STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES

GOODWIN J. KNIGHT, Governor
HARVEY O. BANKS, Director of Water Resources
M. J. SHELTON, Deputy Director of Water Resources

REPORT ON

WATERMASTER SERVICE

IN

BUTTE CREEK WATERMASTER SERVICE AREA

BUTTE COUNTY, CALIFORNIA

1956 SEASON

Sacramento, California
March, 1957

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SUBMISSION TO, AND ADOPTION BY
DEPARTMENT OF WATER RESOURCES
STATE OF CALIFORNIA

I, William R. Gianelli, Chief, Water Rights Section, Department of Water Resources of the State of California, approve this "Report on Watermaster Service in Butte Creek Watermaster Service Area, Butte County, California, 1956 Season".

/s/ William R. Gianelli
Chief, Water Rights Section

I, Harvey O. Banks, Director of the Department of Water Resources, of the State of California, approve and adopt this "Report on Watermaster Service in Butte Creek Watermaster Service Area, Butte County, California, 1956 Season", as a report of the Department of Water Resources

WITNESS my hand and the seal of the Department of Water Resources of the State of California, this _____ day of March, 1957.

State of California
Department of Water Resources

/s/ Harvey O. Banks

HARVEY O. BANKS
Director

(SEAL)

ORGANIZATION

STATE DEPARTMENT OF WATER RESOURCES

Harvey O. Banks . . . . . Director of Water Resources

M. J. Shelton . . . . . Deputy Director of Water Resources

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INTRODUCTION

This is the fourteenth annual report on watermaster service in Butte Creek Watermaster Service Area and covers the period of water distribution in 1956 beginning May 15 and terminating September 30.

The service area was created by order of the Department of Public Works January 7, 1943, to include the water rights defined in Paragraphs 71 through 86 and in Schedule 7 of the decree entered November 6, 1942, in the proceeding entitled "In the Matter of the Determination of the Water Rights of the Various Claimants to the Waters of That Portion of Butte Creek and its Tributaries Situate Above the Western Canal Dam Near Nelson, in Butte County, California," Superior Court, Butte County, No. 18917. Watermaster service has been provided to administer the decree provisions during each irrigation season since the service area was created and reports prepared to show the results accomplished.

The report is presented under four headings as follows: Introduction, Water Supply, Distribution of Water, and Changes in Ownership of Lands and Water Rights. Appendix A presents records of precipitation and water supply in the area. Plates 1, 2 and 3, respectively, present hydrographs of Butte Creek above and below Parrott Ditch at its intake, and the combined flows of the Colony ditches at their intakes.

WATER SUPPLY

Water supply on Butte Creek was above normal throughout the 1957 season. Water was available to supply all demands until the latter part of June. During the remainder of the irrigation

season, the water right owners experienced a greater water supply than is normally available at that time of the year.

Precipitation

Monthly precipitation data at Chico, California, as compiled from records of the United States Weather Bureau are presented in Table A-1. The total precipitation for the 1955-1956 season was 138.4 per cent of the mean for this station.

Stream Flow

Water supply and diversion records were collected at eight stations equipped with water stage recorders in 1956. The location of the stations and their purposes are as follows:

Butte Creek Near Chico. This station, located below the confluence of Butte Creek and Little Butte Creek, is used by the United States Geological Survey to measure the combined foreign water and natural flow of Butte Creek 2½ miles above Parrott Ditch. This station was not used for distribution purposes during the 1956 irrigation season as experience has shown that the flow at this station has differed in past years with the measured flow above Parrott Ditch. It is believed that a more accurate measurement of the water available for distribution at this point is obtained by adding flows measured by a 10-foot Parshall Flume at the head of Parrott Ditch, and the flow measured at an accurately rated station in Butte Creek below Parrott Ditch. This computed daily mean discharge is presented in Table A-3.

The discharge at this station is comprised of natural flow of Butte Creek and foreign water brought into the Butte Creek through the Hendricks Canal. Flow in the Hendricks Canal, designated

as Toadtown Canal on the records of the Pacific Gas and Electric Company, is released into Butte Creek as needed to supply power demands of the company. Daily mean discharge at this station is presented in Table A-2.

Hendricks Canal. This station is located on Hendricks Canal a short distance above its confluence with Butte Creek Canal above De Sabla Reservoir. Discharge at the station consists of foreign water brought into the Butte Creek watershed from West Branch Feather River and is measured by an 8-foot Parshall Flume equipped with an automatic water stage recorder. This recorder station and Parshall Flume, which is referred to as Gage No. BW12 on the records of the Pacific Gas and Electric Company, is maintained and operated by that company, and a copy of the recorded flow is forwarded to the Department of Water Resources each month.

Each Monday during the summer season, the watermaster obtains the daily discharges for the past seven days from the Pacific Gas and Electric Company. Daily mean discharge at this station is presented in Table A-4.

Parrott Ditch. This station is located near the head of Parrott Ditch above the Crouch and Hale Ditches. The record of discharge, as measured by a 10-foot Parshall Flume, shows the amount of water diverted for use by the Parrott, M. & T. Inc., Dayton Mutual Water Company, and Taylor (Hale) interests. Daily mean discharge at this station is presented in Table A-5.

Butte Creek Below Parrott Ditch. This station is located above the Skyway Highway Bridge, about 1½ miles below the Parrott Ditch. The record of discharge represents the water supply available for natural flow rights on Butte Creek below Parrott Ditch. Daily mean discharge at this station is presented in Table A-6.

Upper Colony Ditch. This station is located near the head of Upper Colony Ditch. The record of discharge represents a portion of the water diverted by Durham Mutual Water Company. Daily mean discharge at this station is presented in Table A-7.

Butte Creek Above Lower Colony Dam. This station was installed on July 9 and was used to measure the flow diverted by Durham Mutual Water Company through the Lower Colony Ditch. Daily mean discharge at this station is presented in Table A-8.

Lower Colony Ditch. Lower Colony Ditch is used by the Durham Mutual Water Company to divert that part of its allotment not taken through the Upper Colony Ditch. Prior to August 1, the date when the Lower Colony Dam was installed, the discharge of the Lower Colony Ditch was computed by subtracting the flow of Butte Creek at Durham Bridge, the next downstream station, from the flow obtained at this station. After August 1 the discharge of Lower Colony Ditch was computed by subtracting the leakage through the Lower Colony Dam from the flow at this station. The amount of leakage was determined from intermittent measurements and observations. Daily mean discharge at this station is presented in Table A-9.

Butte Creek at Durham Bridge. This station is located on Butte Creek above the Oroville-Durham highway bridge. The record of discharge represents the water supply available for diversion at the Brandt Pump, Adams Ditch, Gorrill Ditch, and E. E. White Pumps. Daily mean discharge at this station is presented in Table A-11.

Hamlin Slough at Adams Ranch. This station is located on Hamlin Slough at Adams Ranch. The record of discharge shows the water supply of Hamlin Slough available for diversion by the Gorrill

Ranch. The flow consists of Gorrill's allotment, when this is diverted at Adams Dam, plus natural flow of Hamlin Slough, plus some well water from the Adams Ranch, and return flow from Durham Mutual Water Company lands and Adams Ranch. Daily mean discharge at this station is presented in Table A-12.

DISTRIBUTION OF WATER

Distribution during the 1956 season was based upon the computed mean discharge of Butte Creek above Parrott Dam as presented in Table A-3. The discharge at this station was computed by adding the discharge of Parrott Ditch as presented in Table A-5 and the discharge of Butte Creek below Parrott Ditch as presented in Table A-6. The flow at this station is comprised of the natural flow of Butte Creek, together with foreign water diverted from West Branch of Feather River through Hendricks Canal.

Hydrographs of the flow of Butte Creek near Chico (United States Geological Survey Station), the computed flow of Butte Creek above Parrott Ditch, and the flow below Parrott Ditch are shown on Plate 1.

Distribution Procedure

It is the practice to pass the natural flow allotments of Butte Creek water right owners below Parrott Ditch through Parrott Dam without fluctuation. The foreign waters in the creek is all diverted into Parrott Ditch along with the natural flow allotment for the ditch. The foreign water is regulated through De Sabla Reservoir to supply peak power demands, resulting in wide variations in

discharge during periods when the natural flow of Butte Creek is low. The Parrott Dam and diversion structure, however, maintains the natural flow of the creek below the dam without fluctuation.

The weekly average natural flow of Butte Creek is determined by averaging the computed daily discharge of Butte Creek above Parrott Ditch over a seven day period and deducting the weekly average discharge of Hendricks Canal less 5 per cent. Table A-13 presents this computation. The seven day period used extended from Monday through Sunday as the reservoir was generally recharged over the weekends.

Inflow to Butte Creek from Hendricks Canal varied from a daily mean of 99 second-feet on June 11 to 52 second-feet on September 15. The weekly average natural flow of Butte Creek reached a low of 78 second-feet during the week of September 9. Water was available throughout the summer to satisfy the irrigation demands of all lands to which first priority rights attach.

According to the "Memorandum and Order" entered May 10, 1949, by the Superior Court, Butte County, full natural flow allotments of the users below Parrott Dam must be provided at all times without undue fluctuation caused by intermittent presence of foreign water. It is believed that regulations, as accomplished under conditions existing during this season, resulted in a minimum measurable fluctuation below Parrott Dam.

A summary of the distribution of water and the regulation of diversions in order to insure compliance with the "Memorandum and Order" entered May 10, 1949, follows.

Parrott Ditch

Regulation of the Parrott Ditch was accomplished by a combination weir and orifice structure in the head of the Parrott Ditch, and a combination orifice and fish ladder in the north abutment of Parrott Dam. A removable and adjustable submerged gate was installed in the fish ladder orifice for simpler and more accurate regulation of natural flow passing Parrott Ditch. These structures were adjusted so that during periods of daily high flow (i.e. when foreign water was present) the water level above Parrott Dam rose and allowed the major portion of the foreign water to flow freely over the wiir into the Ditch. During the time that water was discharging over the weir, the increased water level above Parrott Dam also forced slightly more water through the orifice in Parrott Dam which had been adjusted for low flow conditions. However, during the 1956 season very little foreign water was lost by the Parrott Ditch in this manner. The natural flow allotment for the Parrott Ditch was discharged through an orifice installed in the structure at the head of Parrott Ditch, assuring them their natural flow allotment when the foreign water flows were at a minimum.

Hydrographs on Plates 1 and 2 show daily mean flow of Butte Creek near Chico (United States Geological Survey station), Butte Creek above Parrott Ditch, Butte Creek below Parrott Ditch, and Parrott Ditch at its head.

U. S. Plant Garden Pump

Plant Garden pump, rated at 1,000 gallons per minute, operated approximately six hours a day, five days a week throughout

the 1956 season. This represents a use considerably less than their allotment (2.0 cubic feet per second, first priority) and consequently, no regulation of this diversion was required.

Compton-Entler Ditch, Marybill Ditch and the Upper Colony Ditch

These three diversions are located on Butte Creek immediately above Upper Colony Dam.

The Marybill Ditch diverted its full allotment throughout the season. The Compton-Entler Ditch did not receive its full allotment at the first of the season due to obstructions in the inlet pipe. These obstructions were removed and the Compton-Entler Ditch received their full allotments thereafter. The inlet works to the Compton-Entler Ditch, Marybill Ditch and the Lower Colony Dam proper are very much in need of repairs due to flood damages suffered last winter.

Durham Mutual Water Company elected to divert approximately 70 per cent of the water to which it was entitled through the Upper Colony Ditch, and regulation was made throughout the season on this basis. The remainder of the allotment together with allotments of users below Upper Colony Dam were passed over and through the dam.

Van Nuys, Wakefield, and Baxter Pumps

These pumps, located between Upper and Lower Colony Ditches, have an aggregate total first priority allotment of 4.61 second-feet. The pumps operated largely during the daylight hours with the exception of the Baxter Pump, which was operated at night at the suggestion of the watermaster. This helped reduce the fluc-

tuation of the creek due to operation of the pumps. The average amounts diverted by the pumps was about equal to their continuous flow allotment. No regulation was required in 1956.

Hansen Pump

This pump has only a surplus allotment with no first priority right. Water was diverted until July 16, at which time the pump was shut off by the watermaster.

Lower Colony Ditch

Lower Colony Dam was maintained at a height of about 3½ feet, thus providing considerable storage in the rather flat channel behind the dam. The Lower Colony Ditch headgates were regulated to provide Durham Mutual Water Company with the remainder of the water to which it was entitled throughout the irrigation season.

Daily mean flow reaching the pool above Lower Colony Dam was never less than the amount required to fill the Durham Mutual Water Company's share of the available supply.

The amount diverted by Durham Mutual Water Company is presented in Table A-10. A comparison of total allotments to amount diverted is shown graphically on Plate 3.

CHANGES IN OWNERSHIP OF LANDS AND WATER RIGHTS

The changes in ownership of lands and water rights which will be included in "Statement for Butte Creek Watermaster Service Area, County of Butte, California", for 1957 are listed in the following tabulation:

Tract no.	Name of water right owner appearing in 1956 statement	Name of water right owner to appear in 1957 statement	Amount of water in second-feet
13-21	Atkins, Barbara Ina and Atkins, Lester J.	Michal, Leon and Michal, June	0.54
13-26	Beach, O. S.	Brazell, Franklin C.	3.11
13-17	Jacks, Elmo and Jacks, Louise	Henneman, Jake	0.31
13-26	Beach, O. S.	Michal, Leon and Michal, June	1.89

APPENDIX A

RECORDS OF WATER SUPPLY AND USE OF WATER

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TABLE A-1

PRECIPITATION AT CHICO, BUTTE COUNTY, CALIFORNIA
1955-1956

In Inches

Month	Mean precipitation	Precipitation 1955-1956
October	1.30	1.02
November	2.65	3.08
December	4.50	11.71
January	4.70	10.23
February	4.15	3.23
March	3.21	.00
April	1.78	1.77
May	0.99	1.87
June	0.41	.31
July	0.02	.00
August	0.03	.00
September	0.48	.30
TOTALS	24.22	33.52

TABLE A-2

DAILY MEAN DISCHARGE OF BUTTE CREEK NEAR CHICO

May 1 to September 30, 1956

In Cubic Feet per Second

Day	May	June	July	August	September
1	622	489	228	159	147
2	634	472	228	159	147
3	700	462	224	159	147
4	1,100	456	220	159	139
5	962	425	215	159	143
6	970	405	215	159	135
7	837	395	211	155	135
8	750	390	211	147	151
9	718	390	207	155	135
10	694	380	207	155	143
11	809	370	203	155	151
12	706	360	203	143	135
13	646	345	199	151	143
14	616	345	199	151	147
15	604	370	195	151	147
16	610	340	191	139	139
17	616	320	187	155	139
18	616	300	187	147	147
19	616	315	167	155	175
20	622	310	173	147	191
21	634	290	171	147	167
22	640	272	167	147	171
23	646	263	159	155	159
24	622	258	163	147	159
25	599	258	167	143	167
26	588	249	167	147	159
27	572	245	167	147	167
28	528	249	155	147	163
29	528	236	159	147	167
30	533	232	159	135	159
31	528	-	159	147	-
Mean	673	340	189	151	152
Runoff, in acre-feet	41,390	20,210	11,630	9,260	9,070

Total for period - 91,560 acre-feet.

TABLE A-3

COMPUTED DAILY MEAN DISCHARGE OF BUTTE CREEK
ABOVE PARROTT DITCH

June 26 to September 16, 1956

In Cubic Feet per Second

Day	June	July	August	September
1		226	155	14
2		224	156	142
3		221	156	140
4		218	155	132
5		215	155	138
6		214	157	137
7		212	157	125
8		205	148	137
9	N	208	154	137
10	O	206	154	137
11	R	199	154	151
12	E	199	142	131
13	C	199	151	141
14	O	199	151	144
15	R	195	151	145
	D			
16		183	145	137
17		183	152	
18		183	143	
19		160	152	
20		178	142	
21		163	147	N
22		161	146	O
23		155	151	
24		169	144	R
25		178	143	E
				C
26	245	161	142	O
27	242	166	144	R
28	239	154	145	D
29	237	157	141	
30	228	155	141	
31	-	158	140	
Mean	238[a]	187	149	138[b]
Runoff, in acre-feet	2,362	11,510	9,152	4,393

Total for period - 27,420 acre-feet.

[a] 15-day period

[b] 16-day period

TABLE A-4

DAILY MEAN DISCHARGE OF HENDRICKS CANAL

May 1 to September 30, 1956

In Cubic Feet per Second

Day	May	June	July	August	September
1	86	94	84	61	61
2	86	94	72	61	61
3	84	95	84	62	60
4	81	97	88	61	59
5	79	98	83	60	58
6	86	97	83	60	59
7	86	97	86	59	61
8	87	95	85	59	62
9	90	94	87	59	62
10	90	96	85	61	62
11	73	99	81	60	61
12	80	94	84	59	61
13	84	94	84	59	61
14	86	94	74	59	58
15	88	92	72	60	52
16	88	88	76	60	59
17	88	86	73	61	61
18	87	87	70	61	80
19	88	86	67	61	81
20	89	83	65	61	74
21	89	85	61	61	81
22	88	83	59	61	79
23	88	76	59	61	78
24	88	79	63	59	78
25	91	78	63	59	78
26	92	80	63	59	78
27	88	81	60	59	79
28	77	84	58	59	83
29	91	84	60	62	83
30	93	82	63	62	83
31	93	-	61	61	-
Mean	87	89	73	60	68
Runoff, in acre-feet	5,324	5,300	4,489	3,703	4,072

Total for period - 22,890 acre-feet

TABLE A-5

DAILY MEAN DISCHARGE OF PARROTT DITCH

June 26 to September 16, 1956

In Cubic Feet per Second

Day	June	July	August	September
1		105	83	74
2		105	84	74
3		102	84	71
4	N	99	83	63
5	O	99	83	71
6	R	98	84	70
7	E	115	84	53
8	C	102	76	54
9	O	102	81	68
10	R	99	81	70
	D			
11		94	80	82
12		96	71	63
13		98	80	72
14		98	80	75
15		94	80	76
16		88	75	68
17		88	81	
18		88	73	
19		66	80	N
20		83	70	O
21		65	75	
22		69	74	
23		63	79	
24		80	72	R
25		101	71	E
				C
26	120	92	70	O
27	121	82	73	R
28	116	74	75	D
29	110	80	72	
30	107	83	73	
31	-	86	72	
Mean	115[a]	90	77	69[b]
Runoff, in acre-feet	1,139	5,542	4,758	2,190

a 5-day period
b 16-day period

Total for period 13,630 acre-feet

TABLE A-6

DAILY MEAN DISCHARGE OF BUTTE CREEK
BELOW PARROTT DITCH

June 26 to September 16, 1956

In Cubic Feet per Second

Day	June	July	August	September
1		121	72	68
2		119	73	68
3		119	72	69
4		119	73	68
5		116	72	68
6		116	73	67
7		97	73	72
8		103	72	83
9	N	107	73	69
10	O	107	73	67
11	R	105	73	69
12	E	103	71	68
13	C	101	71	69
14	O	101	71	69
15	R	101	70	69
	D			
16		95	70	69
17		95	71	
18		95	70	
19		94	71	N
20		95	72	O
21		94	72	R
22		92	72	E
23		92	72	C
24		89	71	O
25		77	72	R
				D
26	125	69	72	
27	121	72	71	
28	123	92	70	
29	127	77	69	
30	121	72	69	
31	-	73	67	
Mean	115[a]	90	77	69[b]
Runoff, in acre-feet	1,139	5,542	4,758	2,190

Total for period - 13,630 acre-feet.

[a] 5-day period

[b] 16-day period

TABLE A-7

DAILY MEAN DISCHARGE OF UPPER COLONY DITCH

July 9 to September 16, 1956

In Cubic Feet per Second

Day	July	August	September
1	N	37	35
2	O	37	39
3		37	37
4	R	37	37
5	E	37	37
	C		
6	O	36	35
7	R	36	39
8	D	36	42
9	49	36	35
10	49	36	35
11	49	33	36
12	49	33	37
13	49	37	37
14	49	40	39
15	49	40	40
16	48	40	40
17	48	36	
18	49	36	N
19	49	37	O
20	49	36	
			R
21	48	36	E
22	46	37	C
23	45	37	O
24	43	38	R
25	36	38	D
26	38	38	
27	38	38	
28	38	38	
29	37	37	
30	37	37	
31	37	37	
Mean	45[a]	37	38[b]
Runoff, in acre-feet	2,041	2,269	1,190

[a]23-day period
[b]16-day period

Total for period - 5,500 acre-feet.

TABLE A-8

DAILY MEAN DISCHARGE OF BUTTE CREEK
ABOVE LOWER COLONY DAM

July 9 to September 16, 1956

In Cubic Feet per Second

Day	July	August	September
1	N	27	23
2	O	27	24
3		27	23
4	R	27	20
5	E	27	25
	C		
6	O	21	23
7	R	22	33
8	D	22	53
9	37	23	29
10	48	24	28
11	47	28	27
12	37	28	27
13	37	22	26
14	37	23	27
15	43	22	26
16	37	22	26
17	37	23	
18	42	22	
19	45	22	N
20	45	26	O
21	42	25	R
22	45	26	E
23	27	25	C
24	26	24	O
25	22	24	R
			D
26	25	26	
27	32	26	
28	45	26	
29	31	26	
30	27	24	
31	27	23	
Mean	37[a]	25	28[b]
Runoff, in Acre-feet	1,688	1,537	889

Total for period - 4,114 acre-feet

a23-day period

b16-day period

TABLE A-9

DAILY MEAN DISCHARGE OF LOWER COLONY DITCH

July 9 to September 16, 1956

In Cubic Feet per Second

Day	July	August	September
1	N	21.0	17.0
2	O	21.0	18.0
3		21.0	17.0
4	R	21.0	14.0
5	E	21.0	19.0
	C		
6	O	15.0	17.0
7	R	16.0	27.0
8	D	16.0	47.0
9	15.0	17.0	23.0
10	22.0	18.0	22.0
11	16.0	22.0	21.0
12	11.0	22.0	21.0
13	16.0	16.0	20.0
14	16.0	17.0	21.0
15	19.0	16.0	20.0
16	16.0	16.0	20.0
17	16.0	17.0	
18	18.0	16.0	
19	21.0	16.0	N
20	20.0	20.0	O
21	20.0	19.0	R
22	16.0	20.0	E
23	7.0	19.0	C
24	11.0	18.0	O
25	16.0	18.0	R
			D
26	16.0	20.0	
27	23.0	20.0	
28	33.0	20.0	
29	17.0	20.0	
30	18.0	18.0	
31	16.0	17.0	
Mean	13.0[a]	19.0	22.0[b]
Runoff, in acre-feet	593	1,168	698

Total for period - 2,459 acre-feet

[a] 23-day period

[b] 16-day period

TABLE A-10

COMBINED DAILY MEAN DISCHARGE OF UPPER COLONY
AND LOWER COLONY DITCHES

July 9 to September 16, 1956

In Cubic Feet per Second

Day	July	August	September
1	N	58	52
2	O	58	57
3		58	54
4	R	58	51
5	E	58	56
	C		
6	O	51	52
7	R	52	66
8	D	52	89
9	64	53	58
10	71	54	57
11	65	55	57
12	60	55	58
13	65	53	57
14	65	57	60
15	68	56	60
16	64	56	60
17	64	53	
18	67	52	
19	70	53	N
20	69	56	O
21	68	55	R
22	62	57	E
23	52	56	C
24	54	56	O
25	52	56	R
			D
26	54	58	
27	61	58	
28	71	58	
29	54	57	
30	55	55	
31	53	54	
Mean	62[a]	55	59[b]
Runoff, in acre-feet	2,828	3,382	1,872

[a] 23-day period
[b] 16-day period

Total for period = 8,082 acre-feet.

TABLE A-11

DAILY MEAN DISCHARGE OF BUTTE CREEK
AT DURHAM BRIDGE

July 9, to September 16, 1956

In Cubic Feet per Second

Day	July	August	September
1	N	13.0	27.0
2	O	10.0	26.0
3		9.0	17.0
4	R	10.0	27.0
5	E	9.0	28.0
	C		
6	O	9.0	34.0
7	R	11.0	44.0
8	D	9.0	50.0
9	22.0	9.0	27.0
10	26.0	10.0	24.0
11	31.0	12.0	30.0
12	26.0	11.0	32.0
13	21.0	8.0	31.0
14	21.0	5.0	36.0
15	24.0	6.0	31.0
16	21.0	5.0	18.0
17	21.0	12.0	
18	24.0	10.0	
19	24.0	10.0	N
20	25.0	6.0	O
21	22.0	9.0	R
22	29.0	9.0	E
23	22.0	8.0	C
24	15.0	11.0	O
25	10.0	24.0	R
			D
26	9.0	23.0	
27	9.0	11.0	
28	12.0	10.0	
29	14.0	6.0	
30	9.0	8.0	
31	11.0	13.0	
Mean	20[a]	10	30[b]
Runoff, in acre-feet	912	615	952

Total for period - 2,479 acre-feet

[a] 23-day period

[b] 16-day period

TABLE A-12

DAILY MEAN DISCHARGE OF HAMLIN SLOUGH
AT ADAMS RANCH

July 9 to September 16, 1956

In Cubic Feet per Second

Day	July	August	September
1	N	8.0	8.0
2	O	7.0	7.0
3		11.0	7.0
4	R	11.0	7.0
5	E	11.0	7.0
	C		
6	O	5.0	5.0
7	R	5.0	6.0
8	D	4.0	7.0
9	14.0	5.0	6.0
10	14.0	4.0	7.0
11	30.0	5.0	7.0
12	21.0	5.0	8.0
13	12.0	4.0	8.0
14	11.0	5.0	8.0
15	31.0	4.0	9.0
16	23.0	5.0	8.0
17	11.0	7.0	
18	16.0	12.0	
19	16.0	12.0	N
20	12.0	7.0	O
21	8.0	8.0	R
22	14.0	12.0	E
23	16.0	12.0	C
24	10.0	12.0	O
25	5.0	10.0	R
			D
26	5.0	10.0	
27	5.0	8.0	
28	5.0	8.0	
29	8.0	7.0	
30	8.0	8.0	
31	6.0	9.0	
Mean	13[a]	8	7[b]
Runoff, in acre-feet	593	492	222

Total for period - 1,307 acre-feet

[a] 23-day period

[b] 16-day period

TABLE A-13

COMPARISON OF DELIVERIES OF WATER FROM BUTTE CREEK TO ALLOTMENTS

JUNE 1956

In Cubic Feet per Second

Day	Flow at U.S.G.S. station	Total flow above Parrott Ditch	Flow in Hendricks Canal	Hendricks Canal less 5% (mean)	Natural flow of Butte Creek (mean)	Butte Creek below Parrott Dam: Nat. flow allotment (mean)	Butte Creek below Parrott Dam: Flow delivered	Parrott Ditch: Nat. flow allotment (mean)	Parrott Ditch: Total allotment (mean)	Parrott Ditch: Flow delivered	Durham Colony Ditches: Nat. flow allotment (mean)	Durham Colony Ditches: Flow delivered
26	249	245	80				125			120		
27	245	242	81				121			121		
28	249	239	84	78	158	130	123	28	106	116		
29	236	237	84				127			110		
30	232	228	82				121			107		

245
78
167

TABLE A-13

COMPARISON OF DELIVERIES OF WATER FROM BUTTE CREEK TO ALLOTMENTS

JULY 1956

In Cubic Feet per Second

Day	Flow at U.S.G.S. station	Total flow above Parrott Ditch	Flow in Hendricks Canal	Hendricks Canal less 5% (mean)	Natural flow of Butte Creek (mean)	Butte Creek below Parrott Dam: Nat. flow allotment (mean)	Butte Creek below Parrott Dam: Flow delivered	Parrott Ditch: Nat. flow allotment (mean)	Parrott Ditch: Total allotment (mean)	Parrott Ditch: Flow delivered	Durham Colony Ditches: Nat. flow allotment (mean)	Durham Colony Ditches: Flow delivered
1	228	226	84				121			105		
2	228	224	72				119			105		
3	224	221	84				119			102		
4	220	218	88 (est.)				119			99		
5	215	215	83	79	137	118	116	19	98	99		
6	215	214	83				116			98		
7	211	212	86				97			115		
8	211	205	85				103			102		
9	207	208	87				107			102		64
10	207	206	85				107			99		71
11	203	199	81				105			94	51.25	65
12	203	199	84	77	125	106	103	19	96	96		60
13	199	199	84				101			98		65
14	199	199	74				101			98		65
15	195	195	72				101			94		68
16	191	183	76				95			88		64
17	187	183	73				95			88		64
18	187	183	70				95			88		67
19	167	160	67	64	109	90	94	19	83	66	51.25	70
20	173	178	65				95			83		69
21	171	163	61				94			65		68
22	167	161	59				92			69		62
23	159	155	59				92			63		52
24	163	169	63				89			80		54
25	167	178	63				77			101		52
26	167	161	63	58	105	86	69	19	77	92	51.25	54
27	167	166	60				72			82		61
28	155	154	58				92			74		71
29	159	157	60				77			80		54
30	159	155	63				72			83		55
31	159	158	61				73			86		53

TABLE A-13

COMPARISON OF DELIVERIES OF WATER FROM BUTTE CREEK TO ALLOTMENTS

AUGUST 1956
In Cubic Feet per Second

Day	Flow at U.S.G.S. station	Total flow above Parrott Ditch	Flow in Hendricks Canal	Hendricks Canal less 5% (mean)	Natural flow of Butte Creek (mean)	Butte Creek below Parrott Dam: Nat. flow allotment (mean)	Butte Creek below Parrott Dam: Flow delivered (mean)	Parrott Ditch: Nat. flow allotment (mean)	Parrott Ditch: Total allotment (mean)	Parrott Ditch: Flow delivered (mean)	Durham Colony Ditches: Nat. flow allotment (mean)	Durham Colony Ditches: Flow delivered (mean)
1	159	155	61	58	98	79	72	19	77	83	51.25	58
2	159	156	61				73			84		58
3	159	156	62				72			84		58
4	159	155	61				73			83		58
5	159	155	60				72			83		58
6	159	157	60				73			84		51
7	155	157	59				73			84		52
8	147	148	59				72			76		52
9	155	154	59	57	95	76	73	19	78	81	51.25	53
10	155	154	61				73			81		54
11	155	154	60				73			80		55
12	143	142	59				71			71		55
13	151	151	59				71			80		53
14	151	151	59				71			80		57
15	151	151	60				70			80		56
16	139	145	60	57	92	73	70	19	76	75	51.25	56
17	155	152	61				71			81		53
18	147	143	61				70			73		52
19	155	152	61				71			80		53
20	147	142	61				72			70		56
21	147	147	61				72			75		55
22	147	146	61				72			74		57
23	155	151	61				72			79		56
24	147	144	63	59	86	67	71	19	78	72	50	56
25	143	143	63				72			71		56
26	147	142	63				72			70		58
27	147	144	60				71			73		58
28	147	145	58				70			75		58
29	147	141	60				69			72		57
30	135	141	63	58	84	66	69	18	76	73	49	55
31	147	140	61				67			72		54

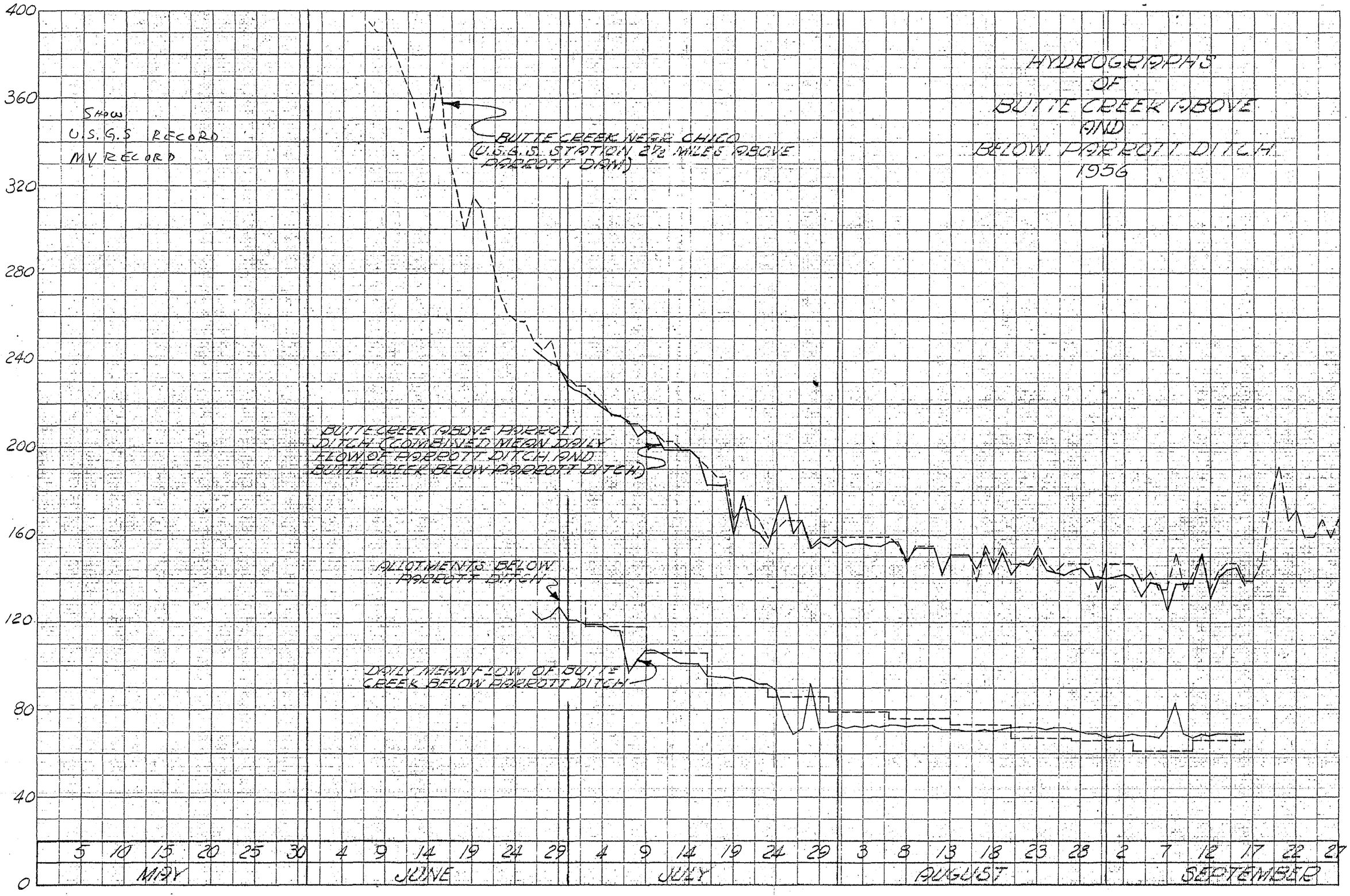
TABLE A-13

COMPARISON OF DELIVERIES OF WATER FROM BUTTE CREEK TO ALLOTMENTS
SEPTEMBER 1956

In Cubic Feet per Second

Day	U.S.G.S. station	above Parrott Ditch	Hendricks Canal	Hendricks Canal less 5% (mean)	Natural flow of Butte Creek (mean)	Butte Creek below: Parrott Dam: Nat. flow allotment (mean)	Butte Creek below: Parrott Dam: Flow delivered	Parrott Ditch: Nat. flow allotment (mean)	Parrott Ditch: Total allotment (mean)	Parrott Ditch: Flow delivered	Durham Colony Ditches: Nat. flow allotment (mean)	Durham Colony Ditches: Flow delivered
1	147	141	61 (est.)				68			74		52
2	147	142	61				68			74		57
3	147	140	62				69			71		54
4	139	132	61				68			63		51
5	143	138	60				68			71		56
6	135	137	60	57	78	61	67	17	74	70	45	52
7	135	125	59				72			53		66
8	151	137	59				83			54		89
9	135	137	59				69			68		58
10	143	137	61				67			70		57
11	151	151	60				69			82		57
12	135	131	59				68			63		58
13	143	141	59	57	84	66	69	18	75	72	49	47
14	147	144	59				69			75		60
15	147	145	60 (est.)				69			76		60
16	139	137	60 (est.)				69			68		60

PLATE 1



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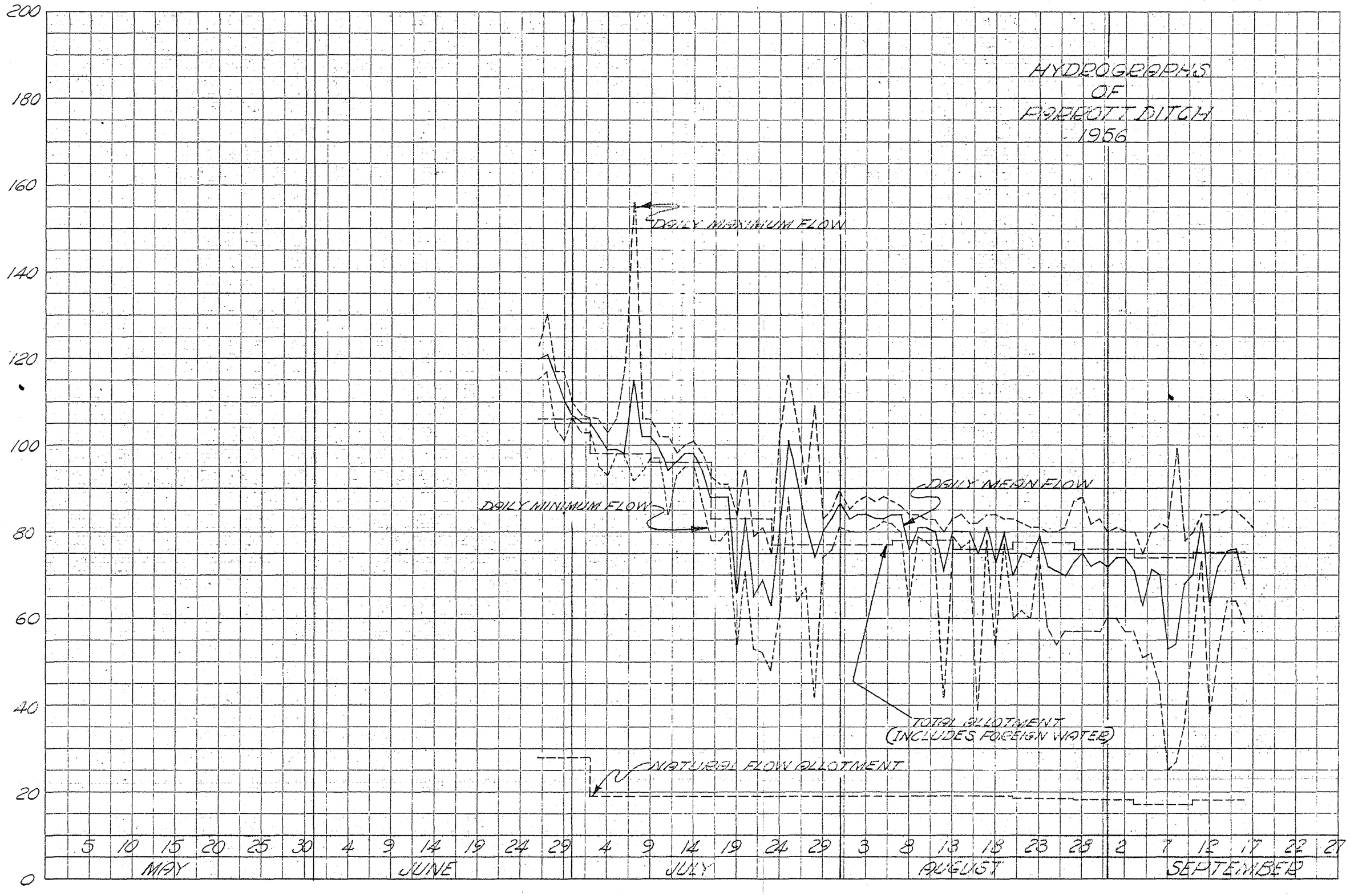

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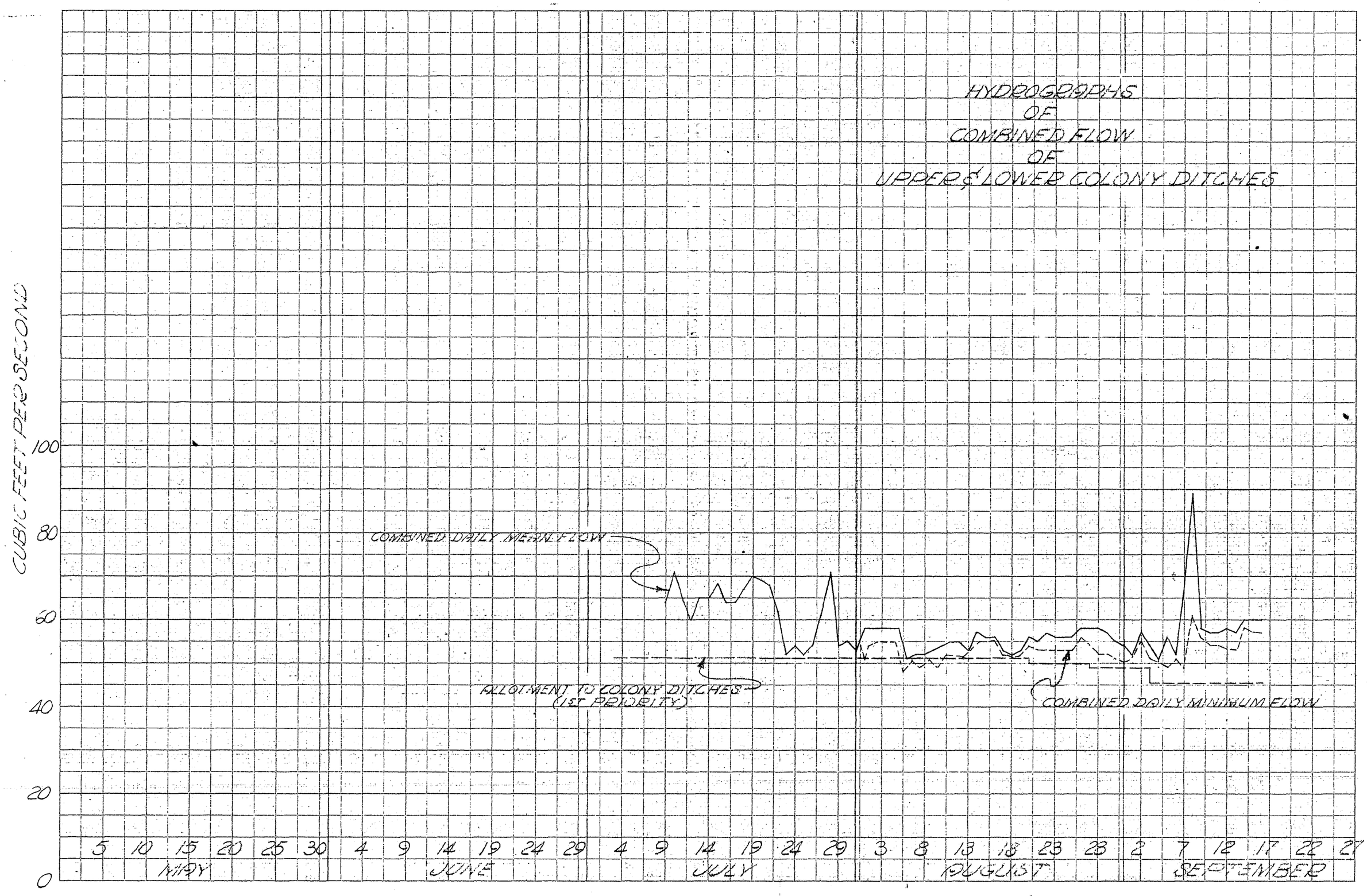

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