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Total Salt, Specific Ion, and Fertilizer Element Concentrations and Balances in the Irrigation and Drainage Waters of the Twin Falls Tract in Southern Idaho

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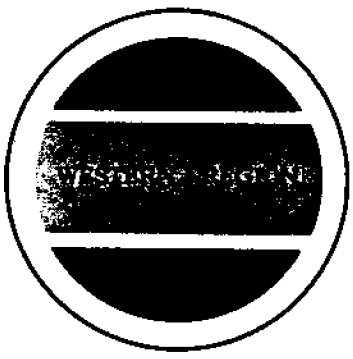

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TOTAL SALT, SPECIFIC ION, AND FERTILIZER ELEMENT CONCENTRATIONS AND BALANCES IN THE IRRIGATION AND DRAINAGE WATERS OF THE TWIN FALLS TRACT IN SOUTHERN IDAHO[1]

By

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INTRODUCTION

Public interest in environmental quality has aroused concern and speculation about the effects of irrigation and the application of fertilizers on the quality of surface and ground waters. The Environmental Pollution Panel of the President's Science Advisory Committee, and other groups, have recommended that high priority be given to investigating the sources of total salts, specific ions, and nutrients that enter surface and ground waters. One source is drainage from irrigated areas or irrigation return flows. More information is needed about the quality of irrigation return flows under various management systems and climatic environments and on representative soil types. Such information is basic for determining practices to improve the quality of return flows and in planning new irrigation projects.

The NO_3-N, PO_4-P, and total salt concentrations were measured in irrigation and drainage waters on the Twin Falls Canal Company irrigation tract in southern Idaho. This information was combined with a water balance to estimate input-output balances for these components, and results have been reported.[3] The input-output balances for other specific ionic components have been computed for the irrigation and drainage waters of that tract. Results from these investigations and detailed information on specific ion concentrations, temperature and flow characteristics of drainage tunnels, tile-relief well complexes, and large surface drains are reported herein.

METHODS AND MATERIALS

The study area (fig. 1) was developed by the Twin Falls Canal Company and has been irrigated for about 65 years. The tract is 203,000 acres. Water is diverted from the Snake River and delivered to farmers at a constant rate of 0.5 cubic feet per second (c.f.s.) for each 40 acres during the irrigation season when requested. Water is in the canal system from about April 1 to November 14 each year. Canal flows in the early spring and late fall are considerably lower than during the peak irrigation season of June, July, and August because many farmers have crops that do not require early spring and late fall irrigation.

Soils over most of the study area are moderately deep, uniformly textured silt loams derived from calcareous, wind deposited material, varying from a few inches to 50 feet in depth. These soils are well drained, but extensive areas contain a lime and silica cemented hardpan layer which begins at about 12 to 18 inches below the soil surface. This layer varies in thickness from 8 to more than 15 inches, but it is not continuous. The soils over the greater

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[3]Italic numbers in parentheses refer to Literature Cited, page 7.

part of the tract are highly productive and, except for moderate erosion in some areas, they show little deterioration from irrigating. The soils are underlain by fractured basalt to depths of several hundred feet. Water infiltration rates are fairly high, and most crops are irrigated by small furrows. The mean, annual precipitation for the area is approximately 8.5 inches.

The most important crops grown on the tract are alfalfa, dry beans, sugarbeets, small grain, corn, and pasture. Row crops are normally seeded in April and May, and harvest is generally completed by late October.

Natural drainage over most of the tract has been sufficient to prevent harmful salt accumulations. However, high water tables appeared in localized areas throughout the tract soon after irrigation was initiated in 1905. To alleviate this problem, the Twin Falls Canal Company used two drainage methods. For the larger areas, horizontal tunnels 4 feet wide by 7 feet high were excavated where test wells indicated significant amounts of water in basalt fractures. These tunnels effectively convey excess drainage water to natural surface drains. The 49th tunnel was completed in 1948, and there has been no further drainage tunnel construction since then. The other method combined shallow drainage wells and tile lines in complexes to drain the smaller high water table areas. The wells are 35 to 70 feet deep, and the tile lines connecting them are 3½ to 10 feet below the soil surface. The wells flow from hydrostatic pressure, and the water is conveyed to natural surface drains by tile lines. This practice has also proved effective and is still used today. All surface and subsurface drainage returns to the Snake River, which flows in a canyon about 500 feet deep, forming the northern boundary of the irrigation project.

Sampling sites were selected throughout the area including the project diversion at Milner Dam on the Snake River. Fifteen drainage tunnel outlets, five tile-relief well network outlets, four main surface drains, and one small stream conveying drainage from the South Hills watershed into the irrigation tract were sampled, beginning in the spring of 1968. These sites are

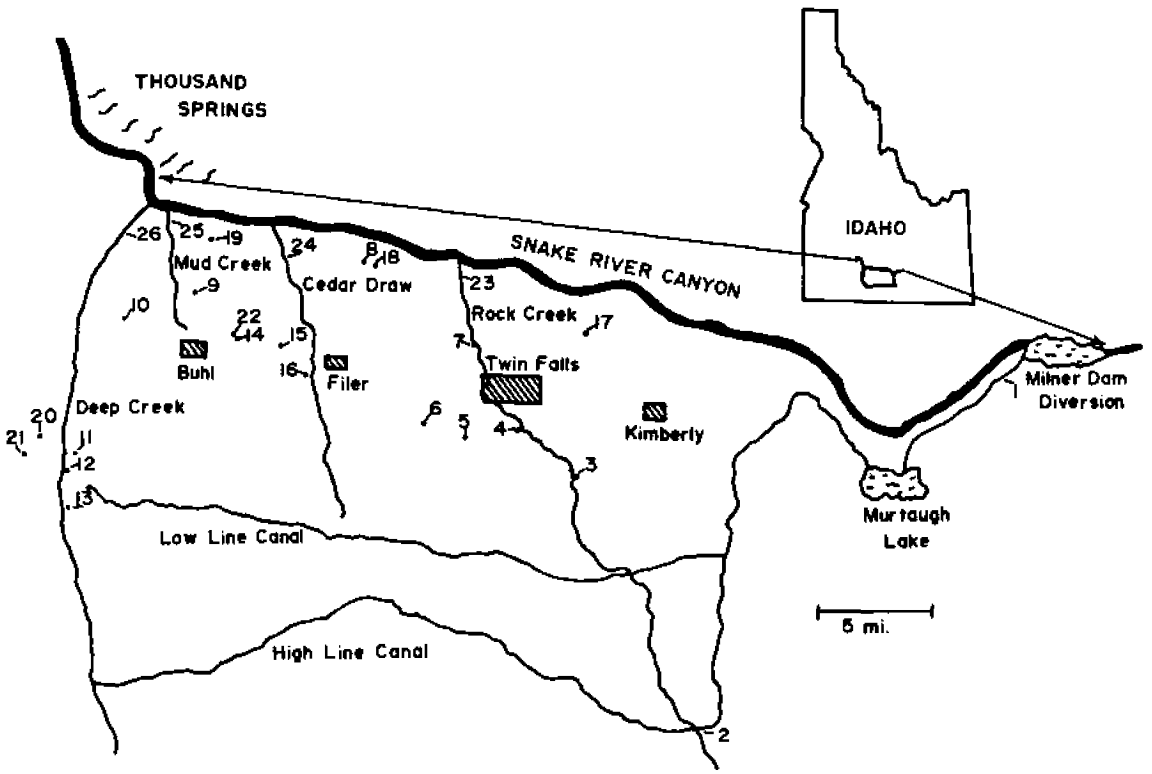

Figure 1.—The 203,000-acre Twin Falls Canal Company irrigation tract.

shown by number on figure 1, and the numbers identify the data in the tables.

Water samples were collected at 2-week intervals for analysis from all sampling sites. Samples were analyzed for Na^+, K^+, Ca^{++}, Mg^{++}, Cl^-, HCO_3^-, SO_4-S, PO_4-P, and NO_3-N concentrations *(4, 5, 6)*. The total soluble salt concentration was determined by measuring the electrical conductivity of the water samples in micromhos per centimeter and multiplying by 0.64 to give parts per million. The pH was also determined. The temperature of the water at each sampling site was measured at every sampling. After analyzing all samples for all components for a few months, it was found that the concentrations of some components were nearly constant. Therefore, only PO_4-P, NO_3-N, total salt concentrations, and water temperature at the site were continued at 2-week intervals. Analyses for other components were made at 4-week intervals. After 18 months, sampling was discontinued at some sites. The remaining sites were sampled for one more year at monthly intervals, and the samples analyzed for all components listed. Concentrations of the various components listed above were determined in surface runoff water at a number of sites throughout the tract.

The flow rate from each drain, tunnel, or tile-relief well complex, was measured. Weirs were used where possible. Parshall flumes existed at two sites. The remainder was gaged periodically by current metering. Water stage recording stations were maintained on the main surface drains. Existing U.S. Geological Survey gaging stations were utilized on Cedar Draw and Deep Creek. New gaging stations were established on lower Rock Creek and on Mud Creek. Flow hydrographs were developed from the data, and the monthly flow volume was computed for each site. Hydrograph separation techniques *(4)* were applied to the streamflow data to establish the amounts of surface runoff and subsurface drainage from the area for a typical water year, October 1, 1968, through September 30, 1969 *(2)*. Flow records are accurate within the limits of $\pm$ 5 percent.

A water balance for one water year of the Canal Company, October 1, 1968, through September 30, 1969, was computed *(2)*. Using the water balance along with the concentrations of the NO_3-N, PO_4-P, and total salts in the input and drainage waters, input and output balances for PO_4-P, NO_3-N, and total salts were computed *(2)*. A similar approach was used to compute input-output balances for Na^+, K^+, Ca^{++}, Mg^{++}, Cl^-, HCO_3^-, and SO_4-S. The temperature and pH of the input and output waters were also tabulated.

RESULTS AND DISCUSSION

The mean concentrations of all ionic components measured in subsurface drainage water exceeded those in the input water diverted at Milner Dam except for PO_4-P (table 1). The relative difference in individual cation concentrations between the input water and the subsurface drainage water was greatest for Na^+ and least for K^+. For anions, the relative increase was greatest for NO_3-N and least for Cl^-. Mean ionic concentrations among waters from tunnels and tile-relief well complexes generally varied less than 25 percent for the water year. The total soluble salt and specific ion concentrations in surface runoff water did not differ significantly from those in the irrigation water *(2, 3)*, and therefore, these data are not shown in this paper.

The ionic balance between anions and cations agreed closely in both the irrigation water and the subsurface drainage water. The total cation concentration in the diverted water at Milner Dam was 4.81 meq./l. compared to a total anion concentration of 4.96 meq./l. for a difference of only 3 percent. Cations in the subsurface drainage water totaled 11.19 meq./l. compared to 11.36 meq./l. for anions for a difference of 1 percent.

Concentrations of all ions at each sampling are given in tables 3 through 12 in the Appendix. Some values are missing from some of the tables because of contamination, faulty equipment, and, in a few instances, Rock Creek, which drains the South Hills watershed, was dry at the highline canal sampling site. The water in the four main surface drains is a mixture of surface runoff and subsurface drainage and contains some waste water from industrial uses. Therefore, ion concentrations are between those

TABLE 1.—*Mean ionic concentrations at input and subsurface drainage sampling sites for the water year October 1, 1968, to September 30, 1969*

Site No.	Type and name	Na^+	K^+	Ca^{++}	Mg^{++}	Cl^-	HCO_3^-	NO_3-N	SO_4-S	PO_4-P
		Meq./l.	*Meq./l.*	*Meq./l.*	*Meq./l.*	*Meq./l.*	*Meq./l.*	*P.p.m.*	*P.p.m.*	*P.p.m.*
	Input Streams									
1	Milner	0.90	0.12	2.54	1.23	0.66	3.38	0.12	14	0.066
2	Rock Creek (HL)	.22	.12	1.09	.34	.17	1.79	.11	4	.015
	Drainage Tunnels									
3	Claar	3.65	.10	5.22	3.62	1.33	6.66	4.02	69	.013
4	Fish Hatchery	2.92	.13	3.55	2.85	1.30	5.57	2.24	36	.013
5	Grossman	3.01	.10	3.99	2.81	1.18	5.97	2.25	45	.014
6	Nye	3.64	.11	3.81	3.02	1.54	5.91	2.44	55	.009
7	Tolbert	4.06	.12	4.95	3.23	1.65	6.45	3.30	68	.012
8	Walters	3.86	.14	4.47	3.98	1.52	6.67	3.47	56	.008
9	Mendini	4.73	.21	3.60	2.88	1.72	7.22	3.97	47	.009
10	Neyman	4.06	.23	5.42	2.71	1.55	7.52	3.40	50	.011
11	Galloway	3.82	.12	3.88	2.94	1.19	7.12	3.58	35	.014
12	Cox	3.38	.12	3.81	2.96	1.24	6.74	3.44	35	.015
13	Herman	3.00	.12	5.71	3.01	1.42	7.08	3.00	47	.017
14	Harvey	3.70	.13	3.64	2.84	1.37	6.93	3.39	31	.008
15	Peavy	3.93	.13	3.57	3.12	1.57	6.47	3.02	36	.007
16	Padget	3.92	.13	3.46	3.34	1.62	6.24	3.01	42	.008
17	Hankins	4.49	.18	4.27	3.11	1.63	6.62	3.55	53	.012
	Tile-Relief Complexes									
18	Brown	4.06	.16	4.36	3.50	1.67	6.78	3.01	55	.009
19	Hutchinson	4.38	.21	4.15	3.06	1.61	7.65	3.20	44	.012
20	Kaes	2.73	.19	5.07	3.20	1.83	6.25	3.40	54	.023
21	Molander	2.80	.21	4.82	3.59	1.94	6.12	3.79	57	.009
22	Harvey	3.67	.14	3.59	3.10	1.42	6.27	3.30	36	.023
	Mean, subsurface drainage	3.69	.15	4.27	3.14	1.52	6.61	3.24	48	.012

found in input and subsurface drainage waters. For example, the Na^+ concentration in Deep Creek (site 26) is always greater than that found in the irrigation water at Milner, and always less than that found in subsurface drainage water (Appendix table 3).

Input and output balances for various ionic components calculated from the water balance *(2)* and the mean ionic concentrations. These are shown in table 2. There was a net output of all cations except K^+ and of all anions except PO_4-P. The net potassium input amounted to approximately 14 pounds of K per acre per year. This amount is significant from the plant nutrient standpoint.

The water balance *(2)* indicated that 50 percent of all of the input water for the irrigation tract became subsurface drainage water. Thus, considerable leaching takes place in this irrigation tract. Evidently, more water is used than is needed to maintain a salt balance *(7)* because there was a net output of Ca^{++}, HCO_3^-, and SO_4-S. A salt balance could be maintained with a net input of these components because the solubilities of $CaCO_3$ and $CaSO_4$ are low enough that these compounds can be precipitated in the soil without adverse effects on the growth of most plants.

The electrical conductivities of water at all sampling sites are given in Appendix table 12. Values in the table multiplied by 0.64 give a good approximation of the total salt concentration in parts per million. The mean total salt concentration in the irrigation water computed

TABLE 2.—*Mean concentrations, inputs, outputs, and net input-output balances for all measured ionic components and total salts for the water year, October 1, 1968, to September 30, 1969*

Ion	Mean concentration		Quantity in the input water		Total input	Mean concentration		Quantity in drainage water		Total output	Net input	Net output [1]
	At canal diversion	South Hills runoff	At canal diversion	South Hills runoff		Surface runoff	Subsurface drainage	Surface runoff	Subsurface drainage			
	Meq./l.	*Meq./l.*	*Tons*	*Tons*	*Tons*	*Meq./l.*	*Meq./l.*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
$Na+$	0.90	0.22	36,289	222	36,511	0.90	3.67	5,735	83,211	88,946	.....	52,535
$K+$	.12	.12	8,240	204	8,444	.12	.15	1,302	5,768	7,070	1,374	.....
$Ca++$	2.54	1.09	89,058	948	90,006	1.09	4.27	14,075	84,197	98,272	.....	8,266
$Mg++$	1.23	.34	26,297	178	26,475	1.23	3.14	4,156	37,662	41,818	.....	15,343
Cl^-	.66	.17	41,023	261	41,284	.66	1.52	6,484	53,239	59,723	.....	18,439
HCO_3^-	3.38	1.79	361,140	4,740	365,880	3.38	6.61	57,077	397,323	454,400	.....	88,52[illegible]
	P.p.m.	*P.p.m.*				*P.p.m.*	*P.p.m.*					
NO_3-N	.12	.....	210	.....	210	.12	3.24	3,194	32	3,226	.....	3,016
SO_4-S	14.5	4.1	25,420	178	25,598	14.5	48.0	4,018	47,324	51,342	.....	25,744
PO_4-P	.066	.....	116	.....	116	.066	.012	16	12	28	88	.....
Total salts	*μmhos/cm.* 460	*μmhos/cm.* 200	515,414	5,563	520,977	*μmhos/cm.* 460	*μmhos/cm.* 1,040	81,459	656,618	738,077	.....	217,100

[1]Total from ionic analyses = 211,893 tons.

from the electrical conductivity was 294 p.p.m. The summation of the mean ionic concentrations gave a total salt concentration of 321 p.p.m. The two values differ by 8 percent. In the subsurface drainage water, the total salt concentrations were 665 and 695 p.p.m. based on the electrical conductivity and ionic analyses, respectively. The difference in this case was 4 percent. The close agreement between the total salt concentration obtained by the two methods and the close agreement between the total cation and total anion concentrations indicate that the specific ions measured accounted for nearly all ionic components in both the irrigation and subsurface drainage water.

The net total salt output calculated using the water balance and the electrical conductivity was 217,000 tons. A value of 212,000 tons was obtained by adding the net inputs of the specific ions. Both approaches gave a net output of approximately 1 ton per acre per year.

The origin of the salts in the subsurface drainage water is not known. The most likely source is dissolving minerals in the soil, but further study will be necessary to definitely determine the sources. Additional research is also needed to determine how different water management practices may alter the net salt output.

The temperature of the subsurface drainage water at all sampling sites was about 13° C. at all times of the year (Appendix table 13). This is about 3° above the mean annual air temperature of the area which is 9.8°. Drainage water from the irrigation tract was cooler than the irrigation water during mid-summer when irrigation water temperatures were above 20°.

The pH values of the input and output waters are presented in Appendix table 14. All pH values approximate the value of 8.2 that would be expected from $CaCO_3$-saturated water.

The flow from the drainage tunnels and the tile-relief well systems generally was lowest in March and April, and peak flow occurred in September or October (Appendix table 15). The flow rate increased shortly after irrigation water was diverted into the area. Some of the drains also responded to winter rains. One drain, Walters, was found to be quite uniform, with the flow varying only about 20 percent over the sampling period.

SUMMARY

The mean concentration of all chemical components measured in subsurface drainage water from the 203,000-acre Twin Falls Canal Company irrigation tract exceeded those in the irrigation water except PO_4-P. There were net outputs of all chemical components except PO_4-P and K. Soluble PO_4-P was removed from the water as it passed through the soil. The net K input was significant from the fertilizer standpoint. The balance between cations and anions was excellent in both irrigation and subsurface drainage waters. The total salt concentration calculated from electrical conductivity measurements agreed closely with that obtained from the summation of the specific ions measured. The balance between cations and anions and the agreement between the total salt concentrations obtained by two methods indicated that the ionic components measured accounted for essentially all those present in the waters. The drainage water from the irrigation tract was cooler than the irrigation water during the summer months when the temperatures of the diverted water were highest.

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APPENDIX

TABLE 3.—*Na^+ concentrations, in milliequivalents per liter, at all sampling sites on each date*

Site		1968							1969										
No.	Name	6/4	6/18	7/1	7/15	7/29	8/12	8/26	9/9	9/23	10/7	11/4	12/2	12/30	1/27	2/24	3/24	4/21	5/19
	Input Streams																		
1	Milner	0.92	1.00	0.75	0.70	0.73	0.77	1.04	0.96	1.02	0.96	1.20	1.28	1.12	1.00	0.84	0.87	0.96	0.54
2	Rock Creek (HL)	.18	.18	.21	.35	—	—	.30	.40	.27	.27	.24	.41	.38	.16	.14	.12	.10	.09
	Drainage Tunnels																		
3	Claar	3.60	3.80	3.42	3.35	3.60	3.47	3.70	3.70	3.70	3.60	3.75	3.55	3.65	3.70	3.70	3.60	3.88	3.79
4	Fish Hatchery	2.82	2.93	2.74	2.62	2.70	2.62	2.77	2.85	2.80	2.70	2.80	2.66	2.83	3.02	3.10	3.02	3.24	2.97
5	Grossman	3.05	3.10	2.92	3.77	2.93	2.78	3.00	3.10	3.05	3.02	3.02	2.82	3.00	3.17	3.17	3.17	3.42	3.10
6	Nye	3.60	3.90	3.46	3.65	3.60	3.60	3.85	3.80	3.85	3.70	2.75	3.48	3.55	3.70	4.56	3.51	3.84	3.70
7	Tolbert	3.87	4.17	3.84	4.00	4.12	4.00	4.17	4.25	4.17	4.06	4.16	4.00	4.08	4.16	4.06	3.96	4.30	4.11
8	Walters	3.87	4.07	3.51	3.95	3.47	3.84	4.00	3.89	4.90	3.88	3.97	3.88	3.88	3.97	3.88	3.79	—	—
9	Mendini	4.57	4.90	4.68	4.68	4.84	4.75	4.80	4.80	4.82	4.88	4.88	4.80	4.80	4.78	4.78	4.62	—	4.88
10	Neyman	3.85	4.07	3.94	4.06	4.07	3.88	4.17	4.23	4.20	4.16	4.20	4.00	4.00	4.16	4.06	3.88	4.20	4.16
11	Galloway	3.80	3.90	3.84	3.84	3.89	3.75	3.97	3.97	3.95	3.97	3.97	3.88	3.88	3.88	3.97	3.79	4.02	3.88
12	Cox	3.37	3.45	3.30	3.35	3.34	3.30	3.42	3.45	3.42	3.42	3.42	3.39	3.28	3.51	3.42	3.34	3.60	3.46
13	Herman	2.94	3.03	2.92	2.92	2.90	2.78	2.92	2.85	3.82	2.92	2.92	2.91	2.82	3.17	3.17	3.10	3.29	3.17
14	Harvey	2.55	3.70	3.70	3.70	3.65	3.55	3.80	3.85	3.90	3.70	3.84	3.55	3.55	3.70	3.70	3.55	3.84	3.79
15	Peavy	3.90	3.95	3.84	3.95	4.00	3.94	3.97	4.03	4.07	3.97	3.94	3.88	3.78	3.97	4.06	3.84	4.16	4.11
16	Padget	3.97	3.90	3.94	3.84	3.89	3.70	3.90	3.97	3.97	3.88	3.94	3.88	3.78	3.97	4.06	3.84	4.11	4.06
17	Hankins	4.57	4.57	4.35	4.46	4.58	4.43	4.47	—	4.57	4.67	4.78	4.60	4.50	4.67	4.56	3.88	4.67	4.67
	Tile-relief Well Complexes																		
18	Brown	3.97	4.07	3.75	4.00	4.07	3.88	4.10	4.24	4.10	4.06	4.06	3.88	4.19	4.06	3.97	3.88	4.25	4.25
19	Hutchinson	4.37	4.47	4.00	4.32	4.26	4.16	4.45	4.55	4.45	4.45	4.45	4.18	4.50	4.35	4.45	4.25	4.56	4.45
20	Kaes	2.78	2.70	2.55	2.48	2.62	2.67	2.75	—	2.70	2.70	2.77	2.59	2.74	2.92	2.92	—	—	2.77
21	Molander	2.85	2.85	2.92	2.65	2.85	2.78	3.00	2.93	3.02	2.88	—	2.67	2.74	2.92	2.84	2.77	2.97	2.92
22	Harvey	3.80	3.80	3.22	3.70	3.34	3.55	3.90	3.70	3.85	3.70	4.11	3.55	4.00	3.97	3.97	3.75	2.23	2.36
	Major Surface Drains																		
23	Rock Creek	2.20	2.40	2.45	2.52	2.48	2.22	2.47	2.75	2.70	2.62	3.02	3.18	3.00	3.17	3.42	3.17	2.40	2.12
24	Cedar Draw	2.40	2.35	2.30	2.52	2.52	2.89	1.90	2.75	2.62	2.26	3.51	3.67	3.88	4.16	4.06	3.88	2.50	2.06
25	Mud Creek	3.25	3.50	3.60	3.95	3.75	3.75	3.50	3.80	3.60	3.70	3.65	4.18	4.19	4.35	4.25	4.06	3.51	3.42
26	Deep Creek	1.73	1.70	1.73	2.05	1.92	1.89	1.85	2.12	1.85	2.00	1.96	2.19	3.28	3.51	3.42	3.10	1.89	3.84

Site		1969							1970									
No.	Name	6/17	7/14	8/11	9/8	10/6	11/3	12/1	12/29	1/26	2/23	3/23	4/20	5/18	6/15	7/13	8/10	9/8
	Input Streams																	
1	Milner	0.61	0.68	0.68	0.92	1.04	1.38	1.21	1.18	1.18	1.18	1.50	1.00	—	0.71	0.61	0.68	0.74
2	Rock Creek (HL)	.15	.40	—	—	—	.18	(1)										
	Drainage Tunnels																	
3	Claar	3.65	3.60	3.65	3.34	3.57	3.60	(1)										
4	Fish Hatchery	2.77	2.70	2.70	3.47	3.47	2.62	(1)										
5	Grossman	2.88	2.92	2.80	2.62	2.70	2.84	2.81	3.02	3.02	3.02	3.10	3.17	3.10	2.92	2.77	2.62	2.77
6	Nye	3.65	3.70	3.70	3.51	3.42	3.55	(1)										
7	Tolbert	4.06	4.06	4.00	3.83	3.79	3.88	(1)										
8	Walters	—	3.84	3.85	3.70	3.70	3.70	3.68	3.88	3.60	3.60	3.88	3.34	3.75	3.79	3.60	3.46	—
9	Mendini	4.72	4.78	4.67	4.35	4.45	4.78	4.67	4.67	4.40	3.51	4.78	4.56	—	4.62	4.45	4.35	4.35
10	Neyman	4.02	4.06	3.97	3.97	3.60	3.79	(1)										
11	Galloway	3.74	3.79	3.70	3.70	3.60	3.60	(1)										
12	Cox	3.34	3.34	3.21	3.24	2.70	3.20	(1)										
13	Herman	3.02	2.97	2.80	2.77	2.54	2.62	2.65	2.77	2.77	2.84	2.92	3.02	3.04	2.92	2.77	2.77	2.70
14	Harvey	3.70	3.88	3.65	3.60	3.42	3.60	3.48	3.60	3.51	3.42	3.60	3.34	3.65	3.70	3.60	—	3.60
15	Peavy	3.92	3.65	3.88	3.88	3.70	3.70	3.67	3.79	3.70	3.79	3.95	3.70	—	3.97	3.88	3.70	3.79
16	Padget	3.97	3.79	3.85	3.88	3.70	3.88	(1)										
17	Hankins	4.40	4.30	4.06	4.67	4.25	4.60	4.17	4.35	4.56	4.45	4.35	4.56	4.56	4.30	4.40	4.11	4.25
	Tile-relief Well Complexes																	
18	Brown	4.06	—	4.06	4.00	3.60	3.97	(1)										
19	Hutchinson	4.20	4.45	4.40	4.30	3.88	4.06	(1)										
20	Kaes	2.54	2.66	2.70	2.40	2.54	2.54	(1)										
21	Molander	2.77	—	2.74	2.54	2.54	2.70	(1)										
22	Harvey	2.84	3.17	2.92	3.55	3.42	3.70	(1)										
	Major Surface Drains																	
23	Rock Creek	2.26	2.40	2.40	2.77	2.47	3.02	2.98	3.17	2.20	2.92	2.84	2.62	1.33	1.80	2.12	2.26	2.47
24	Cedar Draw	2.16	2.47	2.43	2.77	1.85	3.70	3.59	3.70	3.70	3.70	3.60	1.67	2.06	1.55	2.20	2.40	1.92
25	Mud Creek	3.34	3.65	3.51	3.60	3.17	3.70	3.68	3.97	3.88	3.97	4.06	3.10	3.10	3.10	3.34	3.34	3.51
26	Deep Creek	1.27	1.67	1.85	1.93	1.67	2.26	1.86	2.47	3.10	2.84	3.17	1.38	1.33	1.13	1.44	1.50	1.55

[1] Discontinued.

TABLE 4.—*K^+ concentrations, in milliequivalents per liter, at all sampling sites on each date*

Site		1968													1969			
No.	Name	6/4	6/18	7/1	7/15	7/29	8/12	8/26	9/9	9/23	10/7	11/4	12/2	12/30	1/27	2/24	3/24	4/21	5/19
	Input Streams																		
1	Milner	0.14	0.15	0.09	0.10	0.10	0.10	0.14	0.12	0.13	0.11	0.18	0.12	0.14	0.13	0.10	0.11	0.14	0.10
2	Rock Creek (HL)	.11	.11	.11	.11	—	—	.15	.17	.18	.15	.15	.08	.12	.10	.18	.08	.10	.09
	Drainage Tunnels																		
3	Claar	.11	.09	.11	.10	.10	.10	.12	.10	.11	.09	.10	.10	.10	.10	.08	.09	.11	.10
4	Fish Hatchery	.12	.12	.13	.12	.12	.12	.13	.13	.12	.10	.11	.12	.13	.14	.11	.13	.15	.13
5	Grossman	.10	.09	.09	.09	.10	.10	.10	.10	.10	.08	.09	.09	.10	.09	.07	.09	.11	.09
6	Nye	.15	.10	.11	.11	.11	.10	.12	.11	.11	.10	.11	.10	.10	.10	.16	.10	.12	.10
7	Tolbert	.11	.11	—	.11	.12	.11	.13	.12	.12	.10	.11	.11	.11	.13	.11	.11	.13	.12
8	Walters	.25	.13	.21	.14	.16	.14	.15	.15	.14	.13	.14	.14	.14	.13	.11	.13	—	—
9	Mendini	.20	.19	.23	.20	.21	.24	.22	.21	.22	.19	.22	.20	.21	.20	.18	.20	—	.21
10	Neyman	.24	.22	.14	.22	.24	.23	.25	.24	.25	.22	.24	.23	.23	.24	.22	.14	.26	.24
11	Galloway	.12	.11	.12	.12	.13	.13	.14	.13	.13	.13	.13	.12	.12	.12	.12	.12	.14	.12
12	Cox	.13	.11	.12	.12	.12	.12	.14	.13	.14	.11	.12	.11	.12	.13	.11	.12	.13	.12
13	Herman	.13	.11	.11	.12	.12	.12	.13	.12	.12	.11	.12	.10	.11	.12	.11	.12	.13	.12
14	Harvey	.19	.13	.14	.14	.14	.14	.16	.15	.15	.13	.14	.12	.14	.13	.13	.13	.15	.14
15	Peavy	.12	.11	.12	.13	.13	.14	.15	.14	.14	.12	.12	.11	.13	.12	.12	.12	.14	.12
16	Paget	.09	.15	.12	.13	.14	.14	.15	.15	.14	.12	.12	.11	.13	.14	.13	.14	.14	.14
17	Hankins	.18	.16	.18	.17	.17	.17	.20	—	.20	.17	.18	.17	.17	.17	.18	.18	.21	.17
	Tile-relief Well Complexes																		
18	Brown	.13	.14	.16	.12	.16	.18	.17	.17	.17	.16	.17	.18	.16	.15	.14	.15	.17	.16
19	Hutchinson	.21	.18	.21	.20	.21	.22	.22	.21	.22	.20	.22	.22	.20	.19	.18	.20	.22	.20
20	Kaes	.19	.17	.18	.19	.19	.18	.20	—	.19	.17	.20	.18	.18	.21	.17	—	—	.19
21	Molander	.17	.19	.22	.21	.22	.20	.23	.20	.21	.19	—	.20	.21	.21	.20	.22	.24	.22
22	Harvey	—	.12	.13	.13	.13	.14	.14	.13	.13	.13	.13	.13	.13	.14	.11	.12	.18	.14
	Major Surface Drains																		
23	Rock Creek	.15	.14	.15	.12	.16	.14	.17	.18	.15	.14	.20	.33	.24	.27	.19	.17	.20	.14
24	Cedar Draw	.18	.14	.14.	14	.14	.15	.14	.16	.16	.12	.13	.13	.13	.14	.13	.14	.19	.15
25	Mud Creek	.19	.18	.20	.18	.20	.24	.20	.22	.20	.18	.18	.18	.19	.18	.18	.20	.26	.19
26	Deep Creek	.17	.13	.14	.13	.14	.16	.15	.17	.16	.13	.14	.14	.14	.16	.18	.34	.20	.14

Site		1969													1970			
No.	Name	6/17	7/14	8/11	9/8	10/6	11/3	12/1	12/29	1/26	2/23	3/23	4/20	5/18	6/15	7/13	8/10	9/8
	Input Streams																	
1	Milner	0.11	0.12	0.09	0.10	0.10	—	0.17	0.19	0.16	0.16	0.24	0.14	—	0.10	0.11	0.11	0.10
2	Rock Creek	.11	.17	—	—	—	.12	(1)										
	Drainage Tunnels																	
3	Claar	.10	.11	.11	.11	.10	.11	(1)										
4	Fish Hatchery	.14	.13	.14	.13	.13	.16	(1)										
5	Grossman	.10	.12	.12	.12	.11	.10	.08	.09	.09	.08	.10	.10	.09	.09	.10	.10	.09
6	Nye	.12	.12	.12	.12	.12	.10	(1)										
7	Tolbert	.12	.13	.12	.13	.13	.11	(1)										
8	Walters	—	.15	.15	.15	.14	.14	.16	.15	.13	.12	.14	.14	.14	.13	.14	.15	—
9	Mendini	.21	.22	.22	.22	.19	.20	.18	.19	.18	.19	.22	.21	—	.19	.21	.21	.20
10	Neyman	.23	.23	.23	.23	.21	.23	(1)										
11	Galloway	.13	.12	.13	.12	.12	.15	(1)										
12	Cox	.12	.13	.12	.13	.13	.12	(1)										
13	Herman	.12	.13	.13	.14	.12	.11	.10	.11	.10	.11	.12	.13	.12	.12	.12	.12	.11
14	Harvey	.14	.13	.14	.13	.13	.14	.12	.14	.12	.12	.13	.14	.13	.14	.15	—	.14
15	Peavy	.14	.14	.13	.14	.12	.13	.11	.13	.11	.11	.18	.18	—	.13	.13	.13	.13
16	Padget	.14	.13	.14	.14	.13	.13	(1)										
17	Hankins	.17	.19	.19	.19	.18	.18	.17	.17	.16	.15	.18	.17	.16	.17	.21	.18	.18
	Tile-relief Well Complexes																	
18	Brown	.17	—	.16	.16	.14	.16	(1)										
19	Hutchinson	.20	.22	.21	.21	.19	.20	(1)										
20	Kaes	.19	.21	.20	.22	.18	.18	(1)										
21	Molander	.23	—	.22	.22	.22	.21	(1)										
22	Harvey	.13	.16	.15	.16	.11	.13	(1)										
	Major Surface Drains																	
23	Rock Creek	.16	.15	.14	.16	.15	.24	.21	.22	.22	.24	.16	.21	.10	.15	.16	.16	.15
24	Cedar Draw	.15	.16	.14	.14	.13	.15	.11	.14	.11	.11	.13	.16	.20	.12	.17	.16	.14
25	Mud Creek	.20	.21	.20	.22	.23	.18	.16	.19	.17	.17	.21	.23	.22	.17	.21	.20	.20
26	Deep Creek	.14	.14	.14	.14	.13	.16	.16	.18	.18	.31	.28	.17	.17	.14	.15	.14	.13

[1] Discontinued.

TABLE 5.—*Ca^{++} concentrations, in milliequivalents per liter, at all sampling sites on each date*

Site		1968							1969										
No.	Name	6/4	6/18	7/1	7/15	7/29	8/12	8/26	9/9	9/23	10/7	11/4	12/2	12/30	1/27	2/24	3/24	4/21	5/19
	Input Streams																		
1	Milner	3.33	2.05	1.75	1.75	2.25	2.75	2.80	2.50	2.75	2.75	2.85	2.80	3.05	3.05	2.70	2.50	1.85	3.08
2	Rock Creek (HL)	.98	1.10	1.30	1.80	—	—	1.35	1.60	1.72	1.63	1.50	1.50	1.45	1.05	1.10	1.01	.42	.59
	Drainage Tunnels																		
3	Claar	5.53	6.00	5.30	5.50	5.65	5.72	6.30	6.50	6.20	5.40	5.50	6.40	5.20	6.30	5.25	5.00	4.15	4.08
4	Fish Hatchery	3.88	3.75	3.12	3.12	3.50	3.80	4.00	3.40	3.90	3.40	3.60	4.25	4.90	4.15	4.00	3.30	3.34	2.76
5	Grossman	4.00	4.25	4.62	4.62	4.50	4.90	5.40	4.60	4.65	4.10	4.00	4.25	3.90	5.15	4.20	3.34	3.70	2.82
6	Nye	4.15	2.80	4.15	4.50	4.25	4.25	5.00	4.65	4.45	3.95	4.00	4.65	4.10	4.55	3.95	3.83	3.52	2.42
7	Tolbert	5.13	5.30	5.00	5.00	5.12	5.00	6.00	5.50	5.50	6.70	6.10	5.70	5.35	5.90	5.30	4.06	3.70	2.82
8	Walters	4.81	5.00	5.00	4.50	4.75	5.25	5.50	5.20	5.25	4.85	3.80	5.20	4.35	5.25	4.95	4.06	—	—
9	Mendini	4.05	3.80	3.50	3.75	4.50	4.45	4.90	4.80	4.65	4.10	4.25	4.75	3.00	3.55	2.80	4.20	—	2.82
10	Neyman	5.94	5.00	6.00	5.38	5.65	6.25	6.65	6.65	6.25	5.35	5.50	6.05	5.70	7.00	5.90	4.70	4.15	3.42
11	Galloway	3.88	4.25	4.25	3.25	4.25	4.45	4.90	3.90	4.37	4.30	4.00	5.05	4.60	4.85	3.90	3.75	3.52	2.27
12	Cox	4.40	4.50	5.00	4.50	4.50	5.00	5.00	5.00	4.90	4.45	4.25	3.75	3.75	5.20	4.90	3.10	3.61	2.60
13	Herman	5.53	5.95	6.50	5.87	6.25	6.66	7.00	7.00	6.50	6.20	5.20	6.75	6.50	7.05	5.90	3.98	4.41	4.93
14	Harvey	4.13	3.80	3.50	3.50	4.25	4.42	4.60	4.05	3.90	3.80	2.75	4.65	3.85	4.35	4.30	3.58	3.14	3.20
15	Peavy	3.75	2.95	3.12	2.25	3.75	3.90	4.00	3.90	4.30	3.50	2.50	4.05	3.50	3.65	3.45	3.00	3.14	4.05
16	Padget	3.75	3.38	3.12	2.88	3.50	3.90	4.00	4.00	3.90	3.40	2.75	4.30	3.50	3.50	3.75	3.30	2.74	3.63
17	Hankins	—	3.80	3.75	3.25	4.75	4.20	4.60	—	4.30	4.00	4.25	4.70	4.35	4.75	4.35	4.32	3.24	4.53
	Tile-relief Well Complexes																		
18	Brown	4.56	4.25	5.00	4.00	4.50	4.80	5.10	4.90	4.65	4.10	4.25	4.65	5.20	4.70	4.35	3.75	4.32	3.61
19	Hutchinson	4.30	4.50	2.88	4.00	4.50	5.25	5.30	4.90	4.85	4.30	4.25	4.80	5.25	4.30	3.65	3.04	4.20	4.00
20	Kaes	5.13	5.00	5.50	5.00	5.65	5.75	6.15	—	5.25	4.85	4.70	5.80	6.20	5.85	5.10	—	4.15	4.20
21	Molander	5.12	5.25	5.25	5.38	5.50	5.61	6.00	5.50	5.70	5.85	—	5.60	5.70	4.00	5.55	4.55	4.06	3.90
22	Harvey	3.40	3.38	3.45	3.50	4.25	4.20	6.60	4.10	4.20	3.80	3.95	4.50	5.00	3.80	4.00	3.88	3.24	2.27
	Major Surface Drains																		
23	Rock Creek	1.28	3.65	4.25	3.50	4.50	4.45	4.50	4.30	4.65	3.95	3.60	4.50	4.85	5.25	4.15	3.34	2.95	3.50
24	Cedar Draw	3.63	2.62	3.12	3.12	3.75	4.40	3.40	4.00	3.80	3.25	3.70	4.05	3.45	4.50	3.90	2.05	3.04	3.25
25	Mud Creek	4.06	3.38	4.62	3.88	4.50	4.70	4.60	3.25	4.65	3.80	3.95	3.85	4.30	5.40	3.70	3.30	2.74	3.30
26	Deep Creek	3.63	2.62	3.12	4.12	3.75	4.45	4.00	4.00	3.60	3.95	3.20	3.95	4.45	4.15	3.95	4.24	2.32	3.25

Site		1969							1970									
No.	Name	6/17	7/14	8/11	9/8	10/6	11/3	12/1	12/29	1/26	2/23	3/23	4/20	5/18	6/15	7/13	8/10	9/8
	Input Streams																	
1	Milner	1.96	1.93	2.10	2.45	2.60	2.30	3.00	3.10	2.85	2.10	3.00	2.85	—	2.75	2.60	2.45	2.00
2	Rock Creek (HL)	.93	.77	—	—	—	1.15	(1)										
	Drainage Tunnels																	
3	Claar	5.03	4.55	4.92	6.10	5.50	5.75	(1)										
4	Fish Hatchery	3.27	3.12	3.03	3.00	3.10	3.23	(1)										
5	Grossman	3.83	3.40	3.60	4.60	3.35	3.40	3.60	4.30	3.90	3.90	4.00	4.10	4.15	4.15	4.10	4.50	4.55
6	Nye	3.83	3.25	3.47	4.00	3.90	4.10	(1)										
7	Tolbert	4.90	4.27	4.16	5.40	4.05	4.65	(1)										
8	Walters	—	4.13	4.21	3.90	4.90	4.35	5.10	4.90	4.40	5.05	4.85	4.70	4.90	4.60	4.75	4.55	—
9	Mendini	3.70	3.68	3.30	3.00	3.85	3.65	3.30	4.40	4.25	4.40	4.30	4.27	—	4.60	4.50	4.45	4.15
10	Neyman	4.78	6.30	4.60	7.00	3.55	6.60	(1)										
11	Galloway	3.70	3.12	3.45	4.20	3.35	3.65	(1)										
12	Cox	3.70	3.83	3.28	3.15	5.25	4.25	(1)										
13	Herman	4.52	6.65	5.10	7.00	5.00	6.70	6.80	6.35	6.20	6.10	6.70	6.60	6.55	5.90	6.20	5.65	6.05
14	Harvey	3.07	3.32	3.70	3.65	4.00	3.93	4.10	4.50	3.75	4.45	4.15	4.20	3.90	3.85	4.00	—	3.75
15	Peavy	3.83	3.58	3.60	4.50	3.30	3.73	3.00	3.50	3.55	3.65	3.70	3.50	—	3.20	3.30	3.05	3.50
16	Padget	3.50	3.76	3.65	3.15	3.65	3.70	(1)										
17	Hankins	3.92	3.96	4.05	4.10	3.90	4.10	4.20	4.30	4.30	4.45	4.30	4.25	4.20	3.70	3.95	4.45	4.25
	Tile-relief Well Complexes																	
18	Brown	4.52	—	4.15	4.75	4.05	4.10	(1)										
19	Hutchinson	4.38	3.58	3.77	4.50	3.35	3.85	(1)										
20	Kaes	5.32	4.62	5.05	5.00	4.60	5.10	(1)										
21	Molander	4.78	—	4.26	4.75	5.15	4.90	(1)										
22	Harvey	3.27	2.93	2.75	3.25	4.05	4.10	(1)										
	Major Surface Drains																	
23	Rock Creek	3.70	3.68	3.60	3.80	5.15	6.10	3.80	4.85	4.05	4.95	4.15	4.35	4.40	3.75	4.10	3.90	4.10
24	Cedar Draw	3.18	3.49	3.30	4.50	2.40	3.45	3.30	4.30	4.25	4.15	3.30	4.05	4.05	3.30	3.10	3.85	4.25
25	Mud Creek	3.18	4.62	3.35	3.60	3.25	3.57	3.95	4.15	4.55	4.65	3.60	4.35	—	4.20	3.90	3.85	4.15
26	Deep Creek	3.50	3.40	3.05	2.85	2.95	3.17	2.60	4.10	5.20	6.20	6.50	5.70	2.95	3.25	2.95	3.00	2.90

[1] Discontinued.

TABLE 6.—*Mg^{++} concentration, in milliequivalents per liter, at all sampling sites on each date*

Site		1968							1969										
No.	Name	6/4	6/18	7/1	7/15	7/29	8/12	8/26	9/9	9/23	10/7	11/4	12/2	12/30	1/27	2/24	3/24	4/21	5/19
	Input Streams																		
1	Milner	1.60	0.86	0.90	1.08	0.80	1.25	1.38	1.28	1.30	1.33	0.83	1.60	1.35	0.87	1.30	0.86	1.12	1.48
2	Rock Creek (HL)	.29	.75	.80	.40	—	—	.44	.32	.42	.45	.58	.30	.65	.33	.40	.26	.12	.22
	Drainage Tunnels																		
3	Claar	3.95	2.38	2.32	2.32	2.11	3.60	3.80	3.50	3.70	3.90	3.60	4.13	3.30	3.80	3.70	4.38	3.33	3.94
4	Fish Hatchery	2.85	1.82	2.00	2.00	1.78	2.88	3.52	2.80	2.94	2.88	2.55	3.00	3.00	2.60	2.87	2.52	2.29	3.28
5	Grossman	2.75	1.86	2.10	2.50	1.82	3.06	3.10	2.90	2.84	2.88	2.80	2.77	2.70	2.70	2.80	3.00	1.85	2.90
6	Nye	3.05	2.02	2.15	2.15	2.02	3.20	3.00	3.20	3.04	3.26	3.10	3.27	3.65	3.20	2.87	2.81	2.73	3.12
7	Tolbert	3.25	2.15	2.25	2.35	1.98	3.40	3.10	3.30	3.34	3.70	3.50	3.70	3.10	3.20	3.30	2.86	2.53	3.36
8	Walters	3.85	4.20	2.25	4.25	3.27	3.80	3.20	3.70	3.00	3.90	3.60	4.20	4.00	3.50	3.80	4.00	—	—
9	Mendini	2.80	1.92	1.95	2.10	1.85	3.10	2.74	2.90	3.00	3.00	3.10	3.23	2.35	2.40	3.00	3.15	—	3.43
10	Neyman	2.55	1.68	1.80	2.10	1.60	2.85	2.54	2.70	2.64	2.64	2.60	2.67	2.70	2.87	2.80	2.33	2.23	2.86
11	Galloway	3.15	1.95	2.12	1.90	2.10	3.20	2.94	2.90	3.00	3.12	3.10	3.15	3.10	3.20	3.15	2.45	2.91	3.40
12	Cox	2.95	1.95	2.40	2.20	1.91	3.20	2.94	3.00	3.00	3.12	3.00	3.10	2.70	3.15	3.00	2.45	2.44	3.28
13	Herman	3.33	1.98	2.22	2.02	1.91	3.26	2.94	3.00	3.00	3.12	3.10	3.23	2.60	2.80	3.30	2.75	2.32	3.47
14	Harvey	3.08	1.93	3.55	1.85	1.75	3.12	2.90	2.90	2.94	2.88	2.90	3.05	2.60	3.05	2.87	2.23	2.44	3.20
15	Peavy	3.35	1.98	2.55	1.95	1.90	3.20	3.00	3.04	3.00	3.40	3.20	3.10	3.10	2.95	3.30	2.85	3.38	3.12
16	Padget	3.35	2.10	2.18	2.08	1.92	3.42	3.20	3.10	3.04	3.40	3.20	3.23	3.35	3.30	2.55	3.75	3.38	4.10
17	Hankins	3.05	1.90	2.15	3.05	1.80	3.24	2.94	—	3.00	3.06	3.00	3.25	2,90	2.90	2.95	3.00	2.40	3.40
	Tile-relief Well Complexes																		
18	Brown	3.80	2.38	2.38	2.40	2.38	3.70	3.80	3.74	3.80	4.20	3.60	4.05	2.35	3.40	3.15	3.55	3.10	3.50
19	Hutchinson	3.10	2.05	1.32	2.60	1.80	3.20	3.14	3.04	3.26	3.24	3.20	3.33	2.35	3.25	2.87	2.45	2.40	3.17
20	Kaes	3.60	2.06	3.22	2.00	2.00	3.50	3.54	—	3.26	3.56	3.26	3.90	2.80	3.50	3.45	—	—	3.25
21	Molander	3.40	2.20	2.40	2.58	2.25	3.50	3.54	3.50	3.50	3.54	3.50	3.60	3.30	3.50	3.10	3.75	2.53	3.43
22	Harvey	2.54	2.02	2.40	2.10	1.75	3.20	3.06	3.10	3.20	3.26	3.10	3.60	3.15	3.30	3.30	3.55	1.53	2.53
	Major Surface Drains																		
23	Rock Creek	1.10	1.42	1.60	1.55	1.46	2.65	2.30	2.44	2.34	2.35	1.60	2.80	2.60	2.60	2.80	2.47	1.22	2.28
24	Cedar Draw	2.43	1.42	1.68	2.10	1.30	2.75	1.76	2.40	2.26	2.02	2.20	3.65	3.10	3.25	3.65	3.31	1.46	2.43
25	Mud Creek	2.70	1.92	2.02	1.75	1.52	2.90	2.68	2.62	2.50	2.50	2.05	3.20	2.20	2.85	2.50	3.20	1.72	2.22
26	Deep Creek	2.25	1.25	1.35	1.50	1.22	2.30	1.86	2.06	1.84	2.25	2.25	2.20	3.10	2.80	2.85	2.47	1.63	2.10

Site No.	Name	1969 6/17	7/14	8/11	9/8	10/6	11/3	12/1	1970 12/29	1/26	2/23	3/23	4/20	5/18	6/15	7/13	8/10	9/8
	Input Streams																	
1	Milner	1.10	1.26	1.38	1.47	1.45	1.33	1.40	1.95	1.55	1.40	1.45	1.05	—	1.45	1.45	1.20	1.40
2	Rock Creek (HL)	.21	.18	—	—	—	.34	(1)										
	Drainage Tunnels																	
3	Claar	3.23	3.00	3.20	3.60	3.20	3.40	(1)										
4	Fish Hatchery	2.57	2.52	2.72	3.20	2.40	2.90	(1)										
5	Grossman	2.42	2.43	3.47	3.80	2.20	2.40	2.35	2.85	2.30	2.40	2.35	2.45	2.35	2.95	1.90	2.85	3.10
6	Nye	2.54	2.21	3.70	3.80	2.60	2.80	(1)										
7	Tolbert	2.74	2.88	3.30	3.75	3.05	3.15	(1)										
8	Walters	—	3.86	4.70	4.20	2.95	3.77	3.10	3.35	3.40	3.30	3.30	3.45	3.35	3.35	3.40	3.45	—
9	Mendini	1.85	2.58	3.10	3.40	2.70	3.17	2.70	3.05	2.90	2.85	2.80	3.00	—	3.05	3.10	3.00	3.15
10	Neyman	2.07	2.39	2.98	3.60	2.60	2.87	(1)										
11	Galloway	2.33	2.91	1.75	3.65	2.90	2.80	(1)										
12	Cox	2.95	2.96	2.95	3.70	2.60	2.77	(1)										
13	Herman	2.25	2.97	3.52	3.75	2.45	3.07	3.00	3.15	3.00	2.90	2.95	3.05	3.05	3.10	2.95	2.60	3.10
14	Harvey	2.50	2.66	2.80	3.70	2.45	2.70	2.70	3.15	2.85	2.70	2.75	2.80	3.05	2.95	2.90	—	3.05
15	Peavy	2.95	2.55	3.00	3.60	2.90	3.25	2.60	2.90	2.95	2.90	3.00	3.10	—	3.10	3.05	3.00	3.15
16	Padget	3.66	2.91	3.22	3.40	2.65	3.60	(1)										
17	Hankins	2.95	3.16	3.50	3.00	4.40	4.10	2.90										
	Tile-relief Well Complexes																	
18	Brown	2.67	—	4.11	4.40	3.25	3.67	(1)										
19	Hutchinson	2.95	2.88	3.40	4.30	2.05	3.05	(1)										
20	Kaes	2.78	3.10	2.98	3.60	2.80	3.07	(1)										
21	Molander	3.66	—	3.96	4.20	3.10	4.00	(1)										
22	Harvey	1.92	2.91	3.24	3.70	3.00	3.13	(1)										
	Major Surface Drains																	
23	Rock Creek	1.63	2.46	4.42	3.40	2.95	3.10	2.30	2.90	1.85	2.15	2.25	2.00	1.95	2.65	2.17	2.40	2.65
24	Cedar Draw	1.67	2.16	2.57	2.52	2.10	2.20	2.80	3.15	3.10	3.05	2.95	2.30	3.20	2.35	2.15	2.35	2.25
25	Mud Creek	1.85	2.75	3.60	3.60	2.45	2.95	2.30	3.10	3.00	2.80	2.50	2.25	—	2.70	2.65	2.65	2.90
26	Deep Creek	1.60	2.16	2.40	2.10	1.70	2.20	2.40	2.60	2.70	3.05	2.80	1.65	1.05	1.90	1.80	1.95	2.10

[1] Discontinued.

TABLE 7.—*Cl − concentration, in milliequivalents per liter, at all sampling sites on each date*

Site		1968														1969			
No.	Name	6/4	6/18	7/1	7/15	7/29	8/12	8/26	9/9	9/23	10/7	10/21	11/4	12/2	12/30	1/27	2/24	3/24	4/21
	Input Streams																		
1	Milner	0.77	0.76	0.48	0.54	0.56	0.41	0.47	0.38	0.65	0.67	0.70	0.82	0.94	0.93	0.41	0.48	0.48	0.65
2	Rock Creek (HL)	.40	.31	.13	.65	—	—	.18	.33	.31	.26	.36	.41	.18	.31	.21	.13	.00	.00
	Drainage Tunnels																		
3	Claar	1.40	1.41	1.13	1.23	1.23	1.16	.92	1.69	1.40	1.27	1.33	1.32	1.38	1.40	1.00	1.36	1.09	1.31
4	Fish Hatchery	1.41	1.40	1.35	1.10	1.24	.98	.89	.82	1.31	1.25	1.23	1.26	1.22	1.35	1.08	1.14	1.13	1.55
5	Grossman	1.25	1.29	1.11	1.19	1.27	.94	.94	1.34	1.22	1.08	1.17	1.15	1.17	1.26	.94	1.15	.72	1.34
6	Nye	1.73	1.62	1.34	1.66	1.52	1.40	1.35	1.55	1.52	1.53	1.49	1.53	1.59	1.66	1.19	1.53	1.10	1.52
7	Tolbert	1.75	1.64	1.49	1.70	1.77	1.43	1.33	1.81	1.56	1.57	1.56	1.50	1.68	1.79	1.61	1.47	1.33	1.72
8	Walters	1.77	1.69	1.38	1.55	1.51	1.43	1.37	1.53	1.60	1.46	1.61	1.49	1.62	1.64	1.54	1.26	1.32	—
9	Mendini	1.82	1.83	1.57	1.67	1.68	1.57	1.47	1.65	1.87	1.62	1.69	1.62	1.75	1.67	1.58	1.67	1.46	—
10	Neyman	1.65	1.76	1.37	1.63	1.57	1.52	1.25	1.64	1.58	1.59	1.55	1.51	1.54	1.66	1.40	1.29	1.41	1.60
11	Galloway	1.26	1.27	1.06	1.20	1.10	1.09	1.09	1.30	1.42	1.16	1.26	1.18	1.15	1.37	1.05	.90	1.07	1.19
12	Cox	1.30	1.23	.96	1.29	1.32	1.04	.98	1.36	1.43	1.12	1.17	1.26	1.21	1.44	1.32	.99	1.05	1.16
13	Herman	1.61	1.51	1.31	1.37	1.58	1.19	1.18	1.48	1.58	1.21	1.42	1.26	1.23	1.64	1.35	1.34	1.37	1.85
14	Harvey	1.52	1.52	1.21	1.58	1.31	1.16	1.11	1.31	1.52	1.34	1.39	1.39	1.34	1.66	1.08	1.15	1.13	1.41
15	Peavy	1.69	1.69	1.44	1.69	1.52	1.41	1.30	1.52	1.68	1.66	1.42	1.49	1.54	1.55	1.56	1.26	1.40	1.68
16	Padget	1.71	—	1.52	1.84	1.70	1.35	1.39	1.61	1.61	1.49	1.53	1.51	1.65	1.74	1.47	1.61	1.54	1.78
17	Hankins	1.80	1.69	1.60	1.66	1.63	1.40	1.46	—	1.71	1.53	1.74	1.70	1.71	1.67	1.45	1.56	1.44	1.65
	Tile-relief Well Complexes																		
18	Brown	1.84	1.81	1.65	1.61	1.84	1.66	1.45	1.81	1.83	1.72	1.53	1.72	1.73	1.70	1.92	1.57	1.40	1.69
19	Hutchinson	1.90	1.73	1.60	1.58	1.52	1.54	1.27	1.56	1.67	1.67	1.61	1.63	1.45	1.70	1.54	1.68	1.04	1.58
20	Kaes	2.05	1.73	1.67	1.76	1.64	1.50	1.57	—	1.58	1.59	1.68	1.85	1.92	1.90	1.84	1.85	—	—
21	Molander	2.21	1.97	1.88	—	1.83	1.68	1.55	1.29	1.75	2.02	1.76	—	1.95	2.14	1.96	1.93	1.59	2.06
22	Harvey	1.38	1.56	1.25	1.37	1.27	1.30	1.38	1.13	1.27	1.42	1.51	1.46	1.44	1.62	1.51	1.44	1.03	1.29
	Major Surface Drains																		
23	Rock Creek	1.58	1.16	1.06	1.11	1.11	1.10	.82	1.16	1.41	1.18	1.20	1.31	1.41	2.02	1.21	1.14	1.67	1.02
24	Cedar Draw	1.28	1.19	.89	1.02	1.12	1.04	.66	1.23	1.33	1.00	1.32	1.58	1.62	1.69	1.54	1.49	1.51	1.06
25	Mud Creek	1.89	1.52	1.21	1.45	1.53	1.36	1.25	1.69	1.68	1.56	1.53	1.33	1.67	1.85	1.74	1.47	1.50	1.38
26	Deep Creek	1.18	1.01	.75	1.18	1.09	.88	.80	1.04	.93	.93	.95	1.24	1.02	1.50	1.32	1.38	2.00	.95

Site		1969							1970									
No.	Name	5/19	7/14	8/11	9/8	10/6	11/3	12/1	12/29	1/26	2/23	3/23	4/20	5/18	6/15	7/13	8/10	9/8
	Input Streams																	
1	Milner	0.50	0.74	0.66	0.61	0.68	0.74	0.80	0.93	0.75	0.70	0.89	0.83	0.48	0.58	0.49	0.40	0.40
2	Rock Creek (HL)	.00	.00	—	—	—	.09	(1)										
	Drainage Tunnels																	
3	Claar	1.37	1.61	1.37	1.43	1.09	1.17	(1)										
4	Fish Hatchery	1.26	1.60	1.31	1.45	1.01	1.09	(1)										
5	Grossman	1.29	1.51	1.31	1.25	.74	1.14	1.07	1.08	1.22	1.12	1.22	1.23	1.13	1.16	1.18	1.07	1.16
6	Nye	1.47	1.97	1.67	1.78	1.63	1.37	(1)										
7	Tolbert	1.62	2.00	1.68	1.91	1.06	1.46	(1)										
8	Walters	—	1.94	1.69	1.14	1.18	1.42	1.41	1.43	1.42	1.46	1.48	1.53	1.47	1.48	1.47	1.46	—
9	Mendini	1.67	2.07	1.83	1.99	—	1.56	1.53	1.55	1.54	1.53	1.70	1.65	1.64	1.59	1.57	1.63	1.66
10	Neyman	1.58	1.88	1.63	1.52	1.37	1.41	(1)										
11	Galloway	1.14	1.58	1.26	1.22	1.15	1.03	(1)										
12	Cox	1.18	1.57	1.34	1.34	1.09	1.06	(1)										
13	Herman	1.46	1.74	1.29	1.36	1.41	1.09	1.13	1.16	1.21	1.29	1.46	1.44	1.44	1.41	1.36	1.30	1.42
14	Harvey	1.35	1.64	1.45	1.52	1.43	1.14	1.16	1.16	1.21	1.17	1.27	1.30	1.23	1.31	1.28	—	1.32
15	Peavy	1.62	1.90	1.63	1.73	1.96	1.32	1.30	1.33	1.32	1.34	1.46	1.25	1.52	1.49	1.46	1.51	1.47
16	Padget	1.68	1.98	1.69	1.44	1.25	1.39	(1)										
17	Hankins	1.58	1.93	1.71	1.50	1.18	1.40	1.43	1.45	1.58	1.54	1.49	1.63	1.60	1.53	1.51	1.58	1.55
	Tile-relief Well Complexes																	
18	Brown	1.66	—	1.94	1.68	1.71	1.57	(1)										
19	Hutchinson	1.64	1.81	1.71	1.86	1.48	1.37	(1)										
20	Kaes	1.75	1.97	1.87	1.91	1.47	1.59	(1)										
21	Molander	2.02	—	1.86	2.02	1.67	1.66	(1)										
22	Harvey	1.00	1.67	1.35	1.69	1.28	1.23	(1)										
	Major Surface Drains																	
23	Rock Creek	1.05	1.42	1.32	.76	.75	1.12	1.17	1.19	.80	1.05	1.21	1.16	.42	.89	.92	.93	1.01
24	Cedar Draw	.83	1.42	1.20	.77	.77	1.28	1.34	1.33	1.42	1.45	1.60	.98	.82	.73	.94	.90	.86
25	Mud Creek	1.34	1.75	1.47	1.60	1.01	1.30	1.38	1.43	1.53	1.48	1.63	1.35	1.14	1.20	1.32	1.23	1.24
26	Deep Creek	.72	1.12	1.01	.85	.67	.87	.93	1.04	1.41	1.88	1.74	.93	.56	.72	.71	.63	.68

[1] Discontinued.

TABLE 8.—*HCO_3- concentration, in milliequivalents per liter, at all sampling sites on each date*

Site		1968							1969										
No.	Name	6/4	6/18	7/1	7/15	7/29	8/12	8/26	9/9	9/23	10/7	10/21	11/4	12/2	12/30	1/27	2/24	3/24	4/21
	Input Streams																		
1	Milner	4.57	4.46	4.35	4.43	4.27	3.56	3.68	3.66	3.36	3.41	3.47	3.56	3.76	4.09	3.83	3.66	4.64	4.10
2	Rock Creek (HL)	2.51	2.55	2.78	3.15	—	—	2.10	1.97	2.44	2.34	2.20	1.70	1.67	1.89	1.61	1.44	1.90	1.43
	Drainage Tunnels																		
3	Claar	7.22	7.04	6.92	6.72	7.02	6.39	6.38	6.39	6.38	6.28	6.25	6.33	6.65	6.39	6.97	6.10	7.76	7.03
4	Fish Hatchery	6.83	6.84	6.40	6.04	6.54	5.70	5.81	5.42	5.75	5.54	5.00	5.44	5.32	5.11	5.27	4.78	5.82	6.60
5	Grossman	6.62	7.42	6.59	6.95	6.79	6.27	5.88	6.03	5.86	5.64	5.50	5.64	5.55	5.76	5.56	5.19	6.09	6.83
6	Nye	6.50	7.00	6.69	6.16	6.84	6.15	5.82	5.54	5.49	5.41	5.36	5.37	5.90	5.46	5.28	6.15	6.25	6.64
7	Tolbert	7.24	7.22	6.84	6.62	6.95	6.21	6.30	6.23	6.16	6.10	6.01	5.97	5.93	6.41	6.19	6.10	6.93	6.95
8	Walters	7.50	7.59	7.11	7.54	6.85	6.64	6.40	6.59	6.62	6.68	6.76	6.55	6.74	5.76	6.47	6.50	7.34	—
9	Mendini	8.34	8.12	7.79	8.48	8.26	7.48	7.02	7.29	7.25	7.11	6.81	7.12	6.76	5.60	7.04	7.38	7.64	—
10	Neyman	8.23	8.81	8.24	8.38	8.58	7.54	7.64	7.73	7.36	7.23	7.19	7.09	6.72	6.78	7.19	7.53	8.45	8.04
11	Galloway	8.10	8.25	8.10	8.52	7.70	7.28	6.88	7.19	7.10	7.02	6.86	6.89	6.77	7.04	7.65	6.44	7.97	7.72
12	Cox	8.20	7.84	7.89	8.03	7.87	7.04	6.89	7.12	6.84	6.77	6.52	6.83	6.57	6.39	7.37	7.08	7.07	7.71
13	Herman	7.45	7.68	7.82	7.87	7.77	7.24	6.90	6.96	6.93	6.88	6.52	6.57	6.55	7.20	6.91	6.81	7.69	7.72
14	Harvey	7.76	7.68	7.69	7.84	7.70	7.12	7.07	7.08	6.83	6.74	6.70	6.93	6.53	6.74	6.57	6.21	6.70	7.47
15	Peavy	7.35	7,18	7.01	7.34	7.20	6.21	6.53	6.54	6.24	6.18	6.12	6.16	5.82	6.33	6.25	6.08	6.76	7.15
16	Padget	6.88	6.91	7.06	7.09	6.92	6.03	6.25	6.27	6.09	6.11	6.22	6.04	5.76	6.03	5.62	6.13	6.71	6.96
17	Hankins	7.45	7.04	7.25	7.45	7.48	6.77	6.69	—	6.39	6.40	6.37	6.46	6.53	6.26	6.47	6.69	7.00	7.03
	Tile-relief Well Complexes																		
18	Brown	7.15	7.90	7.78	7.16	7.51	6.74	6.33	6.66	6.61	6.44	6.33	6.12	6.95	6.10	6.70	6.09	6.70	6.82
19	Hutchinson	8.41	8.62	7.57	8.04	8.16	8.71	7.54	7.66	7.45	7.21	7.45	7.03	7.82	7.66	7.09	7.31	6.94	8.34
20	Kaes	7.03	7.06	7.09	7.01	7.10	6.75	6.68	—	5.93	6.08	6.13	6.12	6.52	6.18	6.05	5.84	—	—
21	Molander	6.45	7.15	6.65	—	6.90	6.22	6.18	611	5.96	5.72	5.31	—	6.09	5.74	5.97	5.80	5.91	7.35
22	Harvey	6.38	8.01	6.97	7.65	7.40	6.47	7.03	6.56	6.10	6.08	6.37	6.68	7.03	6.50	5.18	6.77	7.27	5.72
	Major Surface Drains																		
23	Rock Creek	6.15	6.00	6.00	6.14	5.97	5.33	5.41	4.96	5.31	5.44	5.20	6.01	6.20	6.30	6.16	5.69	6.26	6.26
24	Cedar Draw	5.93	5.87	5.52	6.00	6.27	5.60	4.65	6.48	5.35	5.08	4.68	5.92	5.88	6.48	6.60	6.22	5.49	5.53
25	Mud Creek	7.12	7.22	7.46	7.65	7.70	6.78	6.62	5.04	6.75	6.54	6.25	6.80	6.89	7.07	6.96	6.72	6.90	6.63
26	Deep Creek	5.95	5.75	5.66	6.18	6.00	5.33	4.90	4.12	4.56	4.64	4.57	4.64	4.97	6.13	5.95	6.64	7.01	6.19

Site		1969								1970									
No.	Name	5/19	6/17	7/14	8/11	9/8	10/6	11/3	12/1	12/29	1/26	2/23	3/23	4/20	5/18	6/15	7/13	8/10	9/8
	Input Streams																		
1	Milner	3.87	3.84	2.66	3.44	3.25	3.86	4.31	4.14	4.24	4.25	4.52	3.43	3.97	3.38	3.04	3.01	2.98	3.07
2	Rock Creek (HL)	1.59	2.26	1.45	—	—	—	2.14	(1)										
	Drainage Tunnels																		
3	Claar	7.64	7.03	5.13	7.14	6.54	6.66	6.43	(1)										
4	Fish Hatchery	6.04	6.40	5.00	6.18	5.59	5.66	8.76	(1)										
5	Grossman	6.40	6.77	5.33	6.81	6.36	6.04	5.10	5.56	5.58	6.09	6.64	5.10	5.24	6.06	6.11	6.05	5.94	6.08
6	Nye	6.90	6.25	5.33	6.54	5.84	5.92	5.83	(1)										
7	Tolbert	7.66	6.66	6.24	6.95	6.14	6.45	6.64	(1)										
8	Walters	—	—	6.59	7.25	6.73	6.77	7.14	6.73	6.99	6.96	7.35	6.16	6.55	6.53	6.55	6.50	6.19	—
9	Mendini	8.16	7.74	6.81	7.90	7.77	7.63	7.59	7.27	7.65	7.67	7.86	7.63	7.04	7.50	7.38	7.22	7.08	7.11
10	Neyman	9.20	8.38	6.75	7.35	7.44	7.31	7.32	(1)										
11	Galloway	7.14	7.50	5.91	7.25	7.45	7.28	775	(1)										
12	Cox	7.58	4.42	5.89	7.03	7.10	7.09	7.41	(1)										
13	Herman	7.24	7.84	6.19	7.69	7.30	6.89	7.80	6.86	7.40	7.33	7.57	6.05	7.38	6.95	7.11	7.01	6.60	6.97
14	Harvey	7.03	7.70	6.30	7.10	7.27	7.22	6.82	6.83	6.99	7.45	6.59	6.09	5.92	7.07	6.86	6.69	—	6.77
15	Peavy	7.03	7.31	5.37	7.21	6.35	6.55	6.33	6.18	6.63	6.51	6.92	6.25	5.79	6.69	6.45	6.17	6.00	6.24
16	Padget	6.59	7.08	5.51	6.20	6.33	6.49	6.38	(1)										
17	Hankins	7.12	6.83	5.75	6.83	7.00	6.82	6.57	7.24	6.53	6.91	7.26	7.08	6.38	6.71	6.38	6.27	6.22	6.36
	Tile-relief Well Complexes																		
18	Brown	8.51	7.25	—	7.44	6.47	6.80	5.95	(1)										
19	Hutchinson	8.02	8.73	7.01	8.40	8.13	7.54	7.06	(1)										
20	Kaes	6.68	6.82	5.44	7.03	6.16	6.39	7.39	(1)										
21	Molander	6.44	6.20	—	6.72	6.21	6.16	6.06	(1)										
22	Harvey	5.77	6.20	5.49	6.40	6.38	7.12	5.53	(1)										
	Major Surface Drains																		
23	Rock Creek	5.59	5.74	4.59	7.38	5.64	5.71	7.06	6.14	6.50	5.64	6.35	4.42	5.76	3.49	4.40	4.97	4.87	4.76
24	Cedar Draw	5.37	5.95	4.99	6.00	5.40	4.78	5.55	6.19	6.76	6.91	6.90	4.91	4.39	4.87	4.28	4.99	4.87	4.86
25	Mud Creek	6.70	6.66	6.87	7.00	6.54	6.81	6.20	6.68	7.10	7.34	7.32	5.55	6.20	5.99	5.86	6.83	6.08	5.93
26	Deep Creek	5.12	5.05	4.28	5.57	4.77	4.56	4.75	4.96	5.94	7.00	7.34	6.35	5.03	3.86	3.72	4.45	4.57	4.63

[1] Discontinued.

TABLE 9.—*NO_3-N concentration, in parts per million, at all sampling sites on each date*

Site		1968														
No.	Name	6/4	6/18	7/1	7/15	7/29	8/12	8/26	9/9	9/23	10/7	10/21	11/4	11/18	12/2	12/16	12/30
	Input Streams																
1	Milner	0.85	0.15	0.08	0.62	0.08	0.05	0.04	0.02	0.02	0.25	0.19	0.22	0.26	1.26	0.26	0.30
2	Rock Creek (HL)	.35	.10	.06	.27	(1)	(1)	.22	.05	.08	.02	.09	.06	.05	.24	.08	.24
	Drainage Tunnels																
3	Claar	4.50	3.05	4.25	3.26	3.78	3.48	4.26	3.84	2.86	4.80	2.90	5.16	4.69	4.26	4.02	3.00
4	Fish Hatchery	2.46	3.30	1.53	1.35	2.28	1.68	2.15	2.16	1.82	1.92	2.74	2.76	2.00	2.82	1.08	2.10
5	Grossman	3.30	3.10	1.86	1.74	2.28	2.16	2.16	2.04	1.98	2.30	1.82	2.88	2.10	2.64	1.44	2.34
6	Nye	4.00	2.50	2.76	2.80	1.55	2.28	2.16	2.10	1.76	2.06	2.00	2.08	2.48	3.18	2.40	2.22
7	Tolbert	5.05	4.10	3.42	3.00	3.48	3.69	3.48	2.70	3.15	3.00	2.82	3.02	3.60	3.78	3.12	3.60
8	Walters	2.05	1.70	2.72	1.34	1.32	3.24	2.52	2.58	2.38	2.46	3.12	3.96	3.60	3.96	3.60	3.90
9	Mendini	3.46	2.82	4.18	3.26	4.53	3.06	2.52	3.06	3.62	3.68	3.96	4.50	4.80	4.74	4.08	5.20
10	Neyman	2.10	1.95	3.48	1.42	1.50	2.50	1.98	2.64	3.02	3.26	3.00	3.40	3.60	3.90	3.30	3.24
11	Galloway	3.95	2.15	3.00	2.68	2.02	2.58	2.30	3.60	2.75	3.37	3.24	3.78	3.84	4.26	3.30	3.90
12	Cox	3.05	3.50	3.18	3.34	1.76	4.14	2.26	3.78	3.07	3.78	2.86	4.08	4.26	4.32	4.32	4.14
13	Herman	3.75	2.75	3.36	2.46	2.58	2.68	2.22	2.70	2.57	2.34	2.40	3.12	3.12	3.48	3.30	2.52
14	Harvey	3.80	1.90	3.54	2.22	1.84	3.00	2.22	4.26	4.10	2.86	3.00	3.96	3.54	3.96	3.48	3.66
15	Peavy	3.05	4.03	3.55	1.56	2.04	4.36	1.56	3.78	2.10	2.64	2.82	3.54	3.12	3.36	3.72	2.88
16	Padget	2.80	3.10	3.00	3.40	2.46	3.60	3.18	3.24	3.32	3.52	2.58	3.42	3.24	3.72	3.78	2.82
17	Hankins	3.05	2.00	2.70	2.50	1.50	4.08	2.88	—	3.10	3.24	3.36	4.02	4.08	3.90	3.85	4.02
	Tile-relief Well Complexes																
18	Brown	3.80	1.10	3.60	3.30	3.24	3.12	3.78	2.70	3.56	3.68	2.02	3.78	3.60	3.60	2.88	3.06
19	Hutchinson	3.10	4.25	3.48	3.31	3.72	3.57	4.08	2.46	1.80	3.08	1.75	4.02	2.86	3.54	2.70	3.90
20	Kaes	2.45	4.50	2.88	1.64	3.84	2.64	3.80	—	1.15	3.20	1.92	3.96	3.84	3.00	3.42	3.60
21	Molander	4.50	4.80	4.42	—	5.17	4.02	4.50	3.12	2.28	3.97	2.46	—	3.72	4.20	3.48	4.02
22	Harvey	1.85	2.20	2.28	2.13	2.28	3.00	4.08	3.84	3.42	3.37	1.97	3.00	3.18	3.90	2.70	4.26
	Major Surface Drains																
23	Rock Creek	2.70	1.96	.90	1.13	.96	.82	.24	1.20	1.06	.98	.85	2.70	.36	.48	.48	.18
24	Cedar Draw	2.00	1.60	.46	2.05	.24	1.80	.17	1.44	.94	.48	1.92	2.52	3.04	3.12	3.12	2.45
25	Mud Creek	1.85	2.05	.90	2.13	.26	1.08	.46	.60	1.20	.96	1.68	2.22	2.52	3.12	3.12	3.18
26	Deep Creek	.95	1.50	.48	1.05	.46	.40	.18	.41	.66	.98	.60	1.68	1.26	1.68	.72	2.22

Site		1969																
No.	Name	1/13	1/27	2/10	2/24	3/10	3/24	4/7	4/21	5/5	5/19	6/3	6/17	6/30	7/14	7/28	8/11	8/25
	Input Streams																	
1	Milner	0.36	0.30	1.52	0.42	0.17	0.25	0.20	0.00	0.00	0.05	0.20	0.33	0.07	0.03	0.07	0.07	0.03
2	Rock Creek (HL)	.06	.06	.08	.12	.08	.15	.35	.15	.00	.05	.10	.27	.05	.06	—	—	—
	Drainage Tunnels																	
3	Clear	3.54	4.80	4.24	4.02	4.60	3.40	4.35	3.83		4.60	4.00	3.80	4.05	4.15	4.02	3.67	3.65
4	Fish Hatchery	1.98	2.28	2.82	2.34	2.65	2.10	2.15	1.55		2.14	2.70	2.40	2.44	2.15	2.13	2.44	2.00
5	Grossman	2.04	2.10	2.82	2.46	2.05	2.00	1.60	1.68		1.75	2.04	2.48	2.20	2.70	2.58	2.88	3.30
6	Nye	1.80	2.76	3.12	3.72	2.25	2.10	1.95	1.68		1.75	2.40	2.56	2.59	2.62	—	2.77	2.85
7	Tolbert	3.30	3.18	3.56	3.60	3.25	3.10	3.20	2.76		2.96	3.16	3.06	2.75	3.15	3.38	3.47	3.00
8	Walters	3.66	4.98	3.72	3.60	3.40	3.10	2.50	—		—	3.05	—	—	3.35	3.29	3.52	3.85
9	Mendini	3.54	3.78	4.15	4.02	3.80	3.10	3.50	—		2.96	4.05	3.87	3.63	3.90	3.88	3.93	4.64
10	Neyman	3.30	2.94	3.88	3.84	3.70	2.80	3.40	2.94		2.96	3.13	3.33	3.53	3.51	3.52	3.57	3.85
11	Galloway	3.54	4.14	3.80	3.30	3.50	3.80	4.35	2.63		2.40	3.23	3.41	3.33	3.63	3.62	3.57	3.50
12	Cox	3.54	2.28	3.72	3.00	3.25	3.10	3.15	3.36		2.02	3.41	3.41	3.22	3.55	3.33	3.41	3.35
13	Herman	3.06	2.52	3.65	3.54	3.25	2.50	3.60	2.94		3.30	3.16	2.83	3.00	3.15	3.10	2.97	2.55
14	Harvey	3.24	2.95	3.36	3.72	3.25	3.40	3.60	3.55		2.61	3.32	3.25	3.27	3.80	3.67	3.41	3.05
15	Peavy	1.80	2.52	3.36	3.42	2.90	3.30	3.25	3.55		2.02	2.90	2.98	3.40	3.80	2.80	2.77	2.00
16	Padget	2.94	2.64	3.36	3.30	3.05	2.80	2.55	2.77		2.40	2.64	2.98	3.00	3.19	3.38	3.05	3.10
17	Hankins	3.96	3.96	3.95	4.38	3.70	2.60	3.60	3.36		2.10	2.48	3.06	3.40	3.80	3.82	2.66	3.40
	Tile-relief Well Complexes																	
18	Brown	3.12	3.54	3.56	2.94	3.80	2.40	3.60	2.98		3.50	2.80	3.25	3.10	—	3.67	3.72	3.50
19	Hutchinson	3.24	2.82	3.65	3.42	4.15	3.46	3.30	3.10		3.65	2.80	2.63	3.46	3.67	3.48	3.41	—
20	Kaes	3.72	3.06	4.08	3.96	(2)	(2)	(2)	—		3.30	2.70	3.25	3.27	3.55	3.73	3.67	3.40
21	Molander	3.72	4.32	4.02	4.02	4.15	3.15	4.15	3.20		4.13	3.64	3.67	4.40	—	4.35	4.00	4.05
22	Harvey	3.42	4.26	3.80	4.62	3.70	3.05	3.50	.55		1.70	1.40	2.63	2.12	2.79	3.67	2.97	2.80
	Major Surface Drains																	
23	Rock Creek	.24	.18	.18	1.74	.08	.12	.35	.30		.45	.80	1.28	1.26	1.37	1.66	1.48	.40
24	Cedar Draw	2.04	1.56	3.28	2.34	2.80	2.60	.25	.50	.03	.45	.20	1.11	1.29	1.25	1.32	1.42	.67
25	Mud Creek	2.22	2.82	3.95	3.42	1.60	2.80	1.70	.62	.60	1.10	.70	.62	.80	1.21	1.09	.92	.45
26	Deep Creek	3.36	2.34	3.80	4.92	2.25	2.50	.35	.97	.55	.55	.70	.70	.48	.92	.62	1.08	1.10

See footnotes at end of table.

TABLE 9.—*NO_3-N concentration, in parts per million, at all sampling sites on each date—(Continued)*

Site		1969										1970					
No.	Name	9/8	9/22	10/6	10/20	11/3	12/1	12/29	1/26	2/23	3/23	4/20	5/18	6/15	7/13	8/10	9/8
	Input Streams																
1	Milner	0.06	0.07	0.25	0.15	0.56	1.15	0.55	0.64	0.15	0.20	—	—	0.05	0.11	0.11	—
2	Rock Creek (HL)	—	—	—	—	.10											
	Drainage Tunnels																
3	Clear	3.60	4.30	3.80	4.05	4.15											
4	Fish Hatchery	2.10	2.33	2.05	2.05	1.75											
5	Grossman	2.50	2.47	2.05	1.97	1.70	2.65	1.75	1.68	3.00	2.72	4.10	3.95	2.50	2.65	2.80	3.05
6	Nye	2.77	2.65	2.05	2.30	2.05											
7	Tolbert	2.80	2.60	3.60	2.73	2.95											
8	Walters	3.65	2.47	3.10	2.90	2.85	3.60	2.75	2.95	3.80	3.05	3.60	3.60	3.30	3.15	2.70	—
9	Mendini	3.90	3.60	3.10	2.90	3.30	4.35	2.92	3.56	4.35	3.42	4.10	3.90	3.90	4.05	3.85	4.30
10	Neyman	3.55	3.50	3.20	3.40	3.15											
11	Galloway	3.60	3.50	2.65	2.70	3.55											
12	Cox	3.48	3.75	2.25	2.80	2.35											
13	Herman	2.90	2.70	2.05	2.37	2.15	2.95	2.35	2.73	3.50	2.72	3.55	3.65	3.10	2.65	2.90	2.70
14	Harvey	3.30	3.80	2.50	2.70	3.00	3.90	2.65	2.73	3.80	2.44	3.80	3.80	3.85	3.70	—	3.65
15	Peavy	3.10	3.50	2.43	2.55	1.60	3.25	2.50	2.64	3.70	2.06	3.65	3.45	3.40	3.60	3.25	3.75
16	Padget	2.90	3.25	2.35	2.70	2.15											
17	Hankins	3.85	4.10	2.93	3.55	3.20	3.60	3.05	2.32	4.00	4.12	4.05	3.95	3.90	3.53	3.45	4.00
	Tile-relief Well Complexes																
18	Brown	3.20	3.05	2.93	2.90	3.10											
19	Hutchinson	3.15	2.65	2.55	2.55	3.15											
20	Kaes	3.24	3.15	3.30	3.00	3.25											
21	Molander	4.10	4.15	3.50	3.84	3.70											
22	Harvey	3.05	3.25	3.30	3.75	3.45											
	Major Surface Drains																
23	Rock Creek	.70	.85	1.55	.20	1.10	.25	.45	.16	.20	1.03	.60	.52	.70	1.10	1.40	1.45
24	Cedar Draw	.95	.67	.50	2.12	2.70	3.15	2.75	2.60	3.55	2.32	1.00	.85	.15	1.05	1.30	.95
25	Mud Creek	.80	1.10	.50	1.30	.95	2.85	2.20	2.14	3.87	1.55	1.35	.92	1.05	1.10	1.10	1.55
26	Deep Creek	1.05	.85	.35	1.10	.95	.75	1.40	3.18	3.85	3.10	.60	.40	.10	.65	.79	.85

[1] Discontinued.
[2] Dry.

TABLE 10.—*SO_4-S concentration, in parts per million, at all sampling sites on each date*

Site		1968													1969		
No.	Name	6/4	6/18	7/1	7/15	7/29	8/12	8/26	9/9	9/23	10/7	11/4	12/2	12/30	1/27	2/24	3/24	4/21
	Input Streams																	
1	Milner	12.0	11.0	15.5	15.0	11.0	14.0	15.0	14.0	14.6	15.0	13.0	15.0	24.0	23.0	14.0	15.0	10.0
2	Rock Creek (HL)	2.5	2.6	3.0	4.6	—	—	5.5	6.0	7.0	6.5	6.0	3.0	7.0	16.0	5.0	2.0	2.0
	Drainage Tunnels																	
3	Claar	80.5	76.0	77.5	78.0	65.0	38.5	75.0	69.0	66.2	82.5	69.0	100.0	69.0	68.0	85.0	50.0	38.0
4	Fish Hatchery	15.0	37.0	38.0	43.0	31.0	68.0	54.0	51.5	47.7	35.0	34.0	46.0	50.0	42.0	44.0	36.0	22.0
5	Grossman	43.0	41.0	39.5	58.5	42.5	49.0	32.0	42.0	52.0	44.0	41.0	56.0	52.0	42.0	55.0	36.0	41.0
6	Nye	55.0	54.5	57.0	57.0	50.0	56.0	74.0	70.5	55.6	64.0	52.0	73.0	64.0	51.0	63.0	46.0	52.0
7	Tolbert	72.0	77.0	68.0	76.0	60.0	67.0	75.0	71.0	71.0	60.0	67.0	84.0	68.0	66.0	71.0	58.0	65.0
8	Walters	68.5	68.5	57.0	78.0	50.0	59.0	67.0	62.5	64.5	50.0	55.0	93.0	67.0	59.0	38.0	51.0	—
9	Mendini	43.5	46.5	47.5	59.0	38.0	46.0	54.0	49.0	46.0	41.0	54.0	66.0	51.0	47.0	50.0	40.0	—
10	Neyman	47.5	49.0	56.5	54.0	45.0	55.0	43.0	44.0	56.0	46.0	60.0	64.0	57.0	46.0	28.0	46.0	47.0
11	Galloway	36.5	34.0	40.0	38.5	32.0	38.0	32.0	34.0	40.5	38.0	43.0	38.0	44.0	38.0	37.0	30.0	21.0
12	Cox	39.5	39.5	40.0	37.0	35.0	34.0	42.0	38.5	46.0	42.5	67.0	40.0	43.0	39.0	37.0	34.0	19.0
13	Herman	59.5	59.5	65.0	57.5	54.0	52.0	56.0	54.0	58.5	54.0	62.0	58.0	55.0	55.0	58.0	53.0	30.0
14	Harvey	38.0	36.0	39.0	32.0	29.0	41.0	39.0	39.0	42.3	39.0	41.0	34.0	36.0	39.0	37.0	34.0	31.0
15	Peavy	43.5	45.0	47.5	44.0	38.0	38.5	48.0	46.5	42.0	43.5	47.0	38.0	42.0	41.0	46.0	38.0	28.0
16	Padget	49.5	46.0	51.0	45.5	39.0	41.0	49.0	47.0	52.0	46.0	48.0	39.0	45.0	43.0	44.0	43.0	30.0
17	Hankins	60.5	50.5	61.5	60.0	50.0	54.0	59.0	—	60.0	61.5	65.0	60.0	53.0	56.0	64.0	26.0	30.0
	Tile-relief Well Complexes																	
18	Brown	55.0	61.0	61.0	70.0	61.0	59.0	64.0	62.0	65.2	57.5	52.0	57.0	66.0	70.0	71.0	34.0	52.0
19	Hutchinson	47.0	45.0	43.5	56.5	42.5	42.5	53.0	50.5	50.0	40.0	41.0	42.0	52.0	56.0	50.0	39.0	47.0
20	Kaes	59.0	47.5	49.5	58.0	48.0	50.5	51.5	—	61.0	42.0	58.0	54.0	65.0	61.0	62.0	—	—
21	Molander	58.0	59.0	57.0	—	56.0	53.0	67.0	59.0	70.5	60.0	—	62.0	67.0	57.0	61.0	30.0	56.0
22	Harvey	28.5	39.0	37.0	49.0	32.5	38.0	43.0	44.0	41.0	36.5	37.0	43.0	52.0	43.0	51.0	41.0	23.0
	Major Surface Drains																	
23	Rock Creek	45.0	49.5	42.5	39.0	29.5	42.5	42.0	42.5	45.0	43.0	49.0	51.0	52.0	53.0	49.0	44.0	25.0
24	Cedar Draw	30.0	31.0	34.0	32.0	26.0	35.5	41.0	39.0	38.0	39.5	47.0	71.0	55.0	58.0	48.0	49.0	26.0
25	Mud Creek	34.0	36.0	42.5	39.5	30.5	37.0	37.0	34.5	41.5	38.0	44.0	63.0	51.0	52.0	48.0	44.0	38.6
26	Deep Creek	23.5	24.5	29.0	29.5	21.0	26.0	26.0	27.0	35.3	29.0	30.0	47.0	60.0	57.0	55.0	71.0	25.0

TABLE 10.—*SO_4-S concentration, in parts per million, at all sampling sites on each date—(Continued)*

Site		1969						1970									
No.	Name	5/19	6/17	7/14	8/11	10/6	11/3	12/1	12/29	1/26	2/23	3/23	4/20	5/18	6/15	7/13	8/10	9/8
	Input Streams																	
1	Milner	8.0	14.0	11.0	12.0	7.0	13.0	14.0	13.0	12.0	11.0	8.0	7.0	—	9.0	7.0	6.0	7.0
2	Rock Creek (HL)	2.0	.0	.0	.0	—	3.0	(1)										
	Drainage Tunnels																	
3	Claar	76.0	57.0	61.0	71.0	83.0	86.0	(1)										
4	Fish Hatchery	33.0	45.0	37.0	39.0	40.0	40.0	(1)										
5	Grossman	39.0	45.0	44.0	47.0	53.0	47.0	42.0	39.0	40.0	42.0	41.0	38.0	41.0	42.0	43.0	39.0	35.0
6	Nye	52.0	47.0	53.0	46.0	58.0	57.0	(1)										
7	Tolbert	68.0	69.0	73.0	70.0	84.0	80.0	(1)										
8	Walters	—	—	48.0	47.0	72.0	68.0	54.0	42.0	56.0	57.0	61.0	64.0	65.0	63.0	67.0	48.0	—
9	Mendini	38.0	49.0	44.0	39.0	51.0	46.0	41.0	47.0	41.0	46.0	44.0	45.0	—	41.0	47.0	50.0	46.0
10	Neyman	41.0	57.0	60.0	53.0	67.0	51.0	(1)										
11	Galloway	25.0	36.0	40.0	33.0	44.0	33.0	(1)										
12	Cox	26.0	24.0	27.0	22.0	32.0	34.0	(1)										
13	Herman	35.0	38.0	31.0	34.0	19.0	56.0	59.0	58.0	53.0	55.0	48.0	63.0	58.0	60.0	66.0	56.0	52.0
14	Harvey	18.0	23.0	21.0	20.0	33.0	34.0	32.0	33.0	30.0	30.0	32.0	33.0	34.0	33.0	39.0	—	29.0
15	Peavy	24.0	28.0	32.0	30.0	46.0	47.0	41.0	39.0	39.0	40.0	42.0	43.0	—	40.0	42.0	37.0	33.0
16	Padget	25.0	49.0	51.0	44.0	38.0	49.0	(1)										
17	Hankins	35.0	63.0	60.0	62.0	—	68.0	43.0	53.0	57.0	56.0	62.0	64.0	59.0	61.0	55.0	53.0	58.0
	Tile-relief Well Complexes																	
18	Brown	59.0	35.0	—	47.0	60.0	62.0	(1)										
19	Hutchinson	43.0	39.0	44.0	41.0	42.0	43.0	(1)										
20	Kaes	51.0	43.0	—	47.0	48.0	56.0	(1)										
21	Molander	61.0	61.0	—	54.0	57.0	54.0	(1)										
22	Harvey	28.0	18.0	22.0	28.0	39.0	39.0	(1)										
	Major Surface Drains																	
23	Rock Creek	31.0	21.0	24.0	26.0	23.0	50.0	24.0	48.0	27.0	36.0	33.0	39.0	30.0	36.0	36.0	28.0	35.0
24	Cedar Draw	18.0	17.0	19.0	16.0	14.0	26.0	49.0	48.0	33.0	44.0	37.0	21.0	22.0	18.0	28.0	28.0	23.0
25	Mud Creek	20.0	40.0	36.0	32.0	19.0	41.0	46.0	44.0	41.0	43.0	36.0	29.0	—	33.0	36.0	31.0	37.0
26	Deep Creek	24.0	24.0	26.0	23.0	11.0	24.0	24.0	29.0	46.0	—	—	15.0	16.0	23.0	21.0	17.0	18.0

[1] Discontinued.

TABLE 11.—*PO_4-P concentration, in parts per million, at all sampling sites on each date*

Site		1968														
No.	Name	6/18	7/1	7/15	7/29	8/12	8/26	9/9	9/23	10/7	10/21	11/4	11/18	12/2	12/16	12/30
	Input Streams															
1	Milner	0.073	0.107	0.132	0.215	0.238	0.165	.170	0.090	0.083	0.107	0.150	0.145	0.090	0.080	0.080
2	Rock Creek (HL)	.025	.010	.100	—	—	.036	.040	.105	.044	.033	.017	.013	.006	.008	.012
	Drainage Tunnels															
3	Claar	.019	.025	.022	.028	.025	.015	.025	.028	.020	.020	.020	.013	.012	.006	.006
4	Fish Hatchery	.025	.025	.020	.020	.028	.022	.022	.037	.024	.013	.013	.010	.017	.006	.002
5	Grossman	.025	.019	.020	.025	.052	.020	.025	.037	.038	.024	.050	.013	.017	.006	.004
6	Nye	.025	.013	.031	.022	.030	.022	.024	.013	.013	.006	.006	.002	.008	.004	.002
7	Tolbert	.025	.013	.020	.080	.010	.015	.030	.037	.017	.010	.013	.010	.010	.004	.002
8	Walters	.019	.070	.013	.020	.010	.015	.025	.024	.013	.028	.028	.013	.008	.002	.006
9	Mendini	.025	.010	.025	.025	.008	.025	.022	.010	.020	.006	.006	.006	.010	.002	.002
10	Neyman	.013	.013	.034	.025	.012	.043	.025	.024	.024	.010	.013	.006	.004	.002	.002
11	Galloway	.033	.013	.025	.025	.028	.030	.025	.024	.013	.013	.013	.006	.012	.004	.004
12	Cox	.028	.013	.025	.028	.030	.025	.024	.024	.024	.017	.013	.020	.014	.014	.008
13	Herman	.035	.022	.025	.038	.028	.026	.027	.033	.024	.038	.028	.010	.012	.006	.012
14	Harvey	.035	.022	.025	.025	.028	.026	.025	.033	.017	.044	.028	.006	.012	.006	.008
15	Peavy	.019	.010	.030	.022	.005	.013	.015	.037	.013	.013	.006	.006	.004	.008	.002
16	Padget	.013	.008	.025	.025	.008	.013	.015	.024	.010	.013	.006	.003	.006	.008	.002
17	Hankins	.019	.020	.025	.030	.050	.024	—	.024	.017	.017	.010	.013	.006	.002	.002
	Tile-relief Well Complexes															
18	Brown	.025	.013	.020	.025	.025	.022	.022	.013	.013	.006	.010	.006	.006	.002	.006
19	Hutchinson	.013	.010	.020	.025	.025	.010	.018	.013	.010	.003	.010	.013	.006	.004	.006
20	Kaes	.033	.013	.060	.055	.028	.020	—	.055	.013	.020	.013	.003	.014	.004	.008
21	Molander	.019	.025	—	.025	.025	.015	.022	.010	.013	.033	—	.006	.017	.002	.002
22	Harvey	.040	.066	.030	.060	.052	.022	.045	.037	.038	.038	.020	.028	.017	.008	.004
	Major Surface Drains															
23	Rock Creek	.073	.061	.088	.115	.108	.085	.092	.095	.083	.230	.185	.075	.004	.057	.095
24	Cedar Draw	.028	.148	.200	.200	.195	.055	.160	.060	.120	.044	.044	.058	.035	.058	.052
25	Mud Creek	.055	.040	.063	.102	.095	.087	.080	.072	.044	.044	.020	.067	.047	.020	.042
26	Deep Creek	.073	.086	.068	.158	.145	.035	.097	.037	.024	.055	.060	.058	.037	.016	.010

TABLE 11.—*PO_4-P concentration, in parts per million, at all sampling sites on each date—(Continued)*

Site		1969															
No.	Name	1/13	1/27	2/10	2/24	3/24	4/7	4/21	5/5	5/19	6/3	6/17	6/30	7/14	7/28	8/11	8/25	9/8
	Input Streams																	
1	Milner	0.055	0.057	0.047	0.047	0.067	0.042	0.057	0.193	.023	0.018	0.014	0.012	0.012	0.028	0.034	0.056	0.037
2	Rock Creek (HL)	.008	.008	.004	.010	.008	.023	.014	.026	.029	.010	.014	.015	.035	—	—	—	—
	Drainage Tunnels																	
3	Claar	.010	.010	.004	.006	.006	.008	.006	.018	.018	.010	.023	.018	.018	.014	.024	.012	.009
4	Fish Hatchery	.012	.012	.002	.004	.006	.008	.008	.014	.014	.010	.023	.018	.015	.014	.024	.015	.015
5	Grossman	.002	.012	.004	.017	.006	.006	.002	.014	.010	.010	.014	.018	.018	.014	.024	.006	.012
6	Nye	.004	.010	.006	.004	.008	.004	.004	.005	.008	.005	.013	.068	.006	—	.006	.006	.003
7	Tolbert	.004	.004	.006	.004	.008	.008	.006	.008	.010	.002	.014	.012	.022	.014	.014	.003	.009
8	Walters	.004	.004	.012	.006	.006	.006	—	—	—	.010	—	—	.027	.014	.030	.009	.009
9	Mendini	.004	.006	.010	.017	.004	.004	—	.008	.010	.002	.014	.012	.012	.006	.014	.009	.003
10	Neyman	.002	.004	.004	.004	.008	.012	.004	.010	.014	.002	.014	.012	.018	.014	.006	.009	.009
11	Galloway	.002	.004	.004	.002	.008	.023	.008	.014	.014	.002	.019	.018	.018	.014	.014	.015	.012
12	Cox	.004	.012	.002	.004	.012	.023	.008	.018	.014	.005	.023	.018	.015	.014	.019	.012	.015
13	Herman	.004	.014	.004	.004	.008	.012	.008	.005	.018	.008	.019	.018	.030	.024	.024	.012	.015
14	Harvey	.006	.010	.010	.010	.012	.012	.012	.018	.018	.002	.026	.023	.027	.019	.034	.015	.019
15	Peavy	.002	.004	.004	.002	.004	.004	.004	.008	.010	.010	.014	.015	.006	.010	.010	.003	.015
16	Padget	.002	.008	.004	.002	.006	.004	.004	.008	.010	.005	.007	.012	.012	.014	.010	.003	.009
17	Hankins	.002	.002	.002	.004	.000	.004	.023	.008	.010	.005	.014	.018	.002	.014	.006	.015	.003
	Tile-relief Well Complexes																	
18	Brown	.006	.004	.008	.012	.008	.004	.004	.010	.014	.002	.023	.018	—	.010	.014	.012	.003
19	Hutchinson	.006	.012	.008	.030	.006	.004	.006	.020	.010	.002	.019	.018	.022	.006	.014	.006	.003
20	Kaes	.008	.006	.004	.172	—	—	—	.046	.020	.044	.023	.083	.050	.010	.014	.037	.037
21	Molander	.006	.008	.004	.017	.010	.006	.000	.008	.008	.000	.013	.012	—	.003	.014	.003	.006
22	Harvey	.010	.012	.014	.008	.014	.010	.090	.038	.064	—	—	.027	.022	.034	.056	.037	.023
	Major Surface Drains																	
23	Rock Creek	.052	.014	.008	.012	.167	—	.216	.269	.103	.331	.140	.039	.090	.075	.044	.037	.105
24	Cedar Draw	.057	.055	.074	.067	.017	.090	.156	.061	.150	.105	.152	.132	.132	.165	.131	.095	.090
25	Mud Creek	.090	.069	.083	.052	.027	.067	.105	.141	.113	.064	.043	.042	.065	.028	.059	.064	.055
26	Deep Creek	.012	.010	.010	.012	.000	.075	.108	.124	.100	.067	.106	.046	.058	.069	.063	.056	.029

Site		1969										1970				
No.	Name	9/22	10/6	10/20	11/3	12/1	12/29	1/26	2/23	3/23	4/20	5/18	6/15	7/13	8/10	9/8
	Input Streams															
1	Milner	0.037	0.015	0.010	0.086	0.133	0.112	.130	0.123	0.105	0.008	0.115	0.055	0.032	0.075	0.055
2	Rock Creek (HL)	—	—	—	.010											
	Drainage Tunnels															
3	Claar	.006	.013	.010	.015											
4	Fish Hatchery	.015	.015	.013	.015											
5	Grossman	.019	.018	.013	.006	.006	.009	.011	.012	.012	.012	.004	.012	.012	.024	.024
6	Nye	.009	.008	.006	.008											
7	Tolbert	.012	.018	.003	.006											
8	Walters	.012	.018	.008	.006	.004	.012	.008	.012	.004	.012	.012	.012	.016	.045	—
9	Mendini	.009	.010	.010	.003	.015	.006	.008	.008	.004	.008	.010	.012	.020	.016	.016
10	Neyman	.012	.015	.013	.006											
11	Galloway	.019	.013	.006	.008											
12	Cox	.023	.015	.015	.010											
13	Herman	.012	.008	.015	.010	.015	.012	.008	.016	.004	.012	.008	.045	.032	.016	.024
14	Harvey	.023	.021	.025	.010	.015	.012	.014	.020	.012	.024	.024	.032	.028	—	.032
15	Peavy	.012	.015	.010	.006	.004	.006	.011	.008	.004	.020	.010	.016	.012	.012	.016
16	Padget	.015	.013	.010	.003											
17	Hankins	.015	.013	.006	.010	.004	.009	.008	.008	.014	.032	.014	.012	.012	.004	.020
	Tile-relief Well Complexes															
18	Brown	.009	.015	.010	.010											
19	Hutchinson	.015	.013	.010	.006											
20	Kaes	.019	.015	.008	.008											
21	Molander	.009	.013	.008	.006											
22	Harvey	.027	.018	.013	.018											
	Major Surface Drains															
23	Rock Creek	.072	.203	.010	.172	.032	.122	.160	.115	.095	.085	.132	.100	.090	.075	.105
24	Cedar Draw	.027	.015	.021	.168	.045	.063	.080	.050	.007	.036	.080	.125	.135	.113	.090
25	Mud Creek	.088	.029	.025	.033	.068	.090	.095	.016	.021	.105	.120	.110	.075	.095	.080
26	Deep Creek	.012	.010	.003	.010	.018	.058	.027	.110	.007	.028	.015	.070	.070	.090	.044

TABLE 12.—*Electrical conductivity, in micromhos per centimeter, at all sampling sites on each date*

Site		1968														
No.	Name	6/4	6/18	7/1	7/15	7/29	8/12	8/26	9/9	9/23	10/7	10/21	11/4	11/18	12/2	12/16	12/30
	Input Streams																
1	Milner	502	544	533	447	475	535	511	468	465	493	550	523	540	495	530	567
2	Rock Creek (HL)	184	202	229	235	—	—	223	230	247	264	272	244	218	178	198	245
	Drainage Tunnels																
3	Claar	1049	1177	1247	1130	1090	1066	1146	1101	1122	1165	1102	1108	1140	1156	1167	1179
4	Fish Hatchery	865	894	957	1036	830	833	862	806	827	850	806	837	840	801	821	856
5	Grossman	904	926	1059	949	927	912	969	921	894	963	956	891	918	890	914	912
6	Nye	882	1106	1114	1036	982	990	1040	1008	984	1106	1045	946	980	890	970	1001
7	Tolbert	1133	1176	1145	1177	1141	1110	1160	1132	1127	1177	1200	1152	1122	1045	1107	1156
8	Walters	1116	1318	1200	1122	980	1150	1154	1096	1127	1124	1190	1109	1112	1090	1110	1112
9	Mendini	965	1114	1200	1114	1196	1116	1120	1091	1086	1112	1156	1082	1102	1090	1097	1090
10	Neyman	1060	1302	1122	1177	1094	1170	1129	1122	1096	1135	1123	1082	1000	1034	1112	1134
11	Galloway	994	1098	988	1216	999	954	1011	967	892	1058	1000	978	990	912	968	1012
12	Cox	843	1161	1059	1028	999	1012	1011	967	892	1011	1006	978	980	901	974	1001
13	Herman	977	1310	1185	1067	1085	1087	1086	1055	1044	1082	1100	1076	1060	1001	1035	1101
14	Harvey	994	1004	1074	1004	878	989	1000	957	936	963	956	940	960	890	960	956
15	Peavy	1004	988	1177	1020	990	990	1000	962	962	987	967	967	974	935	962	979
16	Padget	1010	1027	1145	1051	990	970	1000	967	962	1058	990	957	980	956	970	979
17	Hankins	1110	1098	1216	1114	1060	1150	1099	—	1065	1141	1128	1103	1112	1079	1080	1090
	Tile-relief Well Complexes																
18	Brown	1099	1192	1263	1106	1134	1110	1145	1111	1106	1189	1082	1044	1090	1079	1091	1112
19	Hutchinson	999	1106	1231	1098	934	1128	1118	1080	1086	1177	1071	1065	1090	1090	1106	1112
20	Kaes	966	1129	1231	1051	1039	1011	1043	—	972	1094	1020	990	1060	1023	1060	1112
21	Molander	960	1114	1161	1007	1085	1090	1065	1050	1034	1177	1020	—	1050	1045	1070	1090
22	Harvey	720	1066	980	981	929	955	1033	962	915	1023	1020	1000	1050	890	990	1012
	Major Surface Drains																
23	Rock Creek	781	823	785	957	808	871	834	839	817	844	973	892	949	945	945	979
24	Cedar Draw	754	769	847	745	742	881	650	792	776	943	967	916	934	956	1005	1023
25	Mud Creek	904	1357	1036	965	891	1000	946	952	951	1028	979	908	1010	1012	1040	1045
26	Deep Creek	731	737	659	926	690	760	679	710	662	737	700	674	704	678	704	979

Site		1969														
No.	Name	1/13	1/27	2/24	3/10	3/24	4/7	4/21	5/5	5/19	6/3	6/17	6/30	7/14	7/28	8/11	8/25
	Input Streams																
1	Milner	512	478	467	494	503	483	511	435	435	419	424	399	436	411	405	437
2	Rock Creek (HL)	185	164	172	190	162	91	100	121	118	156	180	168	238	—	—	—
	Drainage Tunnels																
3	Claar	1168	1156	1068	1152	1156	1185	1225	1196	1217	1158	1172	1114	1134	1102	1095	1102
4	Fish Hatchery	901	856	823	885	916	949	939	913	935	936	885	852	861	832	821	874
5	Grossman	867	856	834	895	905	921	904	880	935	949	935	928	920	911	902	926
6	Nye	979	934	1079	972	961	954	987	989	1000	1010	1022	969	954	—	979	1019
7	Tolbert	1123	1090	1034	1122	1117	1108	1165	1141	1130	1158	1210	1114	1127	1102	1137	—
8	Walters	1101	1090	1012	1111	1139	1135	—	—	—	1133	—	—	1102	1114	1106	1113
9	Mendini	1134	1090	990	1101	1139	1152	—	1011	1130	1146	1185	1114	1125	1114	1085	1082
10	Neyman	1134	1068	1068	1122	1139	1138	1189	1130	1152	1121	1135	1086	1112	968	1095	1071
11	Galloway	967	967	901	983	1022	1015	1118	967	1000	949	954	949	977	951	969	978
12	Cox	967	945	884	967	1061	1003	987	967	1000	998	954	942	977	945	969	967
13	Herman	1056	1034	990	1091	1184	1089	1094	1130	1087	1109	1060	1045	1082	1058	1063	1050
14	Harvey	990	934	890	978	1011	944	951	1011	989	998	985	990	978	979	968	967
15	Peavy	979	934	934	978	1016	982	975	1022	1000	1035	1072	997	1011	990	979	—
16	Padget	945	979	990	967	1016	998	1082	1033	1054	961	1110	956	1001	979	968	—
17	Hankins	1134	1056	1034	1101	1167	1078	1153	1087	1130	1060	1097	1018	1090	1069	1063	1071
	Tile-relief Well Complexes																
18	Brown	1090	1090	1090	1091	1106	1152	1165	1141	1163	1220	1222	1114	—	1125	1106	1123
19	Hutchinson	1079	1101	1068	1091	1106	1152	1165	1076	1130	1121	1197	1100	1090	1102	1064	—
20	Kaes	1067	1045	1068	dry	dry	dry	—	1044	1065	1047	1110	1004	1001	1058	1037	998
21	Molander	1056	1056	1112	1060	1083	1124	1141	1130	1120	1121	1185	1079	—	1069	1032	1092
22	Harvey	1012	1034	945	1008	966	1004	773	783	761	819	910	825	873	945	842	853
	Major Surface Drains																
23	Rock Creek	945	912	890	947	949	526	713	582	723	782	748	715	814	793	810	—
24	Cedar Draw	1045	979	934	1024	994	542	737	516	701	690	723	701	784	748	774	698
25	Mud Creek	1101	1001	1056	1132	1072	917	916	870	924	866	916	935	956	872	927	936
26	Deep Creek	990	979	1045	1029	1240	526	725	592	679	594	630	591	682	675	706	728

TABLE 12.—*Electrical conductivity, in micromhos per centimeter, at all sampling sites on each date—(Continued)*

Site		1969					1970										
No.	Name	9/8	9/22	10/6	10/20	11/3	12/1	12/29	1/26	2/23	3/23	4/20	5/18	6/15	7/13	8/10	9/8
	Input Streams																
1	Milner	451	741	513	555	540	600	610	570	557	565	520	480	415	430	420	425
2	Rock Creek (HL)	—	—	—	—	220											
	Drainage Tunnels																
3	Claar	1128	1144	1148	1150	1170											
4	Fish Hatchery	835	840	841	840	850											
5	Grossman	943	921	912	900	910	890	910	870	893	900	902	907	930	915	910	935
6	Nye	1005	1002	1005	1000	1000											
7	Tolbert	1138	1144	1138	1130	1150											
8	Walters	1117	1113	1117	1120	1150	1150	1120	1110	1114	1130	1125	1068	1115	1125	1120	——
9	Mendini	1107	1103	1086	1110	1110	1120	1120	1070	1114	1070	1100	1105	1090	1110	1105	1095
10	Neyman	1128	1113	1115	1110	1110											
11	Galloway	994	972	984	970	990											
12	Cox	979	966	994	980	990											
13	Herman	1066	1063	1046	1060	1070	1075	1070	1080	1093	1090	1080	1084	1090	1075	1055	1050
14	Harvey	974	972	964	960	980	960	960	940	951	960	965	953	970	965	960	970
15	Peavy	974	972	969	965	970	980	970	930	956	970	965	980	990	975	980	985
16	Padget	984	982	994	950	1000											
17	Hankins	1096	1083	1117	1100	1120	1110	1140	1080	1104	1080	1090	1073	1070	1080	1090	1095
	Tile-relief Well Complexes																
18	Brown	1117	1103	1096	1100	1120											
19	Hutchinson	1096	1083	1066	1160	1100											
20	Kaes	1015	1017	1015	1130	1050											
21	Molander	1066	1052	1076	1050	1070											
22	Harvey	1015	986	1015	1010	1015											
	Major Surface Drains																
23	Rock Creek	871	779	861	915	1020	980	970	765	904	850	660	510	665	760	800	815
24	Cedar Draw	820	617	666	935	1000	1020	1010	1030	1040	940	810	672	730	705	675	655
25	Mud Creek	922	941	738	930	940	1020	1050	1060	1072	980	910	865	950	920	930	935
26	Deep Creek	666	612	666	710	730	730	840	1020	1198	1090	615	570	630	615	605	615

TABLE 13.—*Temperature, in degrees Centigrade, at all sampling sites on each date*

Site		1968															
No.	Name	6/4	6/18	7/1	7/15	7/29	8/12	8/26	9/9	9/23	10/7	10/21	11/4	11/18	12/2	12/6	12/30
	Input Streams																
1	Milner	16.0	16.0	16.0	22.5	23.0	22.0	18.5	18.0	14.0	12.0	8.0	8.0	3.0	—	0.0	0.0
2	Rock Creek (HL)	19.0	15.0	14.5	19.5	—	—	15.0	22.0	16.0	7.0	6.0	8.0	6.0	2.0	3.0	.0
	Drainage Tunnels																
3	Claar	12.0	11.5	12.0	11.5	12.0	13.0	12.0	12.5	12.0	12.0	12.5	12.5	12.0	12.0	12.0	12.0
4	Fish Hatchery	13.0	13.0	13.0	13.0	13.5	14.0	13.0	13.5	13.5	13.5	13.5	13.5	14.0	13.0	13.5	13.0
5	Grossman	13.0	13.0	14.0	14.0	13.5	13.5	13.0	14.0	13.0	13.5	13.0	13.5	14.0	14.0	13.0	14.0
6	Nye	13.0	14.0	15.0	14.0	13.5	14.0	13.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
7	Tolbert	13.0	13.0	14.0	12.5	13.0	13.5	12.5	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.5
8	Walters	13.0	13.0	14.0	13.0	14.5	14.0	13.0	13.0	13.0	13.0	14.0	13.0	13.0	13.0	14.0	14.0
9	Mendini	14.0	14.0	15.5	14.0	14.0	14.0	14.0	14.0	14.0	14.0	13.5	14.0	14.0	14.0	14.0	14.0
10	Neyman	14.0	13.0	15.0	14.0	14.0	14.0	14.0	13.5	14.0	14.0	13.5	14.0	13.5	13.5	13.5	13.5
11	Galloway	13.0	13.5	14.0	14.0	13.0	12.5	13.0	14.0	13.0	13.0	14.0	13.5	13.5	13.0	14.0	12.5
12	Cox	13.0	12.5	15.0	13.5	14.0	13.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	13.0	14.0	12.5
13	Herman	12.0	12.0	13.5	12.5	13.0	12.5	13.0	12.0	13.0	12.5	12.5	12.0	12.0	12.5	12.0	12.5
14	Harvey	13.5	13.5	14.5	13.5	14.0	14.5	13.0	13.0	14.0	13.0	13.5	13.5	14.0	13.5	13.5	13.0
15	Peavy	13.5	13.0	14.5	14.0	13.5	13.5	13.0	14.0	14.0	13.0	14.0	14.0	14.0	13.5	13.5	14.0
16	Padget	14.0	13.0	15.0	13.5	14.0	14.0	14.0	14.0	14.0	14.0	14.0	13.5	14.0	13.5	13.0	13.5
17	Hankins	13.0	13.0	13.0	13.0	13.5	13.5	13.0	—	13.5	13.0	13.0	13.5	13.0	13.5	13.0	13.5
	Tile-relief Well Complexes																
18	Brown	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.5	13.0	14.0	13.0	13.0	14.0
19	Hutchinson	13.5	13.5	15.5	14.0	14.0	14.0	14.0	14.0	14.0	13.5	14.0	14.0	14.0	13.0	14.0	14.0
20	Kaes	14.5	15.0	15.0	16.0	14.5	14.0	14.0	14.5	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
21	Molander	14.0	14.0	16.0	16.0	14.0	14.0	13.5	14.0	14.0	14.0	14.0	—	14.0	14.0	14.0	14.0
22	Harvey	15.0	12.5	14.5	12.5	14.5	13.5	13.0	13.5	12.5	12.5	14.0	13.0	13.0	13.0	13.0	13.0
	Major Surface Drains																
23	Rock Creek	13.0	18.0	15.0	15.0	17.0	15.5	13.0	14.0	—	10.0	11.0	11.0	9.0	8.0	8.0	7.0
24	Cedar Draw	17.0	20.5	16.0	16.0	17.0	16.0	15.5	13.0	14.0	10.0	11.0	11.0	10.0	8.0	6.5	7.0
25	Mud Creek	15.0	15.5	17.0	17.0	17.5	17.5	17.0	14.0	11.0	12.0	13.0	11.0	9.0	8.0	7.5	8.0
26	Deep Creek	19.0	17.0	18.0	18.0	19.0	18.0	17.0	15.0	10.5	10.5	10.0	10.0	9.0	8.0	3.0	9.0

TABLE 13.—*Temperature, in degrees Centigrade, at all sampling sites on each date—(Continued)*

Site		1969																
No.	Name	1/13	1/27	2/10	2/24	3/10	3/24	4/7	4/21	5/5	5/19	6/3	6/16	6/30	7/14	7/28	8/11	8/25
	Input Streams																	
1	Milner	0.0	0.0	0.0	1.0	0.0	2.5	8.0	10.0	11.0	16.0	17.0	17.0	15.5	21.5	23.0	18.0	21.5
2	Rock Creek (HL)	6.0	4.5	4.0	2.0	0.0	2.0	4.5	7.0	8.5	12.0	20.0	18.0	12.0	—	—	—	—
	Drainage Tunnels																	
3	Claar	12.0	12.0	12.0	12.0	11.5	11.5	11.5	11.5	11.0	12.0	12.0	11.5	12.0	12.0	12.0	11.5	12.0
4	Fish Hatchery	13.5	14.0	13.5	13.5	14.0	13.5	13.0	14.0	13.0	13.0	13.0	13.0	13.0	13.5	13.0	13.0	13.0
5	Grossman	14.0	13.5	13.0	13.0	13.0	13.5	14.0	13.5	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0
6	Nye	14.0	14.0	14.0	14.0	14.0	13.5	13.5	13.5	13.0	13.5	13.5	13.5	13.5	13.5	—	13.0	14.0
7	Tolbert	13.0	13.0	13.0	13.0	13.0	12.5	12.5	13.0	13.0	13.0	13.0	13.0	12.5	12.0	13.0	12.5	12.5
8	Walters	13.0	13.0	13.0	13.0	12.5	13.0	12.5	—	—	—	13.0	—	—	14.0	13.0	13.0	13.0
9	Mendini	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	13.5	14.0	14.0	14.0	14.0	14.0	14.0
10	Neyman	13.0	14.0	13.0	13.5	13.5	13.0	13.5	14.0	13.5	14.0	13.5	13.5	14.0	13.5	13.0	13.5	13.5
11	Galloway	13.0	13.0	14.0	13.0	13.0	12.5	14.0	12.5	14.0	12.5	13.0	12.5	12.5	13.0	13.0	14.0	13.0
12	Cox	13.0	14.0	14.0	13.0	13.0	13.0	13.0	13.0	12.5	13.0	13.0	13.0	13.0	13.0	13.5	13.0	13.0
13	Herman	12.5	12.0	12.5	12.5	12.5	12.0	12.5	12.5	12.5	12.5	13.0	12.5	12.0	12.0	12.5	12.5	12.5
14	Harvey	13.5	13.5	13.5	13.5	14.0	14.0	13.0	13.5	13.5	14.0	13.0	13.0	13.0	13.5	13.0	13.5	13.5
15	Peavy	13.0	13.5	13.5	13.5	13.0	13.0	13.0	13.0	13.0	13.5	13.0	14.0	13.5	13.5	13.5	13.5	13.5
16	Padget	13.5	13.5	14.0	13.5	13.5	14.0	13.5	14.0	13.5	14.0	13.5	14.0	13.0	14.0	14.0	14.0	13.5
17	Hankins	13.0	13.5	13.0	13.0	13.0	13.0	13.5	13.5	13.5	14.0	13.0	13.0	13.5	13.0	13.0	13.5	13.5
	Tile-relief Well Complexes																	
18	Brown	13.0	13.0	13.0	13.0	14.0	13.0	13.0	14.0	13.5	13.0	12.5	13.0	13.0		13.0	13.5	13.0
19	Hutchinson	13.0	14.0	13.5	13.0	13.5	13.0	13.0	13.0	14.0	13.5	13.5	13.5	14.0	14.0	14.0	14.0	14.0
20	Kaes	13.5	14.0	14.0	15.0	dry	dry	dry	dry	14.0	14.0	14.0	14.0	15.0	14.0	14.0	14.0	14.0
21	Molander	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0		14.0	14.5	13.5
22	Harvey	13.0	13.5	13.0	13.0	12.5	12.0	12.5	14.0	14.0	13.5	14.0	14.0	14.0	14.0	14.0	14.5	14.0
	Major Surface Drains																	
23	Rock Creek	11.0	8.5	9.0	7.0	8.0	10.5	10.0	16.0	11.0	13.5	16.0	18.0	18.0	19.0	19.0	17.0	23.0
24	Cedar Draw	8.5	7.0	12.0	9.0	4.5	13.0	9.0	13.0	13.0	12.0	15.0	18.0	20.5	19.0	20.5	16.0	17.0
25	Mud Creek	9.0	8.0	7.5	9.0	8.0	13.0	6.0	19.0	11.5	12.0	17.0	20.0	13.5	15.0	23.0	22.0	19.0
26	Deep Creek	8.5	7.5	6.5	8.0	8.5	15.5	10.0	16.5	15.0	12.0	17.0	19.5	17.5	12.0	20.0	15.0	18.5

Site		1969					1970										
No.	Name	9/8	9/22	10/6	10/20	11/3	12/1	12/29	1/26	2/23	3/23	4/20	5/18	6/15	7/13	8/10	9/8
	Input Streams																
1	Milner	18.5	16.0	12.0	6.5	7.0	2.0	0.0	4.0	4.0	6.0	6.0	13.0	15.0	20.5	20.5	17.0
2	Rock Creek (HL)	—	—	—	—	6.5											
	Drainage Tunnels																
3	Claar	12.0	12.0	12.0	12.0	12.0											
4	Fish Hatchery	13.0	13.0	13.0	13.5	13.0											
5	Grossman	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0
6	Nye	14.0	14.0	13.0	14.0	14.0											
7	Tolbert	12.5	13.5	12.5	12.5	13.0											
8	Walters	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.5	13.0	13.0	13.0	13.5	—
9	Mendini	14.0	13.5	14.0	14.0	14.0	14.0	13.5	14.0	13.5	14.0	14.0	14.0	14.0	14.0	14.0	14.0
10	Neyman	13.5	13.5	13.0	13.0	13.0											
11	Galloway	13.0	14.0	13.5	13.0	13.0											
12	Cox	13.0	13.0	13.0	13.5	13.0											
13	Herman	12.0	12.5	12.5	12.5	11.5	12.0	12.5	12.0	12.5	12.0	12.5	12.5	12.0	12.5	12.0	12.0
14	Harvey	13.0	13.5	13.5	13.5	13.5	14.0	13.5	13.5	14.0	13.5	13.5	13.5	13.5	14.0	—	13.5
15	Peavy	14.0	13.5	13.5	13.5	14.0	13.5	13.5	13.5	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.5
16	Padget	13.5	13.5	14.0	14.0	13.5											
17	Hankins	13.5	13.5	12.0	13.5	13.5	13.5	13.0	13.0	13.0	13.0	13.0	13.0	13.5	13.5	13.0	13.0
	Tile-relief Well Complexes																
18	Brown	13.0	13.0	13.0	13.0	13.5											
19	Hutchinson	14.0	14.0	13.0	13.5	14.0											
20	Kaes	14.0	14.0	13.5	14.0	14.0											
21	Molander	14.0	14.0	14.0	14.0	14.0											
22	Harvey	13.5	13.0	14.0	13.5	14.0											
	Major Surface Drains																
23	Rock Creek	17.0	16.0	13.0	12.0	10.5	9.5	8.5	8.5	7.0	11.0	6.0	16.0	15.0	17.0	19.0	14.0
24	Cedar Draw	18.0	13.5	10.0	11.0	12.0	9.0	8.0	10.5	10.0	13.0	7.0	17.0	16.0	17.0	18.5	15.0
25	Mud Creek	18.0	12.5	10.0	11.0	11.5	8.5	7.0	11.0	8.0	11.0	8.0	16.5	15.0	16.0	19.0	15.0
26	Deep Creek	18.5	13.0	10.5	9.0	11.0	4.0	3.0	11.0	8.0	12.0	8.0	15.0	15.0	18.0	18.0	16.0

TABLE 14.—*pH at all sampling sites on each date*

Site		1968													1969		
No.	Name	6/4	6/18	7/1	7/15	7/29	8/12	8/26	9/9	9/23	10/7	11/4	12/2	12/30	1/27	4/21	5/19	6/17
	Input Streams																	
1	Milner	8.42	8.39	8.26	8.20	8.39	8.30	8.28	8.39	8.53	8.42	8.30	7.93	8.27	8.12	7.80	7.94	8.24
2	Rock Creek (HL)	7.88	7.89	7.90	7.91	—	—	8.12	8.23	8.42	8.16	8.31	8.30	8.07	8.18	8.15	8.11	8.11
	Drainage Tunnels																	
3	Claar	8.01	8.18	8.16	7.84	8.34	7.95	7.37	7.91	7.97	8.28	8.38	7.92	8.19	7.87	8.12	8.01	7.96
4	Fish Hatchery	8.16	8.22	8.29	7.66	8.41	7.92	8.18	8.24	8.14	8.11	8.00	8.11	7.90	7.92	8.11	8.01	8.18
5	Grossman	8.23	7.95	8.00	7.94	8.13	8.23	8.04	7.82	8.16	8.17	8.15	7.93	8.05	8.06	8.00	8.17	7.98
6	Nye	8.09	8.09	8.26	7.78	8.16	7.95	8.21	8.06	8.00	8.03	8.34	7.87	7.94	7.86	8.00	8.07	8.05
7	Tolbert	8.23	8.26	8.13	8.26	8.36	8.26	8.13	8.13	8.22	8.04	8.41	7.95	8.05	7.90	8.07	7.90	8.00
8	Walters	8.04	8.24	8.11	7.73	8.36	7.95	7.83	8.02	7.91	8.27	8.43	7.95	8.29	7.83	—	—	—
9	Mendini	8.09	8.24	8.16	7.82	8.40	8.25	7.76	8.03	8.24	7.94	8.31	8.08	8.31	7.86	—	7.98	8.34
10	Neyman	7.83	7.80	7.77	7.74	8.24	7.72	7.95	7.94	8.05	7.93	8.11	7.88	8.30	7.87	8.14	7.97	8.21
11	Galloway	8.37	7.96	8.35	8.13	8.38	7.88	8.25	8.24	8.19	8.20	8.35	8.08	8.18	8.05	8.03	7.97	8.16
12	Cox	8.14	8.25	8.26	7.84	8.38	7.93	8.23	8.25	7.97	7.93	7.15	7.82	8.11	7.87	8.25	7.98	8.00
13	Herman	8.06	7.87	8.30	7.74	8.24	8.24	8.01	7.84	8.17	8.06	8.09	7.81	8.05	8.22	8.05	8.08	8.17
14	Harvey	8.32	8.24	8.12	7.77	8.43	8.00	8.30	8.08	8.14	8.21	8.22	7.85	8.00	7.90	8.17	8.03	8.20
15	Peavey	8.07	8.07	7.93	7.88	8.41	8.36	7.82	8.04	8.08	7.98	8.18	7.92	8.05	7.84	8.09	7.96	8.25
16	Padget	8.29	8.22	8.16	7.83	8.45	8.06	8.11	8.35	8.35	8.28	8.38	7.94	8.04	8.34	8.02	8.07	8.08
17	Hankins	7.73	8.19	8.22	7.83	8.36	8.17	8.20	—	8.16	8.14	8.38	8.10	7.99	7.79	7.46	7.64	8.13
	Tile-relief Well Complexes																	
18	Brown	8.60	8.14	8.39	7.75	8.31	8.04	8.27	7.91	7.98	7.94	8.19	8.09	8.01		8.02	7.93	7.90
19	Hutchinson	8.12	7.81	8.08	7.97	8.33	7.78	7.73	8.04	7.89	7.90	7.87	7.89	7.97	8.04	8.06	8.17	8.10
20	Kaes	8.00	7.87	8.21	7.69	8.34	7.72	7.91	—	8.07	7.81	8.12	7.95	7.86	8.14	—	8.06	8.07
21	Molander	8.26	8.19	7.79	—	8.34	7.76	7.92	7.98	8.25	7.90	—	8.28	8.08	7.85	7.99	7.95	7.95
22	Harvey	7.93	7.79	8.06	7.79	8.41	7.90	8.03	8.23	8.33	7.87	8.12	8.45	8.08	7.95	7.90	8.02	8.08
	Major Surface Drains																	
23	Rock Creek	8.05	8.17	8.21	8.14	8.36	8.22	8.24	8.26	8.41	8.22	8.22	7.44	7.93	7.55	8.36	8.30	8.28
24	Cedar Draw	8.18	8.27	8.14	8.02	8.26	8.23	8.36	8.27	8.44	8.31	8.44	8.34	8.05	8.26	8.10	8.10	8.28
25	Mud Creek	8.25	8.19	8.37	8.34	8.34	8.35	8.42	8.28	8.58	8.46	8.42	8.34	8.04	8.40	8.12	8.28	8.32
26	Deep Creek	7.74	8.11	8.27	8.15	8.36	8.23	8.48	8.27	8.52	8.48	8.37	8.33	8.10	8.14	8.00	8.12	8.41

Site		1969						1970									
No.	Name	7/14		9/8	10/6	11/3	12/1	12/29	1/26	2/23	3/23	4/20	5/18	6/15	7/13	8/10	9/8
	Input Streams																
1	Milner	8.11	8.21	8.03	8.08	8.08	8.34	7.82	7.83	7.77	7.96	—	—	8.31	8.26	7.97	8.12
2	Rock Creek (HL)	8.09	8.06	—	—	8.10	(1)										
	Drainage Tunnels																
3	Claar	8.10	8.11	8.10	8.00	8.09	(1)										
4	Fish Hatchery	8.11	8.07	8.09	8.05	8.18	(1)										
5	Grossman	8.01	8.02	8.02	8.25	8.04	8.10	8.22	8.18	8.03	7.94	8.27	8.55	8.17	8.15	8.21	8.06
6	Nye	8.00	8.03	8.11	8.10	8.00	(1)										
7	Tolbert	8.10	8.12	8.32	8.13	8.17	(1)										
8	Walters	8.20	8.03	8.17	8.05	8.07	8.12	8.11	8.07	8.03	8.01	8.52	8.51	8.31	8.13	8.21	8.14
9	Mendini	8.21	8.16	8.17	8.13	8.01	8.28	8.26	8.09	8.11	8.00	8.47	—	8.34	8.27	8.32	8.20
10	Neyman	8.02	8.13	8.05	8.06	8.12	(1)										
11	Galloway	8.12	8.07	8.24	8.31	8.10	(1)										
12	Cox	7.98	8.01	8.11	8.24	8.08	(1)										
13	Herman	8.05	8.11	8.06	8.06	8.00	8.17	8.19	8.03	8.05	7.88	8.21	8.52	8.00	8.03	8.07	8.02
14	Harvey	8.15	8.21	8.08	8.30	8.02	8.22	8.06	8.06	8.03	7.95	8.49	8.54	8.42	8.26	8.31	8.18
15	Peavey	8.21	8.14	8.16	8.16	8.10	8.12	8.22	8.09	8.00	8.02	8.36	—	8.36	8.11	8.19	8.26
16	Padget	8.04	7.99	8.14	8.14	8.09	(1)										
17	Hankins	7.96	8.01	8.12	8.02	8.14	8.05	8.24	8.16	8.06	7.93	8.28	8.44	8.37	8.31	8.27	8.11
	Tile-relief Well Complexes																
18	Brown	—	7.95	8.05	8.04	8.01	(1)										
19	Hutchinson	8.15	8.08	8.04	8.11	8.03	(1)										
20	Kaes	8.08	8.11	7.90	8.06	7.96	(1)										
21	Molander	—	7.98	8.10	8.16	8.00	(1)										
22	Harvey	8.03	8.05	8.08	8.11	8.05	(1)										
	Major Surface Drains																
23	Rock Creek	8.27	8.21	8.07	7.94	7.45	7.69	7.87	7.57	7.55	7.80	7.57	7.90	8.45	8.30	8.12	7.97
24	Cedar Draw	8.18	8.27	8.39	8.05	7.43	8.28	8.34	8.36	8.35	8.21	8.33	8.57	8.28	8.16	8.35	8.14
25	Mud Creek	8.25	8.26	8.32	8.37	8.10	8.24	8.28	8.22	8.30	8.02	8.30	8.75	8.55	8.27	8.16	8.07
26	Deep Creek	8.31	8.34	8.24	8.38	8.02	8.00	8.17	8.07	8.04	8.11	8.04	8.48	8.23	8.11	8.22	8.14

[1] Discontinued.

TABLE 15.—*Monthly flow volume, in acre-feet, for all sampling sites*

Site No.	Name	1968 June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1969 Jan.	Feb.	Mar.	Apr.	May	June	July
	Input Stream														
1	Milner	203,600	238,600	192,900	156,600	84,180	35,156	7,250	62	56	4,890	124,700	224,600	196,600	227,300
2	Rock Creek (HL)	——	70	130	160	210	200	190	700	700	310	9,200	6,000	1,300	500
	Drainage Tunnels														
3	Claar	62	84	102	107	107	76	62	50	41	31	32	59	77	86
4	Fish Hatchery	——	140	690	710	660	560	397	270	230	130	100	170	290	390
5	Grossman	——	260	700	696	590	470	610	400	380	310	410	460	440	500
6	Nye	——	45	95	105	165	140	135	130	115	100	95	105	130	——
7	Tolbert	600	600	670	650	640	580	520	540	460	440	440	520	570	610
8	Walters	——	300	310	300	300	290	260	290	280	260	260	340	310	330
9	Mendini	400	500	590	600	610	540	545	510	450	460	410	470	480	570
10	Neyman	——	330	330	300	280	250	260	220	210	210	200	280	370	410
11	Galloway	——	320	340	340	330	290	290	260	250	190	200	220	290	320
12	Cox	250	440	500	450	450	330	310	290	250	220	220	260	280	——
13	Herman	340	470	590	540	580	510	460	420	340	290	260	310	380	460
14	Harvey	790	880	1,100	1,100	1,240	1,120	1,070	660	620	530	610	660	900	780
15	Peavy	210	210	190	180	210	180	200	210	250	220	200	220	230	270
16	Padget	690	840	1,100	1,160	1,170	970	920	800	740	670	590	620	790	890
17	Hankins	——	340	760	800	760	740	706	630	560	370	320	370	520	630
	Tile-relief Well Complexes														
18	Brown	——	130	175	175	165	145	140	140	120	110	105	125	125	135
19	Hutchinson	——	400	370	360	330	300	320	280	250	230	220	320	460	540
20	Kaes	220	410	400	390	390	250	160	80	40	0	0	0	100	280
21	Molander	120	180	180	180	210	180	150	150	100	110	60	100	140	150
22	Harvey	——	——	——	——	230	180	165	140	100	15	15	60	110	310
	Major Surface Drains														
23	Rock Creek	——	16,000	16,500	16,000	14,600	9,400	9,500	8,000	7,500	8,000	12,700	13,800	14,500	15,700
24	Cedar Draw	——	370	730	1,050	620	310	360	2,000	1,200	600	3,200	3,300	3,700	4,000
25	Mud Creek	——	5,600	7,100	9,200	8,700	7,700	7,300	5,800	4,200	3,400	2,000	3,900	6,700	6,500
26	Deep Creek	——	3,200	6,800	13,500	11,700	7,800	6,600	3,000	~~9,400~~ 2,600	~~11,100~~ 2,600	7,700	3,800	9,000	4,300

Site		1969				1970								
No.	Name	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
	Input Stream														
1	Milner	227,600	156,700	63,910	30,090	11,900	109	89	6,750	79,840	193,900	193,900	228,500	230,700	144,000
2	Rock Creek	0	0	0	300	270									
	Drainage Tunnels														
3	Claar	109	102	103	(1)										
4	Fish Hatchery	600	640	600	(1)										
5	Grossman	580	560	530	490	460	420	350	320	410	390	460	500	630	640
6	Nye	——	——	——	(1)										
7	Tolbert	640	640	660	(1)										
8	Walters	310	330	300	290	300	270	230	310	270	300	300	300	340	300
9	Mendini	630	680	710	590	427	480	430	430	420	460	480	500	600	710
10	Neyman	380	470	340	(1)										
11	Galloway	310	460	320	(1)										
12	Cox	——	——	——	(1)										
13	Herman	540	540	560	480	440	400	310	290	240	280	320	400	500	510
14	Harvey	940	1,440	1,260	1,200	1,240	1,100	960	860	680	680	620	760	960	1,060
15	Peavy	200	260	280	280	300	240	210	190	190	270	260	280	260	240
16	Padget	920	1,310	1,090	(1)										
17	Hankins	800	850	820	750	750	590	460	390	290	410	430	510	610	980
	Tile-relief Well Complexes														
18	Brown	150	165	155	(1)										
19	Hutchinson	580	420	360	(1)										
20	Kaes	360	300	260	(1)										
21	Molander	150	170	—	(1)										
22	Harvey	220	260	290	(1)										
	Major Surface Drains														
23	Rock Creek	15,500	15,800	13,200	9,800	10,500	6,750	8,220	6,540	7,790	18,170	13,000	13,520	14,994	17,328
24	Cedar Draw	2,600	4,900	4,500	2,300	2,500	1,410	1,130	1,360	5,130	5,220	5,620	2,840	2,700	4,480
25	Mud Creek	6,100	12,000	10,300	8,500	6,300	3,800	3,800	2,800	3,000	2,800	5,800	6,000	6,600	9,400
26	Deep Creek	4,800	8,900	12,000	11,000	9,300	1,400	1,100	1,100	6,900	5,500	8,000	4,000	4,500	14,660

[1] Discontinued.