PURPOSE AND PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
MUNICIPAL	01-01 12-31	1.71 CFS

PLACE OF USE:

PLACE OF USE IS WITHIN CITY LIMITS OF ABERDEEN.

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

THE FOLLOWING WATER RIGHTS FROM THE FOLLOWING SOURCES OF WATER IN BASIN 35 SHALL BE ADMINISTERED SEPARATELY FROM ALL OTHER WATER RIGHTS IN BASIN 35:

WATER RIGHT NO.	SOURCE
NONE	NONE

THE FOLLOWING WATER RIGHTS FROM THE FOLLOWING SOURCES OF WATER IN BASIN 35 SHALL BE ADMINISTERED SEPARATELY FROM ALL OTHER WATER RIGHTS IN THE SNAKE RIVER BASIN:

WATER RIGHT NO.	SOURCE
NONE	NONE

ALL WATER RIGHTS WITHIN BASIN 35 ARE FROM CONNECTED SOURCES OF WATER IN THE SNAKE RIVER BASIN AND SHALL BE ADMINISTERED CONJUNCTIVELY.

EXPLANATORY MATERIAL: BASIS OF CLAIM - BENEFICIAL USE
RIGHT INCLUDES ACCOMPLISHED CHANGE IN POINT OF DIVERSION PURSUANT TO SECTION 42-1425, IDAHO CODE.
USE OF THIS RIGHT IS COMBINED WITH WATER FROM ABERDEEN SPRINGFIELD CANAL CO.

RIGHTS FROM: SOURCE: GROUNDWATER

RIGHT NUMBER: 35-04071 (CONT)

EXPLANATORY MATERIAL: (CONT)
RIGHT NOS. 35-07808 AND 35-04070 ARE ALSO DIVERTED THROUGH POINTS OF DIVERSION DESCRIBED ABOVE.

1239

IN THE DISTRICT COURT OF THE FIFTH JUDICIAL DISTRICT OF THE STATE OF IDAHO, IN AND FOR THE COUNTY OF TWIN FALLS

IN RE THE GENERAL ADJUDICATION OF RIGHTS TO THE USE OF WATER FROM THE SNAKE RIVER BASIN WATER SYSTEM.

CIVIL CASE NUMBER: 39576

Ident. Number: A35-04071
Date Received: 4/06/1989
Receipt No: E006981
Received By: TO

NOTICE OF CLAIM TO A WATER RIGHT ACQUIRED UNDER STATE LAW

A3504071

1. Name: CITY OF ABERDEEN 208-397-4161
   Address: BOX 190
   ABERDEEN, ID 83210

2. Date of Priority: JAN 01, 1959

3. Source: GROUNDWATER Trib. to:

4. Point of Diversion:

Township	Range	Section	1/4 of	1/4 of	1/4	Lot	County
05S	31E	33		NW	NE		BINGHAM
				SW	NE		BINGHAM
				NW	SW		BINGHAM
				SW	SE		BINGHAM

5. Description of diverting works:
   4 WELLS, PUMPS, TO MUNICIPAL DISTRIBUTION SYSTEM

6. Water is used for the following purposes:

Purpose	From	To	C.F.S	(or)	A.F.A.
MUNICIPAL	01/01	12/31	1.890		

7. Total Quantity Appropriated is:
   1.890 C.F.S. (and/or) A.F.A.

8. Total consumptive use is Acre Feet Per Annum.

9. Non-irrigation uses:
   M/CITY OF ABERDEEN

10. Place of Use:

Township	Range	Section	1/4	of 1/4	Lot	Use	Acres
05S	31E	33	NE	NE		MUNI	
			NW	NE		MUNI	
			SW	NE		MUNI	
			SE	NE		MUNI	
			NE	NW		MUNI	
			NW	NW		MUNI	
			SW	NW		MUNI	
			SE	NW		MUNI	
			NE	SW		MUNI	
			NW	SW		MUNI	
			SW	SW		MUNI	
			SE	SW		MUNI	
			NE	SE		MUNI	
			NW	SE		MUNI	
			SW	SE		MUNI	
			SE	SE		MUNI	

11. Place of use in counties: BINGHAM

12. Do you own the property listed above as place of use? YES

13. Other Water Rights Used:
A35-04070, A35-07808.

14. Remarks:

15. Basis of Claim: STATUTORY CLAIM

ORIGINAL

DEC 10 1992

7952

16. Signature(s)

(a.) By signing below, I/We acknowledge that I/We have received, read and understand the form entitled "How you will receive notice in the Snake River Basin Adjudication." (b.) I/We do ____ do not ____ wish to receive and pay a small annual fee for monthly copies of the docket sheet.

Number of attachments: ____________

For Organizations:

I do solemnly swear or affirm that I am Mayor (Title) of City of Aberdeen (Organization), that I have signed the foregoing document in the space below as Mayor (Title) of the City of Aberdeen (Organization) and that the statements contained in the foregoing document are true and correct.

Maurine Drussel
Signature of Authorized Agent

Mayor City of Aberdeen
Title and Organization

4-19-89
Date

State of Idaho)
) SS.
County of Bingham)

Subscribed and sworn (or affirmed) before me this 19th day of April 1998

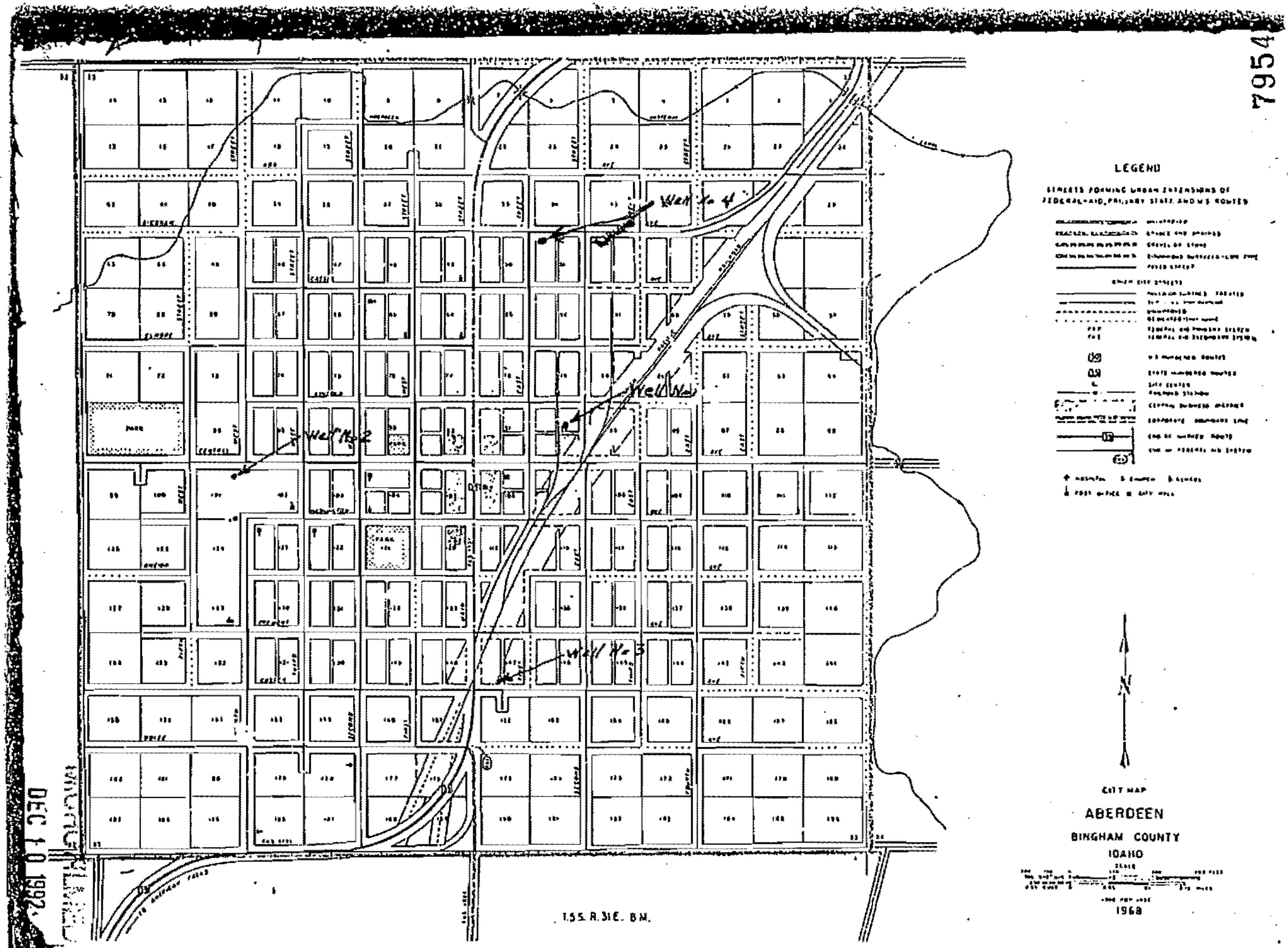
[signature]
Notary Public

Seal

Residing at Aberdeen

My Commission Expires 8/21/1994

DEC 10 1992 7953


7954
LEGEND
STREETS FORMING URBAN EXTENSIONS OF FEDERAL-AID, PRIMARY STATE AND U.S. ROUTES
Well No 4
Well No
Well No 2
Well No 3
CITY MAP
ABERDEEN
BINGHAM COUNTY
IDAHO
1968
T.5S. R.31E. B.M.
DEC 10 1992

2000 NOV 17 PM 02:00
DISTRICT COURT - SRBA
TWIN FALLS CO., IDAHO
FILED ____________

Admitted
29-271ed.al
(Subcase No.)
EXHIBIT
Doc. 173
Date: 2-27-07

IN THE DISTRICT COURT OF THE FIFTH JUDICIAL DISTRICT OF THE
STATE OF IDAHO, IN AND FOR THE COUNTY OF TWIN FALLS

In Re SRBA Case No. 39576	PARTIAL DECREE PURSUANT TO I.R.C.P. 54(b) FOR Water Right 35-07808

NAME AND ADDRESS: CITY OF ABERDEEN
BOX 190
ABERDEEN, ID 83210

SOURCE: GROUNDWATER

QUANTITY: 1.63 CFS

PRIORITY DATE: 06/29/1978

POINT OF DIVERSION: T05S R31E S33 SWSWNE Within Bingham County
NWSWNE
NENWSW
NWSWSE

PURPOSE AND
PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
Municipal	01-01 TO 12-31	1.63 CFS

PLACE OF USE:
OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

THIS PARTIAL DECREE IS SUBJECT TO SUCH GENERAL PROVISIONS NECESSARY FOR THE DEFINITION OF THE RIGHTS OR FOR THE EFFICIENT ADMINISTRATION OF THE WATER RIGHTS AS MAY BE ULTIMATELY DETERMINED BY THE COURT AT A POINT IN TIME NO LATER THAN THE ENTRY OF A FINAL UNIFIED DECREE. I.C. SECTION 42-1412(6).

RULE 54(b) CERTIFICATE

With respect to the issues determined by the above judgment or order, it is hereby CERTIFIED, in accordance with Rule 54(b), I.R.C.P., that the court has determined that there is no just reason for delay of the entry of a final judgment and that the court has and does hereby direct that the above judgment or order shall be a final judgment upon which execution may issue and an appeal may be taken as provided by the Idaho Appellate Rules.

B Wood

Barry Wood
Administrative District Judge
Presiding Judge of the
Snake River Basin Adjudication

RIGHTS FROM: SOURCE: GROUNDWATER

RIGHT NUMBER: 35-07808

NAME & ADDRESS: CITY OF ABERDEEN
BOX 190
ABERDEEN ID 83210

SOURCE: GROUNDWATER

QUANTITY: 1.63 CFS

PRIORITY DATE: 06/29/1978

POINT OF DIVERSION: T05S R31E S33 NWSWNE Within BINGHAM County
SWSWNE
NENWSW
NWSWSE

PURPOSE AND PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
MUNICIPAL	01-01 12-31	1.63 CFS

PLACE OF USE:

PLACE OF USE IS WITHIN CITY LIMITS OF ABERDEEN.

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

THE FOLLOWING WATER RIGHTS FROM THE FOLLOWING SOURCES OF WATER IN BASIN 35 SHALL BE ADMINISTERED SEPARATELY FROM ALL OTHER WATER RIGHTS IN BASIN 35:

WATER RIGHT NO.	SOURCE
NONE	NONE

THE FOLLOWING WATER RIGHTS FROM THE FOLLOWING SOURCES OF WATER IN BASIN 35 SHALL BE ADMINISTERED SEPARATELY FROM ALL OTHER WATER RIGHTS IN THE SNAKE RIVER BASIN:

WATER RIGHT NO.	SOURCE
NONE	NONE

ALL WATER RIGHTS WITHIN BASIN 35 ARE FROM CONNECTED SOURCES OF WATER IN THE SNAKE RIVER BASIN AND SHALL BE ADMINISTERED CONJUNCTIVELY.

EXPLANATORY MATERIAL: BASIS OF CLAIM - LICENSE
RIGHT INCLUDES ACCOMPLISHED CHANGE IN POINT OF DIVERSION PURSUANT TO SECTION 42-1425, IDAHO CODE.
USE OF THIS RIGHT IS COMBINED WITH WATER FROM ABERDEEN SPRINGFIELD CANAL CO.

$213

IN THE DISTRICT COURT OF THE FIFTH JUDICIAL DISTRICT OF THE STATE OF IDAHO, IN AND FOR THE COUNTY OF TWIN FALLS

IN RE THE GENERAL ADJUDICATION OF RIGHTS TO THE USE OF WATER FROM THE SNAKE RIVER BASIN WATER SYSTEM.

CIVIL CASE NUMBER: 39576

Ident. Number: A35-07808
Date Received: 4/06/1989
Receipt No: E006981
Received By: TO

A3507808

NOTICE OF CLAIM TO A WATER RIGHT ACQUIRED UNDER STATE LAW

1. Name: CITY OF ABERDEEN 208-397-4161
   Address: BOX 190
   ABERDEEN, ID 83210

2. Date of Priority: JUN 29, 1978

3. Source: GROUNDWATER Trib. to:

4. Point of Diversion:

Township	Range	Section	1/4 of	1/4 of	1/4	Lot	County
05S	31E	33		NW	NE		BINGHAM
				SW	NE		BINGHAM
				NW	SW		BINGHAM
				SW	SE		BINGHAM

5. Description of diverting works:
   4 WELLS, PUMPS, TO MUNICIPAL DISTRIBUTION SYSTEM

6. Water is used for the following purposes:

Purpose	From	To	C.F.S	(or)	A.F.A.
MUNICIPAL	01/01	12/31	1.630		

7. Total Quantity Appropriated is:
   1.630 C.F.S. (and/or) A.F.A.

8. Total consumptive use is Acre Feet Per Annum.

9. Non-irrigation uses:
   M/CITY OF ABERDEEN

Department of Water Resources
Eastern District Office

7957

10. Place of Use:

Township	Range	Section	1/4 of 1/4		Lot	Use	Acres
05S	31E	33	NE	NE		MUNI	
			NW	NE		MUNI	
			SW	NE		MUNI	
			SE	NE		MUNI	
			NE	NW		MUNI	
			NW	NW		MUNI	
			SW	NW		MUNI	
			SE	NW		MUNI	
			NE	SW		MUNI	
			NW	SW		MUNI	
			SW	SW		MUNI	
			SE	SW		MUNI	
			NE	SE		MUNI	
			NW	SE		MUNI	
			SW	SE		MUNI	
			SE	SE		MUNI	

11. Place of use in counties: BINGHAM

12. Do you own the property listed above as place of use? YES

13. Other Water Rights Used:
A35-04070, A35-04071.

14. Remarks:

15. Basis of Claim: LICENSE

16. Signature(s)

(a.) By signing below, I/We acknowledge that I/We have received, read and understand the form entitled "How you will receive notice in the Snake River Basin Adjudication." (b.) I/We do ____ do not ____ wish to receive and pay a small annual fee for monthly copies of the docket sheet.

Number of attachments: ____________

For Organizations:

I do solemnly swear or affirm that I am Mayor (Title) of City of Aberdeen (Organization), that I have signed the foregoing document in the space below as Mayor (Title) of the City of Aberdeen (Organization) and that the statements contained in the foregoing document are true and correct.

Maurine Driscoll
Signature of Authorized Agent

Mayor City of Aberdeen
Title and Organization

4-19-89
Date

State of Idaho)
) SS.
County of Bingham)

Subscribed and sworn (or affirmed) before me this 19th day of April 1989

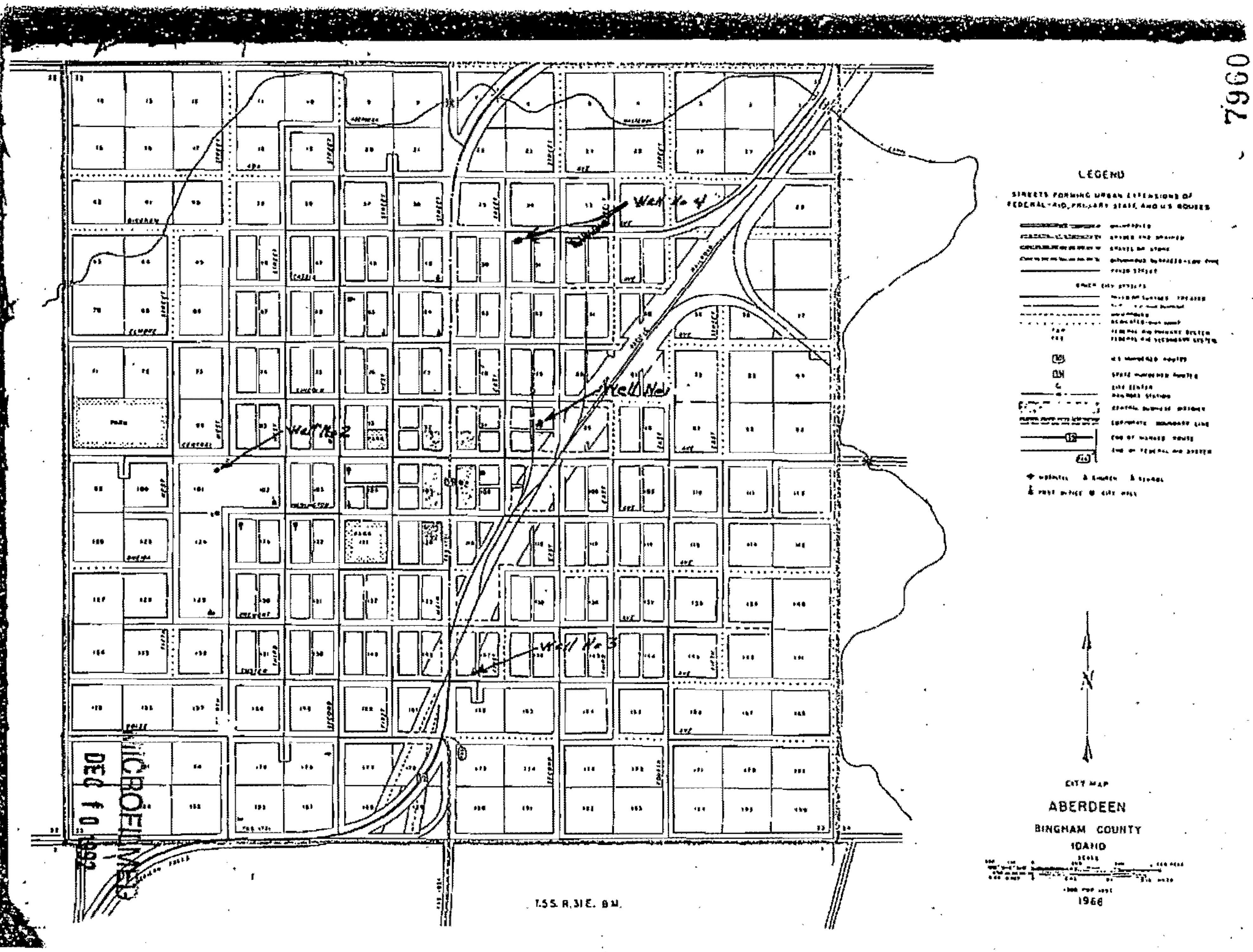
[signature]
Notary Public

Seal

Residing at Aberdeen

My Commission Expires 8/21/94

7959



7960
LEGEND
STREETS FORMING URBAN EXTENSIONS OF
FEDERAL-AID, PRIMARY STATE AND U.S. ROUTES
Well No 4
Well No 2
Well No
Well No 3
CITY MAP
ABERDEEN
BINGHAM COUNTY
IDAHO
1966
T.5S. R.31E. B.M.
MICROFILMED
DEC 10 1992

29-27 et.al
(Subcase No.)
EXHIBIT
Doc. 174
Date: 2/27/07
Admitted

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

TRANSFER OF WATER RIGHT

TRANSFER NO. 5277
WATER RIGHT NO(S). 36-07115/36-07656/36-07862
36-15488/36-15489

This is to certify that: CITY OF RUPERT
PO BOX 426
RUPERT ID 83350

has requested a change to the above captioned water right(s). This change in water right(s) is authorized pursuant to the provisions of Section 42-222, Idaho Code, provided the conditions listed below are met.

BENEFICIAL USE	PERIOD OF USE	DIVERSION RATE
Right No. 36-07115 : MUNICIPAL Priority: 03/15/1970	01/01 to 12/31	2.40 CFS
Right No. 36-07656 : MUNICIPAL Priority: 09/18/1962	01/01 to 12/31	3.44 CFS
Right No. 36-07862 : MUNICIPAL Priority: 10/11/1985	01/01 to 12/31	1.15 CFS
Right No. 36-15488 : MUNICIPAL Priority: 04/10/1913	01/01 to 12/31	0.67 CFS
Right No. 36-15489 : MUNICIPAL Priority: 11/29/1917	01/01 to 12/31	2.95 CFS
	TOTAL:	* 10.61 CFS

SOURCE
GROUNDWATER

LOCATION OF POINT(S) OF DIVERSION:

SWSE , Sec. 20, Township 09S, Range 24E
SWNW , Sec. 21, Township 09S, Range 24E
NENE , Sec. 29, Township 09S, Range 24E
NWNE , Sec. 29, Township 09S, Range 24E
SWNW , Sec. 29, Township 09S, Range 24E
MINIDOKA County

PLACE OF USE: See Remarks

MICROFILMED
AUG 2 3 1999

TRANSFER NO. 5277
WATER RIGHT NO(S). 36-07115/36-07656/36-07862
36-15488/36-15489

CONDITIONS OF APPROVAL AND REMARKS

1. The right holder shall measure and annually report diversions of water and/or other pertinent hydrologic and system information as required by Section 42-701, Idaho Code.
2. Use of water under this approval shall comply with applicable water quality standards of the Division of Environmental Quality of the Idaho Department of Health and Welfare.
3. The right holder shall accomplish the change authorized by this transfer within one (1) year of the date of this approval.
4. Failure of the right holder to comply with the conditions of this transfer is cause for the Director to rescind approval of the transfer.
* 5. The total instantaneous diversion of water from all points of diversion under Transfer 5277 shall not exceed 10.61 cfs.
6. Approval of Transfer 5277 does not grant any right-of-way or easement for use of a delivery system owned by person(s) other than the right owner.
7. Place of use is located within the city of Rupert and the surrounding service area.

Dated this 16th day of August, 1999

L. Glen Saxton
Chief, Water Allocation Bureau

IN THE DISTRICT COURT OF THE FIFTH JUDICIAL DISTRICT OF THE
STATE OF IDAHO, IN AND FOR THE COUNTY OF TWIN FALLS

In Re SRBA)
Case No. 39576)

PARTIAL DECREE PURSUANT TO
I.R.C.P. 54(b) FOR

Water Right 36-07115

NAME & ADDRESS: CITY OF RUPERT
PO BOX 426
RUPERT ID 83350

SOURCE: GROUNDWATER

QUANTITY: 2.4 CFS

PRIORITY DATE: 03/15/1970

POINT OF DIVERSION: T09S R24E S20 NESWSE Within MINIDOKA County
S21 SWSWNW
S29 NWNENE
NENWNE

PURPOSE AND
PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
MUNICIPAL	01-01 12-31	2.4 CFS

PLACE OF USE:

PLACE OF USE IS WITHIN THE CITY LIMITS OF RUPERT.

RULE 54(b) CERTIFICATE

With respect to the issues determined by the above judgment or order, it is hereby CERTIFIED, in accordance with Rule 54(b), I.R.C.P., that the court has determined that there is no just reason for delay of the entry of a final judgment and that the court has and does hereby direct that the above judgment or order shall be a final judgment upon which execution may issue and an appeal may be taken as provided by the Idaho Appellate Rules.

DANIEL C. HURLBUTT, JR.
PRESIDING JUDGE
Snake River Basin Adjudication

7963

IN THE DISTRICT COURT OF THE FIFTH JUDICIAL DISTRICT OF THE STATE OF IDAHO, IN AND FOR THE COUNTY OF TWIN FALLS

In Re SRBA Case No. 39576	STANDARD FORM 5 SUBCASE NO: 36-07115 STIPULATED ELEMENTS OF A WATER RIGHT

THIS FORM MAY ONLY BE USED IF ALL PARTIES HAVE STIPULATED TO ALL ELEMENTS OF ONE WATER RIGHT AND MAY BE SUBMITTED AT ANY TIME FOLLOWING THE CLOSE OF THE STATUTORY RESPONSE PERIOD.

INSTRUCTIONS

This form has been adopted by the court in SRBA Administrative Order 1, Rules of Procedure (amended Oct. 16, 1997), Section 4, which may be consulted for further information.

This form is used to report the stipulated elements of one water right acquired under state law and/or one federal reserved water right. Submission of this form will not automatically result in the issuance of a partial decree. The Presiding Judge or Special Master will conduct any hearing necessary to determine whether the facts, data, expert opinions and law support the issuance of a partial decree for the water right.

The parties agree that the Snake River Basin Adjudication Court has jurisdiction of the parties and subject matter to enter a partial decree for this water right; and they have been served with sufficient process, according to the law; and that they have appeared, prosecuted and defended their positions with regard to this water right dispute.

A copy of this water right as recommended in the Director's Report shall be submitted with this form. A statement shall accompany each element of a water right.

Statement and Stipulation of Parties and IDWR

Parties/Claimants and IDWR agree that the above referenced water right should be as described in the attached printout entitled Recommended Water Rights Under State Law.

Go to Tab 35

Review By IDWR

To speed up entry of a decree, the parties are encouraged to talk to the Idaho Department of Water Resources about their proposed settlement and have IDWR indicate its concurrence by signing the Standard Form 5.

Where all parties have signed, a Standard Form 5 may be filed with the court without the concurrence of IDWR. However, the parties must certify that they have served IDWR with a copy of the Standard Form 5 and that they have made a good faith attempt to resolve the matter with IDWR.

Within 14 days of filing a Standard Form 5 not containing an IDWR concurrence, IDWR shall file a statement of its position with the court.

If IDWR has not concurred by signing below, signing parties certify that they have served a copy of this document on the Idaho Department of Water Resources and have made a good faith attempt to obtain IDWR's concurrence, but have failed.

Signatures and Addresses of Parties and their Attorney of Record (attach additional page if necessary):
I have read this form and know its contents and that the statements are true to the best of my knowledge.

Name: City of Rupert
Address: P.O. Box 426
City/State/Zip: Rupert, ID 83350
Attorney of Record: Josephine Beeman

Name: Idaho Dept. of Water Resources
Address: P.O. Box 83720
City/State/Zip: Boise, ID 83720-0098
Attorney of Record: Nicholas B. Spencer

Josephine P. Beeman 5 Nov 1997
Attorney's Signature Date

David R. Tuthill Jr. 11/4/97
IDWR Concurrence Date

APPROVED AS TO FORM
Nick Spencer 11-4-97
Attorney's Signature Date

INSTRUCTIONS FOR MAILING

You must mail this form, including all attachments, to the Clerk of the SRBA Court and to the parties identified in the Certificate of Mailing. **FAX filings will not be accepted by the SRBA Clerk of the Court.**

You must sign the Certificate of Mailing to show that you followed these steps.

CERTIFICATE OF MAILING

I certify that on November 5, 1997, I mailed the original and copies of this form, including all attachments, to the following persons by mailing the original and/or copies, postage prepaid and addressed as follows:

1. Original to:

   Clerk of the District Court
   Snake River Basin Adjudication
   253 Third Avenue North
   P. O. Box 2707
   Twin Falls, Idaho 83303-2707

2. Copies to:

   Nicholas B. Spencer
   Idaho Dept. of Water Resources
   P.O. Box 83720
   Boise, ID 83720-0098

Josephine P. Beeman

Signature of person or attorney mailing the form
Josephine P. Beeman
Attorney for City of Rupert

RIGHTS FROM: SOURCE: GROUNDWATER

RIGHT NUMBER: 36-07115

NAME AND ADDRESS: CITY OF RUPERT
PO BOX 426
RUPERT ID 83350

SOURCE: GROUNDWATER

QUANTITY: 2.4 CFS
~~3.00 CFS~~

~~THE QUANTITY FOR NON-IRRIGATION USE IS LIMITED TO THE AMOUNT BENEFICIALLY USED FOR: MUNICIPAL, CITY OF RUPERT~~

PRIORITY DATE: 03/15/1970

POINT OF DIVERSION:			
T09S R24E	S20	NESWSE	Within MINIDOKA County
	S21	SWSWNW	
	S29	NWNENE	
		NENWNE	

PURPOSE AND
PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
MUNICIPAL	01-01 12-31	2.4 CFS ~~3.00 CFS~~

PLACE OF USE:

PLACE OF USE IS WITHIN THE CITY LIMITS OF RUPERT.

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

~~PLACE OF USE IS LANDS WITHIN CITY LIMITS OF RUPERT. RIGHTS LISTED BELOW ARE ALSO DIVERTED THROUGH POINT OF DIVERSION DESCRIBED ABOVE, AND THE TOTAL COMBINED RATE OF DIVERSION OF THESE RIGHTS IS LIMITED TO 10.61 CFS. OTHER RIGHT NOS. 36-07656, 36-07862.~~

EXPLANATORY MATERIAL: BASIS OF CLAIM - LICENSE
RIGHT INCLUDES ACCOMPLISHED CHANGE IN POINT OF DIVERSION PURSUANT TO SECTION 42-1425, IDAHO CODE.
RIGHTS LISTED BELOW ARE ALSO DIVERTED THROUGH POINTS OF DIVERSION DESCRIBED ABOVE.
OTHER RIGHT NOS.: 36-15488, 36-15489, 36-07656 AND 36-07862.

SF5 - 36-07115

RIGHT NUMBER	NAME & ADDRESS	PRIORITY DATE	PURPOSE OF USE	PERIOD OF USE FROM TO	MAXIMUM QUANTITY		BASIS OF CLAIM

SOURCE: GROUNDWATER

36-07115	CITY OF RUPERT PO BOX 426 RUPERT ID 83350	03/15/1970	MUNICIPAL	01-01 12-31	3.00	CFS	LICENSE
				TOTAL QUANTITY:	3.00	CFS	

NON-IRRIGATION-USES:
MUNICIPAL, CITY OF RUPERT
POINT OF DIVERSION:
T09S R24E S20 NESWSE
S21 SWSWNW
S29 NWNENE
NENWNE
PLACE OF USE: MUNICIPAL
REMARKS: RIGHT INCLUDES ACCOMPLISHED CHANGE IN POINT OF DIVERSION PURSUANT TO IDAHO CODE 42-1416A.
PLACE OF USE IS LANDS WITHIN CITY LIMITS OF RUPERT.
RIGHTS LISTED BELOW ARE ALSO DIVERTED THROUGH POINT OF DIVERSION DESCRIBED ABOVE, AND THE TOTAL COMBINED RATE OF DIVERSION OF THESE RIGHTS IS LIMITED TD 10.61 CFS. OTHER RIGHT NOS. 36-07656, 36-07862.

36-12919	DARRYL W JACOBSEN RT 2 BOX 2328 HEYBURN ID 83336	03/15/1970	DOMESTIC	01-01 12-31	.04	CFS	BENEFICIAL USE
			STOCKWATER	01-01 12-31	.02	CFS	
				TOTAL QUANTITY:	.06	CFS	

NON-IRRIGATION-USES:
DOMESTIC 1 HOUSE, STOCKWATER 15 BEEF
POINT OF DIVERSION:
T10S R23E S23 SWNW
PLACE OF USE: DOMESTIC
T10S R23E S23 SWNW
PLACE OF USE: STOCKWATER
T10S R23E S23 SWNW
REMARKS: PARCEL NO. RP10S23E233980

7969

IN THE DISTRICT COURT OF THE FIFTH JUDICIAL DISTRICT OF THE STATE OF IDAHO, IN AND FOR THE COUNTY OF TWIN FALLS

IN RE THE GENERAL ADJUDICATION OF RIGHTS TO THE USE OF WATER FROM THE SNAKE RIVER BASIN WATER SYSTEM.

CIVIL CASE NUMBER: 39576

Ident. Number: A36-07115
Date Received: 8/03/1989
Receipt No: 5008908
Received By: ADr

NOTICE OF CLAIM TO A WATER RIGHT ACQUIRED UNDER STATE LAW

1. Name: CITY OF RUPERT 208-436-4900
   Address: P.O. BOX 426
   RUPERT, ID 83350

RECEIVED
AUG 21 1989
Department of Water Resources
Southern Region Office

2. Date of Priority: MAR 15, 1970

3. Source: GROUNDWATER Trib. to:

4. Point of Diversion:

Township	Range	Section	1/4 of	1/4 of	1/4	Lot	County
09S	24E	20	NE	SW	SE		MINIDOKA
		21	SW	SW	NW		MINIDOKA
		29	NW	NE	NE		MINIDOKA
			NE	NW	NE		MINIDOKA

5. Description of diverting works:
   4 WELLS & PUMPS TO PIPELINE NETWORK

6. Water is used for the following purposes:

Purpose	From	To	C.F.S	(or)	A.F.A.
MUNICIPAL	01/01	12/31	3.000		

7. Total Quantity Appropriated is:
   3.000 C.F.S. (and/or) A.F.A.

8. Total consumptive use is Acre Feet Per Annum.

9. Non-irrigation uses:
   M/ MUNICIPAL WATER SYSTEM FOR CITY OF RUPERT

10. Place of Use:

Township	Range	Section	1/4 of 1/4	Lot	Use	Acres

11. Place of use in counties:

12. Do you own the property listed above as place of use? NO

13. Other Water Rights Used:
A36-04075, 07656, 07862, 07863; & 36-7944, 8198

14. Remarks:
P/U WITHIN THE CITY LIMITS OF RUPERT.

15. Basis of Claim: LICENSE

16. Signature(s)

(a.) By signing below, I/We acknowledge that I/We have received, read and understand the form entitled "How you will receive notice in the Snake Rive Basin Adjudication." (b.) I/We do ____ do not ____ wish to receive and pa a small annual fee for monthly copies of the docket sheet.

Number of attachments: ____________

For Organizations:

I do solemnly swear or affirm that I am Mayor (Title) of City of Rupert (Organization), that I have signed the foregoing document in the space below as Mayor (Title) of City of Rupert (Organization) and that the statements contained in the foregoing document are true and correct.

W. F. "Bill" Whitton
Signature of Authorized Agent

Mayor - City of Rupert
Title and Organization

August 3, 1989
Date

7971

State of Idaho)
) SS.
County of Minidoka)

Subscribed and sworn (or affirmed) before me this 3 day

of August 19 89

Notary Public

Seal

Residing at Rupert, Idaho

My Commission Expires 2-11-92

Admitted
29-271et al
(Subcase No.)
EXHIBIT
Doc. 175
Date: 2-27-07

IN THE DISTRICT COURT OF THE FIFTH JUDICIAL DISTRICT OF THE STATE OF IDAHO, IN AND FOR THE COUNTY OF TWIN FALLS

In Re SRBA Case No. 39576	PARTIAL DECREE PURSUANT TO I.R.C.P. 54(b) FOR Water Right 36-07656

NAME & ADDRESS: CITY OF RUPERT
PO BOX 426
RUPERT ID 83350

SOURCE: GROUNDWATER

QUANTITY: 3.44 CFS

PRIORITY DATE: 09/18/1962

POINT OF DIVERSION: T09S R24E S20 NESWSE Within MINIDOKA County
S21 SWSWNW
S29 NWNENE
NENWNE

PURPOSE AND PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
MUNICIPAL	01-01 12-31	3.44 CFS

PLACE OF USE:

PLACE OF USE IS WITHIN THE CITY LIMITS OF RUPERT.

RULE 54(b) CERTIFICATE

With respect to the issues determined by the above judgment or order, it is hereby CERTIFIED, in accordance with Rule 54(b), I.R.C.P., that the court has determined that there is no just reason for delay of the entry of a final judgment and that the court has and does hereby direct that the above judgment or order shall be a final judgment upon which execution may issue and an appeal may be taken as provided by the Idaho Appellate Rules.

DANIEL C. HURLBUTT, JR.
PRESIDING JUDGE
Snake River Basin Adjudication

IN THE DISTRICT COURT OF THE FIFTH JUDICIAL DISTRICT OF THE
STATE OF IDAHO, IN AND FOR THE COUNTY OF TWIN FALLS

In Re SRBA	)	STANDARD FORM 5
	)	
Case No. 39576	)	
	)	SUBCASE NO: 36-07656
	)	
	)	STIPULATED ELEMENTS OF A WATER RIGHT

THIS FORM MAY ONLY BE USED IF ALL PARTIES HAVE STIPULATED TO ALL ELEMENTS OF ONE WATER RIGHT AND MAY BE SUBMITTED AT ANY TIME FOLLOWING THE CLOSE OF THE STATUTORY RESPONSE PERIOD.

INSTRUCTIONS

This form has been adopted by the court in SRBA Administrative Order 1, Rules of Procedure (amended Oct. 16, 1997), Section 4, which may be consulted for further information.

This form is used to report the stipulated elements of one water right acquired under state law and/or one federal reserved water right. Submission of this form will not automatically result in the issuance of a partial decree. The Presiding Judge or Special Master will conduct any hearing necessary to determine whether the facts, data, expert opinions and law support the issuance of a partial decree for the water right.

The parties agree that the Snake River Basin Adjudication Court has jurisdiction of the parties and subject matter to enter a partial decree for this water right; and they have been served with sufficient process, according to the law; and that they have appeared, prosecuted and defended their positions with regard to this water right dispute.

A copy of this water right as recommended in the Director's Report shall be submitted with this form. A statement shall accompany each element of a water right.

Statement and Stipulation of Parties and IDWR

Parties/Claimants and IDWR agree that the above referenced water right should be as described in the attached printout entitled Recommended Water Rights Under State Law.

Go to Tab ~~39~~ 40

Review By IDWR

To speed up entry of a decree, the parties are encouraged to talk to the Idaho Department of Water Resources about their proposed settlement and have IDWR indicate its concurrence by signing the Standard Form 5.

Where all parties have signed, a Standard Form 5 may be filed with the court without the concurrence of IDWR. However, the parties must certify that they have served IDWR with a copy of the Standard Form 5 and that they have made a good faith attempt to resolve the matter with IDWR.

Within 14 days of filing a Standard Form 5 not containing an IDWR concurrence, IDWR shall file a statement of its position with the court.

If IDWR has not concurred by signing below, signing parties certify that they have served a copy of this document on the Idaho Department of Water Resources and have made a good faith attempt to obtain IDWR's concurrence, but have failed.

Signatures and Addresses of Parties and their Attorney of Record (attach additional page if necessary):
I have read this form and know its contents and that the statements are true to the best of my knowledge.

Name: City of Rupert
Address: P.O. Box 426
City/State/Zip: Rupert, ID 83350
Attorney of Record: Josephine Beeman

Josephine P. Beeman 5 Nov 1997
Attorney's Signature Date

Name: Idaho Dept. of Water Resources
Address: P.O. Box 83720
City/State/Zip: Boise, ID 83720-0098
Attorney of Record: Nicholas B. Spencer

David R. Tuthill Jr. 11/4/97
IDWR Concurrence Date

APPROVED AS TO FORM
Nick Spencer 11-4-97
Attorney's Signature Date

INSTRUCTIONS FOR MAILING

You must mail this form, including all attachments, to the Clerk of the SRBA Court and to the parties identified in the Certificate of Mailing. **FAX filings will not be accepted by the SRBA Clerk of the Court.**

You must sign the Certificate of Mailing to show that you followed these steps.

CERTIFICATE OF MAILING

I certify that on November 5, 1997, I mailed the original and copies of this form, including all attachments, to the following persons by mailing the original and/or copies, postage prepaid and addressed as follows:

1. Original to:

   Clerk of the District Court
   Snake River Basin Adjudication
   253 Third Avenue North
   P. O. Box 2707
   Twin Falls, Idaho 83303-2707

2. Copies to:

   Nicholas B. Spencer
   Idaho Dept. of Water Resources
   P.O. Box 83720
   Boise, ID 83720-0098

Josephine P. Beeman
Signature of person or attorney mailing the form
Josephine P. Beeman
Attorney for City of Rupert

..IGHTS FROM: SOURCE: GROUNDWATER

RIGHT NUMBER: 36-07656

NAME AND ADDRESS: CITY OF RUPERT
PO BOX 426
RUPERT ID 83350

SOURCE: GROUNDWATER

QUANTITY: 3.44 CFS

~~THE QUANTITY FOR NON-IRRIGATION USE IS LIMITED TO THE AMOUNT BENEFICIALLY USED FOR: MUNICIPAL-WATER SYSTEM FOR CITY OF RUPERT~~

PRIORITY DATE: 09/18/1962

POINT OF DIVERSION:

T09S R24E	S20	NESWSE	Within MINIDOKA County
	S21	SWSWNW	
	S29	NWNENE	
		NENWNE	

PURPOSE AND PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
MUNICIPAL	01-01 12-31	3.44 CFS

.ACE OF USE:

PLACE OF USE IS WITHIN THE CITY LIMITS OF RUPERT.

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

~~PLACE OF USE IS LANDS WITHIN CITY LIMITS OF RUPERT. RIGHTS LISTED BELOW ARE ALSO DIVERTED THROUGH POINT OF DIVERSION DESCRIBED ABOVE, AND THE TOTAL COMBINED RATE OF DIVERSION OF THESE RIGHTS IS LIMITED TO 10.61 CFS. OTHER RIGHT NOS.: 36-07115 & 36-07862.~~

EXPLANATORY MATERIAL: BASIS OF CLAIM - LICENSE
RIGHT INCLUDES ACCOMPLISHED CHANGE IN POINT OF DIVERSION PURSUANT TO SECTION 42-1425, IDAHO CODE.
RIGHTS LISTED BELOW ARE ALSO DIVERTED THROUGH POINTS OF DIVERSION DESCRIBED ABOVE.
OTHER RIGHT NOS.: 36-07115, 36-07862, 36-15488 AND 36-15489.

SF5 - 36-07656

RIGHT NUMBER	NAME & ADDRESS	PRIORITY DATE	PURPOSE OF USE	PERIOD OF USE FROM TO	MAXIMUM QUANTITY		BASIS OF CLAIM

SOURCE: GROUNDWATER

36-07656	CITY OF RUPERT PO BOX 426 RUPERT ID 83350	09/18/1962	MUNICIPAL	01-01 12-31	3.44	CFS	LICENSE
				TOTAL QUANTITY:	3.44	CFS	

NON-IRRIGATION-USES:
MUNICIPAL/WATER SYSTEM FOR CITY OF RUPERT
POINT OF DIVERSION:
T09S R24E S20 NESWSE
S21 SWSWNW
S29 NWNENE
NENWNE
PLACE OF USE: MUNICIPAL
REMARKS: RIGHT INCLUDES ACCOMPLISHED CHANGE IN POINT OF DIVERSION PURSUANT TO IDAHO CODE 42-1416A.
PLACE OF USE IS LANDS WITHIN CITY LIMITS OF RUPERT.
RIGHTS LISTED BELOW ARE ALSO DIVERTED THROUGH POINT OF DIVERSION DESCRIBED ABOVE, AND THE TOTAL COMBINED RATE OF DIVERSION OF THESE RIGHTS IS LIMITED TO 10.61 CFS. OTHER RIGHT NOS.: 36-07115 & 36-07862.

36-12166	CHRIS DIETZ NORMA DIETZ RT 5 BOX 8 RUPERT ID 83350	09/26/1962	DOMESTIC	01-01 12-31	.04	CFS	BENEFICIAL USE
				TOTAL QUANTITY:	.04	CFS	

NON-IRRIGATION-USES:
DOMESTIC ONE HOUSE
POINT OF DIVERSION:
T09S R24E S20 NWNE
PLACE OF USE: DOMESTIC
T09S R24E S20 NWNE
REMARKS: PARCEL NO. RP09S24E200650

IN THE DISTRICT COURT OF THE FIFTH JUDICIAL DISTRICT OF THE STATE OF IDAHO,
IN AND FOR THE COUNTY OF TWIN FALLS

IN RE THE GENERAL ADJUDICATION
OF RIGHTS TO THE USE OF WATER FROM
THE SNAKE RIVER BASIN WATER SYSTEM.

CIVIL CASE NUMBER: 39576

Ident. Number: A36-07656
Date Received: 8/03/1989
Receipt No: 5008908
Received By: AD

NOTICE OF CLAIM TO A WATER RIGHT ACQUIRED UNDER STATE LAW

1. Name: CITY OF RUPERT 208-436-4900
   Address: P.O. BOX 426
   RUPERT, ID 83350

RECEIVED
AUG 21 1989
Department of Water Resources
Southern Region Office

2. Date of Priority: SEP 18, 1962

3. Source: GROUNDWATER Trib. to:

4. Point of Diversion:

Township	Range	Section	1/4 of	1/4 of	1/4	Lot	County
09S	24E	20	NE	SW	SE	3	MINIDOKA
		21	SW	SW	NW	5	MINIDOKA
		29	NW	NE	NE	1	MINIDOKA
			NE	NW	NE	1	MINIDOKA

5. Description of diverting works:
   4 WELLS & PUMPS TO PIPELINE NETWORK

6. Water is used for the following purposes:

Purpose	From	To	C.F.S	(or)	A.F.A.
MUNICIPAL	01/01	12/31	3.440		

7. Total Quantity Appropriated is:
   3.440 C.F.S. (and/or) A.F.A.

8. Total consumptive use is Acre Feet Per Annum.

9. Non-irrigation uses:
   M/ MUNICIPAL WATER SYSTEM FOR CITY OF RUPERT

7930

10. Place of Use:

Township	Range	Section	1/4 of 1/4	Lot	Use	Acres

11. Place of use in counties:

12. Do you own the property listed above as place of use? NO

13. Other Water Rights Used:
A36-04075,07115,07862,07863; 36-7944, 8198

14. Remarks:
P/U WITHIN CITY LIMITS OF RUPERT.

15. Basis of Claim: LICENSE

16. Signature(s)

(a.) By signing below, I/We acknowledge that I/We have received, read and understand the form entitled "How you will receive notice in the Snake River Basin Adjudication." (b.) I/We do ____ do not ____ wish to receive and pay a small annual fee for monthly copies of the docket sheet.

Number of attachments: ____________

For Organizations:

I do solemnly swear or affirm that I am Mayor (Title) of City of Rupert (Organization), that I have signed the foregoing document in the space below as Mayor (Title) of City of Rupert (Organization) and that the statements contained in the foregoing document are true and correct.

W. F. "Bill" Whitton
Signature of Authorized Agent

Mayor - City of Rupert
Title and Organization

August 3, 1989
Date

State of Idaho)
) SS.
County of Minidoka)

Subscribed and sworn (or affirmed) before me this 3 day

of August 19 89

Notary Public

Seal

Residing at Rupert, ID

My Commission Expires 2-11-92

29-2716etal
(Subcase No.)
EXHIBIT
Admitted Doc. 176
Date: 2/27/07

IN THE DISTRICT COURT OF THE FIFTH JUDICIAL DISTRICT OF THE STATE OF IDAHO, IN AND FOR THE COUNTY OF TWIN FALLS

In Re SRBA Case No. 39576	PARTIAL DECREE PURSUANT TO I.R.C.P. 54(b) FOR Water Right 36-07862

NAME & ADDRESS: CITY OF RUPERT
PO BOX 426
RUPERT ID 83350

SOURCE: GROUNDWATER

QUANTITY: 1.15 CFS

PRIORITY DATE: 10/11/1985

POINT OF DIVERSION: T09S R24E S20 NESWSE Within MINIDOKA County
S21 SWSWNW
S29 NWNENE
NENWNE

PURPOSE AND PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
MUNICIPAL	01-01 12-31	1.15 CFS

PLACE OF USE:

PLACE OF USE IS WITHIN THE CITY LIMITS OF RUPERT.

RULE 54(b) CERTIFICATE

With respect to the issues determined by the above judgment or order, it is hereby CERTIFIED, in accordance with Rule 54(b), I.R.C.P., that the court has determined that there is no just reason for delay of the entry of a final judgment and that the court has and does hereby direct that the above judgment or order shall be a final judgment upon which execution may issue and an appeal may be taken as provided by the Idaho Appellate Rules.

DANIEL C. HURLBUTT, JR.
PRESIDING JUDGE
Snake River Basin Adjudication

7983

IN THE DISTRICT COURT OF THE FIFTH JUDICIAL DISTRICT OF THE STATE OF IDAHO, IN AND FOR THE COUNTY OF TWIN FALLS

In Re SRBA	)	STANDARD FORM 5
	)	
Case No. 39576	)	
	)	SUBCASE NO: 36-07862
	)	
	)	STIPULATED ELEMENTS OF A WATER RIGHT
	)	

THIS FORM MAY ONLY BE USED IF ALL PARTIES HAVE STIPULATED TO ALL ELEMENTS OF ONE WATER RIGHT AND MAY BE SUBMITTED AT ANY TIME FOLLOWING THE CLOSE OF THE STATUTORY RESPONSE PERIOD.

INSTRUCTIONS

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The parties agree that the Snake River Basin Adjudication Court has jurisdiction of the parties and subject matter to enter a partial decree for this water right; and they have been served with sufficient process, according to the law; and that they have appeared, prosecuted and defended their positions with regard to this water right dispute.

A copy of this water right as recommended in the Director's Report shall be submitted with this form. A statement shall accompany each element of a water right.

11-5-97

Statement and Stipulation of Parties and IDWR

Parties/Claimants and IDWR agree that the above referenced water right should be as described in the attached printout entitled Recommended Water Rights Under State Law.

Go to Tab 45

Review By IDWR

To speed up entry of a decree, the parties are encouraged to talk to the Idaho Department of Water Resources about their proposed settlement and have IDWR indicate its concurrence by signing the Standard Form 5.

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Signatures and Addresses of Parties and their Attorney of Record (attach additional page if necessary):
I have read this form and know its contents and that the statements are true to the best of my knowledge.

Name: City of Rupert
Address: P.O. Box 426
City/State/Zip: Rupert, ID 83350
Attorney of Record: Josephine Beeman

Josephine P. Beeman 5 Nov 1997
Attorney's Signature Date

Name: Idaho Dept. of Water Resources
Address: P.O. Box 83720
City/State/Zip: Boise, ID 83720-0098
Attorney of Record: Nicholas B. Spencer

D R Tuthill Jr 11/4/97
IDWR Concurrence Date

APPROVED AS TO FORM
Nick Spencer 11-4-97
Attorney's Signature Date

INSTRUCTIONS FOR MAILING

You must mail this form, including all attachments, to the Clerk of the SRBA Court and to the parties identified in the Certificate of Mailing. **FAX filings will not be accepted by the SRBA Clerk of the Court.**

You must sign the Certificate of Mailing to show that you followed these steps.

CERTIFICATE OF MAILING

I certify that on November 5, 1997, I mailed the original and copies of this form, including all attachments, to the following persons by mailing the original and/or copies, postage prepaid and addressed as follows:

1. Original to:

   Clerk of the District Court
   Snake River Basin Adjudication
   253 Third Avenue North
   P. O. Box 2707
   Twin Falls, Idaho 83303-2707

2. Copies to:

   Nicholas B. Spencer
   Idaho Dept. of Water Resources
   P.O. Box 83720
   Boise, ID 83720-0098

Josephine P. Beeman

Signature of person or attorney mailing the form
Josephine P. Beeman
Attorney for City of Rupert

RIGHTS FROM: SOURCE: GROUNDWATER

RIGHT NUMBER: 36-07862

NAME AND ADDRESS: CITY OF RUPERT
PO BOX 426
RUPERT ID 83350

SOURCE: GROUNDWATER

QUANTITY: 1.15 CFS
~~4.77 CFS~~

~~THE QUANTITY FOR NON-IRRIGATION USE IS LIMITED TO THE AMOUNT BENEFICIALLY USED FOR: MUNICIPAL/WATER SYSTEM FOR CITY OF RUPERT~~

PRIORITY DATE: 10/11/1985
~~06/30/1979~~

POINT OF DIVERSION: T09S R24E S20 NESWSE Within MINIDOKA County
S21 SWSWNW
S29 NWNENE
NENWNE

PURPOSE AND
PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
MUNICIPAL	01-01 12-31	1.15 CFS
		~~4.77 CFS~~

PLACE OF USE:

PLACE OF USE IS WITHIN THE CITY LIMITS OF RUPERT.

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

~~PLACE OF USE IS LANDS WITHIN CITY LIMITS OF RUPERT. RIGHTS LISTED BELOW ARE ALSO DIVERTED THROUGH POINT OF DIVERSION DESCRIBED ABOVE, AND THE TOTAL COMBINED RATE OF DIVERSION OF THESE RIGHTS IS LIMITED TO 10.63 CFS. OTHER RIGHT NOS.: 36-07115 36-07656.~~

EXPLANATORY MATERIAL: BASIS OF CLAIM - LICENSE
RIGHT INCLUDES ACCOMPLISHED CHANGE IN POINT OF DIVERSION PURSUANT TO SECTION 42-1425, IDAHO CODE.
RIGHTS LISTED BELOW ARE ALSO DIVERTED THROUGH POINT OF DIVERSION DESCRIBED BELOW.
OTHER RIGHT NOS.: 36-07115 34-07656, 36-15488 AND 36-15489.

SF5 - 36-07862

RIGHT NUMBER	NAME & ADDRESS	PRIORITY DATE	PURPOSE OF USE	PERIOD OF USE FROM TO	MAXIMUM QUANTITY		BASIS OF CLAIM

SOURCE: GROUNDWATER

36-13695	DAVID L AIKENS MARUA W AIKENS RT 5 BOX 198 RUPERT ID 83350	06/29/1979	DOMESTIC	01-01 12-31	.04	CFS	BENEFICIAL USE
			STOCKWATER	01-01 12-31	.02	CFS	
				TOTAL QUANTITY:	.06	CFS	

NON-IRRIGATION-USES:
DOMESTIC 1 HOUSE, STOCKWATER 6 RANGE AND 2 HORSES
POINT OF DIVERSION:
T09S R24E S08 NENWNW
PLACE OF USE: DOMESTIC

T09S R24E S08 NWNW
PLACE OF USE: STOCKWATER

T09S R24E S08 NWNW
REMARKS: RP 09S24E083100

36-07862	CITY OF RUPERT PO BOX 426 RUPERT ID 83350	06/30/1979	MUNICIPAL	01-01 12-31	4.17	CFS	LICENSE
				TOTAL QUANTITY:	4.17	CFS	

NON-IRRIGATION-USES:
MUNICIPAL/WATER SYSTEM FOR CITY OF RUPERT
POINT OF DIVERSION:
T09S R24E S20 NESWSE
S21 SWSWNW
S29 NWNENE
NENWNE
PLACE OF USE: MUNICIPAL
REMARKS: RIGHT INCLUDES ACCOMPLISHED CHANGE IN POINT OF DIVERSION PURSUANT TO IDAHO CODE 42-1416A.
PLACE OF USE IS LANDS WITHIN CITY LIMITS OF RUPERT.
RIGHTS LISTED BELOW ARE ALSO DIVERTED THROUGH POINT OF DIVERSION DESCRIBED ABOVE, AND THE TOTAL COMBINED RATE OF DIVERSION OF THESE RIGHTS IS LIMITED TO 10.61 CFS. OTHER RIGHT NOS.: 36-07115 36-07656.

IN THE DISTRICT COURT OF THE FIFTH JUDICIAL DISTRICT OF THE STATE OF IDAHO,
IN AND FOR THE COUNTY OF TWIN FALLS

IN RE THE GENERAL ADJUDICATION OF RIGHTS TO THE USE OF WATER FROM THE SNAKE RIVER BASIN WATER SYSTEM.

CIVIL CASE NUMBER: 39576

Ident. Number: A36-07862
Date Received: 8/03/1989
Receipt No: 5008908
Received By: AD

NOTICE OF CLAIM TO A WATER RIGHT
ACQUIRED UNDER STATE LAW

RECEIVED
AUG 21 1989
Department of Water Resources
Southern Region Office

1. Name: CITY OF RUPERT
   Address: P.O. BOX 426
   RUPERT, ID 83350

2. Date of Priority: JUN 30, 1979

3. Source: GROUNDWATER Trib. to:

4. Point of Diversion:

Township	Range	Section	1/4 of	1/4 of	1/4	Lot	County
09S	24E	20	NE	SW	SE		MINIDOKA
		21	SW	SW	NW		MINIDOKA
		29	NW	NE	NE		MINIDOKA
			NE	NW	NE		MINIDOKA

5. Description of diverting works:
   4 WELLS & PUMPS TO PIPELINE NETWORK

6. Water is used for the following purposes:

Purpose	From	To	C.F.S	(or)	A.F.A.
MUNICIPAL	01/01	12/31	4.170		

7. Total Quantity Appropriated is:
   4.170 C.F.S. (and/or) A.F.A.

8. Total consumptive use is Acre Feet Per Annum.

9. Non-irrigation uses:
   M/ MUNICIPAL WATER SYSTEM FOR CITY OF RUPERT

7990

10. Place of Use:

Township Range Section 1/4 of 1/4 Lot Use Acres

11. Place of use in counties:

12. Do you own the property listed above as place of use? NO

13. Other Water Rights Used:
A36-04075, 07115, 07656, 07863; 36-7944, 8198

14. Remarks:
P/U WITHIN CITY LIMITS OF RUPERT.

15. Basis of Claim: LICENSE

16. Signature(s)

(a.) By signing below, I/We acknowledge that I/We have received, read and understand the form entitled "How you will receive notice in the Snake River Basin Adjudication." (b.) I/We do ____ do not ____ wish to receive and pay a small annual fee for monthly copies of the docket sheet.

Number of attachments: ____________

For Organizations:

I do solemnly swear or affirm that I am Mayor (Title) of City of Rupert (Organization), that I have signed the foregoing document in the space below as Mayor (Title) of City of Rupert (Organization) and that the statements contained in the foregoing document are true and correct.

N. F. "Bill" Whitton
Signature of Authorized Agent

Mayor - City of Rupert
Title and Organization

August 3, 1989
Date

7991

State of Idaho)
County of Minidoka) ss.
)

Subscribed and sworn (or affirmed) before me this 3 day of August 19 89

Notary Public

Seal

Residing at Rupert, Idaho

My Commission Expires 2-11-92

29-2716 et al
(Subcase No.)
EXHIBIT
Doc. 177
Date: 3/27/07
Admitted

IN THE DISTRICT COURT OF THE FIFTH JUDICIAL DISTRICT OF THE STATE OF IDAHO, IN AND FOR THE COUNTY OF TWIN FALLS

In Re SRBA Case No. 39576	PARTIAL DECREE PURSUANT TO I.R.C.P. 54(b) FOR Water Right 36-15488

NAME & ADDRESS:	CITY OF RUPERT PO BOX 426 RUPERT ID 83350		
SOURCE:	GROUNDWATER		
QUANTITY:	0.67 CFS		
PRIORITY DATE:	04/10/1913		
POINT OF DIVERSION:	T09S R24E S20 S21 S29	NESWSE SWSWNW NWNENE NENWNE	Within MINIDOKA County

PURPOSE AND PERIOD OF USE:	PURPOSE OF USE	PERIOD OF USE	QUANTITY
	MUNICIPAL	01-01 12-31	0.67 CFS

PLACE OF USE:

PLACE OF USE IS WITHIN THE CITY LIMITS OF RUPERT.

RULE 54(b) CERTIFICATE

With respect to the issues determined by the above judgment or order, it is hereby CERTIFIED, in accordance with Rule 54(b), I.R.C.P., that the court has determined that there is no just reason for delay of the entry of a final judgment and that the court has and does hereby direct that the above judgment or order shall be a final judgment upon which execution may issue and an appeal may be taken as provided by the Idaho Appellate Rules.

DANIEL C. HURLBUTT, JR.
PRESIDING JUDGE
Snake River Basin Adjudication

IN THE DISTRICT COURT OF THE FIFTH JUDICIAL DISTRICT OF THE STATE OF IDAHO, IN AND FOR THE COUNTY OF TWIN FALLS

In Re SRBA	)	STANDARD FORM 5
	)	
Case No. 39576	)	
	)	SUBCASE NO: 36-15488
	)	
	)	STIPULATED ELEMENTS OF A
	)	WATER RIGHT

THIS FORM MAY ONLY BE USED IF ALL PARTIES HAVE STIPULATED TO ALL ELEMENTS OF ONE WATER RIGHT AND MAY BE SUBMITTED AT ANY TIME FOLLOWING THE CLOSE OF THE STATUTORY RESPONSE PERIOD.

INSTRUCTIONS

This form has been adopted by the court in SRBA Administrative Order 1, Rules of Procedure (amended Oct. 16, 1997), Section 4, which may be consulted for further information.

This form is used to report the stipulated elements of one water right acquired under state law and/or one federal reserved water right. Submission of this form will not automatically result in the issuance of a partial decree. The Presiding Judge or Special Master will conduct any hearing necessary to determine whether the facts, data, expert opinions and law support the issuance of a partial decree for the water right.

The parties agree that the Snake River Basin Adjudication Court has jurisdiction of the parties and subject matter to enter a partial decree for this water right; and they have been served with sufficient process, according to the law; and that they have appeared, prosecuted and defended their positions with regard to this water right dispute.

A copy of this water right as recommended in the Director's Report shall be submitted with this form. A statement shall accompany each element of a water right.

7994

11-5-97

Statement and Stipulation of Parties and IDWR

Parties/Claimants and IDWR agree that the above referenced water right should be as described in the attached printout entitled Recommended Water Rights Under State Law.

Review By IDWR

To speed up entry of a decree, the parties are encouraged to talk to the Idaho Department of Water Resources about their proposed settlement and have IDWR indicate its concurrence by signing the Standard Form 5.

Where all parties have signed, a Standard Form 5 may be filed with the court without the concurrence of IDWR. However, the parties must certify that they have served IDWR with a copy of the Standard Form 5 and that they have made a good faith attempt to resolve the matter with IDWR.

Within 14 days of filing a Standard Form 5 not containing an IDWR concurrence, IDWR shall file a statement of its position with the court.

If IDWR has not concurred by signing below, signing parties certify that they have served a copy of this document on the Idaho Department of Water Resources and have made a good faith attempt to obtain IDWR's concurrence, but have failed.

Signatures and Addresses of Parties and their Attorney of Record (attach additional page if necessary):
I have read this form and know its contents and that the statements are true to the best of my knowledge.

Name: City of Rupert
Address: P.O. Box 426
City/State/Zip: Rupert, ID 83350
Attorney of Record: Josephine Beeman

Josephine P. Beeman 5 Nov 1997
Attorney's Signature Date

Name: Idaho Dept. of Water Resources
Address: P.O. Box 83720
City/State/Zip: Boise, ID 83720-0098
Attorney of Record: Nicholas B. Spencer

David R. Tuthill Jr. 11/4/97
IDWR Concurrence Date

APPROVED AS TO FORM
Nick Spencer 11-4-97
Attorney's Signature Date

INSTRUCTIONS FOR MAILING

You must mail this form, including all attachments, to the Clerk of the SRBA Court and to the parties identified in the Certificate of Mailing. **FAX filings will not be accepted by the SRBA Clerk of the Court.**

You must sign the Certificate of Mailing to show that you followed these steps.

CERTIFICATE OF MAILING

I certify that on November 5, 1997, I mailed the original and copies of this form, including all attachments, to the following persons by mailing the original and/or copies, postage prepaid and addressed as follows:

1. Original to:

   Clerk of the District Court
   Snake River Basin Adjudication
   253 Third Avenue North
   P. O. Box 2707
   Twin Falls, Idaho 83303-2707

2. Copies to:

   Nicholas B. Spencer
   Idaho Dept. of Water Resources
   P.O. Box 83720
   Boise, ID 83720-0098

Josephine P. Beeman

Signature of person or attorney mailing the form
Josephine P. Beeman
Attorney for City of Rupert

RIGHTS FROM: SOURCE: GROUNDWATER

RIGHT NUMBER: 36-15488

NAME AND ADDRESS: CITY OF RUPERT
PO BOX 426
RUPERT ID 83350

SOURCE: GROUNDWATER

QUANTITY: 0.67 CFS

PRIORITY DATE: 04/10/1913

POINT OF DIVERSION:			
T09S R24E S20	NESWSE	Within MINIDOKA County
S21	SWSWNW	
S29	NWNENE	
	NENWNE	

PURPOSE AND
PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
MUNICIPAL	01-01 12-31	0.67 CFS

PLACE OF USE:

PLACE OF USE IS WITHIN THE CITY LIMITS OF RUPERT.

EXPLANATORY MATERIAL: BASIS OF CLAIM - BENEFICIAL USE

RIGHT INCLUDES ACCOMPLISHED CHANGE IN POINT OF DIVERSION PURSUANT TO SECTION 42-1425, IDAHO CODE.
RIGHTS LISTED BELOW ARE ALSO DIVERTED THROUGH POINTS OF DIVERSION DESCRIBED ABOVE.
OTHER RIGHT NOS.: 36-07115, 36-07656, 36-07862 AND 36-15489.

IN THE DISTRICT COURT OF THE FIFTH JUDICIAL DISTRICT OF THE STATE OF IDAHO, IN AND FOR THE COUNTY OF TWIN FALLS

IN RE THE GENERAL ADJUDICATION OF RIGHTS TO THE USE OF WATER FROM THE SNAKE RIVER BASIN WATER SYSTEM.

CIVIL CASE NUMBER: 39576

Ident. Number: **A36-15488**
Date Received: / /
Receipt No: ____________
Received By: ____________

NOTICE OF CLAIM TO A WATER RIGHT ACQUIRED UNDER STATE LAW

1. Name: CITY OF RUPERT 208-436-4900
   Address: PO BOX 426
   RUPERT ID 83350

2. Date of Priority: APR 10, 1913

3. Source: GROUNDWATER Trib. to:

4. Point of Diversion:

Township	Range	Section	1/4 of	1/4 of	1/4	Lot	County
09S	24E	20	NE	SW	SE		MINIDOKA
		21	SW	SW	NW		MINIDOKA
		29	NW	NE	NE		MINIDOKA
			NE	NW	NE		MINIDOKA

5. Description of diverting works:
   4 WELLS & PUMPS TO PIPELINE NETWORK

6. Water is used for the following purposes:

Purpose	From	To	C.F.S	(or)	A.F.A.
MUNICIPAL	01/01	12/31	0.670		

7. Total Quantity Appropriated is:
   0.670 C.F.S. (and/or) A.F.A.

8. Total consumptive use is Acre Feet Per Annum.

9. Non-irrigation uses:
   MUNICIPAL/WATER SYSTEM FOR CITY OF RUPERT

10. Place of Use:

Township	Range	Section	1/4 of 1/4	Lot	Use	Acres

7999

.1. Place of use in counties:

12. Do you own the property listed above as place of use? NO

13. Other Water Rights Used:

14. Remarks:
PLACE OF USE IS LANDS WITHIN CITY LIMITS OF RUPERT.
RIGHTS LISTED BELOW ARE ALSO DIVERTED THROUGH POINT OF DIVERSION DESCRIBED ABOVE, AND THE TOTAL COMBINED RATE OF DIVERSION OF THESE RIGHTS IS LIMITED TO 10.61 CFS. OTHER RIGHT NOS.: 36-07115, 36-07656, 36-15489 AND 36-15490.

15. Basis of Claim: BENEFICIAL USE

16. Signature(s)

(a.) By signing below, I/We acknowledge that I/We have received, read and understand the form entitled "How you will receive notice in the Snake River Basin Adjudication." (b.) I/We do ____ do not ____ wish to receive and pay a small annual fee for monthly copies of the docket sheet.

Number of attachments: ____________

For Organizations:

I do solemnly swear or affirm that I am MAYOR (Title) of CITY OF RUPERT (Organization), that I have signed the foregoing document in the space below as MAYOR (Title) of CITY OF RUPERT (Organization) and that the statements contained in the foregoing document are true and correct.

[signature]
Signature of Authorized Agent

Mayor - City of Rupert
Title and Organization

4/1/97
Date

8000

_ate of Idaho)
) SS.
County of MINIDOKA)

Subscribed and sworn (or affirmed) before me this 1st day of April 1997

Notary Public

Seal

Residing at Rupert

My Commission Expires 9/10/98

17. Notice of Appearance:
Notice is hereby given that I, Josephine B. Beeman will be
Print Name
acting as attorney at law on behalf of the claimant signing above, and that all notices required by law to be mailed by the director to the claimant signing above should be mailed to me at the address listed below.

Signature Josephine P. Beeman Josephine P. Beeman

Address ~~242 N. 8th Street~~ 608 W. Franklin Street Boise, ID 83702

Date ~~November 15, 1995~~ March 24, 1997

8001

29-27 letal
(Subcase No.)
EXHIBIT
Admin Hea? Doc 178
Date: 2/27/07

IN THE DISTRICT COURT OF THE FIFTH JUDICIAL DISTRICT OF THE
STATE OF IDAHO, IN AND FOR THE COUNTY OF TWIN FALLS

In Re SRBA)	PARTIAL DECREE PURSUANT TO
)	I.R.C.P. 54(b) FOR
Case No. 39576)	
)	Water Right 36-15489

NAME & ADDRESS: CITY OF RUPERT
PO BOX 426
RUPERT ID 83350

SOURCE: GROUNDWATER

QUANTITY: 2.95 CFS

PRIORITY DATE: 11/29/1917

POINT OF DIVERSION: T09S R24E S20 NESWSE Within MINIDOKA County
S21 SWSWNW
S29 NWNENE
NENWNE

PURPOSE AND
PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
MUNICIPAL	01-01 12-31	2.95 CFS

PLACE OF USE:

PLACE OF USE IS WITHIN THE CITY LIMITS OF RUPERT.

RULE 54(b) CERTIFICATE

With respect to the issues determined by the above judgment or order, it is hereby CERTIFIED, in accordance with Rule 54(b), I.R.C.P., that the court has determined that there is no just reason for delay of the entry of a final judgment and that the court has and does hereby direct that the above judgment or order shall be a final judgment upon which execution may issue and an appeal may be taken as provided by the Idaho Appellate Rules.

DANIEL C. HURLBUTT, JR.
PRESIDING JUDGE
Snake River Basin Adjudication

IN THE DISTRICT COURT OF THE FIFTH JUDICIAL DISTRICT OF THE STATE OF IDAHO, IN AND FOR THE COUNTY OF TWIN FALLS

In Re SRBA Case No. 39576	)))))))	**STANDARD FORM 5** **SUBCASE NO: 36-15489** **STIPULATED ELEMENTS OF A WATER RIGHT**

THIS FORM MAY ONLY BE USED IF ALL PARTIES HAVE STIPULATED TO ALL ELEMENTS OF ONE WATER RIGHT AND MAY BE SUBMITTED AT ANY TIME FOLLOWING THE CLOSE OF THE STATUTORY RESPONSE PERIOD.

INSTRUCTIONS

This form has been adopted by the court in SRBA Administrative Order 1, Rules of Procedure (amended Oct. 16, 1997), Section 4, which may be consulted for further information.

This form is used to report the stipulated elements of one water right acquired under state law and/or one federal reserved water right. Submission of this form will not automatically result in the issuance of a partial decree. The Presiding Judge or Special Master will conduct any hearing necessary to determine whether the facts, data, expert opinions and law support the issuance of a partial decree for the water right.

The parties agree that the Snake River Basin Adjudication Court has jurisdiction of the parties and subject matter to enter a partial decree for this water right; and they have been served with sufficient process, according to the law; and that they have appeared, prosecuted and defended their positions with regard to this water right dispute.

A copy of this water right as recommended in the Director's Report shall be submitted with this form. A statement shall accompany each element of a water right.

Statement and Stipulation of Parties and IDWR

Parties/Claimants and IDWR agree that the above referenced water right should be as described in the attached printout entitled Recommended Water Rights Under State Law.

Go to Tab 54

Review By IDWR

To speed up entry of a decree, the parties are encouraged to talk to the Idaho Department of Water Resources about their proposed settlement and have IDWR indicate its concurrence by signing the Standard Form 5.

Where all parties have signed, a Standard Form 5 may be filed with the court without the concurrence of IDWR. However, the parties must certify that they have served IDWR with a copy of the Standard Form 5 and that they have made a good faith attempt to resolve the matter with IDWR.

Within 14 days of filing a Standard Form 5 not containing an IDWR concurrence, IDWR shall file a statement of its position with the court.

If IDWR has not concurred by signing below, signing parties certify that they have served a copy of this document on the Idaho Department of Water Resources and have made a good faith attempt to obtain IDWR's concurrence, but have failed.

Signatures and Addresses of Parties and their Attorney of Record (attach additional page if necessary):
I have read this form and know its contents and that the statements are true to the best of my knowledge.

Name: City of Rupert
Address: P.O. Box 426
City/State/Zip: Rupert, ID 83350
Attorney of Record: Josephine Beeman

Name: Idaho Dept. of Water Resources
Address: P.O. Box 83720
City/State/Zip: Boise, ID 83720-0098
Attorney of Record: Nicholas B. Spencer

Josephine P. Beeman 5 Nov 1997
Attorney's Signature Date

David R. Tuthill Jr. 11/4/97
IDWR Concurrence Date

APPROVED AS TO FORM
Nick Spencer 11-4-97
Attorney's Signature Date

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You must sign the Certificate of Mailing to show that you followed these steps.

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   253 Third Avenue North
   P. O. Box 2707
   Twin Falls, Idaho 83303-2707

2. Copies to:

   Nicholas B. Spencer
   Idaho Dept. of Water Resources
   P.O. Box 83720
   Boise, ID 83720-0098

Josephine P. Beeman
Signature of person or attorney mailing the form
Josephine P. Beeman
Attorney for City of Rupert

RIGHTS FROM: SOURCE: GROUNDWATER

RIGHT NUMBER: 36-15489

NAME AND ADDRESS: CITY OF RUPERT
PO BOX 426
RUPERT ID 83350

SOURCE: GROUNDWATER

QUANTITY: 2.95 CFS

PRIORITY DATE: 11/29/1917

POINT OF DIVERSION: T09S R24E S20 NESWSE Within MINIDOKA County
S21 SWSWNW
S29 NWNENE
NENWNE

PURPOSE AND
PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
MUNICIPAL	01-01 12-31	2.95 CFS

PLACE OF USE:

PLACE OF USE IS WITHIN THE CITY LIMITS OF RUPERT.

EXPLANATORY MATERIAL: BASIS OF CLAIM - BENEFICIAL USE

RIGHT INCLUDES ACCOMPLISHED CHANGE IN POINT OF DIVERSION PURSUANT TO SECTION 42-1425, IDAHO CODE.
RIGHTS LISTED BELOW ARE ALSO DIVERTED THROUGH POINTS OF DIVERSION DESCRIBED ABOVE.
OTHER RIGHT NOS.: 36-07115, 36-07656, 36-07862 AND 36-15488.

IN THE DISTRICT COURT OF THE FIFTH JUDICIAL DISTRICT OF THE STATE OF IDAHO,
IN AND FOR THE COUNTY OF TWIN FALLS

IN RE THE GENERAL ADJUDICATION OF RIGHTS TO THE USE OF WATER FROM THE SNAKE RIVER BASIN WATER SYSTEM.

CIVIL CASE NUMBER: 39576

Ident. Number: A36-15489
Date Received: / /
Receipt No: ______________
Received By: ______________

NOTICE OF CLAIM TO A WATER RIGHT ACQUIRED UNDER STATE LAW

1. Name: CITY OF RUPERT 208-436-4900
   Address: PO BOX 426
   RUPERT ID 83350

2. Date of Priority: NOV 29, 1917

3. Source: GROUNDWATER Trib. to:

4. Point of Diversion:

Township	Range	Section	1/4 of	1/4 of	1/4	Lot	County
09S	24E	20	NE	SW	SE		MINIDOKA
		21	SW	SW	NW		MINIDOKA
		29	NW	NE	NE		MINIDOKA
			NE	NW	NE		MINIDOKA

5. Description of diverting works:
   4 WELLS & PUMPS TO PIPELINE NETWORK

6. Water is used for the following purposes:

Purpose	From	To	C.F.S	(or)	A.F.A.
MUNICIPAL	01/01	12/31	2.950		

7. Total Quantity Appropriated is:
   2.950 C.F.S. (and/or) A.F.A.

8. Total consumptive use is Acre Feet Per Annum.

9. Non-irrigation uses:
   MUNICIPAL/WATER SYSTEM FOR CITY OF RUPERT

10. Place of Use:

Township	Range	Section	1/4 of 1/4	Lot	Use	Acres

1. Place of use in counties:

12. Do you own the property listed above as place of use? NO

13. Other Water Rights Used:

14. Remarks:
PLACE OF USE IS LANDS WITHIN CITY LIMITS OF RUPERT.
RIGHTS LISTED BELOW ARE ALSO DIVERTED THROUGH POINT OF DIVERSION DESCRIBED ABOVE, AND THE TOTAL COMBINED RATE OF DIVERSION OF THESE RIGHTS IS LIMITED TO 10.61 CFS. OTHER RIGHT NOS.: 36-07115, 36-07656, 36-15488 AND 36-15490.

15. Basis of Claim: BENEFICIAL USE

16. Signature(s)

(a.) By signing below, I/We acknowledge that I/We have received, read and understand the form entitled "How you will receive notice in the Snake River Basin Adjudication." (b.) I/We do ____ do not ____ wish to receive and pay a small annual fee for monthly copies of the docket sheet.

Number of attachments: ____________

For Organizations:

I do solemnly swear or affirm that I am Mayor (Title) of City of Rupert (Organization), that I have signed the foregoing document in the space below as Mayor (Title) of City of Rupert (Organization) and that the statements contained in the foregoing document are true and correct.

[signature]
Signature of Authorized Agent

Mayor - City of Rupert
Title and Organization

4/1/97
Date

ate of Idaho)
) SS.
County of MINIDOKA)

Subscribed and sworn (or affirmed) before me this 1st day of April 19 97

Notary Public

Seal

Residing at Rupert

My Commission Expires 9/10/98

17. Notice of Appearance:
Notice is hereby given that I, Josephine P. Beeman will be
Print Name
acting as attorney at law on behalf of the claimant signing above, and that all notices required by law to be mailed by the director to the claimant signing above should be mailed to me at the address listed below.

Signature Josephine P. Beeman Josephine P. Beeman

Address ~~242 N. 8th St.~~ 608 W. Franklin Street Boise, Idaho 83702

Date ~~November 15, 1995~~ March 24, 1997

8010

29-27lot.a0
(Subcase No.
EXHIBIT
Admitted Doc. 179
Date: 2/27/07

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

TRANSFER OF WATER RIGHT

TRANSFER NO. 69114

This is to certify that: CITY OF JEROME
152 E AVE A
JEROME ID 83338
(208)324-8189

has requested a change to the water right(s) listed below. This change in water right(s) is authorized pursuant to the provisions of Section 42-222, Idaho Code. The authorized change for each affected water right, including conditions of approval, is shown on the following pages of this document.

Summary of Water Rights Before the Proposed Change

Right	Origin/Basis	Priority	Rate	Volume	Acres	Total	Source
36-15361	WR/Decreed	12/31/1930	2.87 cfs			N/A	GROUND WATER
36-2518	WR/Decreed	09/14/1961	1.11 cfs			N/A	GROUND WATER
36-8237	WR/Decreed	12/22/1983	2.71 cfs			N/A	GROUND WATER
36-4196	WR/Decreed	07/04/1957	5.68 cfs			N/A	GROUND WATER
36-4195	WR/Decreed	12/31/1907	0.39 cfs			N/A	GROUND WATER

Purpose of Transfer (Changes Proposed)

Current Number	Split	POD	POU	Add POD	Period of Use	Nature of Use
36-15361	NO	NO	NO	YES	NO	NO
36-2518	NO	NO	NO	YES	NO	NO
36-8237	NO	NO	NO	YES	NO	NO
36-4196	NO	NO	NO	YES	NO	NO
36-4195	NO	NO	NO	YES	NO	NO

Summary of Water Rights After the Approved Change

Existing Right	New No. (changed portion)	Transfer Rate	Transfer Volume	Acre Limit	Total Acres	New No. (remaining portion)	Remaining Rate	Remaining Volume	Remaining Acre Limit	Remaining Total Acres
36-15361	36-15361	2.87 cfs		N/A	N/A		N/A	N/A	N/A	N/A
36-2518	36-2518	1.11 cfs		N/A	N/A		N/A	N/A	N/A	N/A
36-8237	36-8237	2.71 cfs		N/A	N/A		N/A	N/A	N/A	N/A
36-4196	36-4196	5.68 cfs		N/A	N/A		N/A	N/A	N/A	N/A
36-4195	36-4195	0.39 cfs		N/A	N/A		N/A	N/A	N/A	N/A
TOTALS		12.76 cfs		N/A	N/A		N/A	N/A	N/A	N/A

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

TRANSFER OF WATER RIGHT

TRANSFER NO. 69114

Detailed Water Right Description(s) attached

Dated this 24th day of October, 2001

L. Glen Saxton
Chief, Water Allocation Bureau

WATER RIGHT NO. 36-4196
As Modified by Transfer No. 69114

In accordance with the approval of Transfer No. 69114, Water Right No. 36-4196 is now described as follows.

Right Holder: CITY OF JEROME
152 E AVE A
JEROME ID 83338

Priority Date: 07/04/1957

Source: GROUND WATER

BENEFICIAL USE	From	To	Diversion Rate	Volume
MUNICIPAL	1/01 to	12/31	5.68 CFS	
			5.68 CFS	

LOCATION OF POINT(S) OF DIVERSION:

GROUND WATER	NWNESE	Sec. 25	Twp 08S	Rge 16E	JEROME County
GROUND WATER	SWSESE	Sec. 17	Twp 08S	Rge 17E	JEROME County
GROUND WATER	NESENW	Sec. 18	Twp 08S	Rge 17E	JEROME County
GROUND WATER	NESENW	Sec. 18	Twp 08S	Rge 17E	JEROME County
GROUND WATER	NWNWNE	Sec. 19	Twp 08S	Rge 17E	JEROME County

CONDITIONS OF APPROVAL

1. Right holder shall comply with the drilling permit requirements of Section 42-235, Idaho Code.
2. The well(s) previously used under this right located in NWNWNE, S19, T8S, R17E shall be abandoned in a manner which complies with Department well abandonment rules.
3. The total instantaneous diversion of water from all points of diversion under Rights 36-2518, 36-4195, 36-4196, 36-8237 and 36-15361 shall not exceed 12.76 cfs.
4. Prior to diversion of water under this approval, the right holder shall provide a means of measurement acceptable to the Department from all authorized points of diversion which will allow determination of the total rate of diversion.
5. The right holder shall measure and annually report diversions of water and/or other pertinent hydrologic and system information as required by Section 42-701, Idaho Code.
6. Place of use is located within the city of Jerome and the surrounding service area.
7. Approval of Transfer 69114 does not grant any right-of-way or easement for use of a delivery system owned by person(s) other than the right owner.

IN THE DISTRICT COURT OF THE FIFTH JUDICIAL DISTRICT OF THE
STATE OF IDAHO, IN AND FOR THE COUNTY OF TWIN FALLS

In Re SRBA Case No. 39576	PARTIAL DECREE PURSUANT TO I.R.C.P. 54(b) FOR Water Right 36-02518	1998 JUN 18 PM 1:47 DISTRICT COURT-SRBA TWIN FALLS CO., IDAHO FILED

NAME & ADDRESS: CITY OF JEROME
152 E A AVE
JEROME ID 83338

RECEIVED
JUN 22 1998
Department of Water Resources
Adjudication Bureau

SOURCE: GROUNDWATER

QUANTITY: 1.11 CFS

PRIORITY DATE: 09/14/1961

POINT OF DIVERSION: T08S R17E S17 SWSESE Within JEROME County
S18 NESENW
S19 NWNWNE

TWO POINTS OF DIVERSION LOCATED IN NESENW, S18, T8S, R17E, B.M.
THREE POINTS OF DIVERSION LOCATED IN NWNWNE, S19, T8S, R17E, B.M.

PURPOSE AND PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
MUNICIPAL	01-01 12-31	1.11 CFS

PLACE OF USE:

PLACE OF USE IS LANDS WITHIN THE CITY LIMITS OF JEROME.

RULE 54(b) CERTIFICATE

With respect to the issues determined by the above judgment or order, it is hereby CERTIFIED, in accordance with Rule 54(b), I.R.C.P., that the court has determined that there is no just reason for delay of the entry of a final judgment and that the court has and does hereby direct that the above judgment or order shall be a final judgment upon which execution may issue and an appeal may be taken as provided by the Idaho Appellate Rules.

Daniel C. Hurlbutt Jr.

DANIEL C. HURLBUTT, JR.
PRESIDING JUDGE
Snake River Basin Adjudication

RIGHT NUMBER	NAME & ADDRESS	PRIORITY DATE	PURPOSE OF USE	PERIOD OF USE FROM TO	MAXIMUM QUANTITY		BASIS OF CLAIM

SOURCE: GROUNDWATER

36-02517	IMOGENE DAKE VIRGIL W DAKE 3003 S 1600 E WENDELL ID 83355	09/11/1961	IRRIGATION	04-01 10-31	1.44 676.0	CFS AFY	LICENSE
				TOTAL QUANTITY:	1.44 676.0	CFS AFY	
				CONSUMPTIVE USE:	507.0	AFY	

POINT OF DIVERSION:
T08S R14E S02 NENENE
PLACE OF USE: IRRIGATION
T08S R14E S02 NENE 39.0 NWNE 25.0 SWNE 40.0 SENE 40.0
NENW 25.0
169.0 ACRES TOTAL
REMARKS: USE OF THIS RIGHT IS COMBINED WITH WATER FROM
NORTH SIDE CANAL CO. LTD.

36-02518	CITY OF JEROME 152 E A AVE JEROME ID 83338	09/14/1961	MUNICIPAL	01-01 12-31	1.11	CFS	LICENSE
				TOTAL QUANTITY:	1.11	CFS	

NON-IRRIGATION-USES:
MUNICIPAL, CITY OF JEROME
POINT OF DIVERSION:
T08S R17E S17 SWSESE
S18 NESENW
S19 NWNWNE
PLACE OF USE: MUNICIPAL
REMARKS: USE OF THIS RIGHT IS COMBINED WITH WATER FROM
NORTH SIDE CANAL CO. LTD.
RIGHT INCLUDES ACCOMPLISHED CHANGE IN POINT OF DIVERSION
PURSUANT TO IDAHO CODE 42-1416A.
PLACE OF USE IS LANDS WITHIN CITY LIMITS OF JEROME.
RIGHTS LISTED BELOW ARE ALSO DIVERTED THROUGH PTS. OF DIVERSION
DESCRIBED ABOVE, AND ARE LIMITED TO A TOTAL COMBINED ANNUAL
CONSUMPTIVE USE VOLUME OF 1325.0 AFA. OTHER RIGHT NOS.:36-04195,
36-04196, 36-08237, 36-15361.
2 POINTS OF DIVERSION LOCATED IN NESENW, S18, T8S, R17E, B.M.
3 POINTS OF DIVERSION LOCATED IN NWNWNE, S19, T8S, R17E, B.M.

111 + 50 = $161

Form No. 42-1409 (2) a 1/88

IN THE DISTRICT COURT OF THE FIFTH JUDICIAL DISTRICT OF THE STATE OF IDAHO, IN AND FOR THE COUNTY OF TWIN FALLS

IN RE THE GENERAL ADJUDICATION OF RIGHTS TO THE USE OF WATER FROM THE SNAKE RIVER BASIN WATER SYSTEM

CIVIL CASE NUMBER: 39576
Ident. Number A36-02518
Date Received ____
Receipt Number ____

NOTICE OF CLAIM TO A WATER RIGHT

ACQUIRED UNDER STATE LAW

RECEIVED
FEB 23 1990
Department of Water Resources
Southern Region Office

Please type or print clearly

1. Name of Claimant (s) CITY OF JEROME Phone (208) 324-8189
   Mailing Address 152 EAST A, JEROME, ID Zip 83338
2. Date of Priority (Only one (1) per claim) 1961
3. Source of water supply (a) GROUNDWATER
   which is tributary to (b) ____
4. a. Location of existing point of diversion is: Township 8S Range 16E Section 24,
   ____ 1/4 of NE 1/4 of NE 1/4, Govt. Lot, ____ B.M., County of ____
   Additional points of diversion if any: ____
   b. If instream flow, beginning point of claimed instream flow is:
   Township ____ Range ____ Section ____, ____ 1/4 of ____ 1/4 of ____ 1/4,
   Govt. Lot ____ B.M., County of ____
   ending point is: Township ____ Range ____ Section ____, ____ 1/4 of ____ 1/4 of ____ 1/4, Govt. Lot ____ B.M., County of ____
5. Description of existing diversion works (Dams, Reservoirs, Ditches, Wells, Pumps, Pipelines, Headgates, Etc), including the dates of any changes or enlargements in use, the dimensions of the diversion works as constructed and as enlarged and the depth of each well. WELL AND PUMP –
   10,000 GAL STORAGE TANK

MICROFILMED
JAN 28 1993

8016

6. Water is claimed for the following purposes:

		(both dates are inclusive)			(cfs)		(acre feet)
For MUNICIPAL	purposes from JAN. 1	to DEC. 31	amount	1.11		or	
For	purposes from	to	amount			or	
For	purposes from	to	amount			or	
For	purposes from	to	amount			or	

7. Total quantity claimed (a) 1.11 (cfs) and/or (b) ______ (acre feet)

8. Total consumptive use claimed is ______ acre feet per annum.

9. Non-irrigation uses; describe fully (eg. Domestic: Give number of households served; Stockwater: Type and number of livestock Etc.) MUNICIPAL

10. Description of place of use:
   a. If water is for irrigation, indicate acreage in each subdivision in the tabulation below.
   b. If water is used for other purposes, place a symbol of use (example: D for Domestic) in the corresponding place of use below. See instructions for standard symbols.

TWP	RNG	SEC	NE 1/4				NW 1/4				SW 1/4				SE 1/4				Totals
			NE1/4	NW1/4	SW1/4	SE1/4	NE1/4	NW1/4	SW1/4	SE1/4	NE1/4	NW1/4	SW1/4	SE1/4	NE1/4	NW1/4	SW1/4	SE1/4	

Total number of acres irrigated ______

11. In which county (ies) are lands listed above as place of use located? Jerome

12. Do you own the property listed above as place of use? Yes ______ No ______
If your answer is No, describe in Remarks below the authority you have to claim this water right.

13. Describe any other water rights used at the same place and for the same purposes as described above.
36-4195, 36-4196, 36-4197, 36-4198, 36-8237 or None ( )

14. Remarks:

Last Name Jerome Ident No. ______

15. Basis of Claim (check one) Beneficial Use ______ Posted Notice ______ License ______ Permit X
Decree ______
If applicable provide IDWR Water Right Number 36-2518
Court ______ Case Number ______ Decree Date ______
Plaintiff vs Defendant ______

16. Signature (s)
(a.) By signing below, I/We acknowledge that I/We have received, read, and understand the form entitled "How you will receive notice in the Snake River Basin Adjudication." (b.) I/We do X do not ____ wish to receive and pay a small annual fee for monthly copies of the docket sheet.
Number of attachments ______

For Individuals: I do solemnly swear or affirm that the statements contained in the foregoing document are true and correct.
Signature of Claimant (s) ______ Date ______
______ Date ______

For Organizations: I do solemnly swear or affirm that I am MAYOR (Title)
of CITY of JEROME (Organization), that I have signed the foregoing
document in the space below as MAYOR (Title) of CITY of JEROME (Organization)
and that the statements contained in the foregoing document are true and correct.

Signature of Authorized Agent MAYOR [signature]
Title and Organization CITY of JEROME Date ______

State of Idaho/or Idaho)
) SS.
County of Jerome)

Subscribed and sworn (or affirmed) before me this 21st day of February 19 90

SEAL Notary Public Helen A. Paoli
Residing at Jerome, Idaho
My Commission Expires September 11, 1995
Please Print Name

17. Notice of Appearance:
Notice is hereby given that I, ______ will be acting as attorney at law on behalf of the claimant signing above, and that all notices required by law to be mailed by the director to the claimant signing above should be mailed to me at the address listed below.

Signature ______

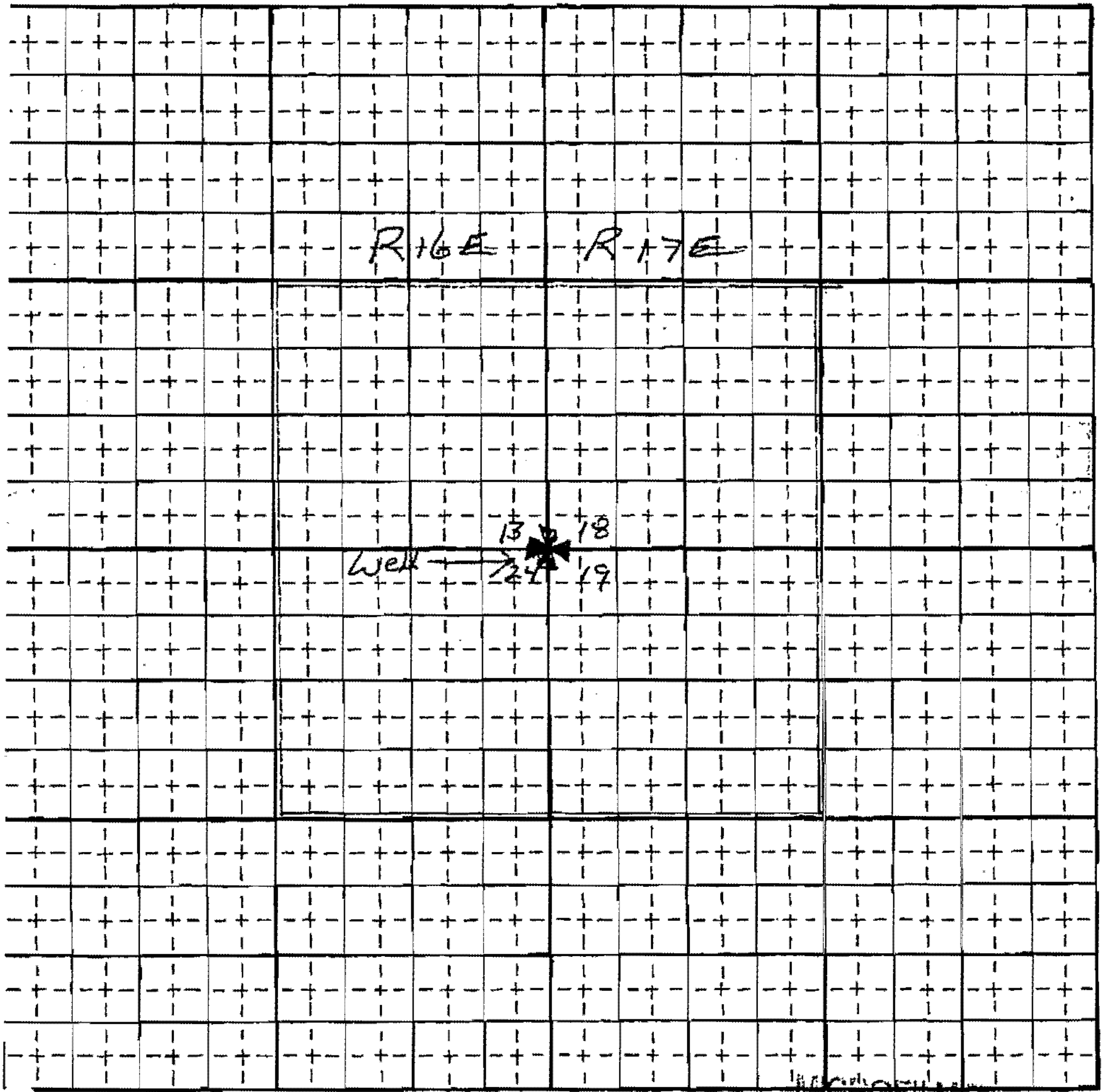
Address ______

Date ______

Last Name Jerome Ident. Number ______

Map of Project: show clearly the point of diversion, place of use, section number, township, and range number.

Scale: 2 inches equals 1 mile



Last Name Jerome Ident No. ______

Copies: White-State, Yellow-Claimant

8019

29-271 et al.
(Subcase No.)
EXHIBIT
Poc. 181
ADMITTED
Date: 3/1/07

ELEMENTS IN DISPUTE

07/10/2003

IDAHO DEPARTMENT OF WATER RESOURCES
RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

RIGHT NUMBER: 29-271

NAME AND ADDRESS: CITY OF POCATELLO
PO BOX 4169
POCATELLO ID 83205

SOURCE: MINK CREEK TRIBUTARY: PORTNEUF RIVER

QUANTITY: 3.220 CFS

PRIORITY DATE: 02/26/1869

POINT OF DIVERSION: T08S R34E S13 NESE Within BANNOCK County

Pocatello seeks 23 alternate points of diversion

PURPOSE AND PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
MUNICIPAL	1/01 12/31	3.220 CFS

PLACE OF USE:

Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho Law.

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

This partial decree is subject to such general provisions necessary for the definition of the rights or for the efficient administration of the water rights as may be ultimately determined by the Court at a point in time no later than the entry of a final unified decree. Section 42-1412(6), Idaho Code.

EXPLANATORY MATERIAL: BASIS OF CLAIM - Decreed

8020

Water Right No. 29-271

ELEMENTS THAT ARE IN DISPUTE

Pocatello seeks to resolve this element as follows:

(1) Point of Diversion:

Township	Range	Section	¼	of ¼	Pocatello Well No.
7S	34E	1	NW	NE	Well No. 2
7S	34E	1	SW	NE	Well No. 3
6S	34E	35	NW	SE	Well No. 7
6S	34E	26	NE	NW	Well No. 10
6S	34E	35	SE	NE	Well No. 12
7S	34E	1	SE	SE	Well No. 13
7S	35E	7	NE	SW	Well No. 14
7S	35E	6	NW	SE	Well No. 15
6S	34E	26	SW	SE	Well No. 16
6S	34E	15	NE	NW	Well No. 18
6S	34E	23	SW	NE	Well No. 21
6S	34E	23	SE	NW	Well No. 22
6S	34E	23	NW	NE	Well No. 23
6S	34E	15	NW	NE	Well No. 26
6S	34E	14	NW	NW	Well No. 27
7S	34E	1	NE	SE	Well No. 28
6S	34E	23	NE	SW	Well No. 29
6S	34E	35	NW	NE	Well No. 30
6S	34E	15	NE	SE	Well No. 31
6S	34E	16	NE	NE	Well No. 32
7S	35E	18	SE	NE	Well No. 33
6S	34E	15	NE	SE	Well No. 34
7S	35E	16	SW	SW	Well No. 44

8021

Water Right No. 29-271

DISPUTED ELEMENTS RESOLVED PRIOR TO TRIAL

Bureau of Land Management Objections

The BLM objected to the priority date, purpose of use and place of use elements. **BLM objections resolved pursuant to 11/22/04 *Order on Joint Motion to Dismiss Objections*.**

City of Pocatello Objections

1. Source, quantity, priority date and purpose of use (remark, general provision): All 38 of Pocatello's 38 state-based water rights should include the following remark regarding the City's water distribution facilities:

> The City of Pocatello's water supply system for distribution of all of its ground water and surface water supplies includes various reservoir and tank storage facilities, which are capable of being fully recharged by the quantity of water available in a 24-hour period from all of the city's sources of water. The right to use such storage facilities is therefore a part of each of the city's water rights.

Stipulation filed on 9/21/06 with parties agreeing that the above remark should not be added to the water right recommendations.

2. Separate Streams – **Pocatello's objections as to general provisions on separate streams were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

3. Separate Administration - **Pocatello's objections as to general provisions on separate administration were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

4. Swan Falls – **Issue separated and consolidated from Basin 29 subcases. Designated as Consolidated Subcase No. 92-34 in 12/5/03 Order. *Order Designating Basin -Wide Issue* entered on 8/23/04 and renumbered to Subcase No. 91-13. (Stayed pending reporting of Idaho Power rights in Basin 02)**

5. Place of Use – Should be "Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho law, including all lands necessary to complete the beneficial use of the municipal water right. Reason supporting objection: Beneficial use of a municipal water right includes all actions necessary to comply with public health and safety standards. Pocatello's municipal service area includes all lands necessary to complete the beneficial use of the municipal water rights. **Pocatello has accepted the language for place of use as contained in the Director's Report based on Stipulation filed on 9/21/06.**

8022

ELEMENTS IN DISPUTE

07/10/2003

IDAHO DEPARTMENT OF WATER RESOURCES
RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

RIGHT NUMBER: 29-272

NAME AND ADDRESS: CITY OF POCATELLO
PO BOX 4169
POCATELLO ID 83205

SOURCE: MINK CREEK TRIBUTARY: PORTNEUF RIVER

QUANTITY: 0.560 CFS

PRIORITY DATE: 10/01/1901

POINT OF DIVERSION: T08S R34E S13 NESE Within BANNOCK County

Pocatello seeks 23 alternate points of diversion

PURPOSE AND PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
MUNICIPAL	1/01 12/31	0.560 CFS

PLACE OF USE:

Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho Law

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

This partial decree is subject to such general provisions necessary for the definition of the rights or for the efficient administration of the water rights as may be ultimately determined by the Court at a point in time no later than the entry of a final unified decree. Section 42-1412(6), Idaho Code.

EXPLANATORY MATERIAL: BASIS OF CLAIM - Decreed

8023

Water Right No. 29-272

ELEMENTS THAT ARE IN DISPUTE

Pocatello seeks to resolve this element as follows:

(1) Point of Diversion:

Township	Range	Section	¼	of ¼	Pocatello Well No.
7S	34E	1	NW	NE	Well No. 2
7S	34E	1	SW	NE	Well No. 3
6S	34E	35	NW	SE	Well No. 7
6S	34E	26	NE	NW	Well No. 10
6S	34E	35	SE	NE	Well No. 12
7S	34E	1	SE	SE	Well No. 13
7S	35E	7	NE	SW	Well No. 14
7S	35E	6	NW	SE	Well No. 15
6S	34E	26	SW	SE	Well No. 16
6S	34E	15	NE	NW	Well No. 18
6S	34E	23	SW	NE	Well No. 21
6S	34E	23	SE	NW	Well No. 22
6S	34E	23	NW	NE	Well No. 23
6S	34E	15	NW	NE	Well No. 26
6S	34E	14	NW	NW	Well No. 27
7S	34E	1	NE	SE	Well No. 28
6S	34E	23	NE	SW	Well No. 29
6S	34E	35	NW	NE	Well No. 30
6S	34E	15	NE	SE	Well No. 31
6S	34E	16	NE	NE	Well No. 32
7S	35E	18	SE	NE	Well No. 33
6S	34E	15	NE	SE	Well No. 34
7S	35E	16	SW	SW	Well No. 44

8024

Water Right No. 29-272

DISPUTED ELEMENTS RESOLVED PRIOR TO TRIAL

Bureau of Land Management Objections

The BLM objected to the priority date, purpose of use and place of use elements. **BLM objections resolved pursuant to 11/22/04 *Order on Joint Motion to Dismiss Objections*.**

City of Pocatello Objections

1. Source, quantity, priority date and purpose of use (remark, general provision): All 38 of Pocatello's 38 state-based water rights should include the following remark regarding the City's water distribution facilities:

> The City of Pocatello's water supply system for distribution of all of its ground water and surface water supplies includes various reservoir and tank storage facilities, which are capable of being fully recharged by the quantity of water available in a 24-hour period from all of the city's sources of water. The right to use such storage facilities is therefore a part of each of the city's water rights.

Stipulation filed on 9/21/06 with parties agreeing that the above remark should not be added to the water right recommendations.

2. Separate Streams – **Pocatello's objections as to general provisions on separate streams were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

3. Separate Administration - **Pocatello's objections as to general provisions on separate administration were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

4. Swan Falls – **Issue separated and consolidated from Basin 29 subcases. Designated as Consolidated Subcase No. 92-34 in 12/5/03 Order. *Order Designating Basin -Wide Issue* entered on 8/23/04 and renumbered to Subcase No. 91-13. (Stayed pending reporting of Idaho Power rights in Basin 02)**

5. Place of Use – Should be "Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho law, including all lands necessary to complete the beneficial use of the municipal water right. Reason supporting objection: Beneficial use of a municipal water right includes all actions necessary to comply with public health and safety standards. Pocatello's municipal service area includes all lands necessary to complete the beneficial use of the municipal water rights. **Pocatello has accepted the language for place of use as contained in the Director's Report based on Stipulation filed on 9/21/06.**

8025

ELEMENTS IN DISPUTE

07/10/2003

IDAHO DEPARTMENT OF WATER RESOURCES
RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

RIGHT NUMBER: 29-273

NAME AND ADDRESS: CITY OF POCATELLO
PO BOX 4169
POCATELLO ID 83205

SOURCE: MINK CREEK TRIBUTARY: PORTNEUF RIVER

QUANTITY: 1.218 CFS

PRIORITY DATE: 10/01/1917

POINT OF DIVERSION: T08S R34E S13 NESE Within BANNOCK County

Pocatello seeks 23 alternate points of diversion

PURPOSE AND PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
MUNICIPAL	1/01 12/31	1.218 CFS

PLACE OF USE:

Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho Law.

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

This partial decree is subject to such general provisions necessary for the definition of the rights or for the efficient administration of the water rights as may be ultimately determined by the Court at a point in time no later than the entry of a final unified decree. Section 42-1412(6), Idaho Code.

EXPLANATORY MATERIAL: BASIS OF CLAIM - Decreed

8026

Water Right No. 29-273

ELEMENTS THAT ARE IN DISPUTE

Pocatello seeks to resolve this element as follows:

(1) Point of Diversion:

Township	Range	Section	¼	of ¼	Pocatello Well No.
7S	34E	1	NW	NE	Well No. 2
7S	34E	1	SW	NE	Well No. 3
6S	34E	35	NW	SE	Well No. 7
6S	34E	26	NE	NW	Well No. 10
6S	34E	35	SE	NE	Well No. 12
7S	34E	1	SE	SE	Well No. 13
7S	35E	7	NE	SW	Well No. 14
7S	35E	6	NW	SE	Well No. 15
6S	34E	26	SW	SE	Well No. 16
6S	34E	15	NE	NW	Well No. 18
6S	34E	23	SW	NE	Well No. 21
6S	34E	23	SE	NW	Well No. 22
6S	34E	23	NW	NE	Well No. 23
6S	34E	15	NW	NE	Well No. 26
6S	34E	14	NW	NW	Well No. 27
7S	34E	1	NE	SE	Well No. 28
6S	34E	23	NE	SW	Well No. 29
6S	34E	35	NW	NE	Well No. 30
6S	34E	15	NE	SE	Well No. 31
6S	34E	16	NE	NE	Well No. 32
7S	35E	18	SE	NE	Well No. 33
6S	34E	15	NE	SE	Well No. 34
7S	35E	16	SW	SW	Well No. 44

Water Right No. 29-273

DISPUTED ELEMENTS RESOLVED PRIOR TO TRIAL

Bureau of Land Management Objections

The BLM objected to the priority date, purpose of use and place of use elements. **BLM objections resolved pursuant to 11/22/04 *Order on Joint Motion to Dismiss Objections.***

City of Pocatello Objections

1. Source, quantity, priority date and purpose of use (remark, general provision): All 38 of Pocatello's 38 state-based water rights should include the following remark regarding the City's water distribution facilities:

> The City of Pocatello's water supply system for distribution of all of its ground water and surface water supplies includes various reservoir and tank storage facilities, which are capable of being fully recharged by the quantity of water available in a 24-hour period from all of the city's sources of water. The right to use such storage facilities is therefore a part of each of the city's water rights.

Stipulation filed on 9/21/06 with parties agreeing that the above remark should not be added to the water right recommendations.

2. Separate Streams – **Pocatello's objections as to general provisions on separate streams were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

3. Separate Administration - **Pocatello's objections as to general provisions on separate administration were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

4. Swan Falls – **Issue separated and consolidated from Basin 29 subcases. Designated as Consolidated Subcase No. 92-34 in 12/5/03 Order. *Order Designating Basin -Wide Issue* entered on 8/23/04 and renumbered to Subcase No. 91-13. (Stayed pending reporting of Idaho Power rights in Basin 02)**

5. Place of Use – Should be "Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho law, including all lands necessary to complete the beneficial use of the municipal water right. Reason supporting objection: Beneficial use of a municipal water right includes all actions necessary to comply with public health and safety standards. Pocatello's municipal service area includes all lands necessary to complete the beneficial use of the municipal water rights. **Pocatello has accepted the language for place of use as contained in the Director's Report based on Stipulation filed on 9/21/06.** 8028

ELEMENTS IN DISPUTE

07/10/2003

IDAHO DEPARTMENT OF WATER RESOURCES
RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

RIGHT NUMBER: 29-2274

NAME AND ADDRESS: CITY OF POCATELLO
PO BOX 4169
POCATELLO ID 83205

SOURCE: GROUND WATER

TRIBUTARY:

QUANTITY: 9.690 CFS

PRIORITY DATE: 06/15/1948

POINT OF DIVERSION:

T06S R33E S10 NESE Within POWER County
T06S R33E S12 NESE Within POWER County
T06S R33E S15 SWNE Within POWER County
T06S R34E S15 NWSW Within BANNOCK County
* T06S R34E S26 NENW Within BANNOCK County
T06S R34E S27 NWSE Within BANNOCK County
* T06S R34E S35 SENE Within BANNOCK County
T06S R34E S35 SENE Within BANNOCK County
* T06S R34E S35 NWSE Within BANNOCK County
T06S R34E S35 NWSE Within BANNOCK County
T06S R34E S35 NWSE Within BANNOCK County
* T07S R34E S1 SESE Within BANNOCK County
* T07S R35E S16 SWSW Within BANNOCK County

Five* of these points of diversion are part of an interconnected network of 23 wells. Pocatello seeks to add the other 18 points of diversion.

PURPOSE AND PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
MUNICIPAL	01/01 12/31	9.690 CFS

PLACE OF USE:

8029

Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho Law.

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

This partial decree is subject to such general provisions necessary for the definition of the rights or for the efficient administration of the water rights as may be ultimately determined by the Court at a point in time no later than the entry of a final unified decree Section 42-1412(6), Idaho Code.

EXPLANATORY MATERIAL: BASIS OF CLAIM - License

The right holder shall measure and annually report diversions of water and/or other pertinent hydrologic and system information as required by Section 42-701, Idaho Code.

Use of water under this approval shall comply with applicable water quality standards of the Division of Environmental Quality of the Idaho Department of Health and Welfare.

Prior to diversion of water under this approval, the right holder shall provide a means of measurement acceptable to the Department from all authorized points of diversion which will allow determination of the total rate of diversion.

Water Right No. 29-2274

ELEMENTS THAT ARE IN DISPUTE

Pocatello seeks to resolve this element as follows:

(1) Point of Diversion: The interconnected network of wells should include 23 points of diversion, serving 21 ground water rights (29-2274, 29-2338, 29-2401, 29-2499, 29-4221, 29-4223, 29-4224, 29-4225, 29-4226, 29-7106, 29-7322, 29-7375, 29-11339, 29-11348, 29-13558, 29-13559, 29-13560, 29-13561, 29-13562, 29-13637 & 29-13639).

	Township	Range	Section	¼	of ¼	Pocatello Well No.
	7S	34E	1	NW	NE	Well No. 2
	7S	34E	1	SW	NE	Well No. 3
*	6S	34E	35	NW	SE	Well No. 7
*	6S	34E	26	NE	NW	Well No. 10
*	6S	34E	35	SE	NE	Well No. 12
*	7S	34E	1	SE	SE	Well No. 13
	7S	35E	7	NE	SW	Well No. 14
	7S	35E	6	NW	SE	Well No. 15
	6S	34E	26	SW	SE	Well No. 16
	6S	34E	15	NE	NW	Well No. 18
	6S	34E	23	SW	NE	Well No. 21
	6S	34E	23	SE	NW	Well No. 22
	6S	34E	23	NW	NE	Well No. 23
	6S	34E	15	NW	NE	Well No. 26
	6S	34E	14	NW	NW	Well No. 27
	7S	34E	1	NE	SE	Well No. 28
	6S	34E	23	NE	SW	Well No. 29
	6S	34E	35	NW	NE	Well No. 30
	6S	34E	15	NE	SE	Well No. 31
	6S	34E	16	NE	NE	Well No. 32
	7S	35E	18	SE	NE	Well No. 33
	6S	34E	15	NE	SE	Well No. 34
*	7S	35E	16	SW	SW	Well No. 44

* well already listed as point of diversion for 29-2274

8031

Water Right No. 29-2274

DISPUTED ELEMENTS RESOLVED PRIOR TO TRIAL

Bureau of Land Management Objections

The BLM objected to the priority date, purpose of use and place of use elements. **BLM objections resolved pursuant to 11/22/04 *Order on Joint Motion to Dismiss Objections.***

City of Pocatello Objections

1. Source, quantity, priority date and purpose of use (remark, general provision): All 38 of Pocatello's 38 state-based water rights should include the following remark regarding the City's water distribution facilities:

> The City of Pocatello's water supply system for distribution of all of its ground water and surface water supplies includes various reservoir and tank storage facilities, which are capable of being fully recharged by the quantity of water available in a 24-hour period from all of the city's sources of water. The right to use such storage facilities is therefore a part of each of the city's water rights.

Stipulation filed on 9/21/06 with parties agreeing that the above remark should not be added to the water right recommendations.

2. Separate Streams – **Pocatello's objections as to general provisions on separate streams were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

3. Separate Administration - **Pocatello's objections as to general provisions on separate administration were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

4. Swan Falls – **Issue separated and consolidated from Basin 29 subcases. Designated as Consolidated Subcase No. 92-34 in 12/5/03 Order. *Order Designating Basin -Wide Issue* entered on 8/23/04 and renumbered to Subcase No. 91-13. (Stayed pending reporting of Idaho Power rights in Basin 02)**

5. Place of Use – Should be: Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho law, including all lands necessary to complete the beneficial use of the municipal water right. Reason Supporting Objection: Beneficial use of a municipal water right includes all actions necessary to comply with public health and safety standards. The City of Pocatello's municipal service area includes all lands necessary to complete the beneficial use of the municipal water rights. **Pocatello has accepted the language for place of use as contained in the Director's Report based on Stipulation filed on 9/21/06.** 8032

ELEMENTS IN DISPUTE

07/10/2003

IDAHO DEPARTMENT OF WATER RESOURCES
RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

RIGHT NUMBER: 29-2338

NAME AND ADDRESS: CITY OF POCATELLO
PO BOX 4169
POCATELLO ID 83205

SOURCE: GROUND WATER TRIBUTARY:

QUANTITY: 9.530 CFS

PRIORITY DATE: 09/01/1953

POINT OF DIVERSION:

T06S R33E S10 NESE Within POWER County
T06S R33E S12 NESE Within POWER County
T06S R33E S15 SWNE Within POWER County
T06S R34E S15 NWSW Within BANNOCK County
* T06S R34E S26 NENW Within BANNOCK County
T06S R34E S27 NWSE Within BANNOCK County
* T06S R34E S35 SENE Within BANNOCK County
T06S R34E S35 SENE Within BANNOCK County
* T06S R34E S35 NWSE Within BANNOCK County
T06S R34E S35 NWSE Within BANNOCK County
T06S R34E S35 NWSE Within BANNOCK County
* T07S R34E S1 SESE Within BANNOCK County
* T07S R35E S16 SWSW Within BANNOCK County

Five * of these points of diversion are part of an interconnected network of 23 wells. Pocatello seeks to add the other 18 points of diversion.

PURPOSE AND PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
MUNICIPAL	01/01 12/31	9.530 CFS

PLACE OF USE:

8033

Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho Law.

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

This partial decree is subject to such general provisions necessary for the definition of the rights or for the efficient administration of the water rights as may be ultimately determined by the Court at a point in time no later than the entry of a final unified decree. Section 42-1412(6), Idaho Code.

EXPLANATORY MATERIAL: BASIS OF CLAIM - License

The right holder shall measure and annually report diversions of water and/or other pertinent hydrologic and system information as required by Section 42-701, Idaho Code.

Use of water under this approval shall comply with applicable water quality standards of the Division of Environmental Quality of the Idaho Department of Health and Welfare.

Prior to diversion of water under this approval, the right holder shall provide a means of measurement acceptable to the Department from all authorized points of diversion which will allow determination of the total rate of diversion.

8J34

Water Right No. 29-2338

ELEMENTS THAT ARE IN DISPUTE

Pocatello seeks to resolve this element as follows:

(1) Point of Diversion: The interconnected network of wells should include 23 points of diversion, serving 21 ground water rights (29-2274, 29-2338, 29-2401, 29-2499, 29-4221, 29-4223, 29-4224, 29-4225, 29-4226, 29-7106, 29-7322, 29-7375, 29-11339, 29-11348, 29-13558, 29-13559, 29-13560, 29-13561, 29-13562, 29-13637 & 29-13639).

	Township	Range	Section	¼	of ¼	Pocatello Well No.
	7S	34E	1	NW	NE	Well No. 2
	7S	34E	1	SW	NE	Well No. 3
*	6S	34E	35	NW	SE	Well No. 7
*	6S	34E	26	NE	NW	Well No. 10
*	6S	34E	35	SE	NE	Well No. 12
*	7S	34E	1	SE	SE	Well No. 13
	7S	35E	7	NE	SW	Well No. 14
	7S	35E	6	NW	SE	Well No. 15
	6S	34E	26	SW	SE	Well No. 16
	6S	34E	15	NE	NW	Well No. 18
	6S	34E	23	SW	NE	Well No. 21
	6S	34E	23	SE	NW	Well No. 22
	6S	34E	23	NW	NE	Well No. 23
	6S	34E	15	NW	NE	Well No. 26
	6S	34E	14	NW	NW	Well No. 27
	7S	34E	1	NE	SE	Well No. 28
	6S	34E	23	NE	SW	Well No. 29
	6S	34E	35	NW	NE	Well No. 30
	6S	34E	15	NE	SE	Well No. 31
	6S	34E	16	NE	NE	Well No. 32
	7S	35E	18	SE	NE	Well No. 33
	6S	34E	15	NE	SE	Well No. 34
*	7S	35E	16	SW	SW	Well No. 44

* well already listed as point of diversion for 29-2338

8035

Water Right No. 29-2338

DISPUTED ELEMENTS RESOLVED PRIOR TO TRIAL

Bureau of Land Management Objections

The BLM objected to the priority date, purpose of use and place of use elements. **BLM objections resolved pursuant to 11/22/04 *Order on Joint Motion to Dismiss Objections*.**

City of Pocatello Objections

1. Source, quantity, priority date and purpose of use (remark, general provision): All 38 of Pocatello's 38 state-based water rights should include the following remark regarding the City's water distribution facilities:

> The City of Pocatello's water supply system for distribution of all of its ground water and surface water supplies includes various reservoir and tank storage facilities, which are capable of being fully recharged by the quantity of water available in a 24-hour period from all of the city's sources of water. The right to use such storage facilities is therefore a part of each of the city's water rights.

Stipulation filed on 9/21/06 with parties agreeing that the above remark should not be added to the water right recommendations.

2. Separate Streams – **Pocatello's objections as to general provisions on separate streams were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

3. Separate Administration - **Pocatello's objections as to general provisions on separate administration were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

4. Swan Falls – **Issue separated and consolidated from Basin 29 subcases. Designated as Consolidated Subcase No. 92-34 in 12/5/03 Order. *Order Designating Basin -Wide Issue* entered on 8/23/04 and renumbered to Subcase No. 91-13. (Stayed pending reporting of Idaho Power rights in Basin 02)**

5. Place of Use – Should be: Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho law, including all lands necessary to complete the beneficial use of the municipal water right. Reason Supporting Objection: Beneficial use of a municipal water right includes all actions necessary to comply with public health and safety standards. The City of Pocatello's municipal service area includes all lands necessary to complete the beneficial use of the municipal water rights. **Pocatello has accepted the language for place of use as contained in the Director's Report based on Stipulation filed on 9/21/06.** 8036

NO ELEMENTS IN DISPUTE

07/10/2003

IDAHO DEPARTMENT OF WATER RESOURCES
RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

RIGHT NUMBER: 29-2354

NAME AND ADDRESS: CITY OF POCATELLO
PO BOX 4169
POCATELLO ID 83205

SOURCE: GROUND WATER TRIBUTARY:

QUANTITY: 0.280 CFS
56.00 AFY

PRIORITY DATE: 08/27/1954

POINT OF DIVERSION: T07S R35E S6 NWNW Lot 4 Within BANNOCK County

PURPOSE AND PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
IRRIGATION	04/01 10/31	0.280 CFS 56.00 AFY

PLACE OF USE: IRRIGATION Within BANNOCK County

T07S R34E S01 Lot 1 NENE 1.0 T07S R35E S06 Lot 4 NWNW 18.0

19 ACRES TOTAL

USE OF THIS RIGHT WITH RIGHT NO. 29-7502 IS LIMITED TO THE IRRIGATION OF A COMBINED TOTAL OF 19 ACRES IN A SINGLE IRRIGATION SEASON.

THIS RIGHT IS LIMITED TO THE IRRIGATION OF 14 ACRES WITHIN THE PLACE OF USE DESCRIBED ABOVE IN A SINGLE IRRIGATION SEASON.

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

This partial decree is subject to such general provisions necessary for the definition of the rights or for the efficient administration of the water rights as may be ultimately determined by the Court at a point in time no later than the entry of a final unified decree. Section 42-1412(6), Idaho Code .

EXPLANATORY MATERIAL: BASIS OF CLAIM - License

RIGHT INCLUDES ACCOMPLISHED CHANGE IN PLACE OF USE PURSUANT TO SECTION 42-1425, IDAHO CODE.

8037

Water Right No. 29-2354

ELEMENTS THAT ARE IN DISPUTE

NONE

Water Right No. 29-2354

DISPUTED ELEMENTS RESOLVED PRIOR TO TRIAL

Bureau of Land Management Objections

The BLM objected to the priority date, purpose of use and place of use elements. **BLM objections resolved pursuant to 11/22/04 *Order on Joint Motion to Dismiss Objections.***

City of Pocatello Objections

1. Source, quantity, priority date and purpose of use (remark, general provision): All 38 of Pocatello's 38 state-based water rights should include the following remark regarding the City's water distribution facilities:

> The City of Pocatello's water supply system for distribution of all of its ground water and surface water supplies includes various reservoir and tank storage facilities, which are capable of being fully recharged by the quantity of water available in a 24-hour period from all of the city's sources of water. The right to use such storage facilities is therefore a part of each of the city's water rights.

Stipulation filed on 9/21/06 with parties agreeing that the above remark should not be added to the water right recommendations.

2. Separate Streams – **Pocatello's objections as to general provisions on separate streams were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

3. Separate Administration - **Pocatello's objections as to general provisions on separate administration were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

4. Swan Falls – **Issue separated and consolidated from Basin 29 subcases. Designated as Consolidated Subcase No. 92-34 in 12/5/03 Order. *Order Designating Basin -Wide Issue* entered on 8/23/04 and renumbered to Subcase No. 91-13. (Stayed pending reporting of Idaho Power rights in Basin 02)**

5. Place of Use – Should be: Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho law, including all lands necessary to complete the beneficial use of the municipal water right. Reason Supporting Objection: Beneficial use of a municipal water right includes all actions necessary to comply with public health and safety standards. The City of Pocatello's municipal service area includes all lands necessary to complete the beneficial use of the municipal water rights. **Pocatello has accepted the language for place of use as contained in the Director's Report based on Stipulation filed on 9/21/06.** 8039

NO ELEMENTS IN DISPUTE

07/10/2003

IDAHO DEPARTMENT OF WATER RESOURCES
RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

RIGHT NUMBER: 29-2382

NAME AND ADDRESS: CITY OF POCATELLO
PO BOX 4169
POCATELLO ID 83205

SOURCE: GROUND WATER TRIBUTARY:

QUANTITY: 3.820 CFS
450 00 AFY

PRIORITY DATE: 12/21/1956

POINT OF DIVERSION: T06S R34E S12 NWSE Within BANNOCK County

PURPOSE AND PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
MUNICIPAL	04/01 10/31	3.820 CFS 450.00 AFY

PLACE OF USE:

Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho Law. This right is used for the irrigation of the Highland Golf Course.

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

This partial decree is subject to such general provisions necessary for the definition of the rights or for the efficient administration of the water rights as may be ultimately determined by the Court at a point in time no later than the entry of a final unified decree. Section 42-1412(6), Idaho Code.

EXPLANATORY MATERIAL: BASIS OF CLAIM - License

RIGHT INCLUDES ACCOMPLISHED CHANGE IN PURPOSE OF USE PURSUANT TO SECTION 42-1425, IDAHO CODE.

RIGHT INCLUDES ACCOMPLISHED CHANGE IN PLACE OF USE PURSUANT TO SECTION 42-1425, IDAHO CODE.

8040

Water Right No. 29-2382

ELEMENTS THAT ARE IN DISPUTE

NONE

8041

Water Right No. 29-2382

DISPUTED ELEMENTS RESOLVED PRIOR TO TRIAL

Bureau of Land Management Objections

The BLM objected to the priority date, purpose of use and place of use elements. **BLM objections resolved pursuant to 11/22/04 *Order on Joint Motion to Dismiss Objections.***

City of Pocatello Objections

1. Source, quantity, priority date and purpose of use (remark, general provision): All 38 of Pocatello's 38 state-based water rights should include the following remark regarding the City's water distribution facilities:

> The City of Pocatello's water supply system for distribution of all of its ground water and surface water supplies includes various reservoir and tank storage facilities, which are capable of being fully recharged by the quantity of water available in a 24-hour period from all of the city's sources of water. The right to use such storage facilities is therefore a part of each of the city's water rights.

Stipulation filed on 9/21/06 with parties agreeing that the above remark should not be added to the water right recommendations.

2. Separate Streams – **Pocatello's objections as to general provisions on separate streams were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

3. Separate Administration - **Pocatello's objections as to general provisions on separate administration were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

4. Swan Falls – **Issue separated and consolidated from Basin 29 subcases. Designated as Consolidated Subcase No. 92-34 in 12/5/03 Order. *Order Designating Basin -Wide Issue* entered on 8/23/04 and renumbered to Subcase No. 91-13. (Stayed pending reporting of Idaho Power rights in Basin 02)**

5. Place of Use – Should be: Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho law, including all lands necessary to complete the beneficial use of the municipal water right. Reasons Supporting Objection: Beneficial use of a municipal water right includes all actions necessary to comply with public health and safety standards. The City of Pocatello's municipal service area includes all lands necessary to complete the beneficial use of the municipal water rights. **Pocatello has accepted the language for place of use as contained in the Director's Report based on Stipulation filed on 9/21/06.**

ELEMENTS IN DISPUTE

10/31/2006

IDAHO DEPARTMENT OF WATER RESOURCES
RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

RIGHT NUMBER: 29-2401

NAME AND ADDRESS: CITY OF POCATELLO
PO BOX 4169
POCATELLO ID 83205

SOURCE: GROUND WATER TRIBUTARY:

QUANTITY: 12 220 CFS

PRIORITY DATE: 10/16/1958

POINT OF DIVERSION:

T06S R34E S14 NWNW Within BANNOCK County
T06S R34E S15 NWNE Within BANNOCK County
T06S R34E S15 NENW Within BANNOCK County
T06S R34E S15 NESE Within BANNOCK County
T06S R34E S15 NESE Within BANNOCK County
T06S R34E S16 NENE Within BANNOCK County
T06S R34E S23 NWNE Within BANNOCK County
T06S R34E S23 SWNE Within BANNOCK County
T06S R34E S23 SENW Within BANNOCK County
T06S R34E S23 NESW Within BANNOCK County
T06S R34E S26 NENW Within BANNOCK County
T06S R34E S26 SWSE Within BANNOCK County
T06S R34E S35 NWNE Within BANNOCK County
T06S R34E S35 SENE Within BANNOCK County
T06S R34E S35 NWSE Within BANNOCK County
T07S R34E S1 NWNE Lot 2 Within BANNOCK County
T07S R34E S1 SWNE Within BANNOCK County
T07S R34E S1 NESE Within BANNOCK County
T07S R34E S1 SESE Within BANNOCK County
T07S R35E S6 NWSE Within BANNOCK County
T07S R35E S7 NESW Within BANNOCK County
T07S R35E S18 SENE Within BANNOCK County

Pocatello seeks to add one point of diversion

PURPOSE AND PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
MUNICIPAL	01/01 12/31	12.220 CFS

PLACE OF USE:

Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho Law.

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

Remove remark

To the extent necessary for administration between points of diversion for ground water, and between points of diversion for ground water and hydraulically connected surface sources, ground water was first diverted under this right from Pocatello Well No. 13 located in T07S, R34E, S01, SESE in the amount of 0.89 cfs, from Pocatello Well No. 16 located in T06S, R34E, S26, SWSE in the amount of 6.67 cfs and from Pocatello Well No. 18 located in T06S, R34E, S15, NENW in the amount of 4.66 cfs.

8043

This partial decree is subject to such general provisions necessary for the definition of the rights or for the efficient administration of the water rights as may be ultimately determined by the Court at a point in time no later than the entry of a final unified decree. Section 42-1412(6), Idaho

10/31/2006

IDAHO DEPARTMENT OF WATER RESOURCES
RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

EXPLANATORY MATERIAL: BASIS OF CLAIM - License

RIGHT INCLUDES ACCOMPLISHED CHANGE IN POINT OF DIVERSION
PURSUANT TO SECTION 42-1425, IDAHO CODE

Pocatello Well No. 13 was also known as the Riverside Golf Course Well.

Water Right No. 29-2401

ELEMENTS THAT ARE IN DISPUTE

Pocatello seeks to resolve this element as follows:

(1) **Point of Diversion:** The interconnected network of wells should include 23 points of diversion, serving 21 ground water rights (29-2274, 29-2338, 29-2401, 29-2499, 29-4221, 29-4223, 29-4224, 29-4225, 29-4226, 29-7106, 29-7322, 29-7375, 29-11339, 29-11348, 29-13558, 29-13559, 29-13560, 29-13561, 29-13562, 29-13637 & 29-13639).

Township	Range	Section	¼	of ¼	Pocatello Well No.	
7S	34E	1	NW	NE	Well No. 2	
7S	34E	1	SW	NE	Well No. 3	
6S	34E	35	NW	SE	Well No. 7	
6S	34E	26	NE	NW	Well No. 10	
6S	34E	35	SE	NE	Well No. 12	
7S	34E	1	SE	SE	Well No. 13	
7S	35E	7	NE	SW	Well No. 14	
7S	35E	6	NW	SE	Well No. 15	
6S	34E	26	SW	SE	Well No. 16	
6S	34E	15	NE	NW	Well No. 18	
6S	34E	23	SW	NE	Well No. 21	
6S	34E	23	SE	NW	Well No. 22	
6S	34E	23	NW	NE	Well No. 23	
6S	34E	15	NW	NE	Well No. 26	
6S	34E	14	NW	NW	Well No. 27	
7S	34E	1	NE	SE	Well No. 28	
6S	34E	23	NE	SW	Well No. 29	
6S	34E	35	NW	NE	Well No. 30	
6S	34E	15	NE	SE	Well No. 31	
6S	34E	16	NE	NE	Well No. 32	
7S	35E	18	SE	NE	Well No. 33	
6S	34E	15	NE	SE	Well No. 34	
7S	35E	16	SW	SW	Well No. 44	(the additional point of diversion)

(2) **Other provisions necessary for definition or administration of this water right:** Remove circled language from the Director's Report.

8045

Water Right No. 29-2401

DISPUTED ELEMENTS RESOLVED PRIOR TO TRIAL

Bureau of Land Management Objections

The BLM objected to the priority date, purpose of use and place of use elements. **BLM objections resolved pursuant to 11/22/04 *Order on Joint Motion to Dismiss Objections.***

City of Pocatello Objections

1. Source, quantity, priority date and purpose of use (remark, general provision): All 38 of Pocatello's 38 state-based water rights should include the following remark regarding the City's water distribution facilities:

> The City of Pocatello's water supply system for distribution of all of its ground water and surface water supplies includes various reservoir and tank storage facilities, which are capable of being fully recharged by the quantity of water available in a 24-hour period from all of the city's sources of water. The right to use such storage facilities is therefore a part of each of the city's water rights.

Stipulation filed on 9/21/06 with parties agreeing that the above remark should not be added to the water right recommendations.

2. Separate Streams – **Pocatello's objections as to general provisions on separate streams were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

3. Separate Administration - **Pocatello's objections as to general provisions on separate administration were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

4. Swan Falls – **Issue separated and consolidated from Basin 29 subcases. Designated as Consolidated Subcase No. 92-34 in 12/5/03 Order. *Order Designating Basin -Wide Issue* entered on 8/23/04 and renumbered to Subcase No. 91-13. (Stayed pending reporting of Idaho Power rights in Basin 02)**

5. Place of Use – Should be: Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho law, including all lands necessary to complete the beneficial use of the municipal water right. Reason Supporting Objection: Beneficial use of a municipal water right includes all actions necessary to comply with public health and safety standards. The City of Pocatello's municipal service area includes all lands necessary to complete the beneficial use of the municipal water rights. **Pocatello has accepted the language for place of use as contained in the Director's Report based on Stipulation filed on 9/21/06.** 8046

ELEMENTS IN DISPUTE

10/31/2006

IDAHO DEPARTMENT OF WATER RESOURCES
RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

RIGHT NUMBER: 29-2499

NAME AND ADDRESS: CITY OF POCATELLO
PO BOX 4169
POCATELLO ID 83205

SOURCE: GROUND WATER   TRIBUTARY:

QUANTITY: 4.100 CFS

PRIORITY DATE: 12/10/1964

POINT OF DIVERSION:

T06S R34E S14 NWNW Within BANNOCK County
T06S R34E S15 NWNE Within BANNOCK County
T06S R34E S15 NENW Within BANNOCK County
T06S R34E S15 NESE Within BANNOCK County
T06S R34E S15 NESE Within BANNOCK County
T06S R34E S16 NENE Within BANNOCK County
T06S R34E S23 NWNE Within BANNOCK County
T06S R34E S23 SWNE Within BANNOCK County
T06S R34E S23 SENW Within BANNOCK County
T06S R34E S23 NESW Within BANNOCK County
T06S R34E S26 NENW Within BANNOCK County
T06S R34E S26 SWSE Within BANNOCK County
T06S R34E S35 NWNE Within BANNOCK County
T06S R34E S35 SENE Within BANNOCK County
T06S R34E S35 NWSE Within BANNOCK County
T07S R34E S1 NWNE Lot 2 Within BANNOCK County
T07S R34E S1 SWNE Within BANNOCK County
T07S R34E S1 NESE Within BANNOCK County
T07S R34E S1 SESE Within BANNOCK County
T07S R35E S6 NWSE Within BANNOCK County
T07S R35E S7 NESW Within BANNOCK County
T07S R35E S18 SENE Within BANNOCK County

Pocatello seeks to add one point of diversion

PURPOSE AND PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
MUNICIPAL	01/01 12/31	4.100 CFS

PLACE OF USE:

Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho Law.

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

Remove

To the extent necessary for administration between points of diversion for ground water, and between points of diversion for ground water and hydraulically connected surface sources, ground water was first diverted under this right from Pocatello Well No. 27 located in T06S, R34E, S14, NWNW.

This partial decree is subject to such general provisions necessary for the definition of the rights or for the efficient administration of the water rights as may be ultimately determined by the Court at a point in time no later than the entry of a final unified decree. Section 42-1412(6), Idaho Code.

8047

IDAHO DEPARTMENT OF WATER RESOURCES
RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

EXPLANATORY MATERIAL: BASIS OF CLAIM - License

RIGHT INCLUDES ACCOMPLISHED CHANGE IN POINT OF DIVERSION PURSUANT TO SECTION 42-1425, IDAHO CODE.

Water Right No. 29-2499

ELEMENTS THAT ARE IN DISPUTE

Pocatello seeks to resolve this element as follows:

(1) **Point of Diversion:** The interconnected network of wells should include 23 points of diversion, serving 21 ground water rights (29-2274, 29-2338, 29-2401, 29-2499, 29-4221, 29-4223, 29-4224, 29-4225, 29-4226, 29-7106, 29-7322, 29-7375, 29-11339, 29-11348, 29-13558, 29-13559, 29-13560, 29-13561, 29-13562, 29-13637 & 29-13639).

Township	Range	Section	¼	of ¼	Pocatello Well No.	
7S	34E	1	NW	NE	Well No. 2	
7S	34E	1	SW	NE	Well No. 3	
6S	34E	35	NW	SE	Well No. 7	
6S	34E	26	NE	NW	Well No. 10	
6S	34E	35	SE	NE	Well No. 12	
7S	34E	1	SE	SE	Well No. 13	
7S	35E	7	NE	SW	Well No. 14	
7S	35E	6	NW	SE	Well No. 15	
6S	34E	26	SW	SE	Well No. 16	
6S	34E	15	NE	NW	Well No. 18	
6S	34E	23	SW	NE	Well No. 21	
6S	34E	23	SE	NW	Well No. 22	
6S	34E	23	NW	NE	Well No. 23	
6S	34E	15	NW	NE	Well No. 26	
6S	34E	14	NW	NW	Well No. 27	
7S	34E	1	NE	SE	Well No. 28	
6S	34E	23	NE	SW	Well No. 29	
6S	34E	35	NW	NE	Well No. 30	
6S	34E	15	NE	SE	Well No. 31	
6S	34E	16	NE	NE	Well No. 32	
7S	35E	18	SE	NE	Well No. 33	
6S	34E	15	NE	SE	Well No. 34	
7S	35E	16	SW	SW	Well No. 44	(the additional point of diversion)

(2) **Other provisions necessary for definition or administration of this water right:** Remove circled language from the Director's Report.

Water Right No. 29-2499

DISPUTED ELEMENTS RESOLVED PRIOR TO TRIAL

Bureau of Land Management Objections

The BLM objected to the priority date, purpose of use and place of use elements. **BLM objections resolved pursuant to 11/22/04 *Order on Joint Motion to Dismiss Objections*.**

City of Pocatello Objections

1. Source, quantity, priority date and purpose of use (remark, general provision): All 38 of Pocatello's 38 state-based water rights should include the following remark regarding the City's water distribution facilities:

> The City of Pocatello's water supply system for distribution of all of its ground water and surface water supplies includes various reservoir and tank storage facilities, which are capable of being fully recharged by the quantity of water available in a 24-hour period from all of the city's sources of water. The right to use such storage facilities is therefore a part of each of the city's water rights.

Stipulation filed on 9/21/06 with parties agreeing that the above remark should not be added to the water right recommendations.

2. Separate Streams – **Pocatello's objections as to general provisions on separate streams were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

3. Separate Administration - **Pocatello's objections as to general provisions on separate administration were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

4. Swan Falls – **Issue separated and consolidated from Basin 29 subcases. Designated as Consolidated Subcase No. 92-34 in 12/5/03 Order. *Order Designating Basin -Wide Issue* entered on 8/23/04 and renumbered to Subcase No. 91-13. (Stayed pending reporting of Idaho Power rights in Basin 02)**

5. Place of Use – Should be: Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho law, including all lands necessary to complete the beneficial use of the municipal water right. Reason Supporting Objection: Beneficial use of a municipal water right includes all actions necessary to comply with public health and safety standards. The City of Pocatello's municipal service area includes all lands necessary to complete the beneficial use of the municipal water rights. **Pocatello has accepted the language for place of use as contained in the Director's Report based on Stipulation filed on 9/21/06.** 8050

ELEMENTS IN DISPUTE

02/21/2007

IDAHO DEPARTMENT OF WATER RESOURCES

RECOMMENDATION OF WATER RIGHTS ACQUIRED UNDER STATE LAW

RIGHT NUMBER: 29-4221

NAME AND ADDRESS: CITY OF POCATELLO
PO BOX 4169
POCATELLO ID 83205

SOURCE: GROUND WATER

TRIBUTARY:

QUANTITY: 2.670 CFS

PRIORITY DATE: 08/02/1943
~~06/01/1945~~

POINT OF DIVERSION:

T06S R34E S14 NWNW Within BANNOCK County
T06S R34E S15 NWNE Within BANNOCK County
T06S R34E S15 NENW Within BANNOCK County
T06S R34E S15 NESE Within BANNOCK County
T06S R34E S15 NESE Within BANNOCK County
T06S R34E S16 NENE Within BANNOCK County
T06S R34E S23 NWNE Within BANNOCK County
T06S R34E S23 SWNE Within BANNOCK County
T06S R34E S23 SENW Within BANNOCK County
T06S R34E S23 NESW Within BANNOCK County
T06S R34E S26 NENW Within BANNOCK County
T06S R34E S26 SWSE Within BANNOCK County
T06S R34E S35 NWNE Within BANNOCK County
T06S R34E S35 SENE Within BANNOCK County
T06S R34E S35 NWSE Within BANNOCK County
T07S R34E S1 NWNE Lot 2 Within BANNOCK County
T07S R34E S1 SWNE Within BANNOCK County
T07S R34E S1 NESE Within BANNOCK County
T07S R34E S1 SESE Within BANNOCK County
T07S R35E S6 NWSE Within BANNOCK County
T07S R35E S7 NESW Within BANNOCK County
T07S R35E S18 SENE Within BANNOCK County

Pocatello seeks to add one point of diversion

PURPOSE AND PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
MUNICIPAL	1/01 12/31	2.670 CFS

IDAHO DEPARTMENT OF WATER RESOURCES

RECOMMENDATION OF WATER RIGHTS ACQUIRED UNDER STATE LAW

PLACE OF USE:

Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho Law.

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

~~To the extent necessary for administration, water was first appropriated or used from:~~
~~Pocatello Well No. 2 located in T07S, R34E, S01, NWNE, on 12/31/1926 in the amount of 3.12 cfs~~
~~Pocatello Well No. 3 located in T07S, R34E, S01, SWNE, on 12/31/1926 in the amount of 4.23 cfs.~~
~~Pocatello Well No. 7 located in T06S, R34E, S35, NWNE, on 12/31/1940 in the amount of 4.46 cfs.~~
~~Pocatello Well No. 10 located in T06S, R34E, S26, NENW, on 6/15/1948 in the amount of 5.35 cfs.~~
~~Pocatello Well No. 12 located in T06S, R34E, S35, SENE, on 9/1/1953 in the amount of 6.20 cfs.~~
~~Pocatello Well No. 13 located in T07S, R34E, S01, SESE, on 9/1/1953 in the amount of 2.22 cfs, and on 10/16/1958 for an additional amount of 0.89 cfs.~~
~~Pocatello Well No. 14 located in T07S, R35E, S07, NESW, on 12/31/1955 in the amount of 0.22 cfs.~~
~~Pocatello Well No. 15 located in T07S, R35E, S06, NWSE, on 9/1/1953 in the amount of 1.11 cfs, and on 2/24/1977 for an additional amount of 2.23 cfs.~~
~~Pocatello Well No. 16 located in T06S, R34E, S26, SWSE, on 10/16/1958 in the amount of 6.67 cfs.~~
~~Pocatello Well No. 18 located in T06S, R34E, S15, NENW, on 10/16/1958 in the amount of 4.66 cfs.~~
~~Pocatello Well No. 21 located in T06S, R34E, S23, SWNE, on 9/15/1955 in the amount of 3.89 cfs.~~
~~Pocatello Well No. 22 located in T06S, R34E, S23, SENW, on 10/22/1952 in the amount of 3.68 cfs.~~
~~Pocatello Well No. 23 located in T06S, R34E, S23, NWNE, on 8/15/1956 in the amount of 4.44 cfs.~~
~~Pocatello Well No. 26 located in T06S, R34E, S15, NWNE, on 6/1/1945 in the amount of 2.67 cfs.~~
~~Pocatello Well No. 27 located in T06S, R34E, S14, NWNW, on 12/10/1964 in the amount of 4.10 cfs.~~
~~Pocatello Well No. 28 located in T07S, R34E, S01, NESE, on 8/31/1951 in the amount of 4.90 cfs.~~
~~Pocatello Well No. 29 located in T06S, R34E, S23, NESW, on 11/6/1972 in the amount of 6.30 cfs.~~
~~Pocatello Well No. 30 located in T06S, R34E, S35, NWNE, on 4/25/1976 in the amount of 5.57 cfs.~~
~~Pocatello Well No. 31 located in T06S, R34E, S15, NESE, on 4/25/1976 in the amount of 6.02 cfs.~~
~~Pocatello Well No. 32 located in T06S, R34E, S16, NENE, on 4/25/1976 in the amount of 3.45 cfs.~~
~~Pocatello Well No. 33 located in T07S, R35E, S18, SENE, on 10/1/1962 in the amount of 0.21 cfs.~~
~~Pocatello Well No. 34 located in T06S, R34E, S15, NESE, on 2/18/1985 in the amount of 7.00 cfs.~~

To the extent necessary for administration between points of diversion for ground water, and between points of diversion for ground water and hydraulically connected surface sources, ground water was first diverted under this right from Pocatello Well No. 26 located in T06S, R34E, S15 NWNE. REMOV

This partial decree is subject to such general provisions necessary for the definition of the rights or for the efficient administration of the water rights as may be ultimately determined by the Court at a point in time no later than the entry of a final unified decree. Section 42-1412(6), Idaho Code

8052

02/21/2007

IDAHO DEPARTMENT OF WATER RESOURCES

RECOMMENDATION OF WATER RIGHTS ACQUIRED UNDER STATE LAW

EXPLANATORY MATERIAL: BASIS OF CLAIM - Beneficial Use

RIGHT INCLUDES ACCOMPLISHED CHANGE IN POINT OF DIVERSION PURSUANT TO SECTION 42-1425, IDAHO CODE.

RIGHT INCLUDES ACCOMPLISHED CHANGE IN PURPOSE OF USE PURSUANT TO SECTION 42-1425, IDAHO CODE.

Water Right No. 29-4221

ELEMENTS THAT ARE IN DISPUTE

Pocatello seeks to resolve this element as follows:

(1) **Point of Diversion:** The interconnected network of wells should include 23 points of diversion, serving 21 ground water rights (29-2274, 29-2338, 29-2401, 29-2499, 29-4221, 29-4223, 29-4224, 29-4225, 29-4226, 29-7106, 29-7322, 29-7375, 29-11339, 29-11348, 29-13558, 29-13559, 29-13560, 29-13561, 29-13562, 29-13637 & 29-13639).

Township	Range	Section	¼	of ¼	Pocatello Well No.	
7S	34E	1	NW	NE	Well No. 2	
7S	34E	1	SW	NE	Well No. 3	
6S	34E	35	NW	SE	Well No. 7	
6S	34E	26	NE	NW	Well No. 10	
6S	34E	35	SE	NE	Well No. 12	
7S	34E	1	SE	SE	Well No. 13	
7S	35E	7	NE	SW	Well No. 14	
7S	35E	6	NW	SE	Well No. 15	
6S	34E	26	SW	SE	Well No. 16	
6S	34E	15	NE	NW	Well No. 18	
6S	34E	23	SW	NE	Well No. 21	
6S	34E	23	SE	NW	Well No. 22	
6S	34E	23	NW	NE	Well No. 23	
6S	34E	15	NW	NE	Well No. 26	
6S	34E	14	NW	NW	Well No. 27	
7S	34E	1	NE	SE	Well No. 28	
6S	34E	23	NE	SW	Well No. 29	
6S	34E	35	NW	NE	Well No. 30	
6S	34E	15	NE	SE	Well No. 31	
6S	34E	16	NE	NE	Well No. 32	
7S	35E	18	SE	NE	Well No. 33	
6S	34E	15	NE	SE	Well No. 34	
7S	35E	16	SW	SW	Well No. 44	(the additional point of diversion)

(2) **Other provisions necessary for definition or administration of this water right:** Remove circled language from the Director's Report.

Water Right No. 29-4221

DISPUTED ELEMENTS RESOLVED PRIOR TO TRIAL

Bureau of Land Management Objections

The BLM objected to the priority date, purpose of use and place of use elements. **BLM objections resolved pursuant to 11/22/04 *Order on Joint Motion to Dismiss Objections*.**

City of Pocatello Objections

1. Source, quantity, priority date and purpose of use (remark, general provision): All 38 of Pocatello's 38 state-based water rights should include the following remark regarding the City's water distribution facilities:

> The City of Pocatello's water supply system for distribution of all of its ground water and surface water supplies includes various reservoir and tank storage facilities, which are capable of being fully recharged by the quantity of water available in a 24-hour period from all of the city's sources of water. The right to use such storage facilities is therefore a part of each of the city's water rights.

Stipulation filed on 9/21/06 with parties agreeing that the above remark should not be added to the water right recommendations.

2. **Objection to specific priority date resolved in Stipulation filed on 9/21/06.**

3. Separate Streams – **Pocatello's objections as to general provisions on separate streams were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

4. Separate Administration - **Pocatello's objections as to general provisions on separate administration were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

5. Swan Falls – **Issue separated and consolidated from Basin 29 subcases. Designated as Consolidated Subcase No. 92-34 in 12/5/03 Order. *Order Designating Basin -Wide Issue* entered on 8/23/04 and renumbered to Subcase No. 91-13. (Stayed pending reporting of Idaho Power rights in Basin 02)**

6. Place of Use – Should be: Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho law, including all lands necessary to complete the beneficial use of the municipal water right. Reason Supporting Objection: Beneficial use of a municipal water right includes all actions necessary to comply with public health and safety standards. The City of Pocatello's municipal service area includes all lands necessary to complete the beneficial use of the municipal water rights. **Pocatello has accepted the language for place of use as contained in the Director's Report based on Stipulation filed on 9/21/06.** 8055

ELEMENTS IN DISPUTE

07/10/2003

IDAHO DEPARTMENT OF WATER RESOURCES
RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

RIGHT NUMBER: 29-4222

NAME AND ADDRESS: CITY OF POCATELLO
PO BOX 4169
POCATELLO ID 83205

SOURCE: GIBSON JACK CREEK TRIBUTARY: PORTNEUF RIVER

QUANTITY: 5.000 CFS

PRIORITY DATE: 06/16/1898

POINT OF DIVERSION: T07S R34E S24 NESESW Within BANNOCK County

Pocatello seeks to add 23 points of diversion!

PURPOSE AND PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
MUNICIPAL	01/01 12/31	5.000 CFS

PLACE OF USE:

Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho Law.

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

This partial decree is subject to such general provisions necessary for the definition of the rights or for the efficient administration of the water rights as may be ultimately determined by the Court at a point in time no later than the entry of a final unified decree. Section 42-1412(6), Idaho Code.

EXPLANATORY MATERIAL: BASIS OF CLAIM - Beneficial Use

Water Right No. 29-4222

ELEMENTS THAT ARE IN DISPUTE

Pocatello seeks to resolve this element as follows:

(1) Point of Diversion:

Township	Range	Section	¼	of ¼	Pocatello Well No.
7S	34E	1	NW	NE	Well No. 2
7S	34E	1	SW	NE	Well No. 3
6S	34E	35	NW	SE	Well No. 7
6S	34E	26	NE	NW	Well No. 10
6S	34E	35	SE	NE	Well No. 12
7S	34E	1	SE	SE	Well No. 13
7S	35E	7	NE	SW	Well No. 14
7S	35E	6	NW	SE	Well No. 15
6S	34E	26	SW	SE	Well No. 16
6S	34E	15	NE	NW	Well No. 18
6S	34E	23	SW	NE	Well No. 21
6S	34E	23	SE	NW	Well No. 22
6S	34E	23	NW	NE	Well No. 23
6S	34E	15	NW	NE	Well No. 26
6S	34E	14	NW	NW	Well No. 27
7S	34E	1	NE	SE	Well No. 28
6S	34E	23	NE	SW	Well No. 29
6S	34E	35	NW	NE	Well No. 30
6S	34E	15	NE	SE	Well No. 31
6S	34E	16	NE	NE	Well No. 32
7S	35E	18	SE	NE	Well No. 33
6S	34E	15	NE	SE	Well No. 34
7S	35E	16	SW	SW	Well No. 44

8057

Water Right No. 29-4222

DISPUTED ELEMENTS RESOLVED PRIOR TO TRIAL

Bureau of Land Management Objections

The BLM objected to the priority date, purpose of use and place of use elements. **BLM objections resolved pursuant to 11/22/04 *Order on Joint Motion to Dismiss Objections*.**

City of Pocatello Objections

1. Source, quantity, priority date and purpose of use (remark, general provision): All 38 of Pocatello's 38 state-based water rights should include the following remark regarding the City's water distribution facilities:

> The City of Pocatello's water supply system for distribution of all of its ground water and surface water supplies includes various reservoir and tank storage facilities, which are capable of being fully recharged by the quantity of water available in a 24-hour period from all of the city's sources of water. The right to use such storage facilities is therefore a part of each of the city's water rights.

Stipulation filed on 9/21/06 with parties agreeing that the above remark should not be added to the water right recommendations.

2. Quantity – Should be 7 cfs. Reasons Supporting Objection: This quantity is consistent with the City of Pocatello's historical development of municipal water on Gibson Jack Creek. **Pocatello withdrew this quantity objection; noted on the record at February 21, 2007 pretrial conference.**

3. Separate Streams – **Pocatello's objections as to general provisions on separate streams were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

4. Separate Administration - **Pocatello's objections as to general provisions on separate administration were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

5. Swan Falls – **Issue separated and consolidated from Basin 29 subcases. Designated as Consolidated Subcase No. 92-34 in 12/5/03 Order. *Order Designating Basin -Wide Issue* entered on 8/23/04 and renumbered to Subcase No. 91-13. (Stayed pending reporting of Idaho Power rights in Basin 02)**

6. Place of Use – Should be: Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho law, including all lands necessary to complete the beneficial use of the municipal water right. Reason Supporting Objection: Beneficial use of a municipal water right includes all actions

8058

necessary to comply with public health and safety standards. The City of Pocatello's municipal service area includes all lands necessary to complete the beneficial use of the municipal water rights. **Pocatello has accepted the language for place of use as contained in the Director's Report based on Stipulation filed on 9/21/06.**

ELEMENTS IN DISPUTE

10/31/2006

IDAHO DEPARTMENT OF WATER RESOURCES
RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

RIGHT NUMBER: 29-4223

NAME AND ADDRESS: CITY OF POCATELLO
PO BOX 4169
POCATELLO ID 83205

SOURCE: GROUND WATER TRIBUTARY:

QUANTITY: 0.210 CFS

PRIORITY DATE: 10/01/1962

POINT OF DIVERSION:

T06S R34E S14 NWNW Within BANNOCK County
T06S R34E S15 NWNE Within BANNOCK County
T06S R34E S15 NENW Within BANNOCK County
T06S R34E S15 NESE Within BANNOCK County
T06S R34E S15 NESE Within BANNOCK County
T06S R34E S16 NENE Within BANNOCK County
T06S R34E S23 NWNE Within BANNOCK County
T06S R34E S23 SWNE Within BANNOCK County
T06S R34E S23 SENW Within BANNOCK County
T06S R34E S23 NESW Within BANNOCK County
T06S R34E S26 NENW Within BANNOCK County
T06S R34E S26 SWSE Within BANNOCK County
T06S R34E S35 NWNE Within BANNOCK County
T06S R34E S35 SENE Within BANNOCK County
T06S R34E S35 NWSE Within BANNOCK County
T07S R34E S1 NWNE Lot 2 Within BANNOCK County
T07S R34E S1 SWNE Within BANNOCK County
T07S R34E S1 NESE Within BANNOCK County
T07S R34E S1 SESE Within BANNOCK County
T07S R35E S6 NWSE Within BANNOCK County
T07S R35E S7 NESW Within BANNOCK County
T07S R35E S18 SENE Within BANNOCK County

Pocatello seeks to add one point of diversion

PURPOSE AND PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
MUNICIPAL	01/01 12/31	0.210 CFS

PLACE OF USE:

Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho Law.

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

To the extent necessary for administration between points of diversion for ground water, and between points of diversion for ground water and hydraulically connected surface sources, ground water was first diverted under this right from Pocatello Well No. 33 located in T07S, R35E, S18, SENE.

Remove

This partial decree is subject to such general provisions necessary for the definition of the rights or for the efficient administration of the water rights as may be ultimately determined by the Court at a point in time no later than the entry of a final unified decree. Section 42-1412(6), Idaho Code.

8060

IDAHO DEPARTMENT OF WATER RESOURCES

RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

EXPLANATORY MATERIAL: BASIS OF CLAIM - Beneficial Use

RIGHT INCLUDES ACCOMPLISHED CHANGE IN POINT OF DIVERSION PURSUANT TO SECTION 42-1425, IDAHO CODE.

RIGHT INCLUDES ACCOMPLISHED CHANGE IN PURPOSE OF USE PURSUANT TO SECTION 42-1425, IDAHO CODE.

Pocatello Well No. 33 was also known as the Call Well.

Water Right No. 29-4223

ELEMENTS THAT ARE IN DISPUTE

Pocatello seeks to resolve this element as follows:

(1) **Point of Diversion:** The interconnected network of wells should include 23 points of diversion, serving 21 ground water rights (29-2274, 29-2338, 29-2401, 29-2499, 29-4221, 29-4223, 29-4224, 29-4225, 29-4226, 29-7106, 29-7322, 29-7375, 29-11339, 29-11348, 29-13558, 29-13559, 29-13560, 29-13561, 29-13562, 29-13637 & 29-13639).

Township	Range	Section	¼	of ¼	Pocatello Well No.	
7S	34E	1	NW	NE	Well No. 2	
7S	34E	1	SW	NE	Well No. 3	
6S	34E	35	NW	SE	Well No. 7	
6S	34E	26	NE	NW	Well No. 10	
6S	34E	35	SE	NE	Well No. 12	
7S	34E	1	SE	SE	Well No. 13	
7S	35E	7	NE	SW	Well No. 14	
7S	35E	6	NW	SE	Well No. 15	
6S	34E	26	SW	SE	Well No. 16	
6S	34E	15	NE	NW	Well No. 18	
6S	34E	23	SW	NE	Well No. 21	
6S	34E	23	SE	NW	Well No. 22	
6S	34E	23	NW	NE	Well No. 23	
6S	34E	15	NW	NE	Well No. 26	
6S	34E	14	NW	NW	Well No. 27	
7S	34E	1	NE	SE	Well No. 28	
6S	34E	23	NE	SW	Well No. 29	
6S	34E	35	NW	NE	Well No. 30	
6S	34E	15	NE	SE	Well No. 31	
6S	34E	16	NE	NE	Well No. 32	
7S	35E	18	SE	NE	Well No. 33	
6S	34E	15	NE	SE	Well No. 34	
7S	35E	16	SW	SW	Well No. 44	(the additional point of diversion)

(2) **Other provisions necessary for definition or administration of this water right:** Remove circled language from the Director's Report.

Water Right No. 29-4223

DISPUTED ELEMENTS RESOLVED PRIOR TO TRIAL

Bureau of Land Management Objections

The BLM objected to the priority date, purpose of use and place of use elements. **BLM objections resolved pursuant to 11/22/04 *Order on Joint Motion to Dismiss Objections.***

City of Pocatello Objections

1. Source, quantity, priority date and purpose of use (remark, general provision): All 38 of Pocatello's 38 state-based water rights should include the following remark regarding the City's water distribution facilities:

> The City of Pocatello's water supply system for distribution of all of its ground water and surface water supplies includes various reservoir and tank storage facilities, which are capable of being fully recharged by the quantity of water available in a 24-hour period from all of the city's sources of water. The right to use such storage facilities is therefore a part of each of the city's water rights.

Stipulation filed on 9/21/06 with parties agreeing that the above remark should not be added to the water right recommendations.

2. Quantity – Should be: 2.67 CFS; Reasons Supporting Objection: Pursuant to the doctrine of due diligence, the full rate of diversion of 2.67 cfs should be decreed. **Objection to quantity withdrawn.**

3. Separate Streams – **Pocatello's objections as to general provisions on separate streams were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

4. Separate Administration - **Pocatello's objections as to general provisions on separate administration were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

5. Swan Falls – **Issue separated and consolidated from Basin 29 subcases. Designated as Consolidated Subcase No. 92-34 in 12/5/03 Order. *Order Designating Basin -Wide Issue* entered on 8/23/04 and renumbered to Subcase No. 91-13. (Stayed pending reporting of Idaho Power rights in Basin 02)**

6. Place of Use – Should be: Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho law, including all lands necessary to complete the beneficial use of the municipal water right. Reason Supporting Objection: Beneficial use of a municipal water right includes all actions necessary to comply with public health and safety standards. The City of Pocatello's 8063

municipal service area includes all lands necessary to complete the beneficial use of the municipal water rights. **Pocatello has accepted the language for place of use as contained in the Director's Report based on Stipulation filed on 9/21/06.**

ELEMENTS IN DISPUTE

10/31/2006

IDAHO DEPARTMENT OF WATER RESOURCES
RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

RIGHT NUMBER: 29-4224

NAME AND ADDRESS: CITY OF POCATELLO
PO BOX 4169
POCATELLO ID 83205

SOURCE: GROUND WATER TRIBUTARY:

QUANTITY: 3.890 CFS

PRIORITY DATE: 09/15/1955

POINT OF DIVERSION:

T06S R34E S14 NWNW Within BANNOCK County
T06S R34E S15 NWNE Within BANNOCK County
T06S R34E S15 NENW Within BANNOCK County
T06S R34E S15 NESE Within BANNOCK County
T06S R34E S15 NESE Within BANNOCK County
T06S R34E S16 NENE Within BANNOCK County
T06S R34E S23 NWNE Within BANNOCK County
T06S R34E S23 SWNE Within BANNOCK County
T06S R34E S23 SENW Within BANNOCK County
T06S R34E S23 NESW Within BANNOCK County
T06S R34E S26 NENW Within BANNOCK County
T06S R34E S26 SWSE Within BANNOCK County
T06S R34E S35 NWNE Within BANNOCK County
T06S R34E S35 SENE Within BANNOCK County
T06S R34E S35 NWSE Within BANNOCK County
T07S R34E S1 NWNE Lot 2 Within BANNOCK County
T07S R34E S1 SWNE Within BANNOCK County
T07S R34E S1 NESE Within BANNOCK County
T07S R34E S1 SESE Within BANNOCK County
T07S R35E S6 NWSE Within BANNOCK County
T07S R35E S7 NESW Within BANNOCK County
T07S R35E S18 SENE Within BANNOCK County

Pocatello seeks to add one point of diversion

PURPOSE AND PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
MUNICIPAL	1/01 12/31	3.890 CFS

PLACE OF USE:

Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho Law.

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

To the extent necessary for administration between points of diversion for ground water, and between points of diversion for ground water and hydraulically connected surface sources, ground water was first diverted under this right from Pocatello Well No. 21 located in T06S, R34E, S23, SWNE.

Remov

This partial decree is subject to such general provisions necessary for the definition of the rights or for the efficient administration of the water rights as may be ultimately determined by the Court at a point in time no later than the entry of a final unified decree. Section 42-1412(6), Idaho Code.

8065

10/31/2006

IDAHO DEPARTMENT OF WATER RESOURCES

RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

EXPLANATORY MATERIAL: BASIS OF CLAIM - Beneficial Use

RIGHT INCLUDES ACCOMPLISHED CHANGE IN POINT OF DIVERSION PURSUANT TO SECTION 42-1425, IDAHO CODE.

Pocatello Well No 21 was also known as Alameda Well No 4.

Water Right No. 29-4224

ELEMENTS THAT ARE IN DISPUTE

Pocatello seeks to resolve this element as follows:

(1) **Point of Diversion:** The interconnected network of wells should include 23 points of diversion, serving 21 ground water rights (29-2274, 29-2338, 29-2401, 29-2499, 29-4221, 29-4223, 29-4224, 29-4225, 29-4226, 29-7106, 29-7322, 29-7375, 29-11339, 29-11348, 29-13558, 29-13559, 29-13560, 29-13561, 29-13562, 29-13637 & 29-13639).

Township	Range	Section	¼	of ¼	Pocatello Well No.
7S	34E	1	NW	NE	Well No. 2
7S	34E	1	SW	NE	Well No. 3
6S	34E	35	NW	SE	Well No. 7
6S	34E	26	NE	NW	Well No. 10
6S	34E	35	SE	NE	Well No. 12
7S	34E	1	SE	SE	Well No. 13
7S	35E	7	NE	SW	Well No. 14
7S	35E	6	NW	SE	Well No. 15
6S	34E	26	SW	SE	Well No. 16
6S	34E	15	NE	NW	Well No. 18
6S	34E	23	SW	NE	Well No. 21
6S	34E	23	SE	NW	Well No. 22
6S	34E	23	NW	NE	Well No. 23
6S	34E	15	NW	NE	Well No. 26
6S	34E	14	NW	NW	Well No. 27
7S	34E	1	NE	SE	Well No. 28
6S	34E	23	NE	SW	Well No. 29
6S	34E	35	NW	NE	Well No. 30
6S	34E	15	NE	SE	Well No. 31
6S	34E	16	NE	NE	Well No. 32
7S	35E	18	SE	NE	Well No. 33
6S	34E	15	NE	SE	Well No. 34
7S	35E	16	SW	SW	Well No. 44 (the additional point of diversion)

(2) **Other provisions necessary for definition or administration of this water right:** Remove circled language from the Director's Report.

8067

Water Right No. 29-4224

<u>DISPUTED ELEMENTS RESOLVED PRIOR TO TRIAL</u>

<u>Bureau of Land Management Objections</u>

The BLM objected to the priority date, purpose of use and place of use elements. **BLM objections resolved pursuant to 11/22/04 *Order on Joint Motion to Dismiss Objections*.**

<u>City of Pocatello Objections</u>

1. Source, quantity, priority date and purpose of use (remark, general provision): All 38 of Pocatello's 38 state-based water rights should include the following remark regarding the City's water distribution facilities:

> The City of Pocatello's water supply system for distribution of all of its ground water and surface water supplies includes various reservoir and tank storage facilities, which are capable of being fully recharged by the quantity of water available in a 24-hour period from all of the city's sources of water. The right to use such storage facilities is therefore a part of each of the city's water rights.

Stipulation filed on 9/21/06 with parties agreeing that the above remark should not be added to the water right recommendations.

2. Separate Streams – **Pocatello's objections as to general provisions on separate streams were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

3. Separate Administration - **Pocatello's objections as to general provisions on separate administration were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

4. Swan Falls – **Issue separated and consolidated from Basin 29 subcases. Designated as Consolidated Subcase No. 92-34 in 12/5/03 Order. *Order Designating Basin -Wide Issue* entered on 8/23/04 and renumbered to Subcase No. 91-13. (Stayed pending reporting of Idaho Power rights in Basin 02)**

5. Place of Use – Should be: Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho law, including all lands necessary to complete the beneficial use of the municipal water right. <u>Reason Supporting Objection</u>: Beneficial use of a municipal water right includes all actions necessary to comply with public health and safety standards. The City of Pocatello's municipal service area includes all lands necessary to complete the beneficial use of the municipal water rights. **Pocatello has accepted the language for place of use as contained in the Director's Report based on Stipulation filed on 9/21/06.**

ELEMENTS IN DISPUTE

10/31/2006

IDAHO DEPARTMENT OF WATER RESOURCES

RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

RIGHT NUMBER: 29-4225

NAME AND ADDRESS: CITY OF POCATELLO
PO BOX 4169
POCATELLO ID 83205

SOURCE: GROUND WATER TRIBUTARY:

QUANTITY: 4.440 CFS

PRIORITY DATE: 08/15/1956

POINT OF DIVERSION:

T06S R34E S14 NWNW Within BANNOCK County
T06S R34E S15 NWNE Within BANNOCK County
T06S R34E S15 NENW Within BANNOCK County
T06S R34E S15 NESE Within BANNOCK County
T06S R34E S15 NESE Within BANNOCK County
T06S R34E S16 NENE Within BANNOCK County
T06S R34E S23 NWNE Within BANNOCK County
T06S R34E S23 SWNE Within BANNOCK County
T06S R34E S23 SENW Within BANNOCK County
T06S R34E S23 NESW Within BANNOCK County
T06S R34E S26 NENW Within BANNOCK County
T06S R34E S26 SWSE Within BANNOCK County
T06S R34E S35 NWNE Within BANNOCK County
T06S R34E S35 SENE Within BANNOCK County
T06S R34E S35 NWSE Within BANNOCK County
T07S R34E S1 NWNE Lot 2 Within BANNOCK County
T07S R34E S1 SWNE Within BANNOCK County
T07S R34E S1 NESE Within BANNOCK County
T07S R34E S1 SESE Within BANNOCK County
T07S R35E S6 NWSE Within BANNOCK County
T07S R35E S7 NESW Within BANNOCK County
T07S R35E S18 SENE Within BANNOCK County

Pocatello seeks to add one point of diversion

PURPOSE AND PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
MUNICIPAL	1/01 12/31	4.440 CFS

PLACE OF USE:

Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho Law.

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

To the extent necessary for administration between points of diversion for ground water, and between points of diversion for ground water and hydraulically connected surface sources, ground water was first diverted under this right from Pocatello Well No. 23 located in T06S, R34E, S23, NWNE.

Remove

This partial decree is subject to such general provisions necessary for the definition of the rights or for the efficient administration of the water rights as may be ultimately determined by the Court at a point in time no later than the entry of a final unified decree Section 42-1412(6), Idaho Code.

8069

IDAHO DEPARTMENT OF WATER RESOURCES
RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

EXPLANATORY MATERIAL: BASIS OF CLAIM - Beneficial Use

RIGHT INCLUDES ACCOMPLISHED CHANGE IN POINT OF DIVERSION PURSUANT TO SECTION 42-1425, IDAHO CODE.

Pocatello Well No. 23 was also known as Alameda Well No. 5.

Water Right No. 29-4225

ELEMENTS THAT ARE IN DISPUTE

Pocatello seeks to resolve this element as follows:

(1) **Point of Diversion:** The interconnected network of wells should include 23 points of diversion, serving 21 ground water rights (29-2274, 29-2338, 29-2401, 29-2499, 29-4221, 29-4223, 29-4224, 29-4225, 29-4226, 29-7106, 29-7322, 29-7375, 29-11339, 29-11348, 29-13558, 29-13559, 29-13560, 29-13561, 29-13562, 29-13637 & 29-13639).

Township	Range	Section	¼	of ¼	Pocatello Well No.	
7S	34E	1	NW	NE	Well No. 2	
7S	34E	1	SW	NE	Well No. 3	
6S	34E	35	NW	SE	Well No. 7	
6S	34E	26	NE	NW	Well No. 10	
6S	34E	35	SE	NE	Well No. 12	
7S	34E	1	SE	SE	Well No. 13	
7S	35E	7	NE	SW	Well No. 14	
7S	35E	6	NW	SE	Well No. 15	
6S	34E	26	SW	SE	Well No. 16	
6S	34E	15	NE	NW	Well No. 18	
6S	34E	23	SW	NE	Well No. 21	
6S	34E	23	SE	NW	Well No. 22	
6S	34E	23	NW	NE	Well No. 23	
6S	34E	15	NW	NE	Well No. 26	
6S	34E	14	NW	NW	Well No. 27	
7S	34E	1	NE	SE	Well No. 28	
6S	34E	23	NE	SW	Well No. 29	
6S	34E	35	NW	NE	Well No. 30	
6S	34E	15	NE	SE	Well No. 31	
6S	34E	16	NE	NE	Well No. 32	
7S	35E	18	SE	NE	Well No. 33	
6S	34E	15	NE	SE	Well No. 34	
7S	35E	16	SW	SW	Well No. 44	(the additional point of diversion)

(2) **Other provisions necessary for definition or administration of this water right:** Remove circled language from the Director's Report.

8071

Water Right No. 29-4225

DISPUTED ELEMENTS RESOLVED PRIOR TO TRIAL

Bureau of Land Management Objections

The BLM objected to the priority date, purpose of use and place of use elements. **BLM objections resolved pursuant to 11/22/04 *Order on Joint Motion to Dismiss Objections.***

City of Pocatello Objections

1. Source, quantity, priority date and purpose of use (remark, general provision): All 38 of Pocatello's 38 state-based water rights should include the following remark regarding the City's water distribution facilities:

> The City of Pocatello's water supply system for distribution of all of its ground water and surface water supplies includes various reservoir and tank storage facilities, which are capable of being fully recharged by the quantity of water available in a 24-hour period from all of the city's sources of water. The right to use such storage facilities is therefore a part of each of the city's water rights.

Stipulation filed on 9/21/06 with parties agreeing that the above remark should not be added to the water right recommendations.

2. Separate Streams – **Pocatello's objections as to general provisions on separate streams were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

3. Separate Administration - **Pocatello's objections as to general provisions on separate administration were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

4. Swan Falls – **Issue separated and consolidated from Basin 29 subcases. Designated as Consolidated Subcase No. 92-34 in 12/5/03 Order. *Order Designating Basin -Wide Issue* entered on 8/23/04 and renumbered to Subcase No. 91-13. (Stayed pending reporting of Idaho Power rights in Basin 02)**

5. Place of Use – Should be: Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho law, including all lands necessary to complete the beneficial use of the municipal water right. Reason Supporting Objection: Beneficial use of a municipal water right includes all actions necessary to comply with public health and safety standards. The City of Pocatello's municipal service area includes all lands necessary to complete the beneficial use of the municipal water rights. **Pocatello has accepted the language for place of use as contained in the Director's Report based on Stipulation filed on 9/21/06.**

ELEMENTS IN DISPUTE

10/31/2006

IDAHO DEPARTMENT OF WATER RESOURCES
RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

RIGHT NUMBER: 29-4226

NAME AND ADDRESS: CITY OF POCATELLO
PO BOX 4169
POCATELLO ID 83205

SOURCE: GROUND WATER TRIBUTARY:

QUANTITY: 0.220 CFS

PRIORITY DATE: 12/31/1955

POINT OF DIVERSION:

T06S R34E S14 NWNW Within BANNOCK County
T06S R34E S15 NWNE Within BANNOCK County
T06S R34E S15 NENW Within BANNOCK County
T06S R34E S15 NESE Within BANNOCK County
T06S R34E S15 NESE Within BANNOCK County
T06S R34E S16 NENE Within BANNOCK County
T06S R34E S23 NWNE Within BANNOCK County
T06S R34E S23 SWNE Within BANNOCK County
T06S R34E S23 SENW Within BANNOCK County
T06S R34E S23 NESW Within BANNOCK County
T06S R34E S26 NENW Within BANNOCK County
T06S R34E S26 SWSE Within BANNOCK County
T06S R34E S35 NWNE Within BANNOCK County
T06S R34E S35 SENE Within BANNOCK County
T06S R34E S35 NWSE Within BANNOCK County
T07S R34E S1 NWNE Lot 2 Within BANNOCK County
T07S R34E S1 SWNE Within BANNOCK County
T07S R34E S1 NESE Within BANNOCK County
T07S R34E S1 SESE Within BANNOCK County
T07S R35E S6 NWSE Within BANNOCK County
T07S R35E S7 NESW Within BANNOCK County
T07S R35E S18 SENE Within BANNOCK County

Pocatello seeks to add an additional point of diversion

PURPOSE AND PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
MUNICIPAL	01/01 12/31	0.220 CFS

PLACE OF USE:

Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho Law.

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

To the extent necessary for administration between points of diversion for ground water, and between points of diversion for ground water and hydraulically connected surface sources, ground water was first diverted under this right from Pocatello Well No 14 located in T07S, R35E, S07, NESW. Remove

This partial decree is subject to such general provisions necessary for the definition of the rights or for the efficient administration of the water rights as may be ultimately determined by the Court at a point in time no later than the entry of a final unified decree. Section 42-1412(6), Idaho Code.

8073

10/31/2006

IDAHO DEPARTMENT OF WATER RESOURCES
RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

EXPLANATORY MATERIAL: BASIS OF CLAIM - Beneficial Use

RIGHT INCLUDES ACCOMPLISHED CHANGE IN PURPOSE OF USE PURSUANT TO SECTION 42-1425, IDAHO CODE.

RIGHT INCLUDES ACCOMPLISHED CHANGE IN POINT OF DIVERSION PURSUANT TO SECTION 42-1425, IDAHO CODE.

Pocatello Well No. 14 was also known as the Cree Well.

Water Right No. 29-4226

ELEMENTS THAT ARE IN DISPUTE

Pocatello seeks to resolve this element as follows:

(1) **Point of Diversion:** The interconnected network of wells should include 23 points of diversion, serving 21 ground water rights (29-2274, 29-2338, 29-2401, 29-2499, 29-4221, 29-4223, 29-4224, 29-4225, 29-4226, 29-7106, 29-7322, 29-7375, 29-11339, 29-11348, 29-13558, 29-13559, 29-13560, 29-13561, 29-13562, 29-13637 & 29-13639).

Township	Range	Section	¼	of ¼	Pocatello Well No.	
7S	34E	1	NW	NE	Well No. 2	
7S	34E	1	SW	NE	Well No. 3	
6S	34E	35	NW	SE	Well No. 7	
6S	34E	26	NE	NW	Well No. 10	
6S	34E	35	SE	NE	Well No. 12	
7S	34E	1	SE	SE	Well No. 13	
7S	35E	7	NE	SW	Well No. 14	
7S	35E	6	NW	SE	Well No. 15	
6S	34E	26	SW	SE	Well No. 16	
6S	34E	15	NE	NW	Well No. 18	
6S	34E	23	SW	NE	Well No. 21	
6S	34E	23	SE	NW	Well No. 22	
6S	34E	23	NW	NE	Well No. 23	
6S	34E	15	NW	NE	Well No. 26	
6S	34E	14	NW	NW	Well No. 27	
7S	34E	1	NE	SE	Well No. 28	
6S	34E	23	NE	SW	Well No. 29	
6S	34E	35	NW	NE	Well No. 30	
6S	34E	15	NE	SE	Well No. 31	
6S	34E	16	NE	NE	Well No. 32	
7S	35E	18	SE	NE	Well No. 33	
6S	34E	15	NE	SE	Well No. 34	
7S	35E	16	SW	SW	Well No. 44	(the additional point of diversion)

(2) **Other provisions necessary for definition or administration of this water right:** Remove circled language from the Director's Report.

8075

Water Right No. 29-4226

DISPUTED ELEMENTS RESOLVED PRIOR TO TRIAL

Bureau of Land Management Objections

The BLM objected to the priority date, purpose of use and place of use elements. **BLM objections resolved pursuant to 11/22/04 *Order on Joint Motion to Dismiss Objections.***

City of Pocatello Objections

1. Source, quantity, priority date and purpose of use (remark, general provision): All 38 of Pocatello's 38 state-based water rights should include the following remark regarding the City's water distribution facilities:

> The City of Pocatello's water supply system for distribution of all of its ground water and surface water supplies includes various reservoir and tank storage facilities, which are capable of being fully recharged by the quantity of water available in a 24-hour period from all of the city's sources of water. The right to use such storage facilities is therefore a part of each of the city's water rights.

Stipulation filed on 9/21/06 with parties agreeing that the above remark should not be added to the water right recommendations.

2. Quantity – Should be 1.22 cfs. Reasons Supporting Objection: Pursuant to the doctrine of due diligence, the full rate of diversion of 1.22 cfs should be decreed. **Objection withdrawn.**

3. Separate Streams – **Pocatello's objections as to general provisions on separate streams were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

4. Separate Administration - **Pocatello's objections as to general provisions on separate administration were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

5. Swan Falls – **Issue separated and consolidated from Basin 29 subcases. Designated as Consolidated Subcase No. 92-34 in 12/5/03 Order. *Order Designating Basin -Wide Issue* entered on 8/23/04 and renumbered to Subcase No. 91-13. (Stayed pending reporting of Idaho Power rights in Basin 02)**

6. Place of Use – Should be: Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho law, including all lands necessary to complete the beneficial use of the municipal water right. Reason Supporting Objection: Beneficial use of a municipal water right includes all actions necessary to comply with public health and safety standards. The City of Pocatello's 8076

municipal service area includes all lands necessary to complete the beneficial use of the municipal water rights. **Pocatello has accepted the language for place of use as contained in the Director's Report based on Stipulation filed on 9/21/06.**

8077

ELEMENTS IN DISPUTE

10/31/2006

IDAHO DEPARTMENT OF WATER RESOURCES
RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

RIGHT NUMBER: 29-7106

NAME AND ADDRESS: CITY OF POCATELLO
PO BOX 4169
POCATELLO ID 83205

SOURCE: GROUND WATER TRIBUTARY:

QUANTITY: 3.900 CFS

PRIORITY DATE: 11/06/1972

POINT OF DIVERSION:

T06S R34E S14 NWNW Within BANNOCK County
T06S R34E S15 NWNE Within BANNOCK County
T06S R34E S15 NENW Within BANNOCK County
T06S R34E S15 NESE Within BANNOCK County
T06S R34E S15 NESE Within BANNOCK County
T06S R34E S16 NENE Within BANNOCK County
T06S R34E S23 NWNE Within BANNOCK County
T06S R34E S23 SWNE Within BANNOCK County
T06S R34E S23 SENW Within BANNOCK County
T06S R34E S23 NESW Within BANNOCK County
T06S R34E S26 NENW Within BANNOCK County
T06S R34E S26 SWSE Within BANNOCK County
T06S R34E S35 NWNE Within BANNOCK County
T06S R34E S35 SENE Within BANNOCK County
T06S R34E S35 NWSE Within BANNOCK County
T07S R34E S1 NWNE Lot 2 Within BANNOCK County
T07S R34E S1 SWNE Within BANNOCK County
T07S R34E S1 NESE Within BANNOCK County
T07S R34E S1 SESE Within BANNOCK County
T07S R35E S6 NWSE Within BANNOCK County
T07S R35E S7 NESW Within BANNOCK County
T07S R35E S18 SENE Within BANNOCK County

Pocatello seeks to add an additional point of diversion

PURPOSE AND PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
MUNICIPAL	01/01 12/31	3.900 CFS

PLACE OF USE:

Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho Law.

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

To the extent necessary for administration between points of diversion for ground water, and between points of diversion for ground water and hydraulically connected surface sources, ground water was first diverted under this right from Pocatello Well No. 29 located in T06S, R34E, S23, NESW. Remov

This partial decree is subject to such general provisions necessary for the definition of the rights or for the efficient administration of the water rights as may be ultimately determined by the Court at a point in time no later than the entry of a final unified decree. Section 42-1412(6), Idaho Code.

8078

IDAHO DEPARTMENT OF WATER RESOURCES

RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

EXPLANATORY MATERIAL: BASIS OF CLAIM - License

RIGHT INCLUDES ACCOMPLISHED CHANGE IN POINT OF DIVERSION PURSUANT TO SECTION 42-1425, IDAHO CODE.

Water Right No. 29-7106

ELEMENTS THAT ARE IN DISPUTE

Pocatello seeks to resolve this element as follows:

(1) Point of Diversion: The interconnected network of wells should include 23 points of diversion, serving 21 ground water rights (29-2274, 29-2338, 29-2401, 29-2499, 29-4221, 29-4223, 29-4224, 29-4225, 29-4226, 29-7106, 29-7322, 29-7375, 29-11339, 29-11348, 29-13558, 29-13559, 29-13560, 29-13561, 29-13562, 29-13637 & 29-13639).

Township	Range	Section	¼	of ¼	Pocatello Well No.	
7S	34E	1	NW	NE	Well No. 2	
7S	34E	1	SW	NE	Well No. 3	
6S	34E	35	NW	SE	Well No. 7	
6S	34E	26	NE	NW	Well No. 10	
6S	34E	35	SE	NE	Well No. 12	
7S	34E	1	SE	SE	Well No. 13	
7S	35E	7	NE	SW	Well No. 14	
7S	35E	6	NW	SE	Well No. 15	
6S	34E	26	SW	SE	Well No. 16	
6S	34E	15	NE	NW	Well No. 18	
6S	34E	23	SW	NE	Well No. 21	
6S	34E	23	SE	NW	Well No. 22	
6S	34E	23	NW	NE	Well No. 23	
6S	34E	15	NW	NE	Well No. 26	
6S	34E	14	NW	NW	Well No. 27	
7S	34E	1	NE	SE	Well No. 28	
6S	34E	23	NE	SW	Well No. 29	
6S	34E	35	NW	NE	Well No. 30	
6S	34E	15	NE	SE	Well No. 31	
6S	34E	16	NE	NE	Well No. 32	
7S	35E	18	SE	NE	Well No. 33	
6S	34E	15	NE	SE	Well No. 34	
7S	35E	16	SW	SW	Well No. 44	(the additional point of diversion)

(2) Other provisions necessary for definition or administration of this water right: Remove circled language from the Director's Report.

8080

Water Right No. 29-7106

DISPUTED ELEMENTS RESOLVED PRIOR TO TRIAL

Bureau of Land Management Objections

The BLM objected to the priority date, purpose of use and place of use elements. **BLM objections resolved pursuant to 11/22/04 *Order on Joint Motion to Dismiss Objections.***

City of Pocatello Objections

1. Source, quantity, priority date and purpose of use (remark, general provision): All 38 of Pocatello's 38 state-based water rights should include the following remark regarding the City's water distribution facilities:

> The City of Pocatello's water supply system for distribution of all of its ground water and surface water supplies includes various reservoir and tank storage facilities, which are capable of being fully recharged by the quantity of water available in a 24-hour period from all of the city's sources of water. The right to use such storage facilities is therefore a part of each of the city's water rights.

Stipulation filed on 9/21/06 with parties agreeing that the above remark should not be added to the water right recommendations.

2. Separate Streams – **Pocatello's objections as to general provisions on separate streams were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

3. Separate Administration - **Pocatello's objections as to general provisions on separate administration were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

4. Swan Falls – **Issue separated and consolidated from Basin 29 subcases. Designated as Consolidated Subcase No. 92-34 in 12/5/03 Order. *Order Designating Basin -Wide Issue* entered on 8/23/04 and renumbered to Subcase No. 91-13. (Stayed pending reporting of Idaho Power rights in Basin 02)**

5. Place of Use – Should be: Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho law, including all lands necessary to complete the beneficial use of the municipal water right. Reason Supporting Objection: Beneficial use of a municipal water right includes all actions necessary to comply with public health and safety standards. The City of Pocatello's municipal service area includes all lands necessary to complete the beneficial use of the municipal water rights. **Pocatello has accepted the language for place of use as contained in the Director's Report based on Stipulation filed on 9/21/06.**

ELEMENTS IN DISPUTE

07/10/2003

IDAHO DEPARTMENT OF WATER RESOURCES
RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

RIGHT NUMBER: 29-7118

NAME AND ADDRESS: CITY OF POCATELLO
PO BOX 4169
POCATELLO ID 83205

SOURCE: GROUND WATER

TRIBUTARY:

QUANTITY: 4.010 CFS
1,114.00 AFY

PRIORITY DATE: 04/11/1973

POINT OF DIVERSION: T06S R33E S16 NWNWSW Within POWER County

PURPOSE AND PERIOD OF USE

PURPOSE OF USE	PERIOD OF USE	QUANTITY
IRRIGATION Municipal	04/01 11/01	4.010 CFS 1,114.00 AFY

PLACE OF USE: IRRIGATION Municipal Within POWER County

T06S R33E S16	SWNW	40.0	T06S R33E S16	SENW	32.0
T06S R33E S16	NESW	32.0	T06S R33E S16	NWSW	40 0
T06S R33E S16	SWSW	28.0	T06S R33E S16	SESW	12.0
T06S R33E S17	SENE	32.0	T06S R33E S17	NESE	32.0
T06S R33E S17	SESE	30.0	T06S R33E S20	NENE	0.5

278.5 ACRES TOTAL

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

This partial decree is subject to such general provisions necessary for the definition of the rights or for the efficient administration of the water rights as may be ultimately determined by the Court at a point in time no later than the entry of a final unified decree. Section 42-1412(6), Idaho Code.

EXPLANATORY MATERIAL: BASIS OF CLAIM - License

8082

Water Right No. 29-7118

ELEMENTS THAT ARE IN DISPUTE

Pocatello seeks to resolve this element as follows:

(1) Purpose of Use: MUNICIPAL

(2) Place(s) of use: MUNICIPAL SERVICE AREA FOR THE CITY OF POCATELLO MUNICIPAL WATER SUPPLY SYSTEM AS PROVIDED FOR UNDER IDAHO LAW. THIS RIGHT IS CURRENTLY USED FOR THE MUNICIPAL BIOSOLIDS PROGRAM AT THE IDENTIFIED ACREAGE.

(3) Place of Use Legal Description: MUNICIPAL POWER County

Township	Range	Section	Lot	Tract	Acres	Lot	Tract	Acres	Lot	Tract	Acres	Lot	Tract	Acres
06S	33E	16		SWNW	40		SENW	32						
				NESW	32		NWSW	40		SWSW	28		SESW	12
		17		SENE	32									
				NESE	32		SESE	30						
		20		NENE	0.5									

Total Acres: 278.5

8083

Water Right No. 29-7118

DISPUTED ELEMENTS RESOLVED PRIOR TO TRIAL

1. Source, quantity, priority date and purpose of use (remark, general provision): All 38 of Pocatello's 38 state-based water rights should include the following remark regarding the City's water distribution facilities:

> The City of Pocatello's water supply system for distribution of all of its ground water and surface water supplies includes various reservoir and tank storage facilities, which are capable of being fully recharged by the quantity of water available in a 24-hour period from all of the city's sources of water. The right to use such storage facilities is therefore a part of each of the city's water rights.

Stipulation filed on 9/21/06 with parties agreeing that the above remark should not be added to the water right recommendations.

2. Separate Streams – **Pocatello's objections as to general provisions on separate streams were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

3. Separate Administration - **Pocatello's objections as to general provisions on separate administration were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

4. Swan Falls – **Issue separated and consolidated from Basin 29 subcases. Designated as Consolidated Subcase No. 92-34 in 12/5/03 Order. *Order Designating Basin -Wide Issue* entered on 8/23/04 and renumbered to Subcase No. 91-13. (Stayed pending reporting of Idaho Power rights in Basin 02)**

8084

ELEMENTS IN DISPUTE

07/10/2003

IDAHO DEPARTMENT OF WATER RESOURCES
RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

RIGHT NUMBER: 29-7119

NAME AND ADDRESS: CITY OF POCATELLO
PO BOX 4169
POCATELLO ID 83205

SOURCE: GROUND WATER

TRIBUTARY:

QUANTITY: 6.000 CFS
1,200.00 AFY

PRIORITY DATE: 04/11/1973

POINT OF DIVERSION: T06S R33E S9 SENWSW Within POWER County

PURPOSE AND PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
~~IRRIGATION~~ Municipal	04/01 11/01	6.000 CFS 1,200.00 AFY

PLACE OF USE: ~~IRRIGATION~~ Municipal Within POWER County

T06S R33E S09	NENW	2.0	T06S R33E S09	NWNW	2.0
T06S R33E S09	SWNW	40.0	T06S R33E S09	SENW	34.0
T06S R33E S09	NESW	34.0	T06S R33E S09	NWSW	40.0
T06S R33E S09	SWSW	40 0	T06S R33E S09	SESW	34.0
T06S R33E S16	NENW	34.0	T06S R33E S16	NWNW	40 0

300 ACRES TOTAL

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

This partial decree is subject to such general provisions necessary for the definition of the rights or for the efficient administration of the water rights as may be ultimately determined by the Court at a point in time no later than the entry of a final unified decree. Section 42-1412(6), Idaho Code.

EXPLANATORY MATERIAL: BASIS OF CLAIM - License

RIGHT INCLUDES ACCOMPLISHED CHANGE IN POINT OF DIVERSION
PURSUANT TO SECTION 42-1425, IDAHO CODE

8085

Water Right No. 29-7119

ELEMENTS THAT ARE IN DISPUTE

Pocatello seeks to resolve this element as follows:

(1) Purpose of Use: MUNICIPAL

(2) Place(s) of use: MUNICIPAL SERVICE AREA FOR THE CITY OF POCATELLO MUNICIPAL WATER SUPPLY SYSTEM AS PROVIDED FOR UNDER IDAHO LAW. THIS RIGHT IS CURRENTLY USED FOR THE MUNICIPAL BIOSOLIDS PROGRAM AT THE IDENTIFIED ACREAGE.

(3) Place of Use Legal Description: MUNICIPAL POWER County

Township	Range	Section	Lot	Tract	Acres	Lot	Tract	Acres	Lot	Tract	Acres	Lot	Tract	Acres
06S	33E	9		NENW	2		NWNW	2		SWNW	40		SENW	34
				NESW	34		NWSW	40		SWSW	40		SESW	34
		16		NENW	34		NWNW	40						

Total Acres: 300

8086

Water Right No. 29-7119

DISPUTED ELEMENTS RESOLVED PRIOR TO TRIAL

1. Source, quantity, priority date and purpose of use (remark, general provision): All 38 of Pocatello's 38 state-based water rights should include the following remark regarding the City's water distribution facilities:

> The City of Pocatello's water supply system for distribution of all of its ground water and surface water supplies includes various reservoir and tank storage facilities, which are capable of being fully recharged by the quantity of water available in a 24-hour period from all of the city's sources of water. The right to use such storage facilities is therefore a part of each of the city's water rights.

Stipulation filed on 9/21/06 with parties agreeing that the above remark should not be added to the water right recommendations.

2. Separate Streams – **Pocatello's objections as to general provisions on separate streams were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

3. Separate Administration - **Pocatello's objections as to general provisions on separate administration were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

4. Swan Falls – **Issue separated and consolidated from Basin 29 subcases. Designated as Consolidated Subcase No. 92-34 in 12/5/03 Order. *Order Designating Basin -Wide Issue* entered on 8/23/04 and renumbered to Subcase No. 91-13. (Stayed pending reporting of Idaho Power rights in Basin 02)**

NO ELEMENTS IN DISPUTE

07/10/2003

IDAHO DEPARIMENI OF WAIER RESOURCES
RECOMMENDED WAIER RIGHIS ACQUIRED UNDER SIATE LAW

RIGHI NUMBER:	29-7222
NAME AND ADDRESS:	CIIY OF POCAIELLO PO BOX 4169 POCATELLO ID 83205
SOURCE:	GROUND WAIER IRIBUIARY:
QUANIITY:	1.000 CFS
PRIORITY DAIE:	08/22/1974
POINT OF DIVERSION:	I06S R34E S9 SESWSE Within BANNOCK County

PURPOSE AND PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
IRRIGATION	4/01 11/01	1.000 CFS

PLACE OF USE: IRRIGATION Within BANNOCK County

T06S R34E S09	NWSE	24 0	T06S R34E S09	SWSE	26.0

50 ACRES TOTAL

OIHER PROVISIONS NECESSARY FOR DEFINIIION OR ADMINISTRATION OF IHIS WAIER RIGHT:

This partial decree is subject to auch general provisions necessary for the definition of the rights or for the efficient administration of the water rights as may be ultimately determined by the Court at a point in time no later than the entry of a final unified decree Section 42-1412(6), Idaho Code.

EXPLANATORY MATERIAL: BASIS OF CLAIM - License

8088

Water Right No. 29-7222

ELEMENTS THAT ARE IN DISPUTE

NONE

8089

ELEMENTS IN DISPUTE

10/31/2006

IDAHO DEPARTMENT OF WATER RESOURCES

RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

RIGHT NUMBER: 29-7322

NAME AND ADDRESS: CITY OF POCATELLO
PO BOX 4169
POCATELLO ID 83205

SOURCE: GROUND WATER TRIBUTARY:

QUANTITY: 17 070 CFS

PRIORITY DATE: 04/25/1976

POINT OF DIVERSION:

T06S R34E S14 NWNW Within BANNOCK County
T06S R34E S15 NWNE Within BANNOCK County
T06S R34E S15 NENW Within BANNOCK County
T06S R34E S15 NESE Within BANNOCK County
T06S R34E S15 NESE Within BANNOCK County
T06S R34E S16 NENE Within BANNOCK County
T06S R34E S23 NWNE Within BANNOCK County
T06S R34E S23 SWNE Within BANNOCK County
T06S R34E S23 SENW Within BANNOCK County
T06S R34E S23 NESW Within BANNOCK County
T06S R34E S26 NENW Within BANNOCK County
T06S R34E S26 SWSE Within BANNOCK County
T06S R34E S35 NWNE Within BANNOCK County
T06S R34E S35 SENE Within BANNOCK County
T06S R34E S35 NWSE Within BANNOCK County
T07S R34E S1 NWNE Lot 2 Within BANNOCK County
T07S R34E S1 SWNE Within BANNOCK County
T07S R34E S1 NESE Within BANNOCK County
T07S R34E S1 SESE Within BANNOCK County
T07S R35E S6 NWSE Within BANNOCK County
T07S R35E S7 NESW Within BANNOCK County
T07S R35E S18 SENE Within BANNOCK County

Pocatello seeks to add one point of diversion

PURPOSE AND PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
MUNICIPAL	1/01 12/31	17.070 CFS

PLACE OF USE:

Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho Law.

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

To the extent necessary for administration between points of diversion for ground water, and between points of diversion for ground water and hydraulically connected surface sources, ground water was first diverted under this right from Pocatello Well No. 30 located in T06S, R34E, S35, NWNE in the amount of 5 58 cfs, from Pocatello Well No. 31 located in T06S, R34E, S15, NESE in the amount of 8.03 cfs and from Pocatello Well No 32 located in T06S, R34E, S16, NENE in the amount of 3.46 cfs.

Remove

8090

This partial decree is subject to such general provisions necessary for the definition of the rights or for the efficient administration of the water rights as may be ultimately determined by the Court at a point in time no

10/31/2006

IDAHO DEPARTMENT OF WATER RESOURCES

RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

EXPLANATORY MATERIAL: BASIS OF CLAIM - License

RIGHT INCLUDES ACCOMPLISHED CHANGE IN POINT OF DIVERSION PURSUANT TO SECTION 42-1425, IDAHO CODE.

Water Right No. 29-7322

ELEMENTS THAT ARE IN DISPUTE

Pocatello seeks to resolve this element as follows:

(1) **Point of Diversion:** The interconnected network of wells should include 23 points of diversion, serving 21 ground water rights (29-2274, 29-2338, 29-2401, 29-2499, 29-4221, 29-4223, 29-4224, 29-4225, 29-4226, 29-7106, 29-7322, 29-7375, 29-11339, 29-11348, 29-13558, 29-13559, 29-13560, 29-13561, 29-13562, 29-13637 & 29-13639).

Township	Range	Section	¼	of ¼	Pocatello Well No.	
7S	34E	1	NW	NE	Well No. 2	
7S	34E	1	SW	NE	Well No. 3	
6S	34E	35	NW	SE	Well No. 7	
6S	34E	26	NE	NW	Well No. 10	
6S	34E	35	SE	NE	Well No. 12	
7S	34E	1	SE	SE	Well No. 13	
7S	35E	7	NE	SW	Well No. 14	
7S	35E	6	NW	SE	Well No. 15	
6S	34E	26	SW	SE	Well No. 16	
6S	34E	15	NE	NW	Well No. 18	
6S	34E	23	SW	NE	Well No. 21	
6S	34E	23	SE	NW	Well No. 22	
6S	34E	23	NW	NE	Well No. 23	
6S	34E	15	NW	NE	Well No. 26	
6S	34E	14	NW	NW	Well No. 27	
7S	34E	1	NE	SE	Well No. 28	
6S	34E	23	NE	SW	Well No. 29	
6S	34E	35	NW	NE	Well No. 30	
6S	34E	15	NE	SE	Well No. 31	
6S	34E	16	NE	NE	Well No. 32	
7S	35E	18	SE	NE	Well No. 33	
6S	34E	15	NE	SE	Well No. 34	
7S	35E	16	SW	SW	Well No. 44	(the additional point of diversion)

(2) **Other provisions necessary for definition or administration of this water right:** Remove circled language from the Director's Report.

Water Right No. 29-7322

DISPUTED ELEMENTS RESOLVED PRIOR TO TRIAL

Bureau of Land Management Objections

The BLM objected to the priority date, purpose of use and place of use elements. **BLM objections resolved pursuant to 11/22/04 *Order on Joint Motion to Dismiss Objections.***

City of Pocatello Objections

1. Source, quantity, priority date and purpose of use (remark, general provision): All 38 of Pocatello's 38 state-based water rights should include the following remark regarding the City's water distribution facilities:

> The City of Pocatello's water supply system for distribution of all of its ground water and surface water supplies includes various reservoir and tank storage facilities, which are capable of being fully recharged by the quantity of water available in a 24-hour period from all of the city's sources of water. The right to use such storage facilities is therefore a part of each of the city's water rights.

Stipulation filed on 9/21/06 with parties agreeing that the above remark should not be added to the water right recommendations.

2. Separate Streams – **Pocatello's objections as to general provisions on separate streams were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

3. Separate Administration - **Pocatello's objections as to general provisions on separate administration were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

4. Swan Falls – **Issue separated and consolidated from Basin 29 subcases. Designated as Consolidated Subcase No. 92-34 in 12/5/03 Order. *Order Designating Basin -Wide Issue* entered on 8/23/04 and renumbered to Subcase No. 91-13. (Stayed pending reporting of Idaho Power rights in Basin 02)**

5. Place of Use – Should be: Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho law, including all lands necessary to complete the beneficial use of the municipal water right. Reason Supporting Objection: Beneficial use of a municipal water right includes all actions necessary to comply with public health and safety standards. The City of Pocatello's municipal service area includes all lands necessary to complete the beneficial use of the municipal water rights. **Pocatello has accepted the language for place of use as contained in the Director's Report based on Stipulation filed on 9/21/06.** 8093

ELEMENTS IN DISPUTE

07/10/2003

IDAHO DEPARTMENT OF WATER RESOURCES
RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

RIGHT NUMBER: 29-7375

NAME AND ADDRESS: CITY OF POCATELLO
PO BOX 4169
POCATELLO ID 83205

SOURCE: GROUND WATER

TRIBUTARY:

QUANTITY: 2.230 CFS

PRIORITY DATE: 02/24/1977

POINT OF DIVERSION:

T06S R33E S10 NESE Within POWER County
T06S R33E S12 NESE Within POWER County
T06S R33E S15 SWNE Within POWER County
T06S R34E S15 NWSW Within BANNOCK County
* T06S R34E S26 NENW Within BANNOCK County
T06S R34E S27 NWSE Within BANNOCK County
* T06S R34E S35 SENE Within BANNOCK County
T06S R34E S35 SENE Within BANNOCK County
* T06S R34E S35 NWSE Within BANNOCK County
T06S R34E S35 NWSE Within BANNOCK County
T06S R34E S35 NWSE Within BANNOCK County
* T07S R34E S1 SESE Within BANNOCK County
* T07S R35E S16 SWSW Within BANNOCK County

Five * of these points of diversion are part of an interconnected network of 23 wells, Pocatello seeks to add the other 18 points of diversion.

PURPOSE AND PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
MUNICIPAL	01/01 12/31	2.230 CFS

PLACE OF USE:

8094

Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho Law.

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

This partial decree is subject to such general provisions necessary for the definition of the rights or for the efficient administration of the water rights as may be ultimately determined by the Court at a point in time no later than the entry of a final unified decree. Section 42-1412(6), Idaho Code.

EXPLANATORY MATERIAL: BASIS OF CLAIM - License

The right holder shall measure and annually report diversions of water and/or other pertinent hydrologic and system information as required by Section 42-701, Idaho Code.

Use of water under this approval shall comply with applicable water quality standards of the Division of Environmental Quality of the Idaho Department of Health and Welfare.

Prior to diversion of water under this approval, the right holder shall provide a means of measurement acceptable to the Department from all authorized points of diversion which will allow determination of the total rate of diversion.

Water Right No. 29-7375

ELEMENTS THAT ARE IN DISPUTE

Pocatello seeks to resolve this element as follows:

(1) Point of Diversion: The interconnected network of wells should include 23 points of diversion, serving 21 ground water rights (29-2274, 29-2338, 29-2401, 29-2499, 29-4221, 29-4223, 29-4224, 29-4225, 29-4226, 29-7106, 29-7322, 29-7375, 29-11339, 29-11348, 29-13558, 29-13559, 29-13560, 29-13561, 29-13562, 29-13637 & 29-13639).

	Township	Range	Section	¼	of ¼	Pocatello Well No.
	7S	34E	1	NW	NE	Well No. 2
	7S	34E	1	SW	NE	Well No. 3
*	6S	34E	35	NW	SE	Well No. 7
*	6S	34E	26	NE	NW	Well No. 10
*	6S	34E	35	SE	NE	Well No. 12
*	7S	34E	1	SE	SE	Well No. 13
	7S	35E	7	NE	SW	Well No. 14
	7S	35E	6	NW	SE	Well No. 15
	6S	34E	26	SW	SE	Well No. 16
	6S	34E	15	NE	NW	Well No. 18
	6S	34E	23	SW	NE	Well No. 21
	6S	34E	23	SE	NW	Well No. 22
	6S	34E	23	NW	NE	Well No. 23
	6S	34E	15	NW	NE	Well No. 26
	6S	34E	14	NW	NW	Well No. 27
	7S	34E	1	NE	SE	Well No. 28
	6S	34E	23	NE	SW	Well No. 29
	6S	34E	35	NW	NE	Well No. 30
	6S	34E	15	NE	SE	Well No. 31
	6S	34E	16	NE	NE	Well No. 32
	7S	35E	18	SE	NE	Well No. 33
	6S	34E	15	NE	SE	Well No. 34
*	7S	35E	16	SW	SW	Well No. 44

* well already listed as point of diversion for 29-7375

8096

Water Right No. 29-7375

DISPUTED ELEMENTS RESOLVED PRIOR TO TRIAL

Bureau of Land Management Objections

The BLM objected to the priority date, purpose of use and place of use elements. **BLM objections resolved pursuant to 11/22/04 *Order on Joint Motion to Dismiss Objections.***

City of Pocatello Objections

1. Source, quantity, priority date and purpose of use (remark, general provision): All 38 of Pocatello's 38 state-based water rights should include the following remark regarding the City's water distribution facilities:

> The City of Pocatello's water supply system for distribution of all of its ground water and surface water supplies includes various reservoir and tank storage facilities, which are capable of being fully recharged by the quantity of water available in a 24-hour period from all of the city's sources of water. The right to use such storage facilities is therefore a part of each of the city's water rights.

Stipulation filed on 9/21/06 with parties agreeing that the above remark should not be added to the water right recommendations.

2. Separate Streams – **Pocatello's objections as to general provisions on separate streams were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

3. Separate Administration - **Pocatello's objections as to general provisions on separate administration were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

4. Swan Falls – **Issue separated and consolidated from Basin 29 subcases. Designated as Consolidated Subcase No. 92-34 in 12/5/03 Order. *Order Designating Basin -Wide Issue* entered on 8/23/04 and renumbered to Subcase No. 91-13. (Stayed pending reporting of Idaho Power rights in Basin 02)**

5. Place of Use – Should be: Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho law, including all lands necessary to complete the beneficial use of the municipal water right. Reason Supporting Objection: Beneficial use of a municipal water right includes all actions necessary to comply with public health and safety standards. The City of Pocatello's municipal service area includes all lands necessary to complete the beneficial use of the municipal water rights. **Pocatello has accepted the language for place of use as contained in the Director's Report based on Stipulation filed on 9/21/06.**

NO ELEMENTS IN DISPUTE

07/10/2003

IDAHO DEPARTMENT OF WATER RESOURCES
RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

RIGHT NUMBER: 29-7431

NAME AND ADDRESS: CITY OF POCATELLO
PO BOX 4169
POCATELLO ID 83205

SOURCE: WASTE WATER   TRIBUTARY: PORTNEUF RIVER

QUANTITY: 9.280 CFS
3,108.00 AFY

PRIORITY DATE: 12/29/1977

POINT OF DIVERSION: T06S R34E S7 SWNE Within BANNOCK County

PURPOSE AND PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
IRRIGATION	04/01 11/01	9.280 CFS 3,108.00 AFY

PLACE OF USE: IRRIGATION Within BANNOCK County

T05S R34E S25	NENE	24.0	T05S R34E S25	NWNE	19.0
T05S R34E S25	SWNE	39.0	T05S R34E S25	SENE	38.0
T05S R34E S25	NENW	12.0	T05S R34E S25	NWNW	14.0
T05S R34E S25	SWNW	35.0	T05S R34E S25	SENW	25.0
T05S R34E S25	SESW	11.0	T05S R34E S25	NESE	33.0
T05S R34E S25	NWSE	30.0	T05S R34E S25	SWSE	39.0
T05S R34E S25	SESE	35.0	T05S R34E S26	NENE	8.0
T05S R34E S26	SENE	40.0	T05S R34E S26	NESE	37.0
T05S R34E S26	SESE	4.0	T05S R34E S36	NENE	32.0
T05S R34E S36	NWNE	37.0	T05S R34E S36	SWNE	40.0
T05S R34E S36	SENE	40.0	T05S R34E S36	NENW	17.0
T05S R34E S36	NESE	3.0	T05S R34E S36	NWSE	3.0
T05S R35E S30	NWNE	5.0	T05S R35E S30	SWNE	7.0
T05S R35E S30	NENW	40.0	T05S R35E S30	NWNW	33.0
T05S R35E S30	SWNW	38.0	T05S R35E S30	SENW	39.0

777 ACRES TOTAL

8098

IDAHO DEPARTMENT OF WATER RESOURCES
RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

This partial decree is subject to such general provisions necessary for the definition of the rights or for the efficient administration of the water rights as may be ultimately determined by the Court at a point in time no later than the entry of a final unified decree. Section 42-1412(6), Idaho Code

EXPLANATORY MATERIAL: BASIS OF CLAIM - License

THE SOURCE OF THIS RIGHT IS WASTE WATER ORIGINALLY DIVERTED BY THE CITY OF POCATELLO.

Water Right No. 29-7431

ELEMENTS THAT ARE IN DISPUTE

NONE

Water Right No. 29-7431

DISPUTED ELEMENTS RESOLVED PRIOR TO TRIAL

1. Source, quantity, priority date and purpose of use (remark, general provision): All 38 of Pocatello's 38 state-based water rights should include the following remark regarding the City's water distribution facilities:

> The City of Pocatello's water supply system for distribution of all of its ground water and surface water supplies includes various reservoir and tank storage facilities, which are capable of being fully recharged by the quantity of water available in a 24-hour period from all of the city's sources of water. The right to use such storage facilities is therefore a part of each of the city's water rights.

Stipulation filed on 9/21/06 with parties agreeing that the above remark should not be added to the water right recommendations.

2. Separate Streams – **Pocatello's objections as to general provisions on separate streams were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

3. Separate Administration - **Pocatello's objections as to general provisions on separate administration were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

4. Swan Falls – **Issue separated and consolidated from Basin 29 subcases. Designated as Consolidated Subcase No. 92-34 in 12/5/03 Order. *Order Designating Basin -Wide Issue* entered on 8/23/04 and renumbered to Subcase No. 91-13. (Stayed pending reporting of Idaho Power rights in Basin 02)**

5. Quantity – Should be 9.28 cfs; 0 AFY. Reasons Supporting Objection: Diversion limits do not apply to use of surface water, in this case, wastewater. **(City withdrew objection; documented in Trial Brief.)**

6. Purpose of Use – Should be municipal. Reasons Supporting Objection: This water right has always been used by the City of Pocatello in its capacity and function as a municipality. Beneficial use of a municipal water right includes all actions necessary to comply with public health and safety standards. **(City withdrew objection; documented in Trial Brief.)**

7. Place of Use – Should be: Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho law, including all lands necessary to complete the beneficial use of the municipal water right. This right is used for the irrigation of specified lands within T05S, R34E, S25 NENE (24.0), R05S 8101

R34E S25 NWNE (19.0), T05S R34E S25 SWNE (39.0), T05S R34E S25 SENE (38.0), T05S RE34E S25 NENW (12.0), T05S R34E S25 NWNW (14.0), T05S R34E S25 SWNW (35.0), T05S R34E S25 NWNW (14.0), T05S R34E S25 SENW (25.0), T05S R34E S25 SESW (11.0), T05S R34E S25 NESE (33.0), T05S R34E S25 NWSE (30.0), T05S R34E S25 SWSE (39.0), T05S R34E S25 SESE (35.0), T05S R34E S26 NENE (8.0), T05S R34E S26 SENE (40.0), 05S R34E 26 NESE (37.0), T05S R34E S26 SESE (4.0), T05S R34E S36 NENE (32.0), T05S R34E S36 NWNE (37.0), T05S R34E S36 SWNKE (40.0), T05S R34E S36 SENE (40.0), T05S R34E S36 NENW (17.0), T05S R34E S36 NESE (3.0), T05S R34E S36 NWSE (3.0), T05S R35E S30 NWNE (5.0), T05S R35E S30 SWNE (7.0), T05S R35E S30 NENW (40.0), T05S R35E S30 NWNW (33.0), T05S R35E S3j0 SWNW (38.0), T05S R35E S30 SENW (39.0). Reasons Supporting Objection: The municipal service area includes all lands necessary to complete the beneficial use of the municipal water right. **(City withdrew objection; documented in Trial Brief.)**

ELEMENTS IN DISPUTE

02/20/2007

IDAHO DEPARTMENT OF WATER RESOURCES

RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

RIGHT NUMBER: 29-7450

NAME AND ADDRESS: CITY OF POCATELLO
PO BOX 4169
POCATELLO ID 83205

SOURCE: GROUND WATER TRIBUTARY:

QUANTITY: 3.340 CFS

PRIORITY DATE: 06/13/1978

POINT OF DIVERSION:

T06S R33E S10 NESE Within POWER County
~~T06S R33E S10 NESE Within POWER County~~

T06S R33E S15 SWNE Within POWER County

PURPOSE AND PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
MUNICIPAL	1/01 12/31	3.340 CFS

PLACE OF USE:

Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho Law.

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

To the extent necessary for administration between points of diversion for ground water, and between points of diversion for ground water and hydraulically connected surface sources, ground water was first diverted under this right from Pocatello Well No. 35 located in T06S, R33E, S10, NESE. Remove

~~To the extent necessary for administration, water was first appropriated or used from:~~
~~Pocatello Well No. 35 located in T06S, R33E, S10, NESE,~~
~~On 6/13/1978 in the amount of 3.34 cfs.~~
~~Pocatello Well No. 39 located in T06S, R33E, S15, SWNE,~~
~~On 12/31/1940 in the amount of 2.20 cfs.~~
~~Pocatellow Well No. 40 located in T06S, R33E, S10, NESE,~~
~~On 12/31/1942 in the amount of 1.92 cfs.~~

This partial decree is subject to such general provisions necessary for the definition of the rights or for the efficient administration of the water rights as may be ultimately determined by the Court at a point in time no later than the entry of a final unified decree. Section 42-1412(6), Idaho Code.

EXPLANATORY MATERIAL: BASIS OF CLAIM - License

RIGHT INCLUDES ACCOMPLISHED CHANGE IN POINT OF DIVERSION PURSUANT TO SECTION 42-1425, IDAHO CODE

Pocatello Well No. 35 was also known as Phillips Well No. 3.

8103

Water Right No. 29-7450

ELEMENTS THAT ARE IN DISPUTE

Pocatello seeks to resolve this element as follows:

(1) Other provisions necessary for definition or administration of this water right: Remove circled language from the Director's Report.

8104

Water Right No. 29-7450

DISPUTED ELEMENTS RESOLVED PRIOR TO TRIAL

Bureau of Land Management Objections

The BLM objected to the priority date, purpose of use and place of use elements. **BLM objections resolved pursuant to 11/22/04 *Order on Joint Motion to Dismiss Objections*.**

City of Pocatello Objections

1. Source, quantity, priority date and purpose of use (remark, general provision): All 38 of Pocatello's 38 state-based water rights should include the following remark regarding the City's water distribution facilities:

> The City of Pocatello's water supply system for distribution of all of its ground water and surface water supplies includes various reservoir and tank storage facilities, which are capable of being fully recharged by the quantity of water available in a 24-hour period from all of the city's sources of water. The right to use such storage facilities is therefore a part of each of the city's water rights.

Stipulation filed on 9/21/06 with parties agreeing that the above remark should not be added to the water right recommendations.

2. Separate Streams – **Pocatello's objections as to general provisions on separate streams were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

3. Separate Administration - **Pocatello's objections as to general provisions on separate administration were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

4. Swan Falls – **Issue separated and consolidated from Basin 29 subcases. Designated as Consolidated Subcase No. 92-34 in 12/5/03 Order. *Order Designating Basin -Wide Issue* entered on 8/23/04 and renumbered to Subcase No. 91-13. (Stayed pending reporting of Idaho Power rights in Basin 02)**

5. Correction to Point of Diversion – Interconnected network of wells should include two points of diversion serving two other water rights (29-7450 & 29-13638). **Stipulation filed 9/21/06 resolving this issue.**

6. Place of Use – Should be: Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho law, including all lands necessary to complete the beneficial use of the municipal water right. Reason Supporting Objection: Beneficial use of a municipal water right includes all actions 8105

necessary to comply with public health and safety standards. The City of Pocatello's municipal service area includes all lands necessary to complete the beneficial use of the municipal water rights. **Pocatello has accepted the language for place of use as contained in the Director's Report based on Stipulation filed on 9/21/06.**

NO ELEMENTS IN DISPUTE

07/10/2003

IDAHO DEPARTMENT OF WATER RESOURCES
RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

RIGHT NUMBER: 29-7502

NAME AND ADDRESS: CITY OF POCATELLO
PO BOX 4169
POCATELLO ID 83205

SOURCE: GROUND WATER TRIBUTARY:

QUANTITY: 0.100 CFS
20.00 AFY

PRIORITY DATE: 07/06/1979

POINT OF DIVERSION: T07S R35E S6 NWNW Lot 4 Within BANNOCK County

PURPOSE AND PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
IRRIGATION	03/15 11/15	0.100 CFS 20.00 AFY

PLACE OF USE: IRRIGATION Within BANNOCK County

T07S R34E S01 Lot 1 NENE 1.0 T07S R35E S06 Lot 4 NWNW 18.0

19 ACRES TOTAL

USE OF THIS RIGHT WITH RIGHT NO. 29-2354 IS LIMITED TO THE IRRIGATION OF A COMBINED TOTAL OF 19 ACRES IN A SINGLE IRRIGATION SEASON.

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

This partial decree is subject to such general provisions necessary for the definition of the rights or for the efficient administration of the water rights as may be ultimately determined by the Court at a point in time no later than the entry of a final unified decree. Section 42-1412(6), Idaho Code.

EXPLANATORY MATERIAL: BASIS OF CLAIM - License

RIGHT INCLUDES ACCOMPLISHED CHANGE IN PLACE OF USE PURSUANT TO SECTION 42-1425, IDAHO CODE.

8107

Water Right No. 29-7502

ELEMENTS THAT ARE IN DISPUTE

NONE

8108

Water Right No. 29-7502

DISPUTED ELEMENTS RESOLVED PRIOR TO TRIAL

1. Source, quantity, priority date and purpose of use (remark, general provision): All 38 of Pocatello's 38 state-based water rights should include the following remark regarding the City's water distribution facilities:

> The City of Pocatello's water supply system for distribution of all of its ground water and surface water supplies includes various reservoir and tank storage facilities, which are capable of being fully recharged by the quantity of water available in a 24-hour period from all of the city's sources of water. The right to use such storage facilities is therefore a part of each of the city's water rights.

Stipulation filed on 9/21/06 with parties agreeing that the above remark should not be added to the water right recommendations.

2. Separate Streams – **Pocatello's objections as to general provisions on separate streams were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

3. Separate Administration – **Pocatello's objections as to general provisions on separate administration were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

4. Swan Falls – **Issue separated and consolidated from Basin 29 subcases. Designated as Consolidated Subcase No. 92-34 in 12/5/03 Order. *Order Designating Basin-Wide Issue* entered on 8/23/04 and renumbered to Subcase No. 91-13. (Stayed pending reporting of Idaho Power rights in Basin 02)**

5. Place of Use – Should be: Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho law, including all lands necessary to complete the beneficial use of the municipal water right. Reason Supporting Objection: Beneficial use of a municipal water right includes all actions necessary to comply with public health and safety standards. The City of Pocatello's municipal service area includes all lands necessary to complete the beneficial use of the municipal water rights. **Pocatello has accepted the language for place of use as contained in the Director's Report based on Stipulation filed on 9/21/06.**

ELEMENTS IN DISPUTE

07/10/2003

IDAHO DEPARTMENT OF WATER RESOURCES
RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

RIGHT NUMBER: 29-7770

NAME AND ADDRESS: CITY OF POCATELLO
PO BOX 4169
POCATELLO ID 83205

SOURCE: GROUND WATER

TRIBUTARY:

QUANTITY: 4.460 CFS
1,120.00 AFY

PRIORITY DATE: 05/21/1984

POINT OF DIVERSION: T06S R33E S12 NESENE Within POWER County

PURPOSE AND PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
IRRIGATION Municipal	04/01 10/31	4.460 CFS 1,120.00 AFY

PLACE OF USE: Municipal IRRIGATION Within POWER County

T06S R33E S01	SWSE	5.0	T06S R33E S12	NENE	27.0
T06S R33E S12	NWNE	40.0	T06S R33E S12	SWNE	40.0
T06S R33E S12	SENE	40.0	T06S R33E S12	NENW	40.0
T06S R33E S12	SENW	40.0	T06S R33E S12	NESW	26.0
T06S R33E S12	NESE	7.0	T06S R33E S12	NWSE	15.0

280 ACRES TOTAL

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

This partial decree is subject to such general provisions necessary for the definition of the rights or for the efficient administration of the water rights as may be ultimately determined by the Court at a point in time no later than the entry of a final unified decree. Section 42-1412(6), Idaho Code.

EXPLANATORY MATERIAL: BASIS OF CLAIM - License

8110

Water Right No. 29-7770

ELEMENTS THAT ARE IN DISPUTE

Pocatello seeks to resolve this element as follows:

(1) Purpose of Use: MUNICIPAL

(2) Place(s) of use: MUNICIPAL SERVICE AREA FOR THE CITY OF POCATELLO MUNICIPAL WATER SUPPLY SYSTEM AS PROVIDED FOR UNDER IDAHO LAW. THIS RIGHT IS CURRENTLY USED FOR THE MUNICIPAL BIOSOLIDS PROGRAM AT THE IDENTIFIED ACREAGE.

(3) Place of Use Legal Description: MUNICIPAL POWER County

Township	Range	Section	Lot	Tract	Acres	Lot	Tract	Acres	Lot	Tract	Acres	Lot	Tract	Acres
06S	33E	1		SWSE	5									
		12		NENE	27		NWNE	40		SWNE	40		SENE	40
				NENW	40		SENW	40						
				NESW	26									
				NESE	7		NWSE	15						

Total Acres: 280

Water Right No. 29-7770

<u>DISPUTED ELEMENTS RESOLVED PRIOR TO TRIAL</u>

1. Source, quantity, priority date and purpose of use (remark, general provision): All 38 of Pocatello's 38 state-based water rights should include the following remark regarding the City's water distribution facilities:

> The City of Pocatello's water supply system for distribution of all of its ground water and surface water supplies includes various reservoir and tank storage facilities, which are capable of being fully recharged by the quantity of water available in a 24-hour period from all of the city's sources of water. The right to use such storage facilities is therefore a part of each of the city's water rights.

Stipulation filed on 9/21/06 with parties agreeing that the above remark should not be added to the water right recommendations.

2. Separate Streams – **Pocatello's objections as to general provisions on separate streams were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

3. Separate Administration – **Pocatello's objections as to general provisions on separate administration were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

4. Swan Falls – **Issue separated and consolidated from Basin 29 subcases. Designated as Consolidated Subcase No. 92-34 in 12/5/03 Order. *Order Designating Basin -Wide Issue* entered on 8/23/04 and renumbered to Subcase No. 91-13. (Stayed pending reporting of Idaho Power rights in Basin 02)**

NO ELEMENTS IN DISPUTE

07/10/2003

IDAHO DEPARTMENT OF WATER RESOURCES
RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

RIGHT NUMBER: 29-7782

NAME AND ADDRESS: CITY OF POCATELLO
PO BOX 4169
POCATELLO ID 83205

SOURCE: GROUND WATER TRIBUTARY:

QUANTITY: 7.000 CFS

PRIORITY DATE: 01/18/1985

POINT OF DIVERSION: T06S R34E S15 NESE Within BANNOCK County

PURPOSE AND PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
MUNICIPAL	1/01 12/31	7 000 CFS

PLACE OF USE:

Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho Law.

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

This partial decree is subject to such general provisions necessary for the definition of the rights or for the efficient administration of the water rights as may be ultimately determined by the Court at a point in time no later than the entry of a final unified decree. Section 42-1412(6), Idaho Code

EXPLANATORY MATERIAL: BASIS OF CLAIM - License

The Director retains jurisdiction of the right to incorporate the use into a water district, require streamflow augmentation or other action needed to protect prior surface water and ground water rights.

8113

Water Right No. 29-7782

ELEMENTS THAT ARE IN DISPUTE

NONE

8114

Water Right No. 29-7782

DISPUTED ELEMENTS RESOLVED PRIOR TO TRIAL

Bureau of Land Management Objections

The BLM objected to the priority date, purpose of use and place of use elements. **BLM objections resolved pursuant to 11/22/04 *Order on Joint Motion to Dismiss Objections.***

City of Pocatello Objections

1. Source, quantity, priority date and purpose of use (remark, general provision): All 38 of Pocatello's 38 state-based water rights should include the following remark regarding the City's water distribution facilities:

> The City of Pocatello's water supply system for distribution of all of its ground water and surface water supplies includes various reservoir and tank storage facilities, which are capable of being fully recharged by the quantity of water available in a 24-hour period from all of the city's sources of water. The right to use such storage facilities is therefore a part of each of the city's water rights.

Stipulation filed on 9/21/06 with parties agreeing that the above remark should not be added to the water right recommendations.

2. Separate Streams – **Pocatello's objections as to general provisions on separate streams were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

3. Separate Administration – **Pocatello's objections as to general provisions on separate administration were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

4. Swan Falls – **Issue separated and consolidated from Basin 29 subcases. Designated as Consolidated Subcase No. 92-34 in 12/5/03 Order. *Order Designating Basin -Wide Issue* entered on 8/23/04 and renumbered to Subcase No. 91-13. (Stayed pending reporting of Idaho Power rights in Basin 02)**

5. Point of Diversion – The interconnected network of wells should include 23 points of diversion, serving 22 water rights (29-2274, 29-2338, 29-2401, 29-2499, 29-4221, 29-4223, 29-4224, 29-4225, 29-4226, 29-7106, 29-7322, 29-7375, 29-7782, 29-11339, 29-11348, 29-13558, 29-13559, 29-13560, 29-13561, 29-13562, 29-13637 & 29-12639):

T06S R34E S14 NWNW Within BANNOCK County

T06S R34E S15 NWNE Within BANNOCK County
T06S R34E S15 NENW Within BANNOCK County
T06S R34E S15 NESE Within BANNOCK County
T06S R34E S15 NESE Within BANNOCK County
T06S R34E S16 NENE Within BANNOCK County
T06S R34E S23 NWNE Within BANNOCK County
T06S R34E S23 SWNE Within BANNOCK County
T06S R34E S23 SENW Within BANNOCK County
T06S R34E S23 NESW Within BANNOCK County
T06S R34E S26 NENW Within BANNOCK County
T065 R34E S26 SWSE Within BANNOCK County
T06S R34E S35 NWNE Within BANNOCK County
T06S R34E S35 SENE Within BANNOCK County
T06S R34E S35 NWSE Within BANNOCK County
T07S R34E S1 NWNE Lot 2 Within BANNOCK County
T07S R34E S1 SWNE Within BANNOCK County
T07S R34E S1 NESE Within BANNOCK County
T07S R34E S6 SESE Within BANNOCK County
T07S R35E S7 NESW Within BANNOCK County
T07S R35E S18 SENE Within BANNOCK County
T07S R35E S16 SWSW Within BANNOCK County

Pocatello withdrew objection. Documented in trial brief.

6. Place of Use – Should be: Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho law, including all lands necessary to complete the beneficial use of the municipal water right. Reason Supporting Objection: Beneficial use of a municipal water right includes all actions necessary to comply with public health and safety standards. The City of Pocatello's municipal service area includes all lands necessary to complete the beneficial use of the municipal water rights. **Pocatello has accepted the language for place of use as contained in the Director's Report based on Stipulation filed on 9/21/06.**

ELEMENTS IN DISPUTE

10/31/2006

IDAHO DEPARTMENT OF WATER RESOURCES
RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

RIGHT NUMBER: 29-11339

NAME AND ADDRESS: CITY OF POCATELLO
PO BOX 4169
POCATELLO ID 83205

SOURCE: GROUND WATER TRIBUTARY:

QUANTITY: 3.360 CFS

PRIORITY DATE: 12/31/1961

POINT OF DIVERSION:

T06S R34E S14 NWNW Within BANNOCK County
T06S R34E S15 NWNE Within BANNOCK County
T06S R34E S15 NENW Within BANNOCK County
T06S R34E S15 NESE Within BANNOCK County
T06S R34E S15 NESE Within BANNOCK County
T06S R34E S16 NENE Within BANNOCK County
T06S R34E S23 NWNE Within BANNOCK County
T06S R34E S23 SWNE Within BANNOCK County
T06S R34E S23 SENW Within BANNOCK County
T06S R34E S23 NESW Within BANNOCK County
T06S R34E S26 NENW Within BANNOCK County
T06S R34E S26 SWSE Within BANNOCK County
T06S R34E S35 NWNE Within BANNOCK County
T06S R34E S35 SENE Within BANNOCK County
T06S R34E S35 NWSE Within BANNOCK County
T07S R34E S1 NWNE Lot 2 Within BANNOCK County
T07S R34E S1 SWNE Within BANNOCK County
T07S R34E S1 NESE Within BANNOCK County
T07S R34E S1 SESE Within BANNOCK County
T07S R35E S6 NWSE Within BANNOCK County
T07S R35E S7 NESW Within BANNOCK County
T07S R35E S18 SENE Within BANNOCK County

Pocatello seeks to add a point of diversion

PURPOSE AND PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
MUNICIPAL	01/01 12/31	3 360 CFS

PLACE OF USE:

Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho Law.

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

To the extent necessary for administration between points of diversion for ground water, and between points of diversion for ground water and hydraulically connected surface sources, ground water was first diverted under this right from Alameda Well No. 6 located in T06S, R34E, S14, NESE in the amount of 1.70 cfs and Alameda Well No. 7 located in T06S, R34E, S13, NWSW in the amount of 1.66 cfs. Remov

8117

This partial decree is subject to such general provisions necessary for the definition of the rights or for the efficient administration of the water rights as may be ultimately determined by the Court at a point in time no later than the entry of a final unified decree. Section 42-1412(6), Idaho

IDAHO DEPARTMENT OF WATER RESOURCES

RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

EXPLANATORY MATERIAL: BASIS OF CLAIM - Beneficial Use

RIGHT INCLUDES ACCOMPLISHED CHANGE IN POINT OF DIVERSION PURSUANT TO SECTION 42-1425, IDAHO CODE.

Water Right No. 29-11339

ELEMENTS THAT ARE IN DISPUTE

Pocatello seeks to resolve this element as follows:

(1) **Point of Diversion:** The interconnected network of wells should include 23 points of diversion, serving 21 ground water rights (29-2274, 29-2338, 29-2401, 29-2499, 29-4221, 29-4223, 29-4224, 29-4225, 29-4226, 29-7106, 29-7322, 29-7375, 29-11339, 29-11348, 29-13558, 29-13559, 29-13560, 29-13561, 29-13562, 29-13637 & 29-13639).

Township	Range	Section	¼	of ¼	Pocatello Well No.	
7S	34E	1	NW	NE	Well No. 2	
7S	34E	1	SW	NE	Well No. 3	
6S	34E	35	NW	SE	Well No. 7	
6S	34E	26	NE	NW	Well No. 10	
6S	34E	35	SE	NE	Well No. 12	
7S	34E	1	SE	SE	Well No. 13	
7S	35E	7	NE	SW	Well No. 14	
7S	35E	6	NW	SE	Well No. 15	
6S	34E	26	SW	SE	Well No. 16	
6S	34E	15	NE	NW	Well No. 18	
6S	34E	23	SW	NE	Well No. 21	
6S	34E	23	SE	NW	Well No. 22	
6S	34E	23	NW	NE	Well No. 23	
6S	34E	15	NW	NE	Well No. 26	
6S	34E	14	NW	NW	Well No. 27	
7S	34E	1	NE	SE	Well No. 28	
6S	34E	23	NE	SW	Well No. 29	
6S	34E	35	NW	NE	Well No. 30	
6S	34E	15	NE	SE	Well No. 31	
6S	34E	16	NE	NE	Well No. 32	
7S	35E	18	SE	NE	Well No. 33	
6S	34E	15	NE	SE	Well No. 34	
7S	35E	16	SW	SW	Well No. 44	(the additional point of diversion)

(2) **Other provisions necessary for definition or administration of this water right:** Remove circled language from the Director's Report.

Water Right No. 29-11339

DISPUTED ELEMENTS RESOLVED PRIOR TO TRIAL

Bureau of Land Management Objections

The BLM objected to the priority date, purpose of use and place of use elements. **BLM objections resolved pursuant to 11/22/04 *Order on Joint Motion to Dismiss Objections.***

City of Pocatello Objections

1. Source, quantity, priority date and purpose of use (remark, general provision): All 38 of Pocatello's 38 state-based water rights should include the following remark regarding the City's water distribution facilities:

> The City of Pocatello's water supply system for distribution of all of its ground water and surface water supplies includes various reservoir and tank storage facilities, which are capable of being fully recharged by the quantity of water available in a 24-hour period from all of the city's sources of water. The right to use such storage facilities is therefore a part of each of the city's water rights.

Stipulation filed on 9/21/06 with parties agreeing that the above remark should not be added to the water right recommendations.

2. Separate Streams – **Pocatello's objections as to general provisions on separate streams were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

3. Separate Administration – **Pocatello's objections as to general provisions on separate administration were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

4. Swan Falls – **Issue separated and consolidated from Basin 29 subcases. Designated as Consolidated Subcase No. 92-34 in 12/5/03 Order. *Order Designating Basin -Wide Issue* entered on 8/23/04 and renumbered to Subcase No. 91-13. (Stayed pending reporting of Idaho Power rights in Basin 02)**

5. Place of Use – Should be: Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho law, including all lands necessary to complete the beneficial use of the municipal water right. Reason Supporting Objection: Beneficial use of a municipal water right includes all actions necessary to comply with public health and safety standards. The City of Pocatello's municipal service area includes all lands necessary to complete the beneficial use of the municipal water rights. **Pocatello has accepted the language for place of use as contained in the Director's Report based on Stipulation filed on 9/21/06.**

NO ELEMENTS IN DISPUTE

02/21/2007

IDAHO DEPARTMENT OF WATER RESOURCES

RECOMMENDATION OF WATER RIGHTS ACQUIRED UNDER STATE LAW

RIGHT NUMBER: 29-11344

NAME AND ADDRESS: CITY OF POCATELLO
PO BOX 4169
POCATELLO ID 83205

SOURCE: GROUND WATER TRIBUTARY:

QUANTITY: 1.920 CFS

PRIORITY DATE: 12/31/1942

POINT OF DIVERSION:

T06S R33E S10 NESE Within POWER County

~~T06S R33E S10 NESE Within POWER County~~

~~T06S R33E S15 SWNE Within POWER County~~

PURPOSE AND PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
MUNICIPAL	1/01 12/31	1.920 CFS

PLACE OF USE:

Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho Law.

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

~~To the extent necessary for administration, water was first appropriated or used from:~~
~~Pocatello Well No. 35 located in T06S, R33E, S10, NESE, on 6/13/1978 in the amount of 1.34 cfs.~~
~~Pocatello Well No. 39 located in T06S, R33E, S15, SWNE, on 12/31/1940 in the amount of 2.20 cfs.~~
~~Pocatello Well No. 40 located in T06S, R33E, S10, NESE, on 12/31/1942 in the amount of 1.92 cfs.~~

This partial decree is subject to such general provisions necessary for the definition of the rights or for the efficient administration of the water rights as may be ultimately determined by the Court at a point in time no later than the entry of a final unified decree. Section 42-1412(6), Idaho Code.

EXPLANATORY MATERIAL: BASIS OF CLAIM - Beneficial Use

RIGHT INCLUDES ACCOMPLISHED CHANGE IN POINT OF DIVERSION PURSUANT TO SECTION 42-1425, IDAHO CODE.

Water Right No. 29-11344

ELEMENTS THAT ARE IN DISPUTE

NONE

Water Right No. 29-11344

DISPUTED ELEMENTS RESOLVED PRIOR TO TRIAL

Bureau of Land Management Objections

The BLM objected to the priority date, purpose of use and place of use elements. **BLM objections resolved pursuant to 11/22/04 *Order on Joint Motion to Dismiss Objections*.**

City of Pocatello Objections

1. Source, quantity, priority date and purpose of use (remark, general provision): All 38 of Pocatello's 38 state-based water rights should include the following remark regarding the City's water distribution facilities:

> The City of Pocatello's water supply system for distribution of all of its ground water and surface water supplies includes various reservoir and tank storage facilities, which are capable of being fully recharged by the quantity of water available in a 24-hour period from all of the city's sources of water. The right to use such storage facilities is therefore a part of each of the city's water rights.

Stipulation filed on 9/21/06 with parties agreeing that the above remark should not be added to the water right recommendations.

2. Separate Streams – **Pocatello's objections as to general provisions on separate streams were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

3. Separate Administration – **Pocatello's objections as to general provisions on separate administration were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

4. Swan Falls – **Issue separated and consolidated from Basin 29 subcases. Designated as Consolidated Subcase No. 92-34 in 12/5/03 Order. *Order Designating Basin -Wide Issue* entered on 8/23/04 and renumbered to Snbcase No. 91-13. (Stayed pending reporting of Idaho Power rights in Basin 02)**

5. Point of Diversion – location; not part of interconnected system. **Stipulation filed on 9/21/06 resolving issue.**

6. Place of Use – Should be: Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho law, including all lands necessary to complete the beneficial use of the municipal water right. Reason Supporting Objection: Beneficial use of a municipal water right includes all actions

necessary to comply with public health and safety standards. The City of Pocatello's municipal service area includes all lands necessary to complete the beneficial use of the municipal water rights. **Pocatello has accepted the language for place of use as contained in the Director's Report based on Stipulation filed on 9/21/06.**

ELEMENTS IN DISPUTE

10/31/2006

IDAHO DEPARTMENT OF WATER RESOURCES
RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

RIGHT NUMBER: 29-11348

NAME AND ADDRESS: CITY OF POCATELLO
PO BOX 4169
POCATELLO ID 83205

SOURCE: GROUND WATER TRIBUTARY:

QUANTITY: 4.900 CFS

PRIORITY DATE: 08/31/1951

POINT OF DIVERSION:

T06S R34E S14 NWNW Within BANNOCK County
T06S R34E S15 NWNE Within BANNOCK County
T06S R34E S15 NENW Within BANNOCK County
T06S R34E S15 NESE Within BANNOCK County
T06S R34E S15 NESE Within BANNOCK County
T06S R34E S16 NENE Within BANNOCK County
T06S R34E S23 NWNE Within BANNOCK County
T06S R34E S23 SWNE Within BANNOCK County
T06S R34E S23 SENW Within BANNOCK County
T06S R34E S23 NESW Within BANNOCK County
T06S R34E S26 NENW Within BANNOCK County
T06S R34E S26 SWSE Within BANNOCK County
T06S R34E S35 NWNE Within BANNOCK County
T06S R34E S35 SENE Within BANNOCK County
T06S R34E S35 NWSE Within BANNOCK County
T07S R34E S1 NWNE Lot 2 Within BANNOCK County
T07S R34E S1 SWNE Within BANNOCK County
T07S R34E S1 NESE Within BANNOCK County
T07S R34E S1 SESE Within BANNOCK County
T07S R35E S6 NWSE Within BANNOCK County
T07S R35E S7 NESW Within BANNOCK County
T07S R35E S18 SENE Within BANNOCK County

Pocatello seeks to add one point of diversion

PURPOSE AND PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
MUNICIPAL	01/01 12/31	4.900 CFS

PLACE OF USE:

Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho Law.

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

To the extent necessary for administration between points of diversion for ground water, and between points of diversion for ground water and hydraulically connected surface sources, ground water was first diverted under this right from Pocatello Well No. 28 located in T07S, R34E, S01, NESE. Remove

This partial decree is subject to such general provisions necessary for the definition of the rights or for the efficient administration of the water rights as may be ultimately determined by the Court at a point in time no later than the entry of a final unified decree. Section 42-1412(6), Idaho Code.

10/31/2006

IDAHO DEPARTMENT OF WATER RESOURCES
RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

EXPLANATORY MATERIAL: BASIS OF CLAIM - Beneficial Use

RIGHT INCLUDES ACCOMPLISHED CHANGE IN POINT OF DIVERSION PURSUANT TO SECTION 42-1425, IDAHO CODE.

Pocatello Well No. 28 was also known as the Turner Well.

Water Right No. 29-11348

ELEMENTS THAT ARE IN DISPUTE

Pocatello seeks to resolve this element as follows:

(1) **Point of Diversion:** The interconnected network of wells should include 23 points of diversion, serving 21 ground water rights (29-2274, 29-2338, 29-2401, 29-2499, 29-4221, 29-4223, 29-4224, 29-4225, 29-4226, 29-7106, 29-7322, 29-7375, 29-11339, 29-11348, 29-13558, 29-13559, 29-13560, 29-13561, 29-13562, 29-13637 & 29-13639).

Township	Range	Section	¼	of ¼	Pocatello Well No.	
7S	34E	1	NW	NE	Well No. 2	
7S	34E	1	SW	NE	Well No. 3	
6S	34E	35	NW	SE	Well No. 7	
6S	34E	26	NE	NW	Well No. 10	
6S	34E	35	SE	NE	Well No. 12	
7S	34E	1	SE	SE	Well No. 13	
7S	35E	7	NE	SW	Well No. 14	
7S	35E	6	NW	SE	Well No. 15	
6S	34E	26	SW	SE	Well No. 16	
6S	34E	15	NE	NW	Well No. 18	
6S	34E	23	SW	NE	Well No. 21	
6S	34E	23	SE	NW	Well No. 22	
6S	34E	23	NW	NE	Well No. 23	
6S	34E	15	NW	NE	Well No. 26	
6S	34E	14	NW	NW	Well No. 27	
7S	34E	1	NE	SE	Well No. 28	
6S	34E	23	NE	SW	Well No. 29	
6S	34E	35	NW	NE	Well No. 30	
6S	34E	15	NE	SE	Well No. 31	
6S	34E	16	NE	NE	Well No. 32	
7S	35E	18	SE	NE	Well No. 33	
6S	34E	15	NE	SE	Well No. 34	
7S	35E	16	SW	SW	Well No. 44	(the additional point of diversion)

(2) **Other provisions necessary for definition or administration of this water right:** Remove circled language from the Director's Report.

8127

Water Right No. 29-11348

DISPUTED ELEMENTS RESOLVED PRIOR TO TRIAL

Bureau of Land Management Objections

The BLM objected to the priority date, purpose of use and place of use elements. **BLM objections resolved pursuant to 11/22/04 *Order on Joint Motion to Dismiss Objections*.**

City of Pocatello Objections

1. Source, quantity, priority date and purpose of use (remark, general provision): All 38 of Pocatello's 38 state-based water rights should include the following remark regarding the City's water distribution facilities:

> The City of Pocatello's water supply system for distribution of all of its ground water and surface water supplies includes various reservoir and tank storage facilities, which are capable of being fully recharged by the quantity of water available in a 24-hour period from all of the city's sources of water. The right to use such storage facilities is therefore a part of each of the city's water rights.

Stipulation filed on 9/21/06 with parties agreeing that the above remark should not be added to the water right recommendations.

2. Separate Streams – **Pocatello's objections as to general provisions on separate streams were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

3. Separate Administration – **Pocatello's objections as to general provisions on separate administration were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

4. Swan Falls – **Issue separated and consolidated from Basin 29 subcases. Designated as Consolidated Subcase No. 92-34 in 12/5/03 Order. *Order Designating Basin -Wide Issue* entered on 8/23/04 and renumbered to Subcase No. 91-13. (Stayed pending reporting of Idaho Power rights in Basin 02)**

5. Place of Use – Should be: Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho law, including all lands necessary to complete the beneficial use of the municipal water right. Reason Supporting Objection: Beneficial use of a municipal water right includes all actions necessary to comply with public health and safety standards. The City of Pocatello's municipal service area includes all lands necessary to complete the beneficial use of the municipal water rights. **Pocatello has accepted the language for place of use as contained in the Director's Report based on Stipulation filed on 9/21/06.**

8128

10/26/2006

IDAHO DEPARTMENT OF WATER RESOURCES
RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

RIGHT NUMBER: 29-13558

NAME AND ADDRESS: CITY OF POCATELLO
PO BOX 4169
POCATELLO ID 83205

SOURCE: GROUND WATER TRIBUTARY:

QUANTITY: 1.340 CFS

PRIORITY DATE: 07/16/1924 6/30/1905

POINT OF DIVERSION:

T06S R34E S14 NWNW Within BANNOCK County
T06S R34E S15 NWNE Within BANNOCK County
T06S R34E S15 NENW Within BANNOCK County
T06S R34E S15 NESE Within BANNOCK County
T06S R34E S15 NESE Within BANNOCK County
T06S R34E S16 NENE Within BANNOCK County
T06S R34E S23 NWNE Within BANNOCK County
T06S R34E S23 SWNE Within BANNOCK County
T06S R34E S23 SENW Within BANNOCK County
T06S R34E S23 NESW Within BANNOCK County
T06S R34E S26 NENW Within BANNOCK County
T06S R34E S26 SWSE Within BANNOCK County
T06S R34E S35 NWNE Within BANNOCK County
T06S R34E S35 SENE Within BANNOCK County
T06S R34E S35 NWSE Within BANNOCK County
T07S R34E S1 NWNE Lot 2 Within BANNOCK County
T07S R34E S1 SWNE Within BANNOCK County
T07S R34E S1 NESE Within BANNOCK County
T07S R34E S1 SESE Within BANNOCK County
T07S R35E S6 NWSE Within BANNOCK County
T07S R35E S7 NESW Within BANNOCK County
T07S R35E S18 SENE Within BANNOCK County

Pocatello seeks to add one point of diversion

PURPOSE AND PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
MUNICIPAL	01/01 12/31	1.340 CFS

PLACE OF USE:

Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho Law.

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

To the extent necessary for administration between points of diversion for ground water, and between points of diversion for ground water and hydraulically connected surface sources, ground water was first diverted under this right. from Alameda Well No. 1 located in T06S, R34E, S23, NESW, which was replaced by Pocatello Well No. 29 located in T06S, R34E, S23, NESW. Remov

This partial decree is subject to such general provisions necessary for the definition of the rights or for the efficient administration of the water rights as may be ultimately determined by the Court at a point in time no later than the entry of a final unified decree. Section 42-1412(6), Idaho Code.

8129

IDAHO DEPARTMENT OF WATER RESOURCES
RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

EXPLANATORY MATERIAL: BASIS OF CLAIM - Beneficial Use

Right includes accomplished change in point of diversion pursuant to Section 42-1425, Idaho Code

Water Right No. 29-13558

ELEMENTS THAT ARE IN DISPUTE

Pocatello seeks to resolve this element as follows:

(1) **Priority Date:** 6/30/1905

(2) **Point of Diversion:** The interconnected network of wells should include 23 points of diversion, serving 21 ground water rights (29-2274, 29-2338, 29-2401, 29-2499, 29-4221, 29-4223, 29-4224, 29-4225, 29-4226, 29-7106, 29-7322, 29-7375, 29-11339, 29-11348, 29-13558, 29-13559, 29-13560, 29-13561, 29-13562, 29-13637 & 29-13639).

Township	Range	Section	¼	of ¼	Pocatello Well No.	
7S	34E	1	NW	NE	Well No. 2	
7S	34E	1	SW	NE	Well No. 3	
6S	34E	35	NW	SE	Well No. 7	
6S	34E	26	NE	NW	Well No. 10	
6S	34E	35	SE	NE	Well No. 12	
7S	34E	1	SE	SE	Well No. 13	
7S	35E	7	NE	SW	Well No. 14	
7S	35E	6	NW	SE	Well No. 15	
6S	34E	26	SW	SE	Well No. 16	
6S	34E	15	NE	NW	Well No. 18	
6S	34E	23	SW	NE	Well No. 21	
6S	34E	23	SE	NW	Well No. 22	
6S	34E	23	NW	NE	Well No. 23	
6S	34E	15	NW	NE	Well No. 26	
6S	34E	14	NW	NW	Well No. 27	
7S	34E	1	NE	SE	Well No. 28	
6S	34E	23	NE	SW	Well No. 29	
6S	34E	35	NW	NE	Well No. 30	
6S	34E	15	NE	SE	Well No. 31	
6S	34E	16	NE	NE	Well No. 32	
7S	35E	18	SE	NE	Well No. 33	
6S	34E	15	NE	SE	Well No. 34	
7S	35E	16	SW	SW	Well No. 44	(the additional point of diversion)

(3) **Other provisions necessary for definition or administration of this water right:** Remove circled language from the Director's Report.

8131

Water Right No. 29-13558

DISPUTED ELEMENTS RESOLVED PRIOR TO TRIAL

1. Source, quantity, priority date and purpose of use (remark, general provision): All 38 of Pocatello's 38 state-based water rights should include the following remark regarding the City's water distribution facilities:

> The City of Pocatello's water supply system for distribution of all of its ground water and surface water supplies includes various reservoir and tank storage facilities, which are capable of being fully recharged by the quantity of water available in a 24-hour period from all of the city's sources of water. The right to use such storage facilities is therefore a part of each of the city's water rights.

Stipulation filed on 9/21/06 with parties agreeing that the above remark should not be added to the water right recommendations.

2. Separate Streams – **Pocatello's objections as to general provisions on separate streams were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

3. Separate Administration – **Pocatello's objections as to general provisions on separate administration were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

4. Swan Falls – **Issue separated and consolidated from Basin 29 subcases. Designated as Consolidated Subcase No. 92-34 in 12/5/03 Order. *Order Designating Basin -Wide Issue* entered on 8/23/04 and renumbered to Subcase No. 91-13. (Stayed pending reporting of Idaho Power rights in Basin 02)**

5. Place of Use – Beneficial use of a municipal water right includes all actions necessary to comply with public health and safety standards. Pocatello's municipal service area includes all lands necessary to complete the beneficial use of the municipal water rights. **Pocatello has accepted the language for place of use as contained in the Director's Report based on Stipulation filed on 9/21/06.**

ELEMENTS IN DISPUTE

10/26/2006

IDAHO DEPARTMENT OF WATER RESOURCES
RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

RIGHT NUMBER: 29-13559

NAME AND ADDRESS: CITY OF POCATELLO
PO BOX 4169
POCATELLO ID 83205

SOURCE: GROUND WATER TRIBUTARY:

QUANTITY: 0.960 CFS

PRIORITY DATE: 12/31/1925

POINT OF DIVERSION:

T06S R34E S14 NWNW Within BANNOCK County
T06S R34E S15 NWNE Within BANNOCK County
T06S R34E S15 NENW Within BANNOCK County
T06S R34E S15 NESE Within BANNOCK County
T06S R34E S15 NESE Within BANNOCK County
T06S R34E S16 NENE Within BANNOCK County
T06S R34E S23 NWNE Within BANNOCK County
T06S R34E S23 SWNE Within BANNOCK County
T06S R34E S23 SENW Within BANNOCK County
T06S R34E S23 NESW Within BANNOCK County
T06S R34E S26 NENW Within BANNOCK County
T06S R34E S26 SWSE Within BANNOCK County
T06S R34E S35 NWNE Within BANNOCK County
T06S R34E S35 SENE Within BANNOCK County
T06S R34E S35 NWSE Within BANNOCK County
T07S R34E S1 NWNE Lot 2 Within BANNOCK County
T07S R34E S1 SWNE Within BANNOCK County
T07S R34E S1 NESE Within BANNOCK County
T07S R34E S1 SESE Within BANNOCK County
T07S R35E S6 NWSE Within BANNOCK County
T07S R35E S7 NESW Within BANNOCK County
T07S R35E S18 SENE Within BANNOCK County

Pocatello seeks to add one point of diversion

PURPOSE AND PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
MUNICIPAL	01/01 12/31	0.960 CFS

PLACE OF USE:

Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho Law.

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

To the extent necessary for administration between points of diversion for ground water, and between points of diversion for ground water and hydraulically connected surface sources, ground water was first diverted under this right from Alameda Well No. 2 located in T06S, R34E, S23, NESW, which was replaced by Pocatello Well No. 29 located in T06S, R34E, S23, NESW. Remove

This partial decree is subject to such general provisions necessary for the definition of the rights or for the efficient administration of the water rights as may be ultimately determined by the Court at a point in time no later than the entry of a final unified decree. Section 42-1412(6), Idaho Code

8133

10/26/2006

IDAHO DEPARTMENI OF WATER RESOURCES

RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

EXPLANATORY MATERIAL: BASIS OF CLAIM - Beneficial Use

RIGHT INCLUDES ACCOMPLISHED CHANGE IN POINT OF DIVERSION
PURSUANT TO SECTION 42-1425, IDAHO CODE.

Water Right No. 29-13559

ELEMENTS THAT ARE IN DISPUTE

Pocatello seeks to resolve this element as follows:

(1) **Point of Diversion:** The interconnected network of wells should include 23 points of diversion, serving 21 ground water rights (29-2274, 29-2338, 29-2401, 29-2499, 29-4221, 29-4223, 29-4224, 29-4225, 29-4226, 29-7106, 29-7322, 29-7375, 29-11339, 29-11348, 29-13558, 29-13559, 29-13560, 29-13561, 29-13562, 29-13637 & 29-13639).

Township	Range	Section	¼	of ¼	Pocatello Well No.	
7S	34E	1	NW	NE	Well No. 2	
7S	34E	1	SW	NE	Well No. 3	
6S	34E	35	NW	SE	Well No. 7	
6S	34E	26	NE	NW	Well No. 10	
6S	34E	35	SE	NE	Well No. 12	
7S	34E	1	SE	SE	Well No. 13	
7S	35E	7	NE	SW	Well No. 14	
7S	35E	6	NW	SE	Well No. 15	
6S	34E	26	SW	SE	Well No. 16	
6S	34E	15	NE	NW	Well No. 18	
6S	34E	23	SW	NE	Well No. 21	
6S	34E	23	SE	NW	Well No. 22	
6S	34E	23	NW	NE	Well No. 23	
6S	34E	15	NW	NE	Well No. 26	
6S	34E	14	NW	NW	Well No. 27	
7S	34E	1	NE	SE	Well No. 28	
6S	34E	23	NE	SW	Well No. 29	
6S	34E	35	NW	NE	Well No. 30	
6S	34E	15	NE	SE	Well No. 31	
6S	34E	16	NE	NE	Well No. 32	
7S	35E	18	SE	NE	Well No. 33	
6S	34E	15	NE	SE	Well No. 34	
7S	35E	16	SW	SW	Well No. 44	(the additional point of diversion)

(2) **Other provisions necessary for definition or administration of this water right:** Remove circled language from the Director's Report.

Water Right No. 29-13559

DISPUTED ELEMENTS RESOLVED PRIOR TO TRIAL

Bureau of Land Management Objections

The BLM objected to the priority date, purpose of use and place of use elements. **BLM objections resolved pursuant to 11/22/04 *Order on Joint Motion to Dismiss Objections.***

City of Pocatello Objections

1. Source, quantity, priority date and purpose of use (remark, general provision): All 38 of Pocatello's 38 state-based water rights should include the following remark regarding the City's water distribution facilities:

> The City of Pocatello's water supply system for distribution of all of its ground water and surface water supplies includes various reservoir and tank storage facilities, which are capable of being fully recharged by the quantity of water available in a 24-hour period from all of the city's sources of water. The right to use such storage facilities is therefore a part of each of the city's water rights.

Stipulation filed on 9/21/06 with parties agreeing that the above remark should not be added to the water right recommendations.

2. Separate Streams – **Pocatello's objections as to general provisions on separate streams were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

3. Separate Administration – **Pocatello's objections as to general provisions on separate administration were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

4. Swan Falls – **Issue separated and consolidated from Basin 29 subcases. Designated as Consolidated Subcase No. 92-34 in 12/5/03 Order. *Order Designating Basin -Wide Issue* entered on 8/23/04 and renumbered to Subcase No. 91-13. (Stayed pending reporting of Idaho Power rights in Basin 02)**

5. Place of Use – Should be: Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho law, including all lands necessary to complete the beneficial use of the municipal water right. Reason Supporting Objection: Beneficial use of a municipal water right includes all actions necessary to comply with public health and safety standards. The City of Pocatello's municipal service area includes all lands necessary to complete the beneficial use of the municipal water rights. **Pocatello has accepted the language for place of use as contained in the Director's Report based on Stipulation filed on 9/21/06.**

8136

ELEMENTS IN DISPUTE

10/26/2006

IDAHO DEPARTMENT OF WATER RESOURCES
RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

RIGHT NUMBER: 29-13560

NAME AND ADDRESS: CITY OF POCATELLO
PO BOX 4169
POCATELLO ID 83205

SOURCE: GROUND WATER TRIBUTARY:

QUANTITY: 9.130 CFS

PRIORITY DATE: 12/31/1926

POINT OF DIVERSION:

T06S R34E S14 NWNW Within BANNOCK County
T06S R34E S15 NWNE Within BANNOCK County
T06S R34E S15 NENW Within BANNOCK County
T06S R34E S15 NESE Within BANNOCK County
T06S R34E S15 NESE Within BANNOCK County
T06S R34E S16 NENE Within BANNOCK County
T06S R34E S23 NWNE Within BANNOCK County
T06S R34E S23 SWNE Within BANNOCK County
T06S R34E S23 SENW Within BANNOCK County
T06S R34E S23 NESW Within BANNOCK County
T06S R34E S26 NENW Within BANNOCK County
T06S R34E S26 SWSE Within BANNOCK County
T06S R34E S35 NWNE Within BANNOCK County
T06S R34E S35 SENE Within BANNOCK County
T06S R34E S35 NWSE Within BANNOCK County
T07S R34E S1 NWNE Lot 2 Within BANNOCK County
T07S R34E S1 SWNE Within BANNOCK County
T07S R34E S1 NESE Within BANNOCK County
T07S R34E S1 SESE Within BANNOCK County
T07S R35E S6 NWSE Within BANNOCK County
T07S R35E S7 NESW Within BANNOCK County
T07S R35E S18 SENE Within BANNOCK County

Pocatello seeks to add one point of diversion

PURPOSE AND PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
MUNICIPAL	01/01 12/31	9.130 CFS

PLACE OF USE:

Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho Law.

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

To the extent necessary for administration between points of diversion for ground water, and between points of diversion for ground water and hydraulically connected surface sources, ground water was first diverted under this right from Pocatello Well No. 1 located in T07S, R34E, S01, Lot 2 (NWNE) in the amount of 2.45 cfs, from Pocatello Well No. 2 located in T07S, R34E, S01, Lot 2 (NWNE) in the amount of 2.45 cfs and from Pocatello Well No. 3 located in T07S, R34E, S01, SWNE in the amount of 4.23 cfs. Pocatello Well No. 1 was replaced by Pocatello Well No. 5 located in T06S, R34E, S35, NWNE.

Remove

8137

This partial decree is subject to such general provisions necessary for the definition of the rights or for the efficient administration of the water rights as may be ultimately determined by the Court at a point in time no later than the entry of a final unified decree. Section 42-1412(6), Idaho Code.

EXPLANATORY MATERIAL: BASIS OF CLAIM - Beneficial Use

Right includes accomplished change in point of diversion pursuant to Section 42-1425, Idaho Code

Water Right No. 29-13560

ELEMENTS THAT ARE IN DISPUTE

Pocatello seeks to resolve this element as follows:

(1) **Point of Diversion:** The interconnected network of wells should include 23 points of diversion, serving 21 ground water rights (29-2274, 29-2338, 29-2401, 29-2499, 29-4221, 29-4223, 29-4224, 29-4225, 29-4226, 29-7106, 29-7322, 29-7375, 29-11339, 29-11348, 29-13558, 29-13559, 29-13560, 29-13561, 29-13562, 29-13637 & 29-13639).

Township	Range	Section	¼	of ¼	Pocatello Well No.	
7S	34E	1	NW	NE	Well No. 2	
7S	34E	1	SW	NE	Well No. 3	
6S	34E	35	NW	SE	Well No. 7	
6S	34E	26	NE	NW	Well No. 10	
6S	34E	35	SE	NE	Well No. 12	
7S	34E	1	SE	SE	Well No. 13	
7S	35E	7	NE	SW	Well No. 14	
7S	35E	6	NW	SE	Well No. 15	
6S	34E	26	SW	SE	Well No. 16	
6S	34E	15	NE	NW	Well No. 18	
6S	34E	23	SW	NE	Well No. 21	
6S	34E	23	SE	NW	Well No. 22	
6S	34E	23	NW	NE	Well No. 23	
6S	34E	15	NW	NE	Well No. 26	
6S	34E	14	NW	NW	Well No. 27	
7S	34E	1	NE	SE	Well No. 28	
6S	34E	23	NE	SW	Well No. 29	
6S	34E	35	NW	NE	Well No. 30	
6S	34E	15	NE	SE	Well No. 31	
6S	34E	16	NE	NE	Well No. 32	
7S	35E	18	SE	NE	Well No. 33	
6S	34E	15	NE	SE	Well No. 34	
7S	35E	16	SW	SW	Well No. 44	(the additional point of diversion)

(2) **Other provisions necessary for definition or administration of this water right:** Remove circled language from the Director's Report.

Water Right No. 29-13560

DISPUTED ELEMENTS RESOLVED PRIOR TO TRIAL

Bureau of Land Management Objections

The BLM objected to the priority date, purpose of use and place of use elements. **BLM objections resolved pursuant to 11/22/04 *Order on Joint Motion to Dismiss Objections*.**

City of Pocatello Objections

1. Source, quantity, priority date and purpose of use (remark, general provision): All 38 of Pocatello's 38 state-based water rights should include the following remark regarding the City's water distribution facilities:

> The City of Pocatello's water supply system for distribution of all of its ground water and surface water supplies includes various reservoir and tank storage facilities, which are capable of being fully recharged by the quantity of water available in a 24-hour period from all of the city's sources of water. The right to use such storage facilities is therefore a part of each of the city's water rights.

Stipulation filed on 9/21/06 with parties agreeing that the above remark should not be added to the water right recommendations.

2. Separate Streams – **Pocatello's objections as to general provisions on separate streams were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

3. Separate Administration – **Pocatello's objections as to general provisions on separate administration were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

4. Swan Falls – **Issue separated and consolidated from Basin 29 subcases. Designated as Consolidated Subcase No. 92-34 in 12/5/03 Order. *Order Designating Basin -Wide Issue* entered on 8/23/04 and renumbered to Subcase No. 91-13. (Stayed pending reporting of Idaho Power rights in Basin 02)**

5. Place of Use – Should be: Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho law, including all lands necessary to complete the beneficial use of the municipal water right. Reason Supporting Objection: Beneficial use of a municipal water right includes all actions necessary to comply with public health and safety standards. The City of Pocatello's municipal service area includes all lands necessary to complete the beneficial use of the municipal water rights. **Pocatello has accepted the language for place of use as contained in the Director's Report based on Stipulation filed on 9/21/06.**

ELEMENTS IN DISPUTE

10/26/2006

IDAHO DEPARTMENT OF WATER RESOURCES
RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

RIGHT NUMBER: 29-13561

NAME AND ADDRESS: CITY OF POCATELLO
PO BOX 4169
POCATELLO ID 83205

SOURCE: GROUND WATER TRIBUTARY:

QUANTITY: 4.230 CFS

PRIORITY DATE: 08/31/1931

POINT OF DIVERSION:

T06S R34E S14 NWNW Within BANNOCK County
T06S R34E S15 NWNE Within BANNOCK County
T06S R34E S15 NENW Within BANNOCK County
T06S R34E S15 NESE Within BANNOCK County
T06S R34E S15 NESE Within BANNOCK County
T06S R34E S16 NENE Within BANNOCK County
T06S R34E S23 NWNE Within BANNOCK County
T06S R34E S23 SWNE Within BANNOCK County
T06S R34E S23 SENW Within BANNOCK County
T06S R34E S23 NESW Within BANNOCK County
T06S R34E S26 NENW Within BANNOCK County
T06S R34E S26 SWSE Within BANNOCK County
T06S R34E S35 NWNE Within BANNOCK County
T06S R34E S35 SENE Within BANNOCK County
T06S R34E S35 NWSE Within BANNOCK County
T07S R34E S1 NWNE Lot 2 Within BANNOCK County
T07S R34E S1 SWNE Within BANNOCK County
T07S R34E S1 NESE Within BANNOCK County
T07S R34E S1 SESE Within BANNOCK County
T07S R35E S6 NWSE Within BANNOCK County
T07S R35E S7 NESW Within BANNOCK County
T07S R35E S18 SENE Within BANNOCK County

Pocatello seeks to add one point of diversion

PURPOSE AND PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
MUNICIPAL	01/01 12/31	4.230 CFS

PLACE OF USE:

Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho Law.

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

To the extent necessary for administration between points of diversion for ground water, and between points of diversion for ground water and hydraulically connected surface sources, ground water was first diverted under this right from Pocatello Well No. 4 located in T06S, R34E, S35, NWSE

Remove

8141

This partial decree is subject to such general provisions necessary for the definition of the rights or for the efficient administration of the water rights as may be ultimately determined by the Court at a point in time no later than the entry of a final unified decree. Section 42-1412(6), Idaho

IDAHO DEPARIMENI OF WATER RESOURCES
RECOMMENDED WAIER RIGHIS ACQUIRED UNDER STATE LAW

Code.

EXPLANATORY MAIERIAL: BASIS OF CLAIM - Beneficial Use
RIGHT INCLUDES ACCOMPLISHED CHANGE IN POINT OF DIVERSION
PURSUANT TO SECTION 42-1425, IDAHO CODE

8142

Water Right No. 29-13561

ELEMENTS THAT ARE IN DISPUTE

Pocatello seeks to resolve this element as follows:

(1) **Point of Diversion:** The interconnected network of wells should include 23 points of diversion, serving 21 ground water rights (29-2274, 29-2338, 29-2401, 29-2499, 29-4221, 29-4223, 29-4224, 29-4225, 29-4226, 29-7106, 29-7322, 29-7375, 29-11339, 29-11348, 29-13558, 29-13559, 29-13560, 29-13561, 29-13562, 29-13637 & 29-13639).

Township	Range	Section	¼	of ¼	Pocatello Well No.	
7S	34E	1	NW	NE	Well No. 2	
7S	34E	1	SW	NE	Well No. 3	
6S	34E	35	NW	SE	Well No. 7	
6S	34E	26	NE	NW	Well No. 10	
6S	34E	35	SE	NE	Well No. 12	
7S	34E	1	SE	SE	Well No. 13	
7S	35E	7	NE	SW	Well No. 14	
7S	35E	6	NW	SE	Well No. 15	
6S	34E	26	SW	SE	Well No. 16	
6S	34E	15	NE	NW	Well No. 18	
6S	34E	23	SW	NE	Well No. 21	
6S	34E	23	SE	NW	Well No. 22	
6S	34E	23	NW	NE	Well No. 23	
6S	34E	15	NW	NE	Well No. 26	
6S	34E	14	NW	NW	Well No. 27	
7S	34E	1	NE	SE	Well No. 28	
6S	34E	23	NE	SW	Well No. 29	
6S	34E	35	NW	NE	Well No. 30	
6S	34E	15	NE	SE	Well No. 31	
6S	34E	16	NE	NE	Well No. 32	
7S	35E	18	SE	NE	Well No. 33	
6S	34E	15	NE	SE	Well No. 34	
7S	35E	16	SW	SW	Well No. 44	(the additional point of diversion)

(2) **Other provisions necessary for definition or administration of this water right:** Remove circled language from the Director's Report.

Water Right No. 29-13561

DISPUTED ELEMENTS RESOLVED PRIOR TO TRIAL

Bureau of Land Management Objections

The BLM objected to the priority date, purpose of use and place of use elements. **BLM objections resolved pursuant to 11/22/04 *Order on Joint Motion to Dismiss Objections*.**

City of Pocatello Objections

1. Source, quantity, priority date and purpose of use (remark, general provision): All 38 of Pocatello's 38 state-based water rights should include the following remark regarding the City's water distribution facilities:

> The City of Pocatello's water supply system for distribution of all of its ground water and surface water supplies includes various reservoir and tank storage facilities, which are capable of being fully recharged by the quantity of water available in a 24-hour period from all of the city's sources of water. The right to use such storage facilities is therefore a part of each of the city's water rights.

Stipulation filed on 9/21/06 with parties agreeing that the above remark should not be added to the water right recommendations.

2. Separate Streams – **Pocatello's objections as to general provisions on separate streams were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

3. Separate Administration – **Pocatello's objections as to general provisions on separate administration were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

4. Swan Falls – **Issue separated and consolidated from Basin 29 subcases. Designated as Consolidated Subcase No. 92-34 in 12/5/03 Order. *Order Designating Basin -Wide Issue* entered on 8/23/04 and renumbered to Subcase No. 91-13. (Stayed pending reporting of Idaho Power rights in Basin 02)**

5. Place of Use – Should be: Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho law, including all lands necessary to complete the beneficial use of the municipal water right. Reason Supporting Objection: Beneficial use of a municipal water right includes all actions necessary to comply with public health and safety standards. The City of Pocatello's municipal service area includes all lands necessary to complete the beneficial use of the municipal water rights. **Pocatello has accepted the language for place of use as contained in the Director's Report based on Stipulation filed on 9/21/06.**

8144

ELEMENTS IN DISPUTE

10/26/2006

IDAHO DEPARTMENT OF WATER RESOURCES
RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

RIGHT NUMBER: 29-13562

NAME AND ADDRESS: CITY OF POCATELLO
PO BOX 4169
POCATELLO ID 83205

SOURCE: GROUND WATER TRIBUTARY:

QUANTITY: 2.450 CFS

PRIORITY DATE: 12/31/1936

POINT OF DIVERSION:

T06S R34E S14 NWNW Within BANNOCK County
T06S R34E S15 NWNE Within BANNOCK County
T06S R34E S15 NENW Within BANNOCK County
T06S R34E S15 NESE Within BANNOCK County
T06S R34E S15 NESE Within BANNOCK County
T06S R34E S16 NENE Within BANNOCK County
T06S R34E S23 NWNE Within BANNOCK County
T06S R34E S23 SWNE Within BANNOCK County
T06S R34E S23 SENW Within BANNOCK County
T06S R34E S23 NESW Within BANNOCK County
T06S R34E S26 NENW Within BANNOCK County
T06S R34E S26 SWSE Within BANNOCK County
T06S R34E S35 NWNE Within BANNOCK County
T06S R34E S35 SENE Within BANNOCK County
T06S R34E S35 NWSE Within BANNOCK County
T07S R34E S1 NWNE Lot 2 Within BANNOCK County
T07S R34E S1 SWNE Within BANNOCK County
T07S R34E S1 NESE Within BANNOCK County
T07S R34E S1 SESE Within BANNOCK County
T07S R35E S6 NWSE Within BANNOCK County
T07S R35E S7 NESW Within BANNOCK County
T07S R35E S18 SENE Within BANNOCK County

Pocatello seeks to add one point of diversion

PURPOSE AND PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
MUNICIPAL	01/01 12/31	2 450 CFS

PLACE OF USE:

Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho Law.

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

To the extent necessary for administration between points of diversion for ground water, and between points of diversion for ground water and hydraulically connected surface sources, ground water was first diverted under this right from Pocatello Well No. 6 located in T06S, R34E, S35, NWSE. Remove

This partial decree is subject to such general provisions necessary for the definition of the rights or for the efficient administration of the water rights as may be ultimately determined by the Court at a point in time no later than the entry of a final unified decree. Section 42-1412(6), Idaho Code.

IDAHO DEPARTMENT OF WATER RESOURCES
RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

EXPLANATORY MATERIAL: BASIS OF CLAIM - Beneficial Use

RIGHT INCLUDES ACCOMPLISHED CHANGE IN POINT OF DIVERSION PURSUANT TO SECTION 42-1425, IDAHO CODE.

Water Right No. 29-13562

ELEMENTS THAT ARE IN DISPUTE

Pocatello seeks to resolve this element as follows:

(1) **Point of Diversion:** The interconnected network of wells should include 23 points of diversion, serving 21 ground water rights (29-2274, 29-2338, 29-2401, 29-2499, 29-4221, 29-4223, 29-4224, 29-4225, 29-4226, 29-7106, 29-7322, 29-7375, 29-11339, 29-11348, 29-13558, 29-13559, 29-13560, 29-13561, 29-13562, 29-13637 & 29-13639).

Township	Range	Section	¼	of ¼	Pocatello Well No.	
7S	34E	1	NW	NE	Well No. 2	
7S	34E	1	SW	NE	Well No. 3	
6S	34E	35	NW	SE	Well No. 7	
6S	34E	26	NE	NW	Well No. 10	
6S	34E	35	SE	NE	Well No. 12	
7S	34E	1	SE	SE	Well No. 13	
7S	35E	7	NE	SW	Well No. 14	
7S	35E	6	NW	SE	Well No. 15	
6S	34E	26	SW	SE	Well No. 16	
6S	34E	15	NE	NW	Well No. 18	
6S	34E	23	SW	NE	Well No. 21	
6S	34E	23	SE	NW	Well No. 22	
6S	34E	23	NW	NE	Well No. 23	
6S	34E	15	NW	NE	Well No. 26	
6S	34E	14	NW	NW	Well No. 27	
7S	34E	1	NE	SE	Well No. 28	
6S	34E	23	NE	SW	Well No. 29	
6S	34E	35	NW	NE	Well No. 30	
6S	34E	15	NE	SE	Well No. 31	
6S	34E	16	NE	NE	Well No. 32	
7S	35E	18	SE	NE	Well No. 33	
6S	34E	15	NE	SE	Well No. 34	
7S	35E	16	SW	SW	Well No. 44	(the additional point of diversion)

(2) **Other provisions necessary for definition or administration of this water right:** Remove circled language from the Director's Report.

8147

Water Right No. 29-13562

DISPUTED ELEMENTS RESOLVED PRIOR TO TRIAL

Bureau of Land Management Objections

The BLM objected to the priority date, purpose of use and place of use elements. **BLM objections resolved pursuant to 11/22/04 *Order on Joint Motion to Dismiss Objections.***

City of Pocatello Objections

1. Source, quantity, priority date and purpose of use (remark, general provision): All 38 of Pocatello's 38 state-based water rights should include the following remark regarding the City's water distribution facilities:

> The City of Pocatello's water supply system for distribution of all of its ground water and surface water supplies includes various reservoir and tank storage facilities, which are capable of being fully recharged by the quantity of water available in a 24-hour period from all of the city's sources of water. The right to use such storage facilities is therefore a part of each of the city's water rights.

Stipulation filed on 9/21/06 with parties agreeing that the above remark should not be added to the water right recommendations.

2. Separate Streams – **Pocatello's objections as to general provisions on separate streams were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

3. Separate Administration – **Pocatello's objections as to general provisions on separate administration were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

4. Swan Falls – **Issue separated and consolidated from Basin 29 subcases. Designated as Consolidated Subcase No. 92-34 in 12/5/03 Order. *Order Designating Basin -Wide Issue* entered on 8/23/04 and renumbered to Subcase No. 91-13. (Stayed pending reporting of Idaho Power rights in Basin 02)**

5. Place of Use – Should be: Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho law, including all lands necessary to complete the beneficial use of the municipal water right. Reason Supporting Objection: Beneficial use of a municipal water right includes all actions necessary to comply with public health and safety standards. The City of Pocatello's municipal service area includes all lands necessary to complete the beneficial use of the municipal water rights. **Pocatello has accepted the language for place of use as contained in the Director's Report based on Stipulation filed on 9/21/06.** 8148

NO ELEMENTS IN DISPUTE

02/21/2007

IDAHO DEPARTMENT OF WATER RESOURCES
RECOMMENDATION OF WATER RIGHTS ACQUIRED UNDER STATE LAW

RIGHT NUMBER: 29-13636

NAME AND ADDRESS: CITY OF POCATELLO
PO BOX 4169
POCATELLO ID 83205

SOURCE: GROUND WATER TRIBUTARY:

QUANTITY: 0.800 CFS

PRIORITY DATE: 10/16/1958

POINT OF DIVERSION:

T06S R34E S7 SENE Lot 6 Within BANNOCK County

PURPOSE AND
PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
MUNICIPAL	01/01 12/31	0.800 CFS

PLACE OF USE: ~~MUNICIPAL Within BANNOCK County~~

~~T06S R34E S07 LOT 6 SENE~~

Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho Law.

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

This partial decree is subject to such general provisions necessary for the definition of the rights or for the efficient administration of the water rights as may be ultimately determined by the Court at a point in time no later than the entry of a final unified decree. Section 42-1412(6), Idaho Code.

EXPLANATORY MATERIAL: BASIS OF CLAIM - License

8149

Water Right No. 29-13636

ELEMENTS THAT ARE IN DISPUTE

NONE

Water Right No. 29-13636

<u>DISPUTED ELEMENTS RESOLVED PRIOR TO TRIAL</u>

1. Source, quantity, priority date and purpose of use (remark, general provision): All 38 of Pocatello's 38 state-based water rights should include the following remark regarding the City's water distribution facilities:

> The City of Pocatello's water supply system for distribution of all of its ground water and surface water supplies includes various reservoir and tank storage facilities, which are capable of being fully recharged by the quantity of water available in a 24-hour period from all of the city's sources of water. The right to use such storage facilities is therefore a part of each of the city's water rights.

Stipulation filed on 9/21/06 with parties agreeing that the above remark should not be added to the water right recommendations.

2. Separate Streams – **Pocatello's objections as to general provisions on separate streams were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

3. Separate Administration – **Pocatello's objections as to general provisions on separate administration were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

4. Swan Falls – **Issue separated and consolidated from Basin 29 subcases. Designated as Consolidated Subcase No. 92-34 in 12/5/03 Order. *Order Designating Basin -Wide Issue* entered on 8/23/04 and renumbered to Subcase No. 91-13. (Stayed pending reporting of Idaho Power rights in Basin 02)**

5. Place of Use – Should be: Place of Use is within the service area of the City of Pocatello municipal water supply system as provided fur under Idaho Law, including all lands necessary to complete the beneficial use of the municipal water right. This right is used for the irrigation of specified lands within T06S R34E S07 Lot 6 SENE. <u>Reasons Supporting Objection:</u>. Beneficial use of a municipal water right includes all actions necessary to comply with public health and safety standards. The City of Pocatello's municipal service area includes all lands necessary to complete the beneficial use of the municipal water right. **Agreed to by parties in Stipulation filed on 9/21/06.**

ELEMENTS IN DISPUTE

10/26/2006

IDAHO DEPARTMENT OF WATER RESOURCES
RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

RIGHT NUMBER: 29-13637

NAME AND ADDRESS: CITY OF POCATELLO
PO BOX 4169
POCATELLO ID 83205

SOURCE: GROUND WATER TRIBUTARY:

QUANTITY: 4.460 CFS

PRIORITY DATE: 12/31/1940

POINT OF DIVERSION:

T06S R34E S14 NWNW Within BANNOCK County
T06S R34E S15 NWNE Within BANNOCK County
T06S R34E S15 NENW Within BANNOCK County
T06S R34E S15 NESE Within BANNOCK County
T06S R34E S15 NESE Within BANNOCK County
T06S R34E S16 NENE Within BANNOCK County
T06S R34E S23 NWNE Within BANNOCK County
T06S R34E S23 SWNE Within BANNOCK County
T06S R34E S23 SENW Within BANNOCK County
T06S R34E S23 NESW Within BANNOCK County
T06S R34E S26 NENW Within BANNOCK County
T06S R34E S26 SWSE Within BANNOCK County
T06S R34E S35 NWNE Within BANNOCK County
T06S R34E S35 SENE Within BANNOCK County
T06S R34E S35 NWSE Within BANNOCK County
T07S R34E S1 NWNE Lot 2 Within BANNOCK County
T07S R34E S1 SWNE Within BANNOCK County
T07S R34E S1 NESE Within BANNOCK County
T07S R34E S1 SESE Within BANNOCK County
T07S R35E S6 NWSE Within BANNOCK County
T07S R35E S7 NESW Within BANNOCK County
T07S R35E S18 SENE Within BANNOCK County

Pocatello seeks to add one point of diversion

PURPOSE AND PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
MUNICIPAL	01/01 12/31	4.460 CFS

PLACE OF USE:

Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho Law.

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

To the extent necessary for administration between points of diversion for ground water, and between points of diversion for ground water and hydraulically connected surface sources, ground water was first diverted under this right from Pocatello Well No. 7 located in T06S, R34E, S35, NWSE. Remove

This partial decree is subject to such general provisions necessary for the definition of the rights or for the efficient administration of the water rights as may be ultimately determined by the Court at a point in time no later than the entry of a final unified decree. Section 42-1412(6), Idaho Code.

8152

IDAHO DEPARTMENT OF WATER RESOURCES
RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

EXPLANATORY MATERIAL: BASIS OF CLAIM - Beneficial Use

THIS RIGHT IS A SPLIT FROM FORMER RIGHT 29-11343.

RIGHT INCLUDES ACCOMPLISHED CHANGE IN POINT OF DIVERSION PURSUANT TO SECTION 42-1425, IDAHO CODE.

Water Right No. 29-13637

ELEMENTS THAT ARE IN DISPUTE

Pocatello seeks to resolve this element as follows:

(1) **Point of Diversion:** The interconnected network of wells should include 23 points of diversion, serving 21 ground water rights (29-2274, 29-2338, 29-2401, 29-2499, 29-4221, 29-4223, 29-4224, 29-4225, 29-4226, 29-7106, 29-7322, 29-7375, 29-11339, 29-11348, 29-13558, 29-13559, 29-13560, 29-13561, 29-13562, 29-13637 & 29-13639).

Township	Range	Section	¼	of ¼	Pocatello Well No.	
7S	34E	1	NW	NE	Well No. 2	
7S	34E	1	SW	NE	Well No. 3	
6S	34E	35	NW	SE	Well No. 7	
6S	34E	26	NE	NW	Well No. 10	
6S	34E	35	SE	NE	Well No. 12	
7S	34E	1	SE	SE	Well No. 13	
7S	35E	7	NE	SW	Well No. 14	
7S	35E	6	NW	SE	Well No. 15	
6S	34E	26	SW	SE	Well No. 16	
6S	34E	15	NE	NW	Well No. 18	
6S	34E	23	SW	NE	Well No. 21	
6S	34E	23	SE	NW	Well No. 22	
6S	34E	23	NW	NE	Well No. 23	
6S	34E	15	NW	NE	Well No. 26	
6S	34E	14	NW	NW	Well No. 27	
7S	34E	1	NE	SE	Well No. 28	
6S	34E	23	NE	SW	Well No. 29	
6S	34E	35	NW	NE	Well No. 30	
6S	34E	15	NE	SE	Well No. 31	
6S	34E	16	NE	NE	Well No. 32	
7S	35E	18	SE	NE	Well No. 33	
6S	34E	15	NE	SE	Well No. 34	
7S	35E	16	SW	SW	Well No. 44	(the additional point of diversion)

(2) **Other provisions necessary for definition or administration of this water right:** Remove circled language from the Director's Report.

Water Right No. 29-13637

DISPUTED ELEMENTS RESOLVED PRIOR TO TRIAL

Bureau of Land Management Objections

The BLM objected to the priority date, purpose of use and place of use elements. **BLM objections resolved pursuant to 11/22/04 *Order on Joint Motion to Dismiss Objections.***

City of Pocatello Objections

1. Source, quantity, priority date and purpose of use (remark, general provision): All 38 of Pocatello's 38 state-based water rights should include the following remark regarding the City's water distribution facilities:

> The City of Pocatello's water supply system for distribution of all of its ground water and surface water supplies includes various reservoir and tank storage facilities, which are capable of being fully recharged by the quantity of water available in a 24-hour period from all of the city's sources of water. The right to use such storage facilities is therefore a part of each of the city's water rights.

Stipulation filed on 9/21/06 with parties agreeing that the above remark should not be added to the water right recommendations.

2. Separate Streams – **Pocatello's objections as to general provisions on separate streams were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

3. Separate Administration - **Pocatello's objections as to general provisions on separate administration were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

4. Swan Falls – **Issue separated and consolidated from Basin 29 subcases. Designated as Consolidated Subcase No. 92-34 in 12/5/03 Order. *Order Designating Basin -Wide Issue* entered on 8/23/04 and renumbered to Subcase No. 91-13. (Stayed pending reporting of Idaho Power rights in Basin 02)**

5. Place of Use – Should be: Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho law, including all lands necessary to complete the beneficial use of the municipal water right. Reason Supporting Objection: Beneficial use of a municipal water right includes all actions necessary to comply with public health and safety standards. The City of Pocatello's municipal service area includes all lands necessary to complete the beneficial use of the municipal water rights. **Pocatello has accepted the language for place of use as contained in the Director's Report based on Stipulation filed on 9/21/06.**

ELEMENTS IN DISPUTE

02/20/2007

IDAHO DEPARTMENT OF WATER RESOURCES
RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

RIGHT NUMBER: 29-13638

NAME AND ADDRESS: CITY OF POCATELLO
PO BOX 4169
POCATELLO ID 83205

SOURCE: GROUND WATER TRIBUTARY:

QUANTITY: 2.200 CFS

PRIORITY DATE: 12/31/1940

POINT OF DIVERSION:

T06S R33E S10 NESE Within POWER County
~~T06S R33E S10 NESE Within POWER County~~
T06S R33E S15 SWNE Within POWER County

PURPOSE AND PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
MUNICIPAL	01/01 12/31	2.200 CFS

PLACE OF USE:

Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho Law.

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

To the extent necessary for administration between points of diversion for ground water, and between points of diversion for ground water and hydraulically connected surface sources, ground water was first diverted under this right from Pocatello Well No. 39 located in T06S, R33E, S15, SWNE. Remove.

~~To the extent necessary for administration, water was first appropriated or Used from:~~
~~Pocatello Well No. 35 located in T06S, R33E, S10, NESE,~~
~~On 6/13/1978 in the amount of 3.34 cfs~~
~~Pocatello Well No. 39 located in T06S, R33E, S15, SWNE,~~
~~On 12/31/1940 in the amount of 2.20 cfs~~
~~Pocatello Well No. 40 located in T06S, R33E, S10, NESE~~
~~On 12/31/1942 in the amount of 1.92 cfs~~

This partial decree is subject to such general provisions necessary for the definition of the rights or for the efficient administration of the water rights as may be ultimately determined by the Court at a point in time no later than the entry of a final unified decree. Section 42-1412(6), Idaho Code

EXPLANATORY MATERIAL: BASIS OF CLAIM - Beneficial Use

THIS RIGHT IS A SPLIT FROM FORMER RIGHT 29-11343.

RIGHT INCLUDES ACCOMPLISHED CHANGE IN POINT OF DIVERSION PURSUANT TO SECTION 42-1425, IDAHO CODE.

Pocatello Well No. 39 was also known as Phillips Well No. 1.

Water Right No. 29-13638

ELEMENTS THAT ARE IN DISPUTE

Pocatello seeks to resolve this element as follows:

(1) Other provisions necessary for definition or administration of this water right: Remove circled language from the Director's Report.

8157

Water Right No. 29-13638

<u>DISPUTED ELEMENTS RESOLVED PRIOR TO TRIAL</u>

<u>Bureau of Land Management Objections</u>

The BLM objected to the priority date, purpose of use and place of use elements. **BLM objections resolved pursuant to 11/22/04 *Order on Joint Motion to Dismiss Objections*.**

<u>City of Pocatello Objections</u>

1. Source, quantity, priority date and purpose of use (remark, general provision): All 38 of Pocatello's 38 state-based water rights should include the following remark regarding the City's water distribution facilities:

> The City of Pocatello's water supply system for distribution of all of its ground water and surface water supplies includes various reservoir and tank storage facilities, which are capable of being fully recharged by the quantity of water available in a 24-hour period from all of the city's sources of water. The right to use such storage facilities is therefore a part of each of the city's water rights.

Stipulation filed on 9/21/06 with parties agreeing that the above remark should not be added to the water right recommendations.

2. Separate Streams – **Pocatello's objections as to general provisions on separate streams were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

3. Separate Administration - **Pocatello's objections as to general provisions on separate administration were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

4. Swan Falls – **Issue separated and consolidated from Basin 29 subcases. Designated as Consolidated Subcase No. 92-34 in 12/5/03 Order. *Order Designating Basin -Wide Issue* entered on 8/23/04 and renumbered to Subcase No. 91-13. (Stayed pending reporting of Idaho Power rights in Basin 02)**

5. Point of Diversion – Interconnected network of wells should include two points of diversion serving two water rights (29-7450, 29-13638). **Stipulation filed on 9/21/06 resolving objection to this issue.**

6. Place of Use – Should be: Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho law, including all lands necessary to complete the beneficial use of the municipal water right. <u>Reason Supporting Objection</u>: Beneficial use of a municipal water right includes all actions necessary to comply with public health and safety standards. The City of Pocatello's

municipal service area includes all lands necessary to complete the beneficial use of the municipal water rights. **Pocatello has accepted the language for place of use as contained in the Director's Report based on Stipulation filed on 9/21/06.**

8159

ELEMENTS IN DISPUTE

10/31/2006

IDAHO DEPARTMENT OF WATER RESOURCES
RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

RIGHT NUMBER: 29-13639

NAME AND ADDRESS: CITY OF POCATELLO
PO BOX 4169
POCATELLO ID 83205

SOURCE: GROUND WATER TRIBUTARY:

QUANTITY: 3.680 CFS

PRIORITY DATE: 10/22/1952 12/31/1940

POINT OF DIVERSION:

T06S R34E S14 NWNW Within BANNOCK County
T06S R34E S15 NWNE Within BANNOCK County
T06S R34E S15 NENW Within BANNOCK County
T06S R34E S15 NESE Within BANNOCK County
T06S R34E S15 NESE Within BANNOCK County
T06S R34E S16 NENE Within BANNOCK County
T06S R34E S23 NWNE Within BANNOCK County
T06S R34E S23 SWNE Within BANNOCK County
T06S R34E S23 SENW Within BANNOCK County
T06S R34E S23 NESW Within BANNOCK County
T06S R34E S26 NENW Within BANNOCK County
T06S R34E S26 SWSE Within BANNOCK County
T06S R34E S35 NWNE Within BANNOCK County
T06S R34E S35 SENE Within BANNOCK County
T06S R34E S35 NWSE Within BANNOCK County
T07S R34E S1 NWNE Lot 2 Within BANNOCK County
T07S R34E S1 SWNE Within BANNOCK County
T07S R34E S1 NESE Within BANNOCK County
T07S R34E S1 SESE Within BANNOCK County
T07S R35E S6 NWSE Within BANNOCK County
T07S R35E S7 NESW Within BANNOCK County
T07S R35E S18 SENE Within BANNOCK County

Pocatello seeks to add one point of diversion

PURPOSE AND PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
MUNICIPAL	01/01 12/31	3 680 CFS

PLACE OF USE:

Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho Law.

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

To the extent necessary for administration between points of diversion for ground water, and between points of diversion for ground water and hydraulically connected surface sources, ground water was first diverted under this right from Pocatello Well No 22 located in T06S, R34E, S23, SENW. Remove

This partial decree is subject to such general provisions necessary for the definition of the rights or for the efficient administration of the water rights as may be ultimately determined by the Court at a point in time no later than the entry of a final unified decree. Section 42-1412(6), Idaho Code.

8160

IDAHO DEPARTMENT OF WATER RESOURCES
RECOMMENDED WATER RIGHTS ACQUIRED UNDER STATE LAW

EXPLANATORY MATERIAL: BASIS OF CLAIM - Beneficial Use

RIGHT INCLUDES ACCOMPLISHED CHANGE IN POINT OF DIVERSION PURSUANT TO SECTION 42-1425, IDAHO CODE.

Pocatello Well No. 22 was also known as Alameda Well No. 3.

Water Right No. 29-13639

ELEMENTS THAT ARE IN DISPUTE

Pocatello seeks to resolve this element as follows:

(1) **Priority Date:** 12/31/1940

(2) **Point of Diversion:** The interconnected network of wells should include 23 points of diversion, serving 21 ground water rights (29-2274, 29-2338, 29-2401, 29-2499, 29-4221, 29-4223, 29-4224, 29-4225, 29-4226, 29-7106, 29-7322, 29-7375, 29-11339, 29-11348, 29-13558, 29-13559, 29-13560, 29-13561, 29-13562, 29-13637 & 29-13639).

Township	Range	Section	¼	of ¼	Pocatello Well No.	
7S	34E	1	NW	NE	Well No. 2	
7S	34E	1	SW	NE	Well No. 3	
6S	34E	35	NW	SE	Well No. 7	
6S	34E	26	NE	NW	Well No. 10	
6S	34E	35	SE	NE	Well No. 12	
7S	34E	1	SE	SE	Well No. 13	
7S	35E	7	NE	SW	Well No. 14	
7S	35E	6	NW	SE	Well No. 15	
6S	34E	26	SW	SE	Well No. 16	
6S	34E	15	NE	NW	Well No. 18	
6S	34E	23	SW	NE	Well No. 21	
6S	34E	23	SE	NW	Well No. 22	
6S	34E	23	NW	NE	Well No. 23	
6S	34E	15	NW	NE	Well No. 26	
6S	34E	14	NW	NW	Well No. 27	
7S	34E	1	NE	SE	Well No. 28	
6S	34E	23	NE	SW	Well No. 29	
6S	34E	35	NW	NE	Well No. 30	
6S	34E	15	NE	SE	Well No. 31	
6S	34E	16	NE	NE	Well No. 32	
7S	35E	18	SE	NE	Well No. 33	
6S	34E	15	NE	SE	Well No. 34	
7S	35E	16	SW	SW	Well No. 44	(the additional point of diversion)

(3) **Other provisions necessary for definition or administration of this water right:** Remove circled language from the Director's Report.

Water Right No. 29-13639

DISPUTED ELEMENTS RESOLVED PRIOR TO TRIAL

Bureau of Land Management Objections

The BLM objected to the priority date, purpose of use and place of use elements. **BLM objections resolved pursuant to 11/22/04 *Order on Joint Motion to Dismiss Objections.***

City of Pocatello Objections

1. Source, quantity, priority date and purpose of use (remark, general provision): All 38 of Pocatello's 38 state-based water rights should include the following remark regarding the City's water distribution facilities:

> The City of Pocatello's water supply system for distribution of all of its ground water and surface water supplies includes various reservoir and tank storage facilities, which are capable of being fully recharged by the quantity of water available in a 24-hour period from all of the city's sources of water. The right to use such storage facilities is therefore a part of each of the city's water rights.

Stipulation filed on 9/21/06 with parties agreeing that the above remark should not be added to the water right recommendations.

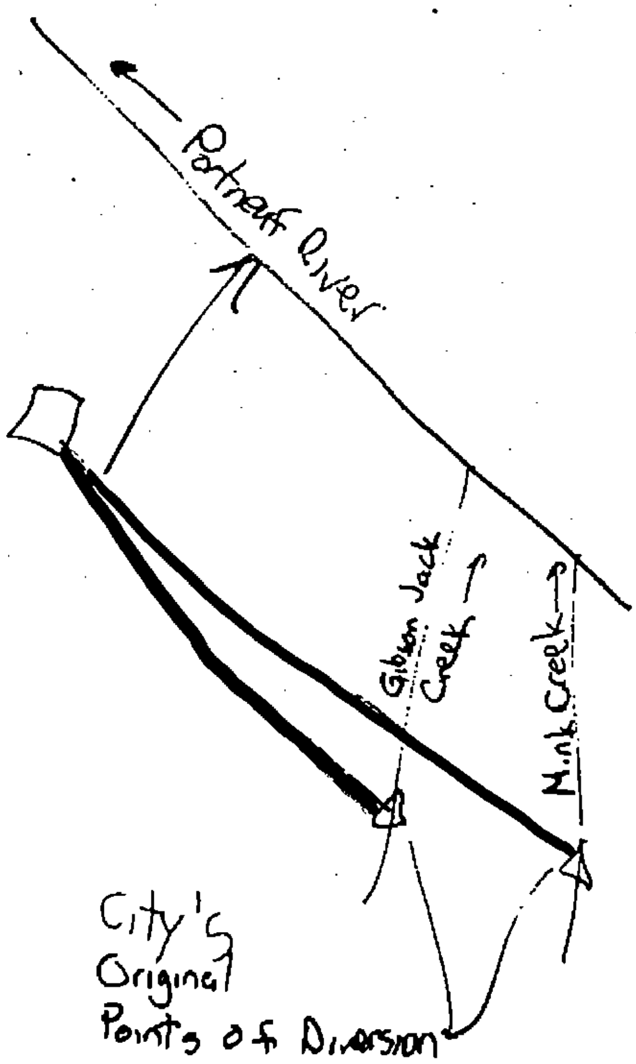
2. Separate Streams – **Pocatello's objections as to general provisions on separate streams were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

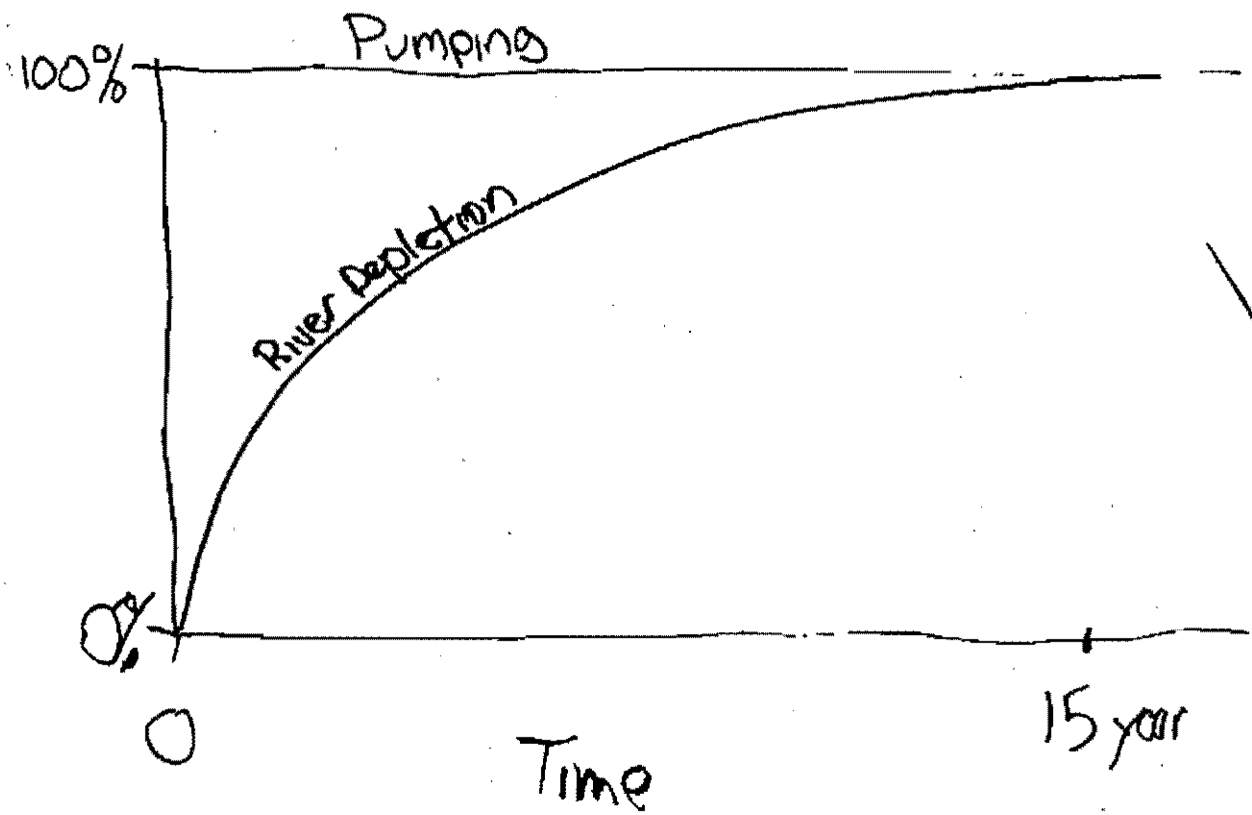
3. Separate Administration - **Pocatello's objections as to general provisions on separate administration were stricken and dismissed with prejudice in *Order Dismissing Objections and Responses* dated 7/14/06.**

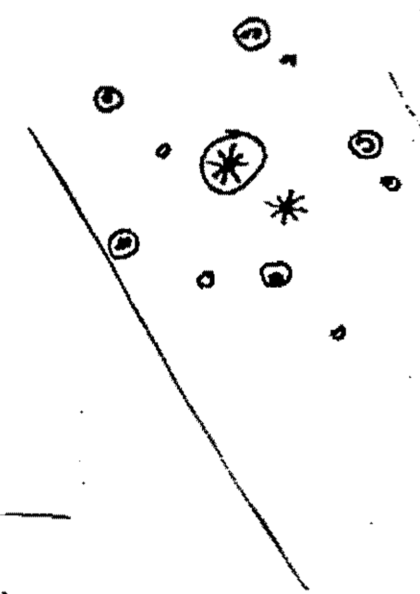
4. Swan Falls – **Issue separated and consolidated from Basin 29 subcases. Designated as Consolidated Subcase No. 92-34 in 12/5/03 Order. *Order Designating Basin -Wide Issue* entered on 8/23/04 and renumbered to Subcase No. 91-13. (Stayed pending reporting of Idaho Power rights in Basin 02)**

5. Place of Use – Should be: Place of use is within the service area of the City of Pocatello municipal water supply system as provided for under Idaho law, including all lands necessary to complete the beneficial use of the municipal water right. Reason Supporting Objection: Beneficial use of a municipal water right includes all actions necessary to comply with public health and safety standards. The City of Pocatello's municipal service area includes all lands necessary to complete the beneficial use of the municipal water rights. **Pocatello has accepted the language for place of use as contained in the Director's Report based on Stipulation filed on 9/21/06.**

ADMITTED
29-271 et al
(Subcase No.)
EXHIBIT
Poc. 184.
Date: 3/8/07







Red Original

Blue - ADD

29-27 l et al
(Subcase No.)
EXHIBIT
Poc. 182
Date: 3/2/07
Admitted

GW APOD Example

Claim No.	Priority	Well
29-X	1930	1
29-Y	1950	2
29-Z	1970	3
29-7782	1985	34