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REPORT ON THE WATER MEASUREMENT  
PROGRAM AT THE TWIN LAKES RESERVOIR  
AND CANAL COMPANYS" COLLECTION  
SYSTEM DURING THE SUMMER OF 1964

by

M. M. Skinner

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REPORT ON THE WATER MEASUREMENT PROGRAM AT THE  
TWIN LAKES RESERVOIR AND CANAL COMPANYS'  
COLLECTION SYSTEM DURING THE SUMMER OF 1964

Submitted to

The Twin Lakes Reservoir  
and Canal Company  
Ordway, Colorado

By

M. M. Skinner

CER65MWS31

## INTRODUCTION

This report deals with the hydrologic results of a water measurement program which was in operation at the collection system of the Twin Lakes Reservoir and Canal Company during the major runoff period of 1964. The program was accomplished through the cooperative effort of the Twin Lakes Reservoir and Canal Company and the Civil Engineering Section of the Engineering Research Center, Colorado State University, Fort Collins, Colorado. The Twin Lakes Reservoir and Canal Company furnished materials, equipment, labor and water stage recorders; Colorado State University furnished technical assistance and acted primarily in an advisory capacity.

## OBJECTIVES

The objectives of the water measurement program were to determine seepage losses in selected reaches of both the Connection Canal and the Tabor Canal; to more accurately define runoff quantities and estimate peak flows originating in the various contributing watersheds; and to begin collecting accurate flow data on a long term basis for use in evaluating research projects that may be initiated in this area by Colorado State University.

## PROCEDURE

Seven gaging sites were selected:

- Gaging Site No. 1. Grizzly Creek just above Grizzly Reservoir
- Gaging Site No. 2. Lincoln Creek just above Grizzly Reservoir
- Gaging Site No. 3. Tabor Canal above Grizzly Reservoir
- Gaging Site No. 4. Connection Canal just above Grizzly Reservoir
- Gaging Site No. 5. Connection Canal at Tunnel No. 2 Outlet
- Gaging Site No. 6. Canal just below Last Man Reservoir
- Gaging Site No. 7. Tabor Canal just below Tabor Gulch

Stilling wells, staff gages, and Type F Stevens Recorders were installed. Current meter measurements were accomplished and rating curves were established for each of the selected gaging sites:

The following current meters, used in the water measurement program, were rated at the Current Meter Calibration Site, Colorado State University, Fort Collins, Colorado on April 11, 1964 by M. Parshall.

1. Gurley (Price) Meter No. 631412
2. Gurley (Price) Meter No. 38372
3. Gurley (Price) Meter No. 38367
4. Gurley (Price) Meter No. 38365
5. Gurley (Price) Meter No. 37260

Current meter measurements and discharge calculations were made by Mr. Paul Hayes\* (Civil Engineering Student, Colorado State University - graduated with B.S. Degree in June 1965)-under the supervision of the author. Mr. Hayes is certainly to be commended for his effort in this study.

## RESULTS

Several discharge measurements were made at each gaging site during the summer in order to develop a representative curve for the range of stage encountered.

Dates, mean reference gage heights and computed discharges for current meterings at each of the seven gaging sites are listed below - respective rating curves are included for each gaging station:

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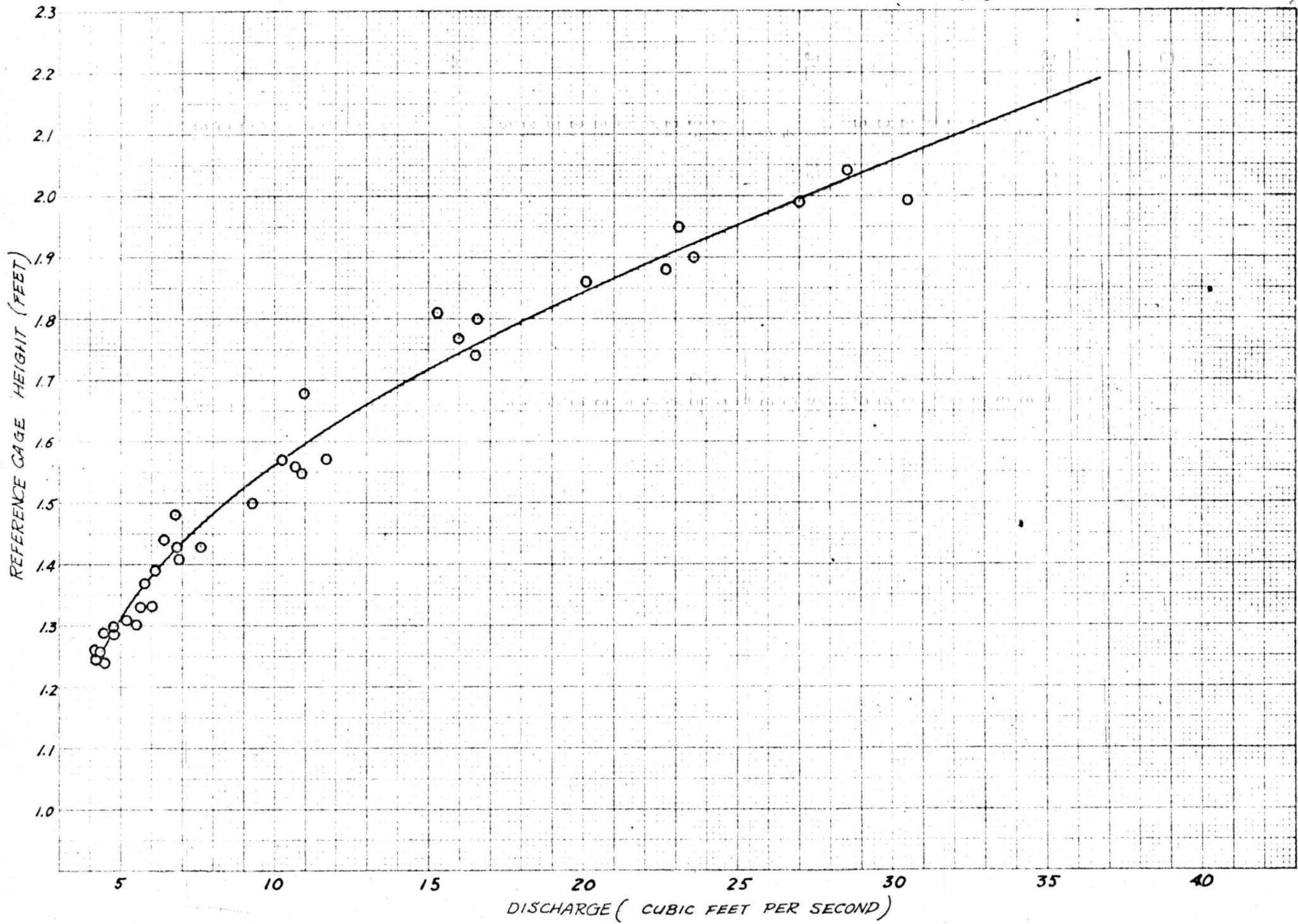
\* Employed by the Twin Lakes Reservoir and Canal Company, Ordway, Colorado during the summer of 1964.

## Gaging Site No. 1 - Grizzly Creek just above Grizzly Reservoir

Date	Mean Reference Gage Height (ft)	Computed Discharge (cfs)	
June 3, 1964	1.48	6.8	
5	1.68	11.0	
10	1.95	23.1	
16	1.98	30.5	
19	1.74	16.6	
21	1.88	22.7	
25	2.04	28.5	
29	1.80	16.6	
30	1.90	23.6	
July 1, 1964	1.99	27.0	
4	1.81	15.3	
6	1.86	20.1	
9	1.57	10.3	
11	1.77	16.0	
13	1.57	11.7	
22	1.43	6.8	
23	1.44	6.4	
24	1.56	10.7	Modified Channel
25	1.55	10.9	
27	1.50	9.3	
29	1.43	7.6	
30	1.41	6.9	
31	1.39	6.1	
August 1, 1964	1.37	5.8	
10	1.33	5.7	
12	1.30	4.8	
15	1.29	4.5	
17	1.29	4.8	
20	1.33	6.0	
21	1.31	5.2	
22	1.30	5.5	
25	1.26	4.4	
26	1.25	4.2	
27	1.26	4.2	
28	1.24	4.4	

# RATING CURVE

GAGING SITE # 1

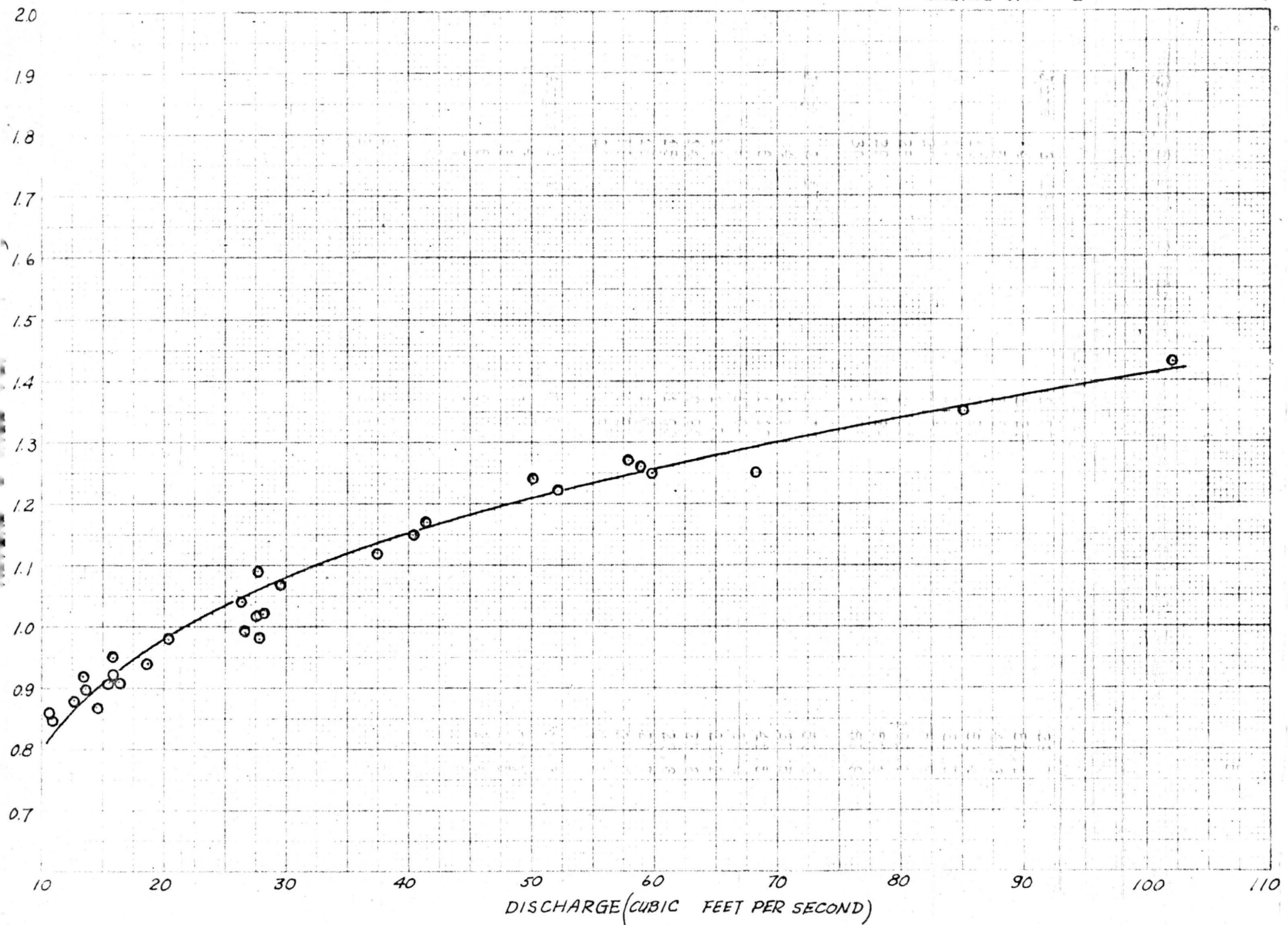


## Gaging Site No. 2 - Lincoln Creek just above Grizzly Reservoir

Date	Mean Reference Gage Height (ft)	Computed Discharge (cfs)
June 3, 1964	1.07	29.7
4	1.22	52.1
5	1.15	40.3
10	1.25	68.4
16	1.35	85.2
20	1.26	58.8
25	1.43	102.2
29	1.24	50.1
30	1.25	59.9
July 2, 1964	1.27	58.0
4	1.12	37.5
6	1.17	41.5
9	1.04	26.4
11	1.02	28.2
14	0.98	27.8
15	1.02	27.8
16	1.09	27.7
19	0.99	26.6
20	0.94	18.7
August 3, 1964	0.91	16.3
4	0.90	13.6
5	0.91	15.5
6	0.98	20.4
7	0.95	15.9
9	0.91	15.9
12	0.87	14.5
22	0.92	13.4
26	0.86	10.7
27	0.88	12.7
28	0.85	10.8

# RATING CURVE

GAGING SITE #2



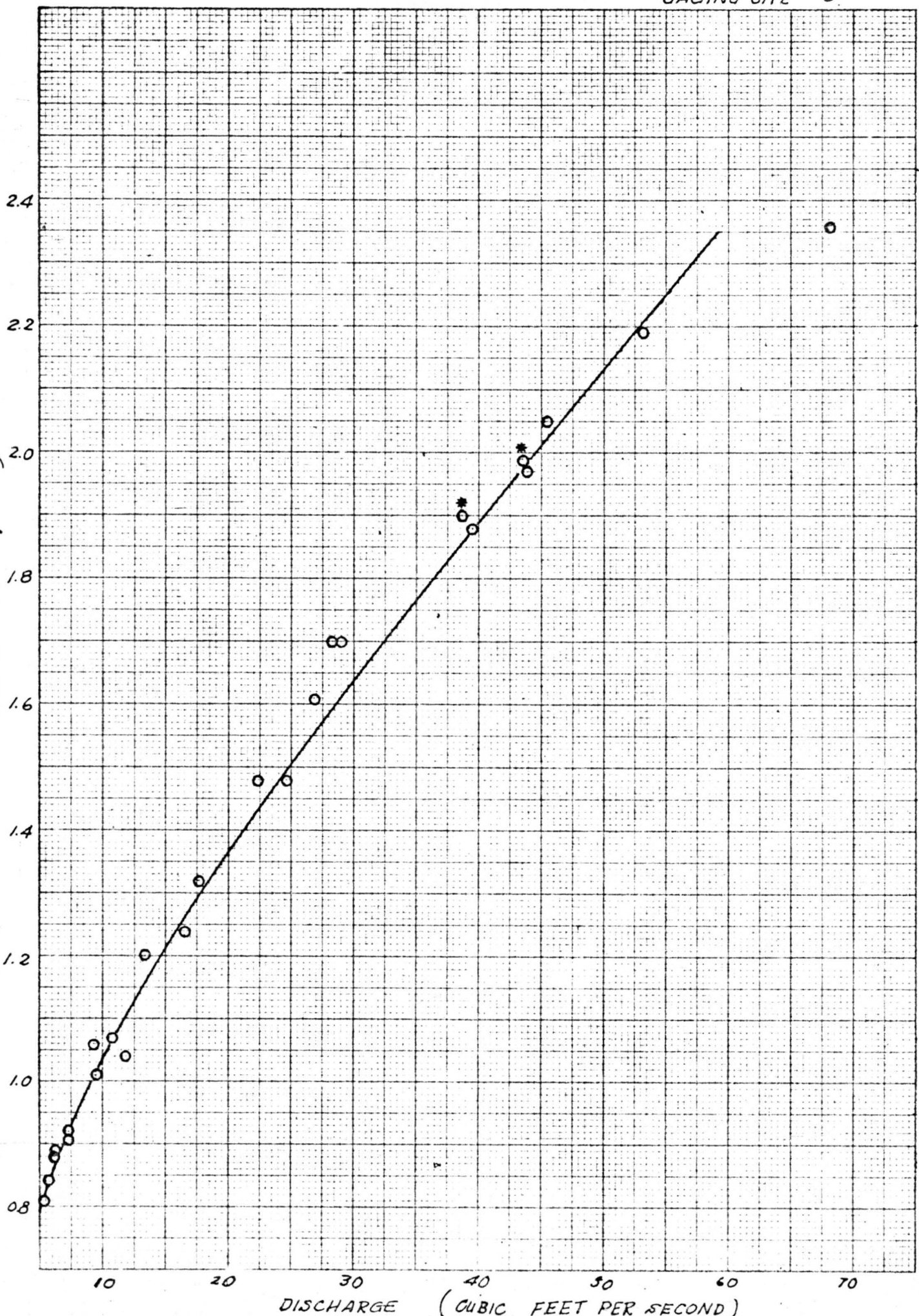


## Gaging Site No. 3. - Tabor Canal above Grizzly Reservoir

Date	Mean Reference Gage Height (ft)	Computed Discharge (cfs)
June 4, 1964	1.24	16.3
5	1.48	24.6
10	2.36	68.1
17	2.05	45.3
19	1.90	38.7*
21	2.19	53.2
23	1.70	29.0
26	1.88	39.5*
27	1.70	28.3
July 1, 1964	1.99	43.5*
3	1.97	43.9
4	1.48	22.4
6	1.61	26.8
14	1.07	10.9
15	1.20	13.3
17	1.32	17.6
19	1.06	9.3
20	1.04	11.9
August 3, 1964	1.01	9.5
4	0.88	6.2
5	0.91	7.4
6	0.88	6.4
7	0.84	5.8
9	0.81	5.5
22	0.92	7.4

\* Gage height varied more than 0.10 feet during discharge measurement.

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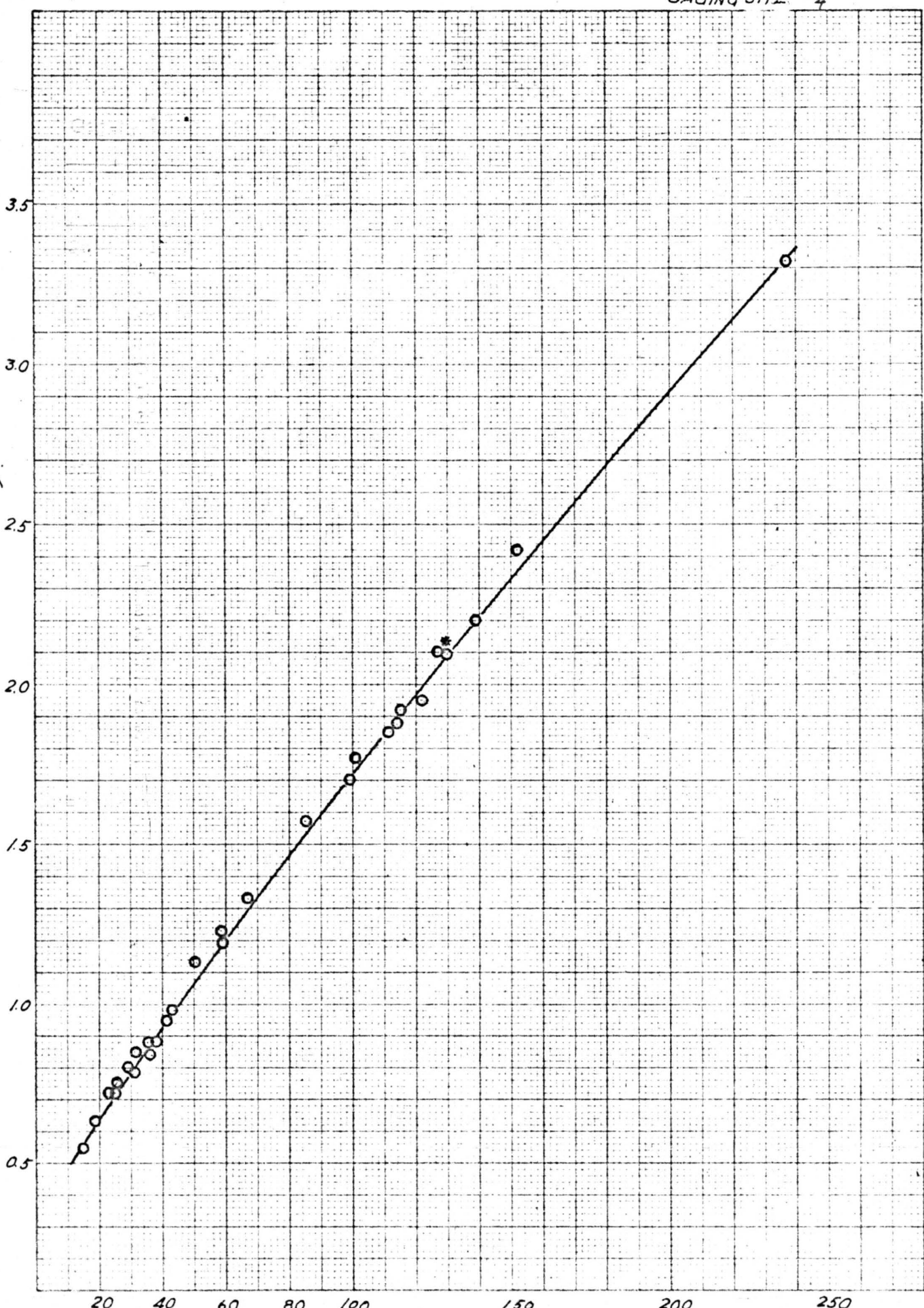
## Gaging Site No. 4 - Connection Canal just above Grizzly Reservoir

Date	Mean Reference Gage Height (ft)	Computed Discharge (cfs)
June 3, 1964	1.33	67.0
4	1.77	101.1
10	2.20	138.6
17	2.42	152.2
19	1.92	114.6
22	2.10	126.7
24	1.85	111.7*
26	3.32	237.1
July 2, 1964	1.95	121.6
3	2.10	128.3*
4	1.87	113.6
7	1.57	85.1
9	1.70	99.8
13	1.20	58.7
22	1.13	50.4
23	0.98	43.5
25	1.23	58.3
27	0.95	41.1
29	0.88	35.6
30	0.85	31.3
31	0.85	36.4
August 1, 1964	0.88	37.1
10	0.79	30.2
12	0.72	24.8
17	0.75	25.6
18	0.63	18.6
21	0.80	29.4
22	0.72	23.5
26	0.55	15.2

\* Gage height varied more than 0.10 feet during discharge measurement.

REFERENCE GAGE HEIGHT (FEET)

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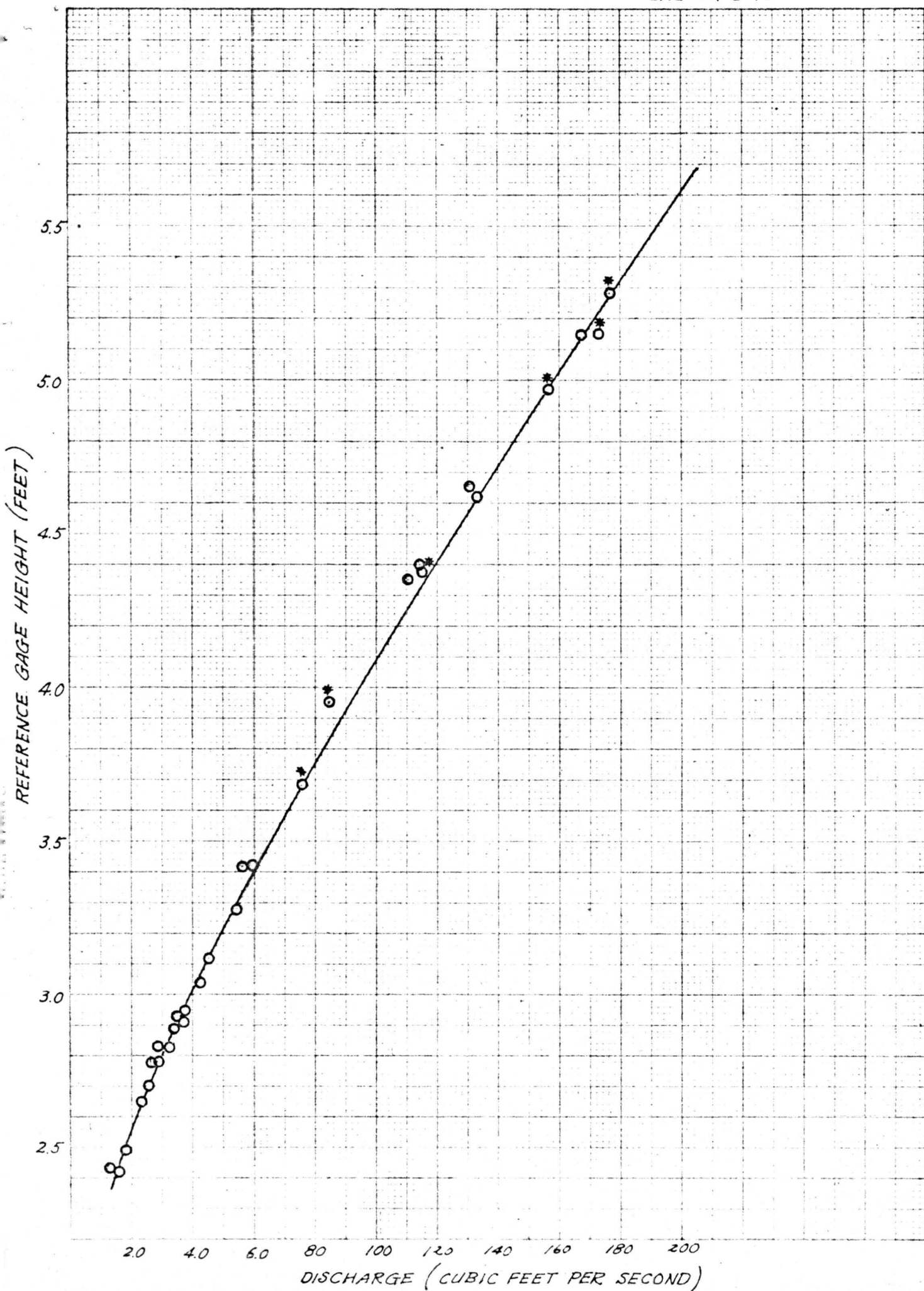


DISCHARGE (CUBIC FEET PER SECOND)

## Gaging Site No. 5 - Connection Canal at Tunnel No. 2 Outlet

Date	Mean Reference Gage Height (ft)	Computed Discharge (cfs)
June 4, 1964	3.95	84.1*
10	5.28	176.1*
17	5.15	166.5*
19	4.40	114.1
20	4.97	156.1*
25	4.65	130.3
July 2, 1964	4.35	110.4
3	4.38	114.8*
5	5.15	173.1*
7	4.62	132.9
11	3.68	75.8*
13	3.42	59.2
22	3.28	54.5
23	3.12	45.3
25	3.42	56.1
27	3.04	42.8
28	2.91	36.7
29	2.93	35.9
30	2.89	34.3
31	2.83	31.5
August 1, 1964	2.95	37.4
10	2.78	28.7
12	2.65	23.1
13	2.78	27.9
17	2.70	25.8
18	2.49	18.6
21	2.83	28.7
24	2.43	13.2
26	2.42	15.7

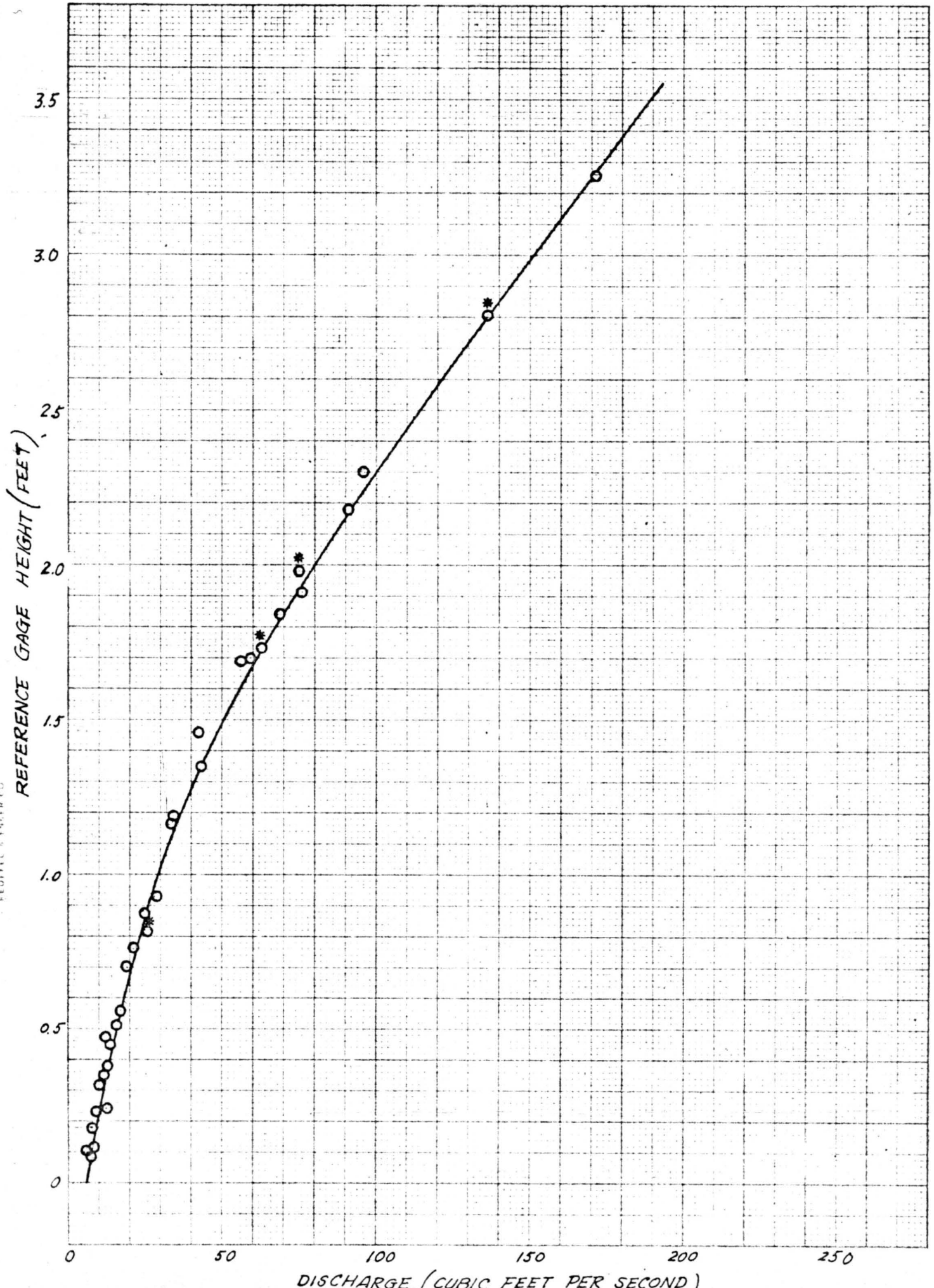
\* Gage height varied more than 0.10 feet during discharge measurement.



## Gaging Site No. 6 - Canal just below Lost Man Reservoir

Date	Mean Reference Gage Height (ft)	Computed Discharge (cfs)
June 5, 1964	1.46	42.1
12	2.30	96.3
18	2.18	90.7
20	1.84	68.8
24	2.81	136.2*
25	1.91	76.2
27	3.26	171.2
July 2, 1964	1.98	75.1*
3	1.70	59.7
5	1.69	56.1
7	1.73	63.0*
13	1.35	43.6
22	0.87	25.0
23	0.93	28.2
24	1.19	34.5
25	1.17	34.5
26	0.76	21.1
29	0.56	17.5
31	0.52	15.8
August 1, 1964	0.70	19.4
10	0.45	13.8
11	0.38	13.1
18	0.23	9.9
19	0.32	10.5
20	0.82	25.2*
21	0.47	12.7
22	0.35	11.6
25	0.18	7.7
26	0.10	6.5
28	0.24	12.7
31	0.11	8.3
Sept. 1, 1964	0.09	7.0

\* Gage height varied more than 0.10 feet during discharge measurement.



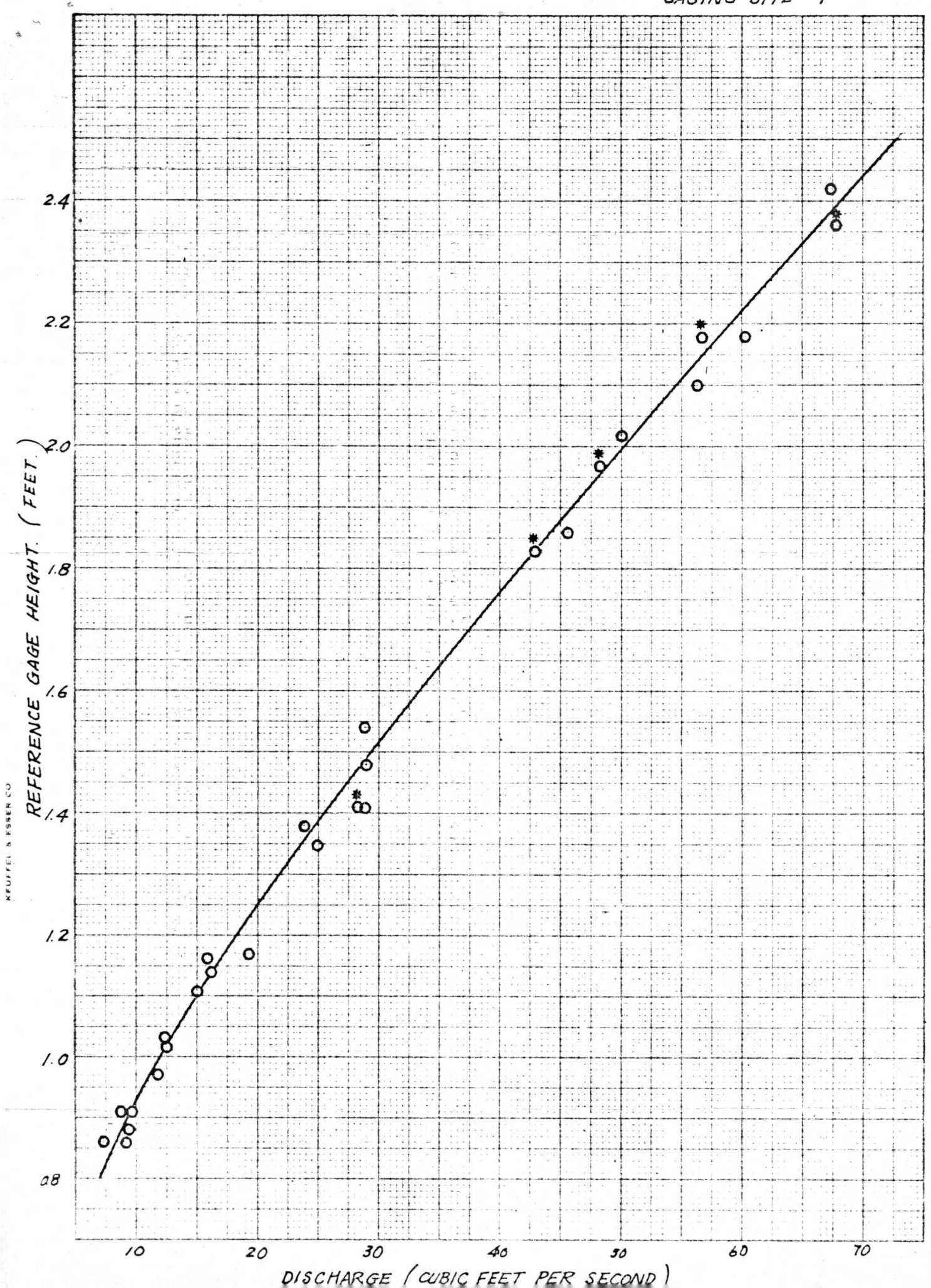
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GEOLOGICAL SURVEY  
WASHINGTON, D. C.



## Gaging Site No. 7 - Tabor Canal just below Tabor Gulch

Date	Mean Reference Gage Height (ft)	Computed Discharge (cfs)
June 4, 1964	1.38	23.8
5	1.41	28.8
11	2.02	50.0
11	2.42	67.4
16	2.18	60.3
17	2.10	56.3
19	2.18	56.6*
24	1.54	28.8
25	2.36	67.8*
27	1.97	48.4*
29	1.86	45.6
30	1.48	29.0
July 1, 1964	1.83	43.2*
4	1.35	24.9
6	1.41	28.5*
9	1.16	15.8
11	1.14	16.1
14	1.11	15.0
15	1.16	15.7
17	1.17	19.3
19	1.03	12.3
20	1.02	12.4
30	0.88	9.3
August 3, 1964	0.97	11.8
5	0.91	9.4
6	0.91	8.9
9	0.86	7.4
22	0.86	9.2

\* Gage height varied more than 0.10 feet during discharge measurement.



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DISCHARGE (CUBIC FEET PER SECOND)

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Continuous water stage records were obtained at each of the gaging sites for the following periods:

- (Gaging Site No. 1 - Grizzly Creek just above Grizzly Reservoir)  
June 2, 1964 - August 31, 1964
- (Gaging Site No. 2 - Lincoln Creek just above Grizzly Reservoir)  
June 2, 1964 - September 7, 1964
- (Gaging Site No. 3 - Tabor Canal above Grizzly Reservoir)  
June 2, 1964 - August 27, 1964
- (Gaging Site No. 4 - Connection Canal just above Grizzly Reservoir)  
June 2, 1964 - August 27, 1964
- (Gaging Site No. 5 - Connection Canal at Tunnel No. 2 Outlet)  
June 2, 1964 - August 27, 1964
- (Gaging Site No. 6 - Canal just below Lost Man Reservoir)  
August 18, 1964 - September 4, 1964 with selected stage readings  
from June 10, 1964 - June 13, 1964
- (Gaging Site No. 7 - Tabor Canal just below Tabor Gulch)  
May 17, 1964 - August 27, 1964

Utilizing the continuous water stage records and respective rating curves, the hydrograph of the flow past each station can be determined. From an analyses of the flow hydrographs, apparent seepage losses are tabulated for two selected reaches:

1. Tabor Canal between Gaging Station No. 7 and Gaging Station No. 3  
and
2. Connection Canal between Gaging Station No. 5 and Gaging Station  
No. 4.

Seepage Loss Estimates for Selected Days

Tabor Canal between Gaging Station No. 7 and Gaging Station No. 3

Date	Estimated daily flow past Gaging Station No. 7 (Acre-feet)	Estimated daily flow past Gaging Station No. 3 (Acre-feet)	Apparent daily loss (-) or gain (+) (Acre-feet)
June 2, 1964	34	31	-3
5	66	56	-10
10	114	104	-10
15	124	114	-10
20	104	94	-10
25	100	90	-10
29	76	74	-2
July 5	62	60	-2
10	40	38	-2
15	44	46	+2
20	26	20	-6
25	34	38	+4
27	20	18	-2
August 5	20	14	-6
10	14	8	-6
15	16	10	-6
20	24	24	0
24	14	10	-4
26	10	6	-4

Seepage Loss Estimates for Selected DaysConnection Canal between Gaging Station No. 5 and Gaging Station No. 4

Date	Estimated daily flow past Gaging Station No. 5 (Acre-feet)	Estimated daily flow past Gaging Station No. 4 (Acre-feet)	Apparent daily loss (-) or gain (+) (Acre-feet)
June 5, 1964	208	204	-4
10	350	352	+2
15	400	414	+14
20	292	282	-10
25	350	356	+6
29	304	292	-12
July 5	262	252	-10
10	178	164	-14
15	208	204	-4
20	104	96	-8
25	140	130	-10
30	64	66	+2
August 5	122	118	-4
10	56	60	+4
15	40	44	+4
20	86	86	0
25	30	30	0
26	30	30	0

Daily Maximum and Minimum Discharge (reference gage height in feet -  
approximate discharge in cubic feet per second, time)

Gaging Station No. 1

	Date	Maximum	Time	Minimum	Time
June	2, 1964	1.47	8 8P	1.43	7 Noon
	3	1.59	11 6P	1.41	7 8A
	4	1.73	16 8P	1.58	11 10A
	5	1.80	18 8P	1.68	14 10A
	6	1.98	26 8P	1.76	17 9A
	7				
	8				
	9	2.05	30 6P	1.86	21 10A
	10	2.12	33 6P	1.91	23 9A
	11	2.19	37 6P	1.95	25 10A
	12	2.12	33 6P	1.96	25 10A
	13	2.07	31 5P	1.94	24 10A
	14	2.12	33 6P	1.93	24 10A
	15	2.29	42 6P	1.95	26 10A
	16	2.07	31 7P	1.93	24 11A
	17	2.02	28 3P	1.91	23 10A
	18	1.93	24 12:30A	1.80	18 Noon
	19	1.92	24 7P	1.74	16 10A
	20	1.92	24 7P	1.79	18 11A
	21	1.94	24 6P	1.79	18 11A
	22	1.95	25 1P	1.82	19 9A
	23	1.88	22 12:30A	1.73	16 10A
	24	1.97	26 7P	1.68	14 10A
	25	2.09	32 6P	1.77	17 11A
	26	1.93	24 5P	1.81	19 11A
	27	2.01	28 6P	1.78	18 10A
	28	1.89	22 4P	1.78	18 11A
	29	1.82	19 6P	1.74	16 11A
	30	1.92	23 6P	1.71	15 11A
July	1	2.01	28 6P	1.71	15 10A
	2	1.93	24 6P	1.73	16 10A
	3	1.93	24 6P	1.72	15 10A
	4	1.87	21 6P	1.70	15 10A
	5	1.86	21 6P	1.67	13 10A
	6	1.89	22 6P	1.65	13 10A
	7	1.86	21 6P	1.65	13 10A
	8	1.72	15 7P	1.61	11 9A
	9	1.70	14 4P	1.56	10 10A

Gaging Station No. 1--Continued

	Date	Maximum	Time	Minimum	Time
July	10	1.73	16 6P	1.47	8 11A
	11	1.80	18 6P	1.46	8 10A
	12	1.66	13 6P	1.58	11 11A
	13	1.62	12 5P	1.52	9 11A
	14	1.67	13 9P	1.51	9 10A
	15	1.78	18 9P	1.51	9 10A
	16	1.71	15 8P	1.58	11 11A
	17	1.61	11 3P	1.57	10 10A
	18	1.57	10 6P	1.50	8 11A
	19	1.52	9 6P	1.47	8 9A
	20	1.47	8 5P	1.45	7 9A
	21	1.44	7 6P	1.42	7 11:30P
	22	1.53	9 3P	1.42	7 4A
	23	1.46	8 2P	1.43	7 8P
	24	1.63	12 9P	1.43	7 Noon
	25	1.60	11 12:30A	1.54	9 11A
	26	1.56	10 12:30A	1.52	9 11:30P
	27	1.52	9 12:30A	1.49	8 11:30P
	28	1.50	8 7P	1.46	8 1P
	29	1.45	7 7P	1.43	7 Noon
	30	1.43	7 12:30A	1.40	6 11:30P
	31	1.41	7 2P	1.38	6 11:30P
August	1	1.40	6 2A	1.36	6 11:30P
	2	1.47	8 11P	1.35	6 3P
	3	1.44	7 4P	1.39	6 2P
	4	1.46	8 6P	1.40	6 2P
	5	1.47	8 9P	1.38	6 6P
	6	1.41	7 12:30A	1.37	6 11:30P
	7	1.40	6 5P	1.37	6 1P
	8	1.37	6 12:30A	1.35	6 11:30P
	9				
	10				
	11	1.34	5 4A	1.31	5 11:30P
	12	1.39	6 8P	1.30	5 8A
	13	1.33	5 5A	1.30	5 11:30A
	14	1.30	5 2P	1.29	5 8A
	15	1.31	5 3P	1.29	5 9A
	16	1.33	5 4P	1.29	5 6A
	17	1.30	5 3P	1.28	5 9A
	18	1.29	5 3P	1.27	5 11:30P
	19	1.30	5 11:30P	1.27	5 8A
	20	1.34	5 5P	1.29	5 6A

Gaging Station No. 1--Continued

Date	Maximum	Time	Minimum	Time
August 21	1.31 - 5	Noon	1.29 - 5	11:30P
22	1.30 - 5	2P	1.29 - 5	11:30P
23	1.30 - 5	2P	1.28 - 5	11:30P
24	1.28 - 5	1P	1.27 - 5	11:30P
25	1.27 - 5	3P	1.25 - 4	11:30P
26	1.26 - 5	1P	1.24 - 4	11:30P
27	1.26 - 5	4P	1.23 - 4	11:30P
28	1.26 - 5	3P	1.21 - 4	9A
29	1.24 - 4	3P	1.20 - 4	11:30P
30	1.22 - 4	3P	1.18 - 4	11:30P
31	1.19 - 4	2P	1.17 - 4	11:30P



Daily Maximum and Minimum Discharge (reference gage height in feet - approximate discharge in cubic feet per second, time)

Gaging Station No. 2

Date	Maximum	Time	Minimum	Time
June 2, 1964	1.11 - 34	7P	1.05 - 26	8A
3				
4	1.23 - 54	7P		
5	1.28 - 65	8P	1.14 - 38	11A
6	1.53 - (135)	8P	1.19 - 46	10A
7	1.65 - (170)*	8P	1.32 - 75	11A
8				
9	1.37 - 88	7P	1.17 - 43	11A
10	1.48 - (120)*	6P	1.23 - 54	9A
11	1.52 - (132)*	6P	1.29 - 67	10A
12	1.52 - (132)*	7P	1.30 - 70	11A
13	1.43 - 105	6P	1.31 - 72	Noon
14	1.52 - (132)*	7P	1.26 - 60	11A
15	1.65 - (170)*	7P	1.30 - 70	11A
16	1.59 - (158)*	7P	1.39 - 95	11A
17	1.50 - (125)*	6P	1.35 - 83	11A
18	1.43 - 105	12:30A	1.28 - 65	11:30P
19	1.41 - 100	7P	1.21 - 50	Noon
20	1.44 - 103	7P	1.24 - 57	Noon
21	1.42 - 103	6P	1.25 - 58	11A
22	1.37 - 88	12:30A	1.17 - 43	11:30A
23	1.21 - 50	8P		
24	1.42 - 103	7P	1.11 - 34	11A
25	1.43 - 106	7P	1.18 - 45	11A
26	1.43 - 106	5P	1.26 - 60	1A
27	1.44 - 109	6P	1.24 - 56	11A
28	1.40 - 97	6P	1.25 - 58	Noon
29	1.25 - 58	7P	1.23 - 54	10A
30	1.31 - 72	8P	1.14 - 38	11A
July 1	1.35 - 82	7P	1.15 - 40	Noon
2	1.28 - 65	8P	1.14 - 38	Noon
3	1.30 - 70	8P	1.13 - 37	Noon
4	1.22 - 52	9P	1.10 - 33	1P
5	1.21 - 50	9P	1.10 - 33	Noon
6	1.21 - 50	9P	1.08 - 30	1P
7	1.16 - 41	9P	1.07 - 29	Noon

\* Estimated.

## Gaging Station No. 2--Continued

	Date	Maximum		Time	Minimum		Time
July	8, 1964	1.10	-	34	8P	1.05	- 27 11A
	9	1.10	-	34	4P	1.02	- 24 Noon
	10	1.10	-	34	8P	1.02	- 24 11A
	11	1.08	-	30	9P	1.01	- 23 1P
	12	1.11	-	34	7P	0.99	- 21 1P
	13	1.04	-	25	8P	0.99	- 21 1P
	14	1.10	-	34	10P	0.97	- 19 1P
	15	1.21	-	50	9P	1.01	- 23 Noon
	16	1.16	-	41	9P	1.06	- 28 1P
	17	1.13	-	36	12:30A	1.05	- 27 11:30P
	18	1.05	-	26	12:30A	0.99	- 21 3P
	19	1.02	-	24	12:30A	0.96	- 18 4P
	20	0.98	-	20	12:30A	0.93	- 16 4P
	21	0.96	-	18	9P	0.92	- 16 2P
	22	0.99	-	21	4P	0.92	- 16 1P
	23	0.99	-	21	11:30P	0.91	- 15 2P
	24	1.20	-	48	9P	0.95	- 18 11A
	25	1.18	-	45	12:30A	1.04	- 25 11:30P
	26	1.04	-	25	12:30A	0.97	- 19 5P
	27	0.98	-	20	12:30A	0.93	- 16 3P
	28	0.94	-	17	12:30A	0.91	- 15 3P
	29	0.92	-	16	12:30A	0.89	- 14 4P
	30	0.91	-	15	12:30A	0.88	- 13 4P
	31	0.90	-	15	12:30A	0.88	- 13 6P
August	1	0.93	-	16	5A	0.88	- 13 11:30P
	2	0.94	-	17	11:30P	0.86	- 13 2P
	3	0.95	-	18	12:30A	0.90	- 15 6P
	4	0.98	-	20	8P	0.88	- 13 2P
	5	1.01	-	23	11P	0.90	- 15 7P
	6	1.01	-	23	12:30A	0.94	- 17 11:30P
	7	0.99	-	21	4P	0.93	- 16 1P
	8	0.98	-	20	12:30A	0.93	- 16 7P
	9	0.93	-	16	12:30A	0.90	- 15 5P
	10	0.91	-	15	5A	0.88	- 13 5P
	11	0.89	-	14	5A	0.87	- 13 8P
	12	1.05	-	27	9P	0.88	- 13 1P
	13	1.02	-	24	6A	0.95	- 18 11:30P
	14	0.95	-	18	12:30A	0.90	- 15 6P
	15	0.91	-	15	4A	0.88	- 13 6P
	16	0.95	-	18	5P	0.88	- 13 1P
	17	0.93	-	16	12:30A	0.88	- 13 4P
	18	0.88	-	13	4A	0.86	- 13 5P

## Gaging Station No. 2--Continued

Date	Maximum	Time	Minimum	Time
August 19, 1964	0.94	17 11:30P	0.87	13 12:30A
20	1.00	22 3P	0.94	17 6A
21	0.96	18 12:30A	0.92	16 7P
22	0.92	16 12:30A	0.90	15 5P
23	0.90	15 2A	0.88	13 6P
24	0.88	13 4A	0.86	13 8P
25	0.86	13 4A	0.85	12 7P
26	0.86	13 8P	0.84	11 4P
27	0.88	13 Noon	0.86	13 12:30A
28	0.86	13 12:30A	0.84	11 6P
29	0.85	12 9A	0.83	11 6P
30	0.83	11 8A	0.82	11 9P
31	0.82	11 4A	0.80	10 6P
Sept. 1	0.82	11 12:30A	0.80	10 9P
2	0.81	10 8A	0.79	10 6P
3	0.80	10 8A	0.78	9 7P
4	0.78	9 9A	0.77	8 7P
5	0.78	9 9A	0.77	8 7P
6	0.78	9 9A	0.77	8 7P
7	0.78	9 9A	0.76	8 9P

Daily Maximum and Minimum Discharge (reference gage height in feet -  
approximate discharge in cubic feet per second, time)

Gaging Station No. 3

	Date	Maximum	Time	Minimum	Time
June	2, 1964	1.35	19 8P	1.16	13 11A
	3			1.20	14 Noon
	4	1.65	30 8P	1.14	13 11A
	5	1.74	34 9P	1.45	23 11A
	6	2.23	54 10P	1.58	28 11A
	7	2.52	(66)* 7P	1.94	42 11A
	8				
	9	2.26	55 8P	1.70	32 11A
	10	2.43	63 7P	1.97	43 11A
	11	2.45	63 8P	2.09	48 Noon
	12	2.45	63 8P	2.09	48 Noon
	13	2.32	58 8P	2.07	47 Noon
	14	2.38	60 9P	1.97	43 Noon
	15	2.65	(72)* 8P	2.01	45 11A
	16	2.46	64 8P	2.12	49 11A
	17	2.43	63 7P	2.04	46 11A
	18	2.10	48 3P	2.02	45 10A
	19	2.34	59 8P	1.76	35 Noon
	20	2.29	59 8P	1.83	37 Noon
	21	2.31	58 7P	1.82	37 11A
	22	2.15	51 12:30A	1.60	29 11:30P
	23	1.90	40 8P	1.50	25 11A
	24	2.35	59 7P	1.56	27 Noon
	25	2.39	61 7P	1.70	32 11A
	26	2.19	52 6P	1.72	33 11A
	27	2.30	57 6P	1.68	32 11A
	28	2.17	52 6P	1.71	33 11A
	29	1.97	43 5P	1.67	31 11A
	30	2.11	49 7P	1.60	29 Noon
July	1	2.20	53 7P	1.57	27 11A
	2	2.05	46 7P	1.55	26 Noon
	3	2.06	47 7P	1.51	25 Noon
	4	1.88	39 8P	1.47	24 1P
	5	1.85	38 7P	1.45	23 Noon

\* Estimated

Gaging Station No. 3--Continued

	Date	Maximum	Time	Minimum	Time
July	6, 1964	1.78	35 7P	1.40	21 Noon
	7	1.66	31 7P	1.34	19 Noon
	8	1.42	22 8P	1.29	17 Noon
	9	1.51	25 7P	1.22	15 Noon
	10	1.43	22 8P	1.21	15 1P
	11	1.45	23 7P	1.15	13 1P
	12	1.60	29 8P	1.11	12 2P
	13	1.31	18 7P	1.15	13 1P
	14	1.54	26 11P	1.06	10 1P
	15	1.80	36 10P	1.17	14 1P
	16	1.67	31 9P	1.25	16 2P
	17	1.62	29 4P	1.26	16 Noon
	18	1.23	15 8P	1.18	14 2P
	19	1.14	13 9P	1.06	11 4P
	20	1.12	12 12:30A	0.98	8 4P
	21	1.02	9 12:30A	0.92	7 2P
	22	1.03	10 7P	0.89	7 2P
	23	1.63	30 11:30P	0.87	6 1P
	24	1.74	34 11:00P	1.22	15 1P
	25	1.70	32 12:30A	1.19	14 11:30P
	26	1.19	14 12:30A	1.03	10 5P
	27	1.05	10 12:30A	0.95	8 5P
	28	0.98	8 12:30A	0.89	7 5P
	29				
	30				
	31				
August	1	1.05	10 5A	0.91	7 11:30P
	2	1.08	11 11:30P	0.83	6 5P
	3	1.15	13 5A	0.92	7 11:30P
	4	1.06	11 6P	0.85	7 2P
	5	1.00	9 11P	0.86	7 6P
	6	0.98	8 12:30A	0.83	6 8P
	7	0.94	7 11:30P	0.81	5 3P
	8	0.94	7 12:30A	0.80	5 8P
	9	0.82	5 6A	0.73	3 8P
	10	0.76	4 9A	0.67	3 6P
	11	0.79	5 6P	0.72	3 12:30A
	12	1.23	15 10P	0.72	3 3P
	13	1.11	12 12:30A	0.85	7 11:30P
	14	0.89	7 5P	0.79	5 4P

Gaging Station No. 3--Continued

Date	Maximum	Time	Minimum	Time
August 15, 1964	0.87	6 11A	0.74	3 8P
16	1.01	9 5P	0.75	4 12:30A
17	1.00	9 12:30A	0.77	4 9P
18	0.78	4 6A	0.71	3 8P
19	0.94	7 11:30A	0.71	3 12:30A
20	1.27	17 5P	0.95	7 12:30A
21	1.10	12 12:30A	0.93	7 11:30A
22	0.92	7 12:30A	0.85	7 9P
23	0.86	6 6A	0.78	5 9P
24	0.81	5 8A	0.73	3 9P
25	0.77	4 10A	0.72	3 9P
26	0.74	3 10A	0.54	1 5P
27	0.63	3 1P	Water let out	

Daily Maximum and Minimum Discharge (reference gage height in feet -  
approximate discharge in cubic feet per second, time)

Gaging Station No. 4

	Date	Maximum	Time	Minimum	Time
June	2, 1964	1.45 - 78	7P	1.25 - 63	9A
	3	1.35 - 70	7P	1.30 - 67	7A
	4	1.90 - 114	10P	1.20 - 59	9P
	5	1.92 - 116	10P	1.60 - 59	1P
	6	2.80 - 190	10P	1.68 - 96	11P
	7	3.78 - 277	8P	2.20 - 139	11A
	8	3.75 - 274	12:30A	2.00 - 122	11:30P
	9	2.68 - 179	8P	1.75 - 102	11A
	10	3.40 - 243	10P	2.10 - 130	10A
	11	3.50 - 252	9P	2.35 - 151	Noon
	12	3.45 - 247	9P	2.45 - 159	1P
	13	3.45 - 247	9P	2.43 - 157	1P
	14	3.35 - 239	9P	2.42 - 157	1P
	15	3.63 - 263	8P	2.40 - 155	Noon
	16	3.60 - 260	12:30A	2.67 - 178	1P
	17	3.58 - 259	8P	2.35 - 151	11A
	18	3.40 - 243	12:30A	2.20 - 139	11:30 P
	19	2.72 - 182	8P	1.85 - 110	Noon
	20	2.47 - 161	8P	1.98 - 120	Noon
	21	3.22 - 227	8P	1.93 - 116	Noon
	22	2.95 - 203	12:30A		
	23	2.17 - 136	9P		
	24	3.28 - 232	8P	1.70 - 98	11A
	25	3.47 - 249	9P	2.03 - 124	11A
	26	3.37 - 240	7P	2.12 - 132	Noon
	27	3.50 - 251	7P	2.05 - 126	11A
	28	2.97 - 204	8P	2.12 - 132	11A
	29	2.58 - 170	6P	1.95 - 118	11A
	30	2.95 - 203	8P	1.80 - 106	11A
July	1	3.22 - 227	6P	1.82 - 108	11A
	2	2.87 - 196	6P	1.80 - 106	Noon
	3	3.00 - 207	7P	1.72 - 100	Noon
	4	2.35 - 151	8P	1.68 - 96	Noon
	5	2.57 - 169	8P	1.63 - 92	Noon
	6	2.51 - 165	7P	1.58 - 88	Noon
	7	2.10 - 130	8P	1.50 - 82	1P
	8	1.73 - 100	9P	1.43 - 76	1P
	9	1.73 - 100	9P	1.33 - 69	1P

Gaging Station No. 4--Continued

	Date	Maximum	Time	Minimum	Time
July	10, 1964	1.63	92 9P	1.34	70 1P
	11	1.67	96 8P	1.25	63 1P
	12	1.50	82 9P	1.20	59 2P
	13	1.38	73 8P	1.13	54 1P
	14	2.62	174 11:30P	1.10	52 3P
	15	1.98	120 11:30P	1.42	76 4P
	16	2.07	128 9P	1.32	68 2P
	17	1.50	82 6P	1.33	69 1P
	18	1.33	69 9P	1.15	55 2P
	19	1.18	58 10P	1.05	48 2P
	20	1.17	57 12:30A	0.97	42 3P
	21	1.43	77 10P	0.92	39 2P
	22	1.37	72 12:30A	1.02	46 3P
	23	2.06	127 11:30P	0.95	40 2P
	24	2.00	122 12:30A	1.30	67 1P
	25	1.55	86 12:30A	1.15	55 6P
	26	1.15	55 12:30A	1.00	44 4P
	27	1.02	46 12:30A	0.92	39 5P
	28	0.93	40 12:30A	0.85	34 5P
	29	0.92	39 12:30A	0.83	33 5P
	30	0.87	35 12:30A	0.80	30 5P
	31	1.05	48 7P	0.80	30 1P
August	1	0.98	43 6A	0.83	33 11:30P
	2	1.25	63 11:30P	0.79	30 2A
	3	1.38	73 3A	1.05	48 4P
	4	1.66	95 9P	0.95	40 2P
	5	1.45	78 12:30A	1.09	51 5P
	6	1.22	60 12:30A	0.98	43 10P
	7	1.00	44 7P	0.94	40 4P
	8	0.96	42 12:30A	0.87	36 6P
	9	0.87	35 10A	0.80	30 8P
	10	0.82	32 10A	0.74	26 8P
	11	0.77	29 9A	0.72	25 10P
	12	0.93	39 11P	0.72	25 4P
	13	0.90	38 8A	0.75	27 11P
	14	0.74	26 2A	0.67	22 10P
	15	0.68	22 11A	0.63	19 10P
	16	0.83	33 11:30P	0.63	19 2A
	17	0.85	34 1A	0.65	20 11:30P
	18	0.65	20 Noon	0.57	15 8P
	19	0.85	34 11:30P	0.58	16 12:30A



Gage Station No. 4--Continued

Date	Maximum	Time	Minimum	Time
August 20, 1964	1.10	52 6P	0.90	38 10A
21	0.92	39 12:30A	0.72	25 11:30P
22	0.73	26 2A	0.65	20 10P
23	0.65	20 10A	0.60	17 10P
24	0.62	19 10A	0.55	14 10P
25	0.58	16 2P	0.54	13 10P
26	0.55	14 Noon	0.54	13 7P
27	0.68	23 3P		
28	1.00	50 10P	0.80	30 10P
29	1.00	50 12:30A	0.80	30 10P
30	1.00	50 10P	0.80	30 10P
31	1.00	50 10P	0.80	30 10P

August 1	0.80	40 8A	0.80	30 11:30P
2	1.00	50 11:30P	0.80	30 11:30P
3	1.00	50 8A	0.80	30 11:30P
4	1.00	50 8A	0.80	30 11:30P
5	1.00	50 11:30P	0.80	30 11:30P
6	1.00	50 11:30P	0.80	30 11:30P
7	1.00	50 11:30P	0.80	30 11:30P
8	1.00	50 11:30P	0.80	30 11:30P
9	1.00	50 11:30P	0.80	30 11:30P
10	1.00	50 11:30P	0.80	30 11:30P
11	1.00	50 11:30P	0.80	30 11:30P
12	1.00	50 11:30P	0.80	30 11:30P
13	1.00	50 11:30P	0.80	30 11:30P
14	1.00	50 11:30P	0.80	30 11:30P
15	1.00	50 11:30P	0.80	30 11:30P
16	1.00	50 11:30P	0.80	30 11:30P
17	1.00	50 11:30P	0.80	30 11:30P
18	1.00	50 11:30P	0.80	30 11:30P
19	1.00	50 11:30P	0.80	30 11:30P
20	1.00	50 11:30P	0.80	30 11:30P
21	1.00	50 11:30P	0.80	30 11:30P
22	1.00	50 11:30P	0.80	30 11:30P
23	1.00	50 11:30P	0.80	30 11:30P
24	1.00	50 11:30P	0.80	30 11:30P
25	1.00	50 11:30P	0.80	30 11:30P
26	1.00	50 11:30P	0.80	30 11:30P
27	1.00	50 11:30P	0.80	30 11:30P
28	1.00	50 11:30P	0.80	30 11:30P
29	1.00	50 11:30P	0.80	30 11:30P
30	1.00	50 11:30P	0.80	30 11:30P
31	1.00	50 11:30P	0.80	30 11:30P

Daily Maximum and Minimum Discharge (reference gage height in feet -  
approximate discharge in cubic feet per second, time)

Gaging Station No. 5

	Date	Maximum	Time	Minimum	Time
June	2, 1964	3.75 - 80	7P	3.82 - 84	9A
	3			3.48 - 64	9A
	4	4.37 - 118	9P	3.42 - 61	9A
	5	4.40 - 120	9P	3.93 - 90	11A
	6	5.37 - 184	9P	4.04 - 97	10A
	7			4.62 - 133	10A
	8				
	9	5.35 - 182	9P	4.20 - 107	11A
	10	6.10 - 234	10P	4.60 - 133	10A
	11	6.20 - 240	10P	4.90 - 152	Noon
	12	6.13 - 236	10P	5.00 - 159	Noon
	13	6.16 - 238	10P	4.98 - 157	Noon
	14	6.04 - 230	10P	4.98 - 157	1P
	15	6.37 - 250	7P	4.95 - 155	Noon
	16	5.90 - 220	9P	5.20 - 172	Noon
	17	6.32 - 247	8P	4.90 - 152	11A
	18	6.05 - 230	12:30A	4.70 - 139	11:30P
	19	5.40 - 186	7P	4.35 - 116	11A
	20	5.12 - 166	8P	4.48 - 125	11A
	21	5.95 - 223	8P	4.40 - 120	11A
	22	5.50 - 192	12:30A	4.20 - 107	11:30P
	23	4.75 - 142	9P	3.90 - 89	7A
	24	5.97 - 225	8P	4.12 - 102	11A
	25	6.16 - 233	9P	4.50 - 126	Noon
	26	6.06 - 232	7P	4.60 - 133	Noon
	27	6.20 - 240	8P	4.52 - 127	Noon
	28	5.65 - 203	8P	4.60 - 133	Noon
	29	5.25 - 175	7P	4.45 - 123	Noon
	30	5.63 - 201	8P	4.30 - 114	10A
July	1	5.95 - 228	8P	4.30 - 114	11A
	2	5.55 - 196	8P	4.27 - 111	Noon
	3	5.69 - 205	8P	4.17 - 105	Noon
	4	5.00 - 159	9P	4.13 - 103	Noon
	5	5.22 - 173	8P	4.05 - 98	11A
	6	5.17 - 170	7P	4.00 - 95	11A
	7	4.67 - 137	8P	3.90 - 89	Noon
	8	4.25 - 110	8P	3.80 - 83	Noon
	9	4.25 - 110	9P	3.67 - 75	Noon

Gaging Station No. 5--Continued

	Date	Maximum	Time	Minimum	Time
July	10, 1964	4.12	102 9P	3.67	75 1P
	11	4.17	105 9P	3.55	68 1P
	12	3.95	92 8P	3.50	66 2P
	13	3.77	81 9P	3.38	59 2P
	14	5.32	180 9P	3.31	55 Noon
	15	4.55	129 10P	3.78	82 1P
	16	4.65	136 9P	3.65	74 1P
	17	4.35	117 12:30A	3.67	75 Noon
	18	3.75	80 12:30A	3.40	60 2P
	19	3.60	71 12:30A	3.25	52 3P
	20	3.42	61 12:30A	3.10	44 3P
	21	3.83	84 10P	3.00	39 2P
	22	3.75	80 12:30A	3.16	47 3P
	23	4.61	133 11P	3.02	40 3P
	24	4.50	126 12:30A	3.58	70 1P
	25	3.95	92 12:30A	3.38	59 6P
	26	3.40	60 12:30A	3.13	45 5P
	27	3.18	48 12:30A	2.98	38 4P
	28	3.02	40 12:30A	2.90	35 3P
	29	3.00	39 2A	2.87	33 3P
	30	2.95	37 12:30A	2.81	30 5P
	31	3.22	50 6P	2.80	30 1P
August	1	3.12	45 5A	2.87	33 11:30P
	2	3.65	74 11:30P	2.78	29 2P
	3	3.73	79 1A	3.20	50 11:30P
	4	4.12	102 8P	3.00	39 2P
	5	3.80	83 12:30A	3.23	51 5P
	6	3.47	64 12:30A	3.05	42 10P
	7	3.09	43 7P	3.00	39 4P
	8	3.03	41 12:30A	2.90	35 6P
	9	2.90	34 4A	2.78	29 6P
	10	2.82	31 8A	2.68	25 8P
	11	2.73	27 8A	2.65	23 8P
	12	3.00	39 10P	2.64	23 5P
	13	2.96	37 7A	2.70	26 10P
	14	2.70	26 2A	2.58	21 8P
	15	2.60	22 10A	2.50	18 10P
	16	2.86	33 11:30P	2.50	18 12:30A
	17	2.87	33 1A	2.55	20 11P
	18	2.55	20 2A	2.45	16 8P
	19	2.87	33 11:30P	2.45	16 2A
	20	3.31	55 6P	2.95	37 10A
	21	3.00	39 12:30A	2.68	25 11P

Gaging Station No. 5--Continued

Date	Maximum	Time	Minimum	Time
August 22, 1964	2.68	- 25 12:30A	2.55	- 20 10P
23	2.57	- 20 10A	2.48	- 17 10P
24	2.50	- 18 11A	2.40	- 15 10P
25	2.42	- 15 10A	2.40	- 15 8P
26	2.45	- 16 11:30P	2.40	- 15 5A
27	2.65	- 24 2P	2.45	- 16 2A

Gaging Station No. 6

## Selected staff gage readings\*

Date	Staff gage reading	Discharge (from rating curve)
June 10, 1964		
Noon	1.92	75
3:30P	2.40	107
4:40P	2.72	130
5:20P	2.90	143
6:00P	3.00	151
6:50P	3.10	158
7:20P	3.12	160
8:30P	3.12	160
9:50P	3.06	156

Water coming from Lost Man; Reservoir spillway at approximately 280

June 11, 1964		
7:45A	2.32	101
11:30A	2.16	90
1:30P	2.20	93
2:30P	2.36	104
3:50P	2.64	124
4:35P	2.82	Lost Man Spill- way Overflowing 137
5:35P	3.04	154
6:45-7:15P	3.18	164
8:50P	3.14	161

June 12, 1964		
8:10A	2.34	102
4:00P	2.70	128
5:30P	2.96	149
6:50P	3.10	158
8:30P	3.10	158
9:55P	3.02	152

June 13, 1964		
10:20A	2.22	94
12:45P	2.22	94
2:30P	2.42	108
4:00P	2.68	127
5:50P	2.96	148
7:45P	3.10	158
10:00P	2.98	140

Gaging Station No. 6--Continued

Date	Staff gage reading	Discharge (from rating curve)
June 14, 1964		
10:00A	2.22	94
1:00P	2.20	93
2:30P	2.40	107
3:30P	2.56	118
6:00P	2.92	145
7:30P	2.98	149
8:30P	2.98	149
10:00P	2.92	145
June 15, 1964		
8:00A	2.28	99
1:30P	2.40	107
3:00P	2.92	145
4:00P	3.22	167
5:15P	3.50	189
6:00P	3.90	220
7:00P	3.90	220
8:00P	3.90	220
9:00P	3.70	204
10:00P	3.34	176
11:00P	3.30	173
June 16, 1964		
8:00A	2.54	116
10:00A	2.42	108
11:30A	2.38	105
1:00P	2.38	105
2:30P	2.46	111
4:00P	2.58	120
6:00P	2.74	131
7:30P	2.84	139
9:00P	2.84	139
June 17, 1964		
9:30A	2.16	90
2:00P	2.48	113
4:00P	3.04	154
5:00P	3.26	171
6:30P	3.34	177
8:30P	3.18	164
9:30P	3.14	161

Gaging Station No. 6--Continued

Date	Staff gage reading	Discharge (from rating curve)
June 18, 1964		
7:30A	2.34	103
11:00P	2.22	94
3:00P	2.22	94

Daily Maximum and Minimum Discharge (reference gage height in feet -  
approximate discharge in cubic feet per second, time)

Gaging Station No. 6

Date	Maximum	Time	Minimum	Time
August 18, 1964	1.50	51 10P	1.41	46 3A
19	1.60	56 11:30P	1.32	42 6P
20	1.93	76 6P	1.32	42 12:30A
21	1.72	62 12:30A	1.40	46 11:30P
22	1.40	46 12:30A	1.28	40 11P
23	1.28	40 8A	1.18	36 11P
24	1.20	37 11A	1.10	33 11P
25	1.20	37 2P	1.11	33 11P
26	1.11	33 11A	1.05	31 5P
27	1.44	48 8P	1.10	33 1A
28	1.36	44 12:30A	1.20	37 Noon
29	1.33	42 4P	1.22	37 2A
30	1.24	38 12:30A	1.13	34 11:30P
31	1.13	34 12:30A	1.06	31 8P
Sept. 1	1.08	32 8A	1.06	31 11:30P
2	1.06	31 12:30A	0.96	28 10P
3	0.97	28 Noon	0.93	27 10P
4	0.94	27 11A	0.92	27 6P



Daily Maximum and Minimum Discharge (reference gage height in feet - approximate discharge in cubic feet per second, time)

Gaging Station No. 7

	Date	Maximum	Time	Minimum	Time
May	17, 1964	2.93	93 2P	2.39	68 11A
	18	3.00	96 5P	2.56	75 6P
	19	2.98	95 3P	2.24	61 11P
	20	2.81	87 1A	2.10	55 1P
	21	2.30	63 12:30A	1.31	22 11A
	22	1.62	34 4P	1.17	17 11A
	23	1.48	29 8P	1.00	12 11A
	24	1.49	29 4P	1.06	14 10A
	25	2.16	57 8P	1.11	15 9A
	26	2.33	65 6P	1.95	48 10A
	27	2.16	57 12:30A	1.74	39 11:30P
	28	1.95	48 6P	1.55	31 11A
	29	1.83	43 12:30A	1.37	24 11:30P
	30	1.47	28 7P	1.24	19 Noon
31	1.30	22 8P	1.22	19 2P	
June	1, 1964	1.28	21 12:30A	1.12	16 2P
	2	1.28	21 8P	1.08	14 11A
	3	1.24	20 12:30A	1.11	15 Noon
	4	1.64	35 8P	1.06	14 9A
	5	1.74	39 8P	1.38	25 10A
	6	2.30	64 8P	1.52	30 9A
	7	2.62	78 6P	1.93	47 10A
	9	2.26	62 8P	1.48	28 11A
	10	2.43	69 7P	1.89	45 11A
	11	2.49	72 7P	2.00	50 11A
	12	2.48	72 8P	2.00	50 Noon
	13	2.31	64 8P	1.98	49 Noon
	14	2.40	68 8P	1.86	44 11A
	15	2.78	86 7P	1.90	46 10A
	16	2.58	76 12:30A	2.00	50 11A
	17	2.42	69 8P	1.93	47 10A
	18	2.30	64 12:30A	1.82	43 11:30P
	19	2.44	70 7P	1.59	33 11A
	20	2.39	68 7P	1.68	37 11A
	21	2.41	68 6P	1.68	37 11A
	22	2.18	58 12:30A	1.42	26 11:30P
	23	1.95	48 7P	1.29	22 6A
	24	2.50	73 6P	1.40	25 11A
	25	2.52	73 6P	1.55	31 10A

Gaging Station No. 7--Continued

	Date	Maximum		Time	Minimum		Time
June	26, 1964	2.17	-	58	6P	1.54	- 31 11A
	27	2.27	-	62	5P	1.49	- 29 11A
	28	2.10	-	54	5P	1.54	- 31 10A
	29	1.90	-	46	4P	1.51	- 30 10A
	30	2.13	-	56	7P	1.45	- 27 1P
July	1	2.17	-	58	6P	1.41	- 26 11A
	2	2.01	-	51	7P	1.39	- 25 11A
	3	2.03	-	52	7P	1.35	- 23 11A
	4	1.83	-	43	7P	1.33	- 23 11A
	5	1.82	-	42	7P	1.31	- 22 11A
	6	1.73	-	38	7P	1.27	- 21 11A
	7	1.58	-	33	7P	1.24	- 19 11A
	8	1.42	-	26	12:30A	1.18	- 18 11A
	9	1.44	-	27	8P	1.14	- 16 Noon
	10	1.36	-	24	9P	1.14	- 16 1P
	11	1.37	-	24	8P	1.11	- 15 1P
	12	1.55	-	31	9P	1.08	- 14 4P
	13	1.36	-	24	12:30A	1.10	- 15 1P
	14	1.47	-	28	10P	1.05	- 13 1P
	15	1.76	-	40	10P	1.12	- 15 Noon
	16	1.60	-	33	8P	1.15	- 17 1P
	17	1.55	-	31	4P	1.15	- 17 Noon
	18	1.28	-	21	12:30A	1.10	- 15 1P
	19	1.14	-	16	12:30A	1.02	- 12 2P
	20	1.08	-	14	12:30A	0.97	- 11 3P
	21	1.01	-	12	12:30A	0.95	- 10 3P
	22	1.03	-	13	5P	0.92	- 10 1P
	23	1.53	-	31	11P	0.90	- 9 3P
	24	1.58	-	33	10P	1.10	- 15 Noon
	25	1.46	-	28	12:30A	1.06	- 14 11:30P
	26	1.06	-	13	12:30A	0.97	- 11 4P
	27	0.97	-	11	12:30A	0.92	- 10 4P
	28	0.94	-	10	12:30A	0.90	- 9 4P
	29	0.93	-	10	12:30A	0.88	- 9 5P
	30	0.90	-	9	2A	0.87	- 8 2P
	31	1.20	-	18	3P	0.87	- 8 Noon
August	1	0.99	-	12	4A	0.90	- 9 11:30P
	2	1.02	-	12	11:30P	0.87	- 8 3P
	3	1.05	-	13	3A	0.93	- 10 10P
	4	1.00	-	12	5P	0.89	- 9 2P
	5	0.96	-	11	10P	0.89	- 9 5P
	6	0.95	-	11	12:30A	0.87	- 8 7P

Gaging Station No. 7--Continued

Date	Maximum	Time	Minimum	Time
August 7, 1964	0.93	10 11P	0.86	8 1P
8	0.93	10 12:30A	0.86	8 6P
9	0.86	8 2A	0.82	7 6P
10	0.83	7 6A	0.80	7 6P
11	0.85	8 5P	0.80	7 1P
12	1.17	17 8P	0.85	8 2A
13	1.06	13 5A	0.91	9 6P
14	0.91	9 1A	0.81	7 10A
15	1.02	12 9A	0.78	7 8A
16	0.97	11 3P	0.82	7 1A
17				
18				
19	0.96	11 11:30P	0.80	7 2A
20	1.12	16 4P	0.96	11 10A
21	0.98	12 12:30A	0.87	8 8P
22	0.87	8 2A	0.81	7 6P
23	0.82	7 10A	0.79	7 7P
24	0.80	7 6A	0.77	7 7P
25	0.78	7 10A	0.74	6 6P
26	0.75	6 9A	0.63	4 4P
27	0.69	5 Noon		

Gaging Station No. 1

Maximum recorded discharge during 1964 summer period -- 42 cubic feet per second -- June 15, 1964.

Gaging Station No. 2

Maximum recorded discharge during 1964 summer period -- 170 cubic feet per second -- June 7 and 15, 1964.

Gaging Station No. 3

Maximum recorded discharge during 1964 summer period -- 72 cubic feet per second -- June 15, 1964.

Gaging Station No. 4

Maximum recorded discharge during 1964 summer period -- 277 cubic feet per second -- June 7, 1964.

Gaging Station No. 5

Maximum recorded discharge during 1964 summer period - 250 cubic feet per second -- June 15, 1964.

Gaging Station No. 6

Maximum recorded discharge during 1964 summer period -- 220 cubic feet per second -- June 15, 1964.

Gaging Station No. 7

Maximum recorded discharge during 1964 summer period -- 96 cubic feet per second -- May 18, 1964.

Estimated Flows in Tabor, New York and Brooklyn Gulches

Tabor Gulch:

June 16, 1964	4:30P	30 cubic feet per second
July 10, 1964	Noon	5 cubic feet per second

New York Gulch:

June 17, 1964	4:30P	60 cubic feet per second
July 10, 1964	5:00P	16 cubic feet per second

Brooklyn Gulch:

June 17, 1964	5:30P	25 cubic feet per second
July 10, 1964	5:30P	7 cubic feet per second

Recommendations

1. The present water measurement network (7 gaging sites) should be maintained and flow data collected annually during the entire runoff period. The water measurement network should be in operation as early as possible in the spring (by May 1st if practical).

2. Additional gaging stations should be established during the summer of 1965.

A. A gaging station on Tabor Gulch immediately upstream from the Tabor Canal; preferably a metal flume - either trapezoidal or Parshall flume.

B. A gaging station on Brooklyn Gulch immediately upstream from the Tabor Canal - preferably a metal flume - either trapezoidal or Parshall flume.

C. A gaging station on New York Gulch immediately upstream from the Tabor Canal - preferably a metal flume - either trapezoidal or Parshall flume.

D. A gaging station on the Tabor Canal between New York and Brooklyn Gulches

E. A gaging station on the Tabor Canal between Brooklyn and Tabor Gulches.

3. The channel, approach conditions and downstream control should be improved at gaging station No. 1. A metal flume - either trapezoidal or Parshall should be installed late in the summer of 1965.

4. The channel and stilling well installation should be improved at gaging station No. 7.

5. Since considerable seepage losses apparently are occurring between stations No. 7 and No. 3 on the Tabor Canal, some program of seepage reduction should be initiated along this section.