

THIS DOCUMENT CONTAINS
POOR QUALITY PAGES

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

0219 PLATEPR: p4 25
S.P. PCWA M.F. Am.
Hell Hole Reservoir
FERC-2079

Placer County Water Agency)

Project No. 2079

ORDER AMENDING LICENSE (MAJOR)
(Issued March 18, 1981)

On August 25, 1980, Placer County Water Agency (Applicant) filed an application under the Federal Power Act, 16 U.S.C. §§791(a)825(r), for amendment of its license for the Middle Fork American River Project No. 2079, located on the Middle Fork American and Rubicon Rivers in Placer County, California. 1/

Applicant requests authorization to modify the project by constructing, operating, and maintaining: (a) a powerhouse with an installed capacity of 550 kW, at the existing outlet of the project's Hell Hole Dam on the Rubicon River; and (b) a 2,300-foot long, 12-kV transmission line connecting the proposed powerhouse to the project's existing 12-kV line, west of the powerhouse. The energy generated by the proposed powerhouse would be sold to the Pacific Gas and Electric Company.

Applicant also requests amendment of Article 37 of its license which provides for a schedule of minimum streamflow releases from Hell Hole Reservoir. The proposed changes would provide higher minimum flows during the critically low rainfall period and lower minimum flows during periods of higher rainfall. The total annual volume of water released from the reservoir for minimum flow purposes would remain approximately the same. The changes in minimum flow releases are recommended by the U. S. Forest Service (USFS) and the California Department of Fish and Game (CDFG).

Notice of the application has been published. No protests or petitions to intervene have been received. CDFG and USFS filed comments on the application and their concerns are discussed below.

MIMIMUM FLOW RELEASES:

Applicant proposes to revise the schedule of flow releases from Hell Hole Reservoir, as requested by CDFG and USFS in their letters to the Applicant. The existing and proposed minimum flow releases are as follows:

DC-A-22

1/ Authority to act on this matter is delegated to the Director, Office of Electric Power Regulation, under Section 375.308 of the Commission's regulations, 45 Fed. Reg. 21216 (1980), amending 44 Fed. Reg. 46449 (1979) and 18 C.F.R. 3.5(g) (1979).

8409040110

Forecasted Runoff to Folsom Reservoir	Present Streamflows (cfs)	Proposed Streamflows (cfs)
1,000,000 or more	20, June 1-July 25 15, July 26-August 5 10, August 6-October 31 14, November 1-January 31 20, February 1-May 31	20, May 15-December 14 10, December 15-May 14
less than 1,000,000	8, June 1-December 31 6, January 1-March 25 8, March 26-May 31	10, June 1-October 14 6, October 15-May 31

CDFG and USFS stated that the revised schedule of flow releases would have a beneficial effect on the Rubicon River's fish populations. By providing higher flows during the critical low-flow period, more fish habitat could be maintained.

The proposed schedule of minimum flow releases would ensure an annual release from Hell Hole Reservoir of 11,580 acre-feet in a normal or wet year, and 5,468 acre-feet in a dry year.

Article 37 of the license is revised to incorporate the schedule of flow releases from Hell Hole Reservoir recommended by CDFG and USFS. Furthermore, the limits on total annual releases from Hell Hole and French Creek Reservoirs are eliminated from Article 37. These limits provide no fisheries benefits. Minimum storage capacity for the two reservoirs is required by Article 36 of the license.

WETLAND PROTECTION:

CDFG and USFS recommended that the small wet meadow formed by a seep area at the base of Hell Hole Dam should not be disturbed. Licensee states in the application that the meadow would not be disturbed during installation of the powerhouse or placement of the transmission line. A stream alteration agreement between Licensee and CDFG requires that the wet meadow area of about 50 feet by 30 feet be protected. However, should seepage increase and become a dam safety factor remedial work could be ordered that could affect the wet meadow.

SAFETY, ADEQUACY AND COMPREHENSIVE DEVELOPMENT:

The proposed powerhouse is considered safe and adequate if constructed in accordance with accepted engineering practices and construction procedures.

The proposed power plant would not be in conflict with any existing or proposed water resource development in the Rubicon River Basin. It would make efficient use of the flow and head available at the dam. Upon compliance with the terms and conditions of the license, the proposed power plant would not be inconsistent with the comprehensive plan of development of the river basin.

ECONOMIC FEASIBILITY:

Staff performed a feasibility study of the proposed power plant ^{2/} based on the current wholesale price of power in the area and the estimated operating cost. The study showed that construction and operation of the proposed power plant would be economically feasible.

EXHIBITS:

Exhibits J, K, L and M were filed as part of the application for amendment of license. The exhibits conform to the Commission's regulations and are approved and made part of the license. However, the design drawings are preliminary; therefore, Article 43 requires the Licensee to file prior to the start of construction, revised Exhibit L drawings showing the final design of the project works.

ENVIRONMENTAL IMPACT:

Construction of the proposed powerhouse and transmission line would have a minimal impact on the terrestrial environment, affecting a small amount of marginal wildlife habitat. Construction would result in a short-term impact on water quality, due to increased erosion and sedimentation. The stream alteration agreement between the Licensee and CDFG requires: the revegetation of disturbed areas; the use of erosion control measures; and the prohibition of discharging waste water from construction activities into the river. The agreement also requires that sufficient rock or bedrock shall be present at the section of the river receiving the outflow from the powerhouse to prevent bank erosion.

The proposed readjustment of the schedule of minimum streamflow releases from Hell Hole Reservoir would result in long-term benefits to the downstream trout fishery.

^{2/} The proposed power plant, with its average annual generation of 2.93 million kWh, will utilize a renewable resource that will save the equivalent of approximately 4,800 barrels of oil or 1,350 tons of coal per year.

For the above reasons, approval of the application would not constitute a major Federal action significantly affecting the quality of the human environment.

Article 38 of the License required the Licensee to take certain steps to protect environmental resources during an earlier phase of project construction. The requirements of this article are equally applicable to this phase of construction of the project and no additional article to protect the environment is necessary.

It is ordered that:

The license for Project No. 2079 is amended, effective the first day of the month in which this order is issued, as follows:

(A) The Licensee is authorized to construct, operate and maintain a powerhouse, transmission line and appurtenances at the Hell Hole Dam.

(B) Ordering paragraph (B) of the Commission's March 13, 1963, Order Issuing Major License is amended by adding the following:

Hell Hole Power Plant consists of: (a) a powerhouse containing a single generating unit with a total installed capacity of 550 kW; and (b) a 2,300-foot long, 12-kV transmission line connecting the Hell Hole Powerhouse to the 12-kV line west of the powerhouse.

(C) The following exhibits conform to the Commission's rules and regulations and are approved and made part of the license, superseding previously approved exhibits.

<u>Exhibit</u>	<u>FERC Drawing No. 2079-</u>	<u>Title</u>	<u>Superseding FERC Drawing No. 2079-</u>
J-1	362	General Project Map	272
K-1	363	Hell Hole Reservoir	288
K-2	364	Hell Hole Reservoir	290
L-1	365	Hell Hole Powerhouse	—
L-2	366	Hell Hole Powerhouse	—

Exhibit M - One typewritten page entitled "General Description and Specification of Mechanical, Electrical and Transmission Equipment."

(D) Subparagraph (1) of Article 41 of the license is amended as follows:

(1) For the purpose of reimbursing the United States for the cost of administration of Part I of the Act, a reasonable annual charge as determined by the Commission in accordance with the provisions of its regulations, in effect from time to time. The authorized installed capacity for such purposes is 280,730 horsepower.

(E) Article 37 of the license is revised to read as follows:

Article 37. The Licensee shall release from Duncan Creek Diversion Dam, French Meadows Dam, Hell Hole Dam, South Long Canyon Diversion Dam, North Long Canyon Diversion Dam, Ralston or Middle Fork Interbay, and Oxbow Powerplant, sufficient flows to meet the following schedule:

<u>Location</u>	<u>Forecasted Runoff To Folsom Reservoir in Acre-feet 1/</u>	<u>Stremflow in Cubic Feet Per Second</u>
Duncan Creek Diversion Dam	1,000,000 or more	8, or the natural flow, whichever is less
	Less than 1,000,000	4, or the natural flow whichever is less
French Meadows Dam	1,000,000 or more	8, at all times
	Less than 1,000,000	4, at all times
Hell Hole Dam	1,000,000 or more	20, May 15 thru December 14 10, December 15 thru May 14
	Less than 1,000,000	10, June 1 thru October 14 6, October 15 thru May 31
South Long Canyon Diversion Dam	1,000,000 or more	5, or the natural flow, whichever is less
	Less than 1,000,000	2.5, or the natural flow whichever is less
North Long Canyon Diversion Dam	Any forecast	2, or the natural flow, whichever is less
Ralston or Middle Fork Interbay	1,000,000 or more	23, or the natural flow, whicnever is less
	Less than 1,000,000	12, or the natural flow whichever is less
Oxbow	Any forecast	75, <u>2/</u> year round

1/ See footnote-Article 36, 29 F.P.C. 466.

2/ Measured downstream of the confluence of the Middle Fork American River and the North Fork of the Middle Fork American River.

The Oxbow Powerplant releases shall not cause vertical fluctuation in stream stages (measured in representative section) greater than 1 foot in 1 hour. The schedule of flow releases may be temporarily modified if required by operating emergencies beyond the control of the Licensee, and for short periods of fishery management purposes upon mutual agreement among the Licensee, the U.S. Forest Service, the U. S. Fish and Wildlife Service, and the California Department of Fish and Game.

(F) The following articles are added to the license.

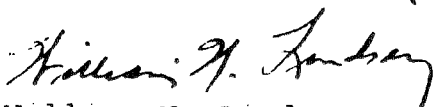
Article 43. The Licensee shall file, with the Commission's Regional Engineer and Director, Office of Electric Power Regulation, one copy each of the contract drawing and specifications for the proposed powerhouse 60 days prior to start of construction. The Director, Office of Electric Power Regulation may require additional contract drawings and specifications and changes in any of the plans and specifications to insure a safe and adequate project.

Article 44. The Licensee shall: (a) commence construction of the Hell Hole Powerplant within one year from the date of issuance of this order; and (b) thereafter in good faith and with due diligence construct and complete the power plant and place it in operation within four years from the date of issuance of this order.

Article 45. The Licensee shall, within one year following the date of commencement of operation of the Hell Hole Powerplant, file "as-built" Exhibits J, K and L showing the power plant and its transmission line as finally constructed and located.

(G) This order is final unless a petition appealing it to the Commission is filed within 30 days from the date of its issuance, as provided in Section 1.7(d) of the Commission's regulations, 18 C.F.R. 1.7(d) (1979), as amended, 44 Fed. Reg. 46449 (1979). The filing of a petition appealing this order to the Commission or an application for rehearing as provided in Section 313(a) of the Act does not operate as a stay of the effective date of this amendment of license or of any other date specified in this order, except as specifically ordered by the Commission.

(S E A L)


William W. Lindsay
Director, Office of Electric
Power Regulation

176100 142100
175100 140900
174100 139700
173000 138700
172000 137700
170700 137000
169600 135800
168400 134700
169000 133700
168400 134300
167300 134100
166100 133100

(levels by Placer County Water Agency).
EXTREMES.--Maximums and minimums (discharge in cubic feet per second, gage height in feet) for November 1965 to September 1970 are contained in the following table:

Wtr yr	Date	Maximum Discharge	G.H.	Date	Minimum daily Discharge
1966	Nov. 18, 1965	972	6.57	Aug. 25 to Sept. 11, 1966	0
1967	June 18, 1967	2,290	-	Aug. 10-15, 29, 30, 1967	9.2
1968	Feb. 20, 1968	51	4.45	Aug. 28, 1968	8.8
1969	June 16, 1969	646	-	Sept. 29, 30, 1969	7.6
1970	Jan. 21, 1970	123	4.99	Oct. 7-10, 13, 14, 18-21, 1969	7.1

a including flow over spillway.

Period of record: Maximum discharge, 2,290 cfs June 18, 1967, including flow over spillway; no flow Aug. 25 to Sept. 11, 1966.

REMARKS.--Records excellent except those for the water year 1966, which are fair, and those for period of no gage-height record, which are poor. Beginning December 1965, flow regulated by Hell Hole Reservoir (see station 11428700). Water is diverted out of the basin above station through Buck-Loon tunnel (see station 11428300). Water is diverted from Middle Fork American River basin by tunnel from French Meadows Reservoir (see station 11427400) to Hell Hole Reservoir. Water is diverted from Hell Hole Reservoir through a tunnel to Middle Fork powerplant. Diversion began Sept. 8, 1966. See schematic diagram of Middle Fork American and Rubicon River basins elsewhere in this report. During years when Hell Hole Dam spills, records include flow which bypass the station.

COOPERATION.--Records for the water year 1970 collected by Placer County Water Agency, under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

165000 131700
163700 130600
162500 129300
161200 128200
160000 128700
158900 129300
157800 129000
156500 127700
155400 126600
154100 125400
152900 126700
151900 124900
150700 125400
149500 125000
148200 123800
147200 123000
179200 145800
147200 123800
4576.7 4550.1
-243000 -24400

DAY	DISCHARGE, IN CUBIC FEET PER SECOND, NOVEMBER 1965 TO SEPTEMBER 1966											
	10 OCT	14 NOV	14 DEC	14 JAN	20 FEB	20 MAR	20 APR	20 MAY	20 JUN	15/10 JUL	15/10 AUG	10 SEP
1			73	22	13	8.3	16	20	85	17	6.1	0
2			72	22	13	6.3	17	20	36	18	3.1	0
3			71	20	13	6.2	17	20	20	18	4.1	0
4			73	12	13	4.5	16	20	8.6	18	4.1	0
5			80	11	13	4.5	17	20	8.6	18	2.9	0
6		14	26	12	13	4.4	15	20	8.6	18	7.6	0
7		13	20	11	13	5.7	13	19	27	18	16	0
8		12	20	11	13	5.7	16	19	8.6	18	8.0	0
9		12	40	16	13	8.0	15	20	8.6	17	3.4	0
10		12	1.0	9.1	14	12	16	21	8.6	17	8.8	0
11		12	2.4	14	14	9.9	16	20	8.5	17	12	0
12		12	1.8	17	14	9.9	17	18	8.3	17	12	14
13		12	1.3	17	15	10	17	17	8.5	17	12	26
14		59	1.1	17	15	9.9	17	19	13	17	12	26
15		131	9.0	16	16	13	17	20	18	17	12	26
16		85	3.4	15	16	13	18	21	18	17	12	26
17		179	7.3	16	16	13	18	20	18	17	12	26
18		678	6.7	15	16	14	19	20	17	17	12	27
19		276	6.7	15	15	14	18	22	17	17	12	27
20		176	7.1	15	15	14	17	26	15	17	12	27
21		115	8.4	15	15	15	17	24	16	14	12	27
22		84	20	14	15	16	18	22	17	17	12	27
23		160	24	14	15	8.5	17	21	17	15	12	27
24		145	27	14	15	10	18	20	17	15	4.7	27
25		124	28	14	14	14	19	19	17	10	0	28
26		102	28	14	14	15	19	18	17	14	0	28
27		89	20	14	14	15	19	50	17	7.3	0	29
28		84	13	14	14	13	18	180	17	7.3	0	29
29		78	14	14	14	14	19	180	17	7.7	0	29
30		75	22	14	14	15	20	160	16	7.9	0	29
31		---	22	14	14	16	---	149	---	7.6	0	---
TOTAL		662.30	464.1	399	338.2	516	1272	528.9	464.1	225.0	505	
MEAN		21.4	15.0	14.3	10.9	17.2	41.0	17.6	15.0	7.26	16.8	
MAX		80	22	16	16	20	188	85	18	13	29	
MIN		2.9	9.1	13	4.5	13	17	8.3	7.3	0	0	
AC-FT		1310	921	791	671	1020	2520	1050	921	446	1000	
(1)											4040	

† DIVERSION, IN ACRE-FEET, FROM HELL HOLE RESERVOIR TO MIDDLE FORK POWERPLANT, FURNISHED BY PLACER COUNTY WATER AGENCY.
NOTE.--NO GAGE-HEIGHT RECORD JAN. 13 TO FEB. 28.

AUG SEP
190100 158300
189600 157100
189100 155900
188200 154700
187300 153500
186400 152400
185500 151300
184600 150000
183700 148800
181800 147700
180900 146500
179900 146200
178900 145000
178000 143600
177100 142400
176100 141100
174900 139900
173900 138800
172900 137600
172000 136300
170500 135000
169400 133700
168200 132500
167100 131400
166000 130000
164900 128800
163800 127600
162800 126300
161500 125100
160500 123700
159400 122400
190100 158300
159400 123700
4588.6 4551.2
-31600 -35700

7 16 5 28 31 29 7 26 31 17 11

= 208 Days

2	29	18	17	14	19	18	18	19	25	437	14	9.6
3	29	17	23	14	19	16	18	20	29	291	29	9.6
6	30	17	30	14	19	16	18	22	27	177	12	10
7	30	17	19	14	19	16	18	23	28	53	9.6	11
8	30	17	17	14	18	16	19	24	27	20	9.6	11
9	30	17	17	14	18	16	19	24	27	20	9.6	11
10	30	17	17	14	18	16	19	24	27	20	9.2	10
11	30	17	16	13	18	16	18	22	41	20	9.2	10
12	30	17	16	13	18	16	18	21	51A	20	9.2	10
13	30	17	16	13	14	16	19	21	81A	20	9.2	10
14	31	17	16	13	18	16	18	22	873	20	9.2	10
15	31	17	14	13	17	17	17	24	1070	20	9.2	10
16	31	18	14	13	17	47	17	28	1340	20	9.6	10
17	31	17	14	13	17	34	17	31	1740	19	9.6	10
18	31	17	14	13	17	26	17	31	1990	19	9.6	10
19	31	17	14	13	17	22	17	31	1680	19	9.6	10
20	31	20	14	15	16	22	18	35	1490	19	9.6	10
21	31	18	14	26	16	22	16	38	1450	19	9.6	10
22	32	17	14	16	16	22	16	39	1440	19	9.6	10
23	32	14	14	16	16	23	16	36	1130	19	9.6	10
24	32	14	14	15	16	21	16	35	979	19	9.6	10
25	32	15	14	16	16	20	16	34	1150	19	9.6	10
26	32	15	14	18	16	19	16	33	1270	16	9.6	10
27	32	15	14	16	16	19	16	32	1110	15	9.6	10
28	32	18	14	21	16	19	16	31	1040	15	9.6	10
29	32	19	14	34	---	19	16	30	1110	15	9.2	10
30	32	17	14	26	---	19	16	28	1260	15	9.2	10
31	33	---	14	22	---	18	16	27	---	15	9.6	10
TOTAL	954	524	502	502	485	613	517	840	23762	4074	321.8	301.0
MEAN	30.8	17.5	16.2	16.2	17.3	19.8	17.2	27.1	792	131	10.4	10.0
MAX	33	26	30	34	19	47	19	39	1990	604	15	11
MIN	29	15	14	13	16	16	16	14	25	15	9.2	9.6
AC-FT	1890	1040	994	996	962	1220	1030	1670	47130	8080	630	597
(1)	13250	3540	15690	21480	35740	59410	55050	59700	59940	59040	52610	22960

133 days
 CAL YR 1966 TTOTAL 6692.30 MEAN 18.3 MAX 180 MIN 0 AC-FT 13270
 WTR YR 1967 TOTAL 33395.80 MEAN 91.5 MAX 1990 MIN 9.2 AC-FT 66240

† DIVERSION, IN ACRE-FEET, FROM HELL HOLE RESERVOIR TO MIDDLE FORK POWERPLANT, FURNISHED BY PLACER COUNTY WATER AGENCY.

DAY	DISCHARGE, IN CUBIC FEET PER SECOND												SEP
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG		
1	10	13	15	14	14	26	26	26	24	23	14	10	
2	11	16	15	14	16	26	26	26	24	23	14	10	
3	11	16	15	14	17	25	26	26	24	23	14	10	
4	11	16	17	14	16	25	26	26	24	23	14	9.6	
5	10	14	18	14	16	25	24	25	24	23	14	9.6	
6	10	16	16	14	17	25	26	25	24	23	13	9.6	
7	10	16	16	14	20	25	25	24	25	23	10	9.6	
8	10	16	15	14	23	26	25	24	24	23	10	9.2	
9	10	16	15	14	24	26	25	24	24	23	10	9.2	
10	10	16	15	14	23	25	26	24	24	23	10	9.2	
11	10	16	15	14	23	24	26	24	24	23	10	9.2	
12	10	16	14	14	23	25	26	24	24	23	10	9.2	
13	10	16	14	14	23	25	26	24	24	23	10	9.2	
14	9.6	16	14	14	23	24	26	25	24	23	10	9.2	
15	9.6	16	14	20	22	26	24	25	24	23	10	9.2	
16	9.6	16	14	17	22	26	26	24	24	23	10	9.2	
17	10	16	14	15	29	26	26	24	24	23	10	9.2	
18	10	16	14	14	25	25	24	24	24	23	9.6	9.2	
19	10	17	14	14	28	25	25	24	24	23	9.6	9.6	
20	10	16	14	14	38	25	25	24	24	23	9.6	9.6	
21	10	16	14	14	34	25	24	25	24	23	9.6	9.6	
22	10	16	14	14	30	25	24	25	24	23	9.6	9.6	
23	10	16	14	14	36	25	24	24	24	23	9.6	9.6	
24	10	16	16	14	32	25	24	24	24	23	9.6	9.6	
25	11	15	16	14	28	26	24	24	24	23	9.6	9.6	
26	11	15	16	14	27	25	24	24	24	23	9.2	9.6	
27	11	15	15	14	26	24	24	24	24	23	9.2	9.6	
28	11	15	18	20	28	25	24	24	24	23	8.8	9.6	
29	10	15	14	14	26	25	25	24	24	23	19	9.6	
30	10	15	14	14	---	26	26	24	24	23	14	10	9.6
31	10	---	14	14	---	26	---	24	---	14	10	---	
TOTAL	315.8	472	460	444	708	784	757	759	713	691	327.0	284.8	
MEAN	10.2	15.7	14.8	14.3	24.6	25.3	25.2	24.5	23.8	22.3	10.5	9.9	
MAX	11	17	18	20	38	38	36	36	36	33	14	10	
MIN	9.6	13	14	14	14	24	24	24	24	23	14	8.8	9.2
AC-FT	626	936	912	881	1400	1560	1500	1510	1410	1370	649	565	
(1)	31790	23650	32620	16610	7000	12320	17210	18230	15270	7950	17090	28040	

† DIVERSION, IN ACRE-FEET, FROM HELL HOLE RESERVOIR TO MIDDLE FORK POWERPLANT, FURNISHED BY PLACER COUNTY WATER AGENCY.

3 1 6 2 16 27
 = 55 days

SACRAMENTO RIVER BASIN

11428800 RUBICON RIVER BELOW HELL HOLE DAM, NEAR WEEKS BAY, CALIF.

LOCATION.--Lat 39°03'24", long 120°24'25", in NE¼NE¼ sec.21, T.14 N., R.14 E., Placer County, Eldorado National Forest, on right bank 600 ft downstream from outlet of dam, 2.4 miles downstream from Cottonwood Creek, and 15.3 miles west of Weeks Bay.

DRAINAGE AREA.--120 sq mi (revised).

PERIOD OF RECORD.--November 1965 to current year.

GAGE.--Water-stage recorder and V-notch sharp-crested weir. Datum of gage is 4,231.52 ft above mean sea level (levels by Placer County Water Agency).

EXTREMES.--Current year: Maximum discharge, 123 cfs Jan. 21 (gage height, 4.99 ft); minimum daily, 7.1 cfs Oct. 7-10, 13, 14, 18-21.
 Period of record: Maximum discharge, 2,290 cfs June 18, 1967, including flow over spillway; minimum, no flow Aug. 25 to Sept. 11, 1966.

REMARKS.--Records excellent. Flow regulated by Hell Hole Reservoir beginning December 1965 (see sta 11428700). Water is diverted out of the basin above the station through Buck-Loon tunnel (see sta 11428300). Water is diverted from Middle Fork American River basin by tunnel from French Meadows Reservoir (see sta 11427400) to Hell Hole Reservoir. Water is diverted from Hell Hole Reservoir through a tunnel to Middle Fork powerplant. See schematic diagram of Middle Fork American and Rubicon River basins. During years when Hell Hole Dam spills, records include flow which bypass the station.

COOPERATION.--Records collected by Placer County Water Agency, under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

DAY	DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970											
	10 OCT	14 NOV	14 DEC	14 JAN	20 FEB	20 MAR	20 APR	20 MAY	20 JUN	20-15 JUL	15-10 AUG	10 SEP
1	7.5	16	13	16	19	16	22	22	22	21	15	11
2	7.5	16	13	15	19	16	22	22	22	21	15	11
3	7.5	16	13	15	18	16	22	22	22	21	15	11
4	7.5	16	13	15	17	16	22	22	22	21	15	11
5	7.5	16	13	15	17	16	22	23	22	21	15	11
6	7.5	16	13	15	17	16	22	23	22	21	14	11
7	7.1	15	13	15	17	16	22	22	22	21	11	11
8	7.1	15	13	15	17	17	22	22	22	21	11	11
9	7.1	15	13	21	16	16	22	22	22	21	11	11
10	7.1	15	13	21	14	16	22	22	22	21	11	11
11	7.5	15	13	17	16	15	22	22	22	21	11	11
12	7.5	15	13	19	16	15	22	22	22	21	11	11
13	7.1	15	13	22	17	16	22	22	22	21	11	11
14	7.1	15	13	38	17	16	22	23	22	21	11	10
15	7.5	15	13	23	17	16	22	24	22	21	11	10
16	7.8	15	13	61	17	16	22	24	21	21	11	10
17	7.5	15	13	43	18	16	22	24	21	21	11	10
18	7.1	14	13	28	17	15	22	24	21	21	11	10
19	7.1	14	15	29	16	15	22	24	21	21	11	10
20	7.1	14	22	31	14	15	21	23	21	21	11	10
21	7.1	14	26	88	16	15	21	23	21	21	11	10
22	13	14	17	49	16	15	21	23	21	21	11	10
23	17	14	20	36	16	15	21	23	21	21	11	10
24	17	14	30	40	16	15	21	23	21	21	11	10
25	16	14	26	31	16	15	21	23	21	21	11	10
26	16	14	19	29	16	16	21	23	21	21	11	10
27	16	13	17	40	15	22	21	22	21	18	11	9.7
28	16	13	16	25	14	22	22	22	21	15	11	9.7
29	16	13	16	21	-----	22	21	22	21	15	11	9.7
30	16	13	16	20	-----	22	22	22	21	15	11	9.7
31	16	-----	16	19	-----	22	-----	22	-----	15	11	-----
TOTAL	312.8	439	490	872	467	517	451	702	645	624	364	311.8
MEAN	10.1	14.6	15.8	28.1	16.7	16.7	21.7	22.4	21.5	20.1	11.7	10.4
MAX	17	16	30	88	19	22	22	24	22	21	15	11
MIN	7.1	13	13	15	15	15	21	22	21	15	11	9.7
AC-FT	620	871	972	1,730	926	1,030	1,290	1,390	1,280	1,240	722	618
(a)	37,340	52,320	25,480	31,080	41,510	27,810	8,030	4,870	28,830	21,920	52,220	54,420

CAL YR 1969 TOTAL 11,258.4 MEAN 30.8 MAX 644 MIN 7.1 AC-FT 22,330
 WTR YR 1970 TOTAL 6,395.6 MEAN 17.5 MAX 88 MIN 7.1 AC-FT 12,690

a Diversion, in acre-feet, from Hell Hole Reservoir to Middle Fork powerplant, furnished by Placer County Water Agency.

21 4 18 23 26 4

= 101 days

SACRAMENTO RIVER BASIN

11428800 RUBICON RIVER BELOW HELL HOLE DAM, NEAR WEEKS BAY, CALIF.

LOCATION.--Lat 39°03'24", long 120°24'25", in NE¼NE¼ sec.21, T.14 N., R.14 E., Placer County, Eldorado National Forest, on right bank 600 ft downstream from outlet of dam and 15.3 miles west of Weeks Bay.

DRAINAGE AREA.--120 sq mi.

PERIOD OF RECORD.--November 1965 to current year.

GAGE.--Water-stage recorder and V-notch sharp-crested weir. Datum of gage is 4,231.52 ft above mean sea level (levels by Placer County Water Agency).

AVERAGE DISCHARGE.--5 years, 35.1 cfs (25,430 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 50 cfs Mar. 26 (gage height, 4.48 ft); minimum daily, 6.2 cfs Sept. 11, 12.

Period of record: Maximum discharge, 2,290 cfs June 18, 1967, including flow over spillway; minimum, no flow Aug. 25 to Sept. 11, 1966.

REMARKS.--Records excellent. Flow regulated by Hell Hole Reservoir beginning December 1965 (see sta 11428700). Water is diverted out of the basin above the station through Buck-Loon tunnel (see sta 11428300). Water is diverted from Middle Fork American River basin by tunnel from French Meadows Reservoir (see sta 11427400) to Hell Hole Reservoir. Water is diverted from Hell Hole Reservoir through a tunnel to Middle Fork powerplant. Diversion began Sept. 8, 1966. See schematic diagram of Middle Fork American and Rubicon River basins. During years when Hell Hole Dam spills, records include flow which bypass the station.

COOPERATION.--Records collected by Placer County Water Agency, under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

DAY	10 OCT	14 NOV	14 DEC	14 JAN	20 FEB	20 MAR	20 APR	20 MAY	20 JUN	20-15 JUL	15-10 AUG	1 SEP
1	9.7	7.8 ✓	14 ✓	11 ✓	18 ✓	18 ✓	20 ✓	24 ✓	27 ✓	26 ✓	15 ✓	7.1 ✓
2	9.7	7.8 ✓	15 ✓	11 ✓	18 ✓	18 ✓	23 ✓	25 ✓	26 ✓	26 ✓	15 ✓	7.1 ✓
3	9.3	7.8 ✓	13 ✓	11 ✓	17 ✓	18 ✓	23 ✓	25 ✓	26 ✓	26 ✓	15 ✓	6.8 ✓
4	9.3	7.8 ✓	13 ✓	11 ✓	18 ✓	18 ✓	23 ✓	25 ✓	26 ✓	26 ✓	15 ✓	6.8 ✓
5	9.3	11 ✓	15 ✓	11 ✓	19 ✓	18 ✓	23 ✓	25 ✓	27 ✓	26 ✓	12 ✓	6.8 ✓
6	8.9	14 ✓	14 ✓	11 ✓	19 ✓	17 ✓	24 ✓	25 ✓	28 ✓	26 ✓	8.1 ✓	6.8 ✓
7	9.3	13 ✓	14 ✓	11 ✓	18 ✓	17 ✓	24 ✓	25 ✓	28 ✓	26 ✓	8.5 ✓	6.5 ✓
8	9.3	13 ✓	19 ✓	11 ✓	18 ✓	17 ✓	24 ✓	26 ✓	28 ✓	26 ✓	8.5 ✓	6.5 ✓
9	8.9	13 ✓	15 ✓	12 ✓	18 ✓	17 ✓	23 ✓	26 ✓	27 ✓	26 ✓	8.5 ✓	6.5 ✓
10	8.9	12 ✓	14 ✓	12 ✓	19 ✓	18 ✓	24 ✓	27 ✓	27 ✓	26 ✓	8.5 ✓	6.5 ✓
11	8.9	13 ✓	13 ✓	12 ✓	20 ✓	18 ✓	24 ✓	29 ✓	27 ✓	26 ✓	8.5 ✓	6.5 ✓
12	8.9	13 ✓	13 ✓	12 ✓	20 ✓	23 ✓	24 ✓	27 ✓	27 ✓	26 ✓	8.5 ✓	6.5 ✓
13	8.9	12 ✓	13 ✓	12 ✓	20 ✓	20 ✓	24 ✓	27 ✓	27 ✓	26 ✓	8.5 ✓	7.1 ✓
14	8.5	12 ✓	12 ✓	12 ✓	20 ✓	19 ✓	24 ✓	29 ✓	27 ✓	26 ✓	8.2 ✓	9.3 ✓
15	8.5	12 ✓	12 ✓	11 ✓	20 ✓	19 ✓	24 ✓	29 ✓	27 ✓	26 ✓	8.2 ✓	9.3 ✓
16	8.5	12 ✓	12 ✓	12 ✓	20 ✓	19 ✓	24 ✓	29 ✓	27 ✓	26 ✓	8.2 ✓	9.3 ✓
17	8.5	12 ✓	12 ✓	19 ✓	19 ✓	19 ✓	25 ✓	28 ✓	27 ✓	26 ✓	8.2 ✓	9.3 ✓
18	8.5	12 ✓	12 ✓	19 ✓	19 ✓	19 ✓	24 ✓	28 ✓	26 ✓	26 ✓	8.2 ✓	9.3 ✓
19	8.2	12 ✓	12 ✓	17 ✓	19 ✓	18 ✓	24 ✓	28 ✓	26 ✓	26 ✓	8.2 ✓	9.3 ✓
20	8.2	12 ✓	12 ✓	16 ✓	19 ✓	19 ✓	24 ✓	29 ✓	26 ✓	26 ✓	8.2 ✓	9.3 ✓
21	8.2	12 ✓	12 ✓	15 ✓	18 ✓	19 ✓	24 ✓	28 ✓	26 ✓	26 ✓	8.2 ✓	9.3 ✓
22	8.2	12 ✓	12 ✓	14 ✓	18 ✓	19 ✓	24 ✓	28 ✓	26 ✓	26 ✓	7.8 ✓	11 ✓
23	8.2	11 ✓	12 ✓	13 ✓	18 ✓	21 ✓	24 ✓	29 ✓	26 ✓	26 ✓	7.8 ✓	11 ✓
24	8.2	12 ✓	12 ✓	13 ✓	18 ✓	21 ✓	24 ✓	29 ✓	26 ✓	26 ✓	7.5 ✓	10 ✓
25	8.2	19 ✓	12 ✓	13 ✓	18 ✓	26 ✓	24 ✓	29 ✓	26 ✓	25 ✓	7.5 ✓	10 ✓
26	8.2	15 ✓	12 ✓	13 ✓	18 ✓	38 ✓	24 ✓	29 ✓	27 ✓	20 ✓	7.5 ✓	10 ✓
27	8.2	13 ✓	11 ✓	13 ✓	18 ✓	25 ✓	24 ✓	28 ✓	27 ✓	15 ✓	7.1 ✓	9.3 ✓
28	8.2	14 ✓	11 ✓	16 ✓	18 ✓	23 ✓	24 ✓	28 ✓	26 ✓	15 ✓	7.1 ✓	9.3 ✓
29	8.2	15 ✓	12 ✓	18 ✓	18 ✓	22 ✓	24 ✓	27 ✓	26 ✓	15 ✓	7.1 ✓	9.3 ✓
30	7.8	13 ✓	12 ✓	18 ✓	18 ✓	23 ✓	24 ✓	27 ✓	26 ✓	15 ✓	7.1 ✓	9.3 ✓
31	7.8	-----	12 ✓	18 ✓	-----	23 ✓	-----	27 ✓	-----	15 ✓	7.1 ✓	-----
TOTAL	267.6	365.2	399	418	522	629	712	849	739	744	279.6	250.7
MEAN	8.63	12.2	12.9	13.5	18.6	20.3	23.7	27.4	24.6	24.0	9.02	8.1
MAX	9.7	19	19	19	20	38	25	29	28	26	15	1
MIN	7.8	7.8	11	11	17	17	20	24	26	15	7.1	6.2
AC-FT	531	724	791	829	1,040	1,250	1,410	1,680	1,580	1,480	555	47
(a)	47,880	27,910	47,980	29,210	32,980	4,940	12	3,130	23,920	45,480	55,020	53,210

CAL YR 1970 TOTAL 6,185.6 MEAN 16.9 MAX 38 MIN 7.8 AC-FT 12,270
 WTR YR 1971 TOTAL 6,234.9 MEAN 17.1 MAX 38 MIN 6.7 AC-FT 12,370

a Diversion, in acre-feet, from Hell Hole Reservoir to Middle Fork powerplant.

31 25 23 21 22 20 26 25
 = 193 days

11428800 RUBICON RIVER BELOW HELL HOLE DAM, NEAR MEEKS BAY, CALIF.

LOCATION.--Lat 39°03'24", long 120°24'25", in NE 1/4 sec. 21, T. 14 N., R. 14 E., Placer County, Eldorado National Forest, on right bank 600 ft downstream from outlet of dam, and 15.3 miles west of Meeks Bay.

DRAINAGE AREA.--114 sq mi (revised).

PERIOD OF RECORD.--November 1965 to current year.

GAGE.--Water-stage recorder and V-notch sharp-crested weir. Datum of gage is 4,231.52 ft above mean sea level (levels by Placer County Water Agency).

AVERAGE DISCHARGE.--6 years, 31.9 cfs (23,110 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 37 cfs Feb. 29 (gage height, 4.34 ft); minimum daily, 5.9 cfs Aug. 31 to Sept. 14.
 Period of record: Maximum discharge, 2,290 cfs June 18, 1967, including flow over spillway; minimum, no flow Aug. 25 to Sept. 11, 1966.

REMARKS.--Records excellent. Flow regulated by Hell Hole Reservoir beginning December 1965 (see sta 11428700). Water is diverted out of the basin above the station through Buck-Loon tunnel (see sta 11428300). Water is diverted from Middle Fork American River basin by tunnel from French Meadows Reservoir (see sta 11427400) to Hell Hole Reservoir. Water is diverted from Hell Hole Reservoir through a tunnel to Middle Fork powerplant. Diversion began Sept. 8, 1966. See schematic diagram of Middle Fork American and Rubicon River basins. During years when Hell Hole Dam spills, records include flow which bypass the station.

COOPERATION.--Records collected by Placer County Water Agency, under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

DAY	DISCHARGE IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972											
	10 OCT	14 NOV	14 DEC	14 JAN	20 FEB	20 MAR	20 APR	20 MAY	20 JUN	20-15 JUL	15-10 AUG	10 SEP
1	9.7	11	15	15	17	22	24	21	20	20	12	5.9
2	9.7	14	15	15	17	22	24	21	20	20	12	5.9
3	9.7	14	15	15	17	27	24	22	19	20	11	5.9
4	9.7	15	15	15	17	24	24	22	19	20	11	5.9
5	9.7	14	15	15	17	24	24	22	19	20	11	5.9
6	9.3	14	16	15	17	24	24	22	19	20	11	5.9
7	9.3	14	15	15	17	24	24	21	19	20	11	5.9
8	9.3	14	15	15	17	24	26	21	19	20	9.7	5.9
9	9.3	14	15	15	18	24	25	21	19	20	7.8	5.9
10	9.3	14	15	15	19	25	24	21	19	20	7.8	5.9
11	9.3	15	14	15	19	25	24	21	19	20	7.8	5.9
12	9.3	16	14	15	19	25	25	22	19	20	7.8	5.9
13	9.3	15	14	15	19	25	26	22	19	20	7.5	5.9
14	9.3	15	14	15	19	25	26	22	19	19	7.5	5.9
15	8.9	15	14	15	19	24	26	22	19	19	7.5	6.8
16	9.3	15	15	15	19	24	26	22	19	19	7.1	8.9
17	9.3	15	15	15	19	25	26	22	19	19	7.1	8.9
18	9.3	15	15	15	19	25	23	21	19	19	7.1	8.5
19	9.3	15	15	15	19	25	20	20	19	19	6.8	8.5
20	9.3	15	15	15	19	24	20	20	19	19	6.8	8.5
21	9.3	15	15	16	19	24	20	20	19	19	6.8	8.5
22	9.3	15	20	17	22	24	20	20	19	19	6.8	8.5
23	9.3	15	17	19	20	25	20	20	19	19	6.5	8.5
24	9.3	15	17	14	20	24	20	20	19	19	6.5	8.5
25	9.3	15	16	15	20	24	20	20	19	19	6.5	8.5
26	9.3	15	16	15	22	26	20	20	19	19	6.5	8.5
27	9.3	16	15	15	22	25	20	20	15	17	6.5	8.9
28	9.3	16	15	15	23	24	20	20	19	12	6.2	8.5
29	9.3	16	15	15	27	24	21	20	19	12	6.2	8.9
30	9.3	15	15	15	---	24	21	20	19	12	6.2	8.9
31	9.3	---	15	16	---	24	---	20	---	12	5.9	---
TOTAL	289.9	442	472	474	558	755	693	648	573	572	247.9	218.9
MEAN	9.35	14.7	15.2	15.3	19.2	24.4	23.1	20.9	19.1	18.5	8.00	7.39
MAX	9.7	16	20	19	27	27	28	22	20	20	12	8.9
MIN	8.9	11	14	15	17	22	20	20	19	12	5.9	5.9
AC-FT	575	877	936	948	1,110	1,508	1,378	1,290	1,148	1,130	492	434
(a)	44,480	8,370	19,630	26,890	27,810	210	78	506	4,240	22,810	56,020	35,310
CAL YR 1971	TOTAL 6,407.0	MEAN 17.6	MAX 38	MIN 6.2	AC-FT 12,718							
WTR YR 1972	TOTAL 5,943.7	MEAN 16.2	MAX 28	MIN 5.9	AC-FT 11,798							

a Diversion, in acre-feet, from Hell Hole Reservoir to Middle Fork powerplant, furnished by Placer County Water Agency.

31 1 21 27 16 29 30

= 155 days

11428800 RUBICON RIVER BELOW HELL HOLE DAM, NEAR MEEKS BAY, CALIF.

LOCATION.--Lat 39°03'24", long 120°24'25", in NE¼ sec. 21, T.14 N., R.14 E., Placer County, Eldorado National Forest, on right bank 600 ft downstream from outlet of dam, and 15.3 miles west of Meeks Bay.

DRAINAGE AREA.--114 sq mi.

PERIOD OF RECORD.--November 1965 to current year.

GAGE.--Water-stage recorder and V-notch sharp-crested weir. Datum of gage is 4,231.52 ft above mean sea level (levels by Placer County Water Agency).

AVERAGE DISCHARGE.--7 years, 29.6 cfs (21,450 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 64 cfs Jan. 12 (gage height, 4.60 ft); minimum daily, 6.8 cfs Sept. 30.

Period of record: Maximum discharge, 2,290 cfs June 18, 1967, including flow over spillway; no flow Aug. 25 to Sept. 11, 1966.

REMARKS.--Flow regulated by Hell Hole Reservoir beginning December 1965 (see sta 11428700). Water is diverted out of the basin above the station through Buck-Loon tunnel (see sta 11428300). Water is diverted from Middle Fork American River basin by tunnel from French Meadows Reservoir (see sta 11427400) to Hell Hole Reservoir. Water is diverted from Hell Hole Reservoir through a tunnel to Middle Fork powerplant. Diversion began Sept. 8, 1966. During years when Hell Hole Dam spills, records include flow which bypasses the station. See schematic diagram of Middle Fork American and Rubicon River basins.

COOPERATION.--Records collected by Placer County Water Agency, under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

DAY	DISCHARGE IN CUBIC FEET PER SECOND. WATER YEAR OCTOBER 1972 TO SEPTEMBER 1973											
	10 OCT	11 NOV	12 DEC	13 JAN	14 FEB	15 MAR	16 APR	17 MAY	18 JUN	19 JUL	20 AUG	21 SEP
1	8.7	12	11	13	19	19	16	23	23	17	13	8.2
2	8.9	12	11	13	19	19	16	23	21	17	13	8.2
3	8.9	12	11	13	19	18	16	23	20	17	11	8.5
4	10	16	12	13	20	18	16	23	20	17	8.3	8.5
5	12	13	11	13	19	18	16	22	20	17	8.2	8.4
6	12	12	11	13	19	18	17	22	20	17	8.2	8.3
7	12	13	11	13	21	17	17	23	19	17	8.2	8.2
8	12	13	11	13	20	17	17	23	19	17	8.2	8.2
9	12	12	11	13	19	17	18	23	19	17	8.2	8.2
10	12	12	11	13	20	17	18	24	19	17	8.2	8.2
11	12	13	11	23	19	18	19	25	19	17	8.2	8.2
12	12	12	11	41	19	17	20	26	19	17	8.2	7.9
13	12	12	11	24	19	17	21	28	19	17	8.2	7.8
14	12	14	11	20	19	16	21	29	19	17	8.5	7.8
15	12	13	11	20	19	16	21	28	19	17	8.5	7.8
16	12	13	12	32	19	16	20	28	19	17	8.5	7.3
17	12	12	21	21	19	16	21	28	19	17	8.5	7.2
18	11	12	17	22	19	16	21	28	19	17	8.5	7.1
19	9.5	12	20	20	18	16	20	28	18	17	8.5	7.1
20	9.3	12	15	19	18	16	20	27	18	17	8.5	7.1
21	9.3	12	14	19	18	16	20	27	18	17	8.5	7.1
22	9.1	11	17	18	18	16	20	26	18	16	8.5	7.1
23	8.9	11	15	18	18	16	21	26	17	16	8.5	7.1
24	9.8	11	15	18	19	16	22	26	17	16	8.5	7.0
25	9.2	11	14	17	19	16	23	26	17	15	8.5	7.1
26	9.3	11	14	17	19	16	24	25	17	13	8.4	7.1
27	9.3	11	14	17	21	16	25	25	17	13	8.5	7.1
28	9.3	11	14	17	21	16	25	26	17	13	8.4	7.0
29	9.1	11	13	17	-----	16	24	26	17	13	8.2	6.9
30	8.9	11	13	18	-----	16	23	25	17	13	8.2	6.8
31	10	-----	13	19	-----	17	-----	27	-----	13	8.2	-----
TOTAL	323.7	343	407	547	536	519	598	789	560	498	271.8	228.5
MEAN	10.4	12.1	13.1	18.3	19.1	16.7	19.9	25.5	18.7	16.1	8.74	7.62
MAX	12	16	21	41	21	19	25	29	23	17	13	8.5
MIN	8.7	11	11	13	18	16	16	22	17	13	8.2	6.8
AC-FT	642	720	807	1,120	1,060	1,030	1,198	1,560	1,110	928	538	453
(A)	44,800	28,940	29,750	41,920	43,220	30,990	1,820	1,260	2,760	19,990	31,860	34,090

CAL YR 1972 TOTAL 5,833.5 MEAN 15.9 MAX 28 MIN 5.9 AC-FT 11,570
 WTR YR 1973 TOTAL 5,669.2 MEAN 15.5 MAX 41 MIN 6.8 AC-FT 11,238

a Diversion, in acre-feet, from Hell Hole Reservoir to Middle Fork powerplant, furnished by Placer County Water Agency.

15 23 19 10 22 31 11 24 31 31 30

= 252 days

SACRAMENTO RIVER BASIN

11428800 RUBICON RIVER BELOW HELL HOLE DAM, NEAR MEEKS BAY, CALIF.

LOCATION.--Lat 39°03'24", long 120°24'25", in NEKNEK sec.21, T.14 N., R.14 E., Placer County, Eldorado National Forest, on right bank 600 ft (183 m) downstream from outlet of dam, and 15.3 mi (24.6 km) west of Meeks Bay.

DRAINAGE AREA.--114 mi² (295 km²).

PERIOD OF RECORD.--November 1965 to current year.

GAGE.--Water-stage recorder and V-notch sharp-crested weir. Datum of gage is 4,231.52 ft (1,289.767 m) above mean sea level (levels by Placer County Water Agency).

AVERAGE DISCHARGE.--8 years, 28.2 ft³/s (0.799 m³/s), 20,430 acre-ft/yr (25.2 hm³/yr).

EXTREMES.--Current year: Maximum daily discharge, 731 ft³/s (20.7 m³/s) July 10, including flow over spillway; minimum daily, 5.8 ft³/s (0.164 m³/s) Sept. 16, 17.
 Period of record: Maximum discharge, 2,290 ft³/s (64.8 m³/s) June 18, 1967, including flow over spillway; no flow Aug. 25 to Sept. 11, 1966.

REMARKS.--Flow regulated by Hell Hole Reservoir beginning December 1965 (see sta 11428700). Water is diverted out of the basin above the station through Buck-Loon tunnel (see sta 11428300). Water is diverted from Middle Fork American River basin by tunnel from French Meadows Reservoir (see sta 11427400) to Hell Hole Reservoir. Water is diverted from Hell Hole Reservoir through a tunnel to Middle Fork powerplant. Diversion began Sept. 8, 1966. During years when Hell Hole Dam spills, records include flow which bypasses the station. See schematic diagram of Middle Fork American and Rubicon River basins.

COOPERATION.--Records collected by Placer County Water Agency, under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

DAY	DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974											
	10 OCT	14 NOV	14 DEC	14 JAN	20 FEB	20 MAR	20 APR	20 MAY	20 JUN	20-15 JUL	15-10 AUG	10 SEP
1	7.1	13	16	17	20	19	29	21	21	18	15	7.0
2	7.1	12	15	17	20	19	24	21	21	18	15	6.9
3	7.1	12	15	16	19	19	21	21	21	18	16	6.5
4	6.9	12	14	16	19	19	20	21	20	18	16	6.5
5	6.8	12	14	16	19	20	20	21	20	18	13	6.5
6	6.8	14	15	16	19	20	20	22	20	18	9.1	6.5
7	6.8	15	15	16	19	20	19	24	20	18	8.9	6.5
8	6.8	13	15	15	19	19	19	24	19	19	8.9	6.4
9	6.8	13	15	15	19	19	19	24	19	188	8.9	6.3
10	7.1	16	15	15	19	19	19	23	19	731	8.9	6.2
11	7.1	23	15	15	18	19	19	23	19	35	8.9	6.2
12	7.1	26	15	16	18	20	19	23	19	19	8.8	6.2
13	6.9	17	15	17	18	20	19	22	19	18	8.8	5.9
14	6.9	17	15	22	18	20	19	22	19	20	8.7	5.9
15	6.9	16	15	23	18	20	19	22	19	16	8.6	5.9
16	6.8	17	15	23	18	20	19	22	19	18	8.6	5.9
17	6.8	23	17	24	18	20	19	21	18	16	8.6	5.9
18	6.8	20	16	17	18	19	20	20	18	17	8.2	6.9
19	6.8	16	15	16	18	19	19	20	18	17	8.2	8.6
20	6.8	15	14	16	18	18	19	20	18	17	8.2	8.6
21	6.8	15	15	16	18	18	19	20	18	17	8.2	8.5
22	6.7	15	15	15	18	18	19	20	18	17	8.2	8.5
23	7.3	15	14	15	18	18	20	20	18	17	7.9	8.5
24	6.8	15	14	18	18	18	20	21	18	18	7.5	8.5
25	6.8	14	14	18	18	18	20	21	18	18	7.5	8.5
26	6.8	14	15	17	19	19	20	23	18	17	7.5	8.3
27	6.6	14	19	17	20	21	20	22	18	15	7.5	8.2
28	6.6	14	19	16	20	24	20	22	18	15	7.3	8.2
29	6.8	15	33	14	-----	27	20	21	18	15	7.1	8.2
30	9.0	15	21	17	-----	31	20	21	18	15	7.1	8.2
31	13	-----	18	20	-----	23	-----	21	-----	15	7.1	-----
TOTAL	221.4	468	498	533	521	623	599	669	566	1,434	288.2	214.7
MEAN	7.14	15.6	16.1	17.2	18.8	20.1	20.8	21.6	18.9	66.3	9.30	7.16
MAX	13	26	33	24	20	31	29	24	21	731	16	8.6
MIN	6.6	12	14	15	18	18	19	20	18	15	7.1	5.8
AC-FT	439	928	988	1,060	1,030	1,240	1,190	1,330	1,120	2,840	572	426
(a)	31,679	35,747	44,990	39,465	48,006	29,605	35,519	51,196	47,729	37,216	31,430	38,254
CAL YR 1973	TOTAL 5,753.9	MEAN 15.8	MAX 41	MIN 6.6	AC-FT 11,418							
WTR YR 1974	TOTAL 6,635.3	MEAN 18.2	MAX 731	MIN 5.8	AC-FT 13,160							

a Diversion, in acre-feet, from Hell Hole Reservoir to Middle Fork powerplant, furnished by Placer County Water Agency.

30 7 24 17 15 23 21 27 30

= 194 days

SACRAMENTO RIVER BASIN

11428800 RUBICON RIVER BELOW HELL HOLE DAM, NEAR MEEKS BAY, CALIF.

LOCATION.--Lat 39°03'24", long 120°24'25", in NE¼NE¼ sec.21, T.14 N., R.14 E., Placer County, Florado National Forest, on right bank 600 ft (183 m) downstream from outlet of dam, and 15.3 mi (24.6 km) west of Meeks Bay.

DRAINAGE AREA.--114 mi² (295 km²).

PERIOD OF RECORD.--November 1965 to current year.

GAGE.--Water-stage recorder and V-notch sharp-crested weir. Datum of gage is 4,231.52 ft (1,289.767 m) above mean sea level (levels by Placer County Water Agency).

AVERAGE DISCHARGE.--9 years, 26.7 ft³/s (0.756 m³/s), 19,340 acre-ft/yr (23.8 hm³/yr).

EXTREMES.--Current year: Maximum discharge, 54 ft³/s (1.53 m³/s) Mar. 25 (gage height, 4.51 ft or 1.375 m); minimum daily, 5.9 ft³/s (0.167 m³/s) Sept. 14-18.
Period of record: Maximum discharge, 2,290 ft³/s (64.8 m³/s) June 18, 1967, including flow over spillway; no flow Aug. 25 to Sept. 11, 1966.

REMARKS.--Flow regulated by Hell Hole Reservoir beginning December 1965 (see sta 11428700). Water is diverted out of the basin above the station through Buck-Loon tunnel (see sta 11429300). Water is diverted from Middle Fork American River basin by tunnel from French Meadows Reservoir (see sta 11427400) to Hell Hole Reservoir. Water is diverted from Hell Hole Reservoir through a tunnel to Middle Fork powerplant. Diversion began Sept. 8, 1966. During years when Hell Hole Dam spills, records include flow which bypasses the station. See schematic diagram of Middle Fork American and Rubicon River basins.

COOPERATION.--Records collected by Placer County Water Agency, under general supervision of the Geological Survey, in connection with a Federal Power Commission project.

DAY	DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCTOBER 1974 TO SEPTEMBER 1975											
	10 OCT	14 NOV	14 DEC	14 JAN	20 FEB	20 MAR	20 APR	20 MAY	20 JUN	20-15 JUL	15-10 AUG	10 SEP
1	8.2	13	13	13	17	20	20	20	17	17	14	7.5
2	8.2	13	13	13	17	20	19	20	16	17	14	7.5
3	8.2	12	15	13	17	19	19	22	16	17	14	7.1
4	7.9	12	15	13	17	19	19	21	16	17	14	7.1
5	7.9	12	14	13	17	19	19	20	16	17	14	6.8
6	8.1	12	13	18	17	20	19	20	15	17	11	6.8
7	8.4	12	13	16	18	21	19	20	14	17	9.1	6.8
8	8.2	11	13	18	19	22	19	21	14	17	9.0	6.8
9	8.2	11	13	14	24	20	19	23	14	17	8.9	6.8
10	8.2	11	13	14	19	19	19	24	13	17	8.9	6.8
11	8.2	11	13	13	18	19	19	25	13	17	8.9	6.8
12	8.5	11	13	13	18	19	20	27	13	17	8.9	6.2
13	8.5	11	13	13	24	19	20	29	17	17	8.9	6.2
14	8.5	11	13	13	20	19	19	31	28	17	8.9	5.9
15	8.5	11	13	13	19	19	19	32	20	17	8.9	5.9
16	8.5	11	13	13	18	19	19	29	19	17	8.9	5.9
17	8.5	11	13	13	18	19	18	31	19	17	8.9	5.9
18	8.5	11	13	13	18	18	18	33	19	17	8.9	5.9
19	8.5	11	13	13	20	20	18	27	19	17	8.9	6.8
20	8.5	11	13	13	20	20	19	17	19	17	8.9	7.8
21	8.2	11	13	13	18	19	19	15	19	17	8.9	7.8
22	8.2	12	13	13	18	19	19	14	18	17	8.5	7.8
23	8.2	12	13	13	18	18	19	14	18	17	8.2	7.8
24	8.2	12	13	13	19	22	24	16	18	17	8.2	7.8
25	8.2	13	13	13	19	33	22	16	18	16	7.5	7.8
26	7.9	13	13	13	19	21	20	17	18	14	7.5	7.8
27	7.5	12	13	13	20	20	19	16	18	14	7.5	7.8
28	7.9	13	13	13	20	20	19	16	18	14	7.1	7.8
29	7.6	13	13	13	20	20	20	16	17	14	7.8	7.5
30	9.3	13	13	13	20	20	20	17	17	14	7.5	7.5
31	13	13	13	15	20	20	20	17	17	14	7.5	---
TOTAL	260.4	353	408	420	526	622	581	664	508	508	292.1	210.7
MEAN	8.40	11.8	13.2	13.5	18.8	20.1	19.4	21.4	16.9	16.4	9.42	7.02
MAX	13	13	15	18	24	33	24	33	20	17	14	7.8
MIN	7.5	11	13	13	17	18	18	14	13	14	7.1	5.9
AC-FT	517	700	809	833	1040	1230	1150	1320	1010	1010	579	418
(a)	47,300	42,560	7,360	9,890	10,900	28,710	28,090	6,530	40,400	27,380	32,190	45,120

CAL YR 1974 TOTAL 6469.3 MEAN 17.7 MAX 731 MIN 5.8 AC-FT 12830
WTR YR 1975 TOTAL 5353.2 MEAN 14.7 MAX 33 MIN 5.9 AC-FT 10620

a Diversion, in acre-feet, from Hell Hole Reservoir to Middle Fork powerplant.

30-30-28-25-21-15-22-12-28-31-30-30

= 302 days

11428800 RUBICON RIVER BELOW HELL HOLE DAM, NEAR MEEKS BAY, CA

LOCATION.--Lat 39°03'24", long 120°24'25", in NE1/4 sec.21, T.14 N., R.14 E., Placer County, Eldorado National Forest, on right bank 600 ft (183.m) downstream from outlet of dam, and 15.3 mi (24.6 km) west of Meeks Bay.

DRAINAGE AREA.--114 mi² (295 km²). "

PERIOD OF RECORD.--November 1965 to current year.

GAGE.--Water-stage recorder and V-notch sharp-crested weir. Datum of gage is 4,231.52 ft (1,289.767 m) above mean sea level (levels by Placer County Water Agency).

REMARKS.--Flow regulated by Hell Hole Reservoir (station 11428700) beginning December 1965. Water is diverted out of the basin above the station through Buck-Loon tunnel (station 11428300). Water is diverted from Middle Fork American River basin by tunnel from French Meadows Reservoir (station 11427400) to Hell Hole Reservoir. Water is diverted from Hell Hole Reservoir through a tunnel to Middle Fork powerplant. Diversion began Sept. 8, 1966. During years when Hell Hole Dam spills, records include flow which bypasses the station. See schematic diagram of Middle Fork American and Rubicon River basins.

COOPERATION.--Records collected by Placer County Water Agency, under general supervision of the Geological Survey, in connection with a Federal Power Commission Project.

AVERAGE DISCHARGE.--10 years, 25.3 ft³/s (0.716 m³/s), 18,330 acre-ft/yr (22.6 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,290 ft³/s (64.8 m³/s) June 18, 1967, including flow over spillway; no flow Aug. 25 to Sept. 11, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 30 ft³/s (0.85 m³/s) May 4, gage height, 4.26 ft (1.298 m); minimum daily, 7.0 ft³/s (0.198 m³/s) June 11-17.

DAY	DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976											
	10 OCT	14 NOV	14 DEC	14 JAN	20 FEB	20 MAR	20 APR	8 MAY	8 JUN	8 JUL	8 AUG	8 SEP
1	7.5	14	15	15	18	19	17	19	8.2	8.2	8.3	8.7
2	7.5	14	15	15	18	19	17	19	8.2	8.3	8.3	8.7
3	7.5	14	15	15	18	19	17	15	8.0	8.3	8.3	8.8
4	7.5	14	15	15	18	18	17	17	8.0	8.3	8.3	8.8
5	7.5	14	15	15	18	18	17	17	8.5	8.3	8.3	8.8
6	7.5	14	15	15	18	18	17	17	9.0	8.3	8.3	8.8
7	7.5	14	15	15	18	18	18	17	9.0	8.3	8.3	8.8
8	7.5	15	15	15	18	18	18	17	9.0	9.0	8.3	8.8
9	7.5	14	15	15	18	18	18	17	9.0	9.5	8.3	8.8
10	7.7	15	15	15	18	18	18	17	8.0	10	8.3	8.8
11	8.2	15	15	15	18	18	18	17	7.0	10	8.3	8.9
12	7.5	15	15	15	19	18	18	16	7.0	11	8.3	8.9
13	7.5	15	15	15	19	18	18	16	7.0	9.5	8.3	8.9
14	7.5	15	15	15	19	18	19	14	7.0	8.3	8.3	8.9
15	7.5	15	15	15	19	17	18	15	7.0	8.3	8.3	8.9
16	7.5	15	15	15	19	17	18	16	7.0	8.3	8.3	8.9
17	7.4	15	15	15	19	17	18	16	7.0	8.3	8.3	8.9
18	7.1	15	15	15	19	18	18	16	7.5	8.3	8.3	8.8
19	7.3	15	15	15	20	18	19	16	8.0	8.3	8.3	8.8
20	7.5	15	15	15	19	17	19	13	8.0	8.3	8.3	8.8
21	7.5	15	15	15	19	17	19	8.6	8.0	8.3	8.3	8.7
22	7.5	15	15	15	19	17	19	8.4	8.0	8.3	8.3	8.7
23	7.5	15	15	15	19	17	19	8.2	8.0	8.3	8.3	8.7
24	7.5	15	15	15	19	17	19	8.2	8.0	8.3	8.5	8.6
25	7.5	15	15	15	18	17	19	8.2	8.0	8.3	8.7	8.6
26	11	15	15	15	18	17	19	8.2	8.1	8.3	8.7	8.6
27	9.7	15	15	15	18	17	19	8.2	8.1	8.3	8.7	8.5
28	11	15	15	15	18	17	19	8.2	8.1	8.3	8.7	8.5
29	11	15	15	15	19	17	19	8.2	8.1	8.3	8.7	8.5
30	11	15	15	16	17	17	19	8.2	8.1	8.3	8.7	8.4
31	12	15	15	18	17	17	19	8.2	8.1	8.3	8.7	8.4
TOTAL	253.4	442	465	469	537	545	547	420.8	237.9	266.4	260.3	262.3
MEAN	8.17	14.7	15.0	15.1	18.5	17.6	18.2	13.6	7.93	8.59	8.40	8.74
MAX	12	15	15	18	20	19	19	19	9.0	11	8.7	8.9
MIN	7.1	14	15	15	18	17	17	8.2	7.0	8.2	8.3	8.4
AC-FT	503	877	922	930	1070	1080	1080	835	472	528	516	520
†	42690	30	0	15230	48430	49370	2280	4260	5640	2900	4730	24930
CAL YR 1975 TOTAL	5492.2											
WTR YR 1976 TOTAL	4706.1											
MEAN 15.0												
MAX 33												
MIN 5.9												
AC-FT 10890												
MEAN 12.9												
MAX 20												
MIN 7.0												
AC-FT 9330												

† Diversion, in acre-feet, from Hell Hole Reservoir to Middle Fork powerplant, furnished by Placer County Water Agency.

26

27 31 30

8

= 122 days

SACRAMENTO RIVER BASIN

1142800 RUBICON RIVER BELOW HELL HOLE DAM, NEAR MEEKS BAY, CA

LOCATION.--Lat 39°03'24", long 120°24'25", in NE4NE4 sec.21, T.14 N., R.14 E., Placer County, Eldorado National Forest, on right bank 600 ft (183 m) downstream from outlet of dam, and 15.3 mi (24.6 km) west of Meeks Bay.

DRAINAGE AREA.--114 mi² (295 km²).

PERIOD OF RECORD.--November 1965 to current year.

GAGE.--Water-stage recorder and V-notch sharp-crested weir. Datum of gage is 4,231.52 ft (1,289.767 m) above mean sea level (levels by Placer County Water Agency).

REMARKS.--Flow regulated by Hell Hole Reservoir (station 11428700) beginning December 1965. Water is diverted out of the basin above the station through Buck-Loon tunnel (station 11428500). Water is diverted from Middle Fork American River basin by tunnel from French Meadows Reservoir (station 11427400) to Hell Hole Reservoir. Water is diverted from Hell Hole Reservoir through a tunnel to Middle Fork powerplant. Diversion began Sept. 8, 1966. During years when Hell Hole Dam spills, records include flow which bypasses the station. See schematic diagram of Middle Fork American and Rubicon River basins.

COOPERATION.--Records collected by Placer County Water Agency, under general supervision of the Geological Survey, in connection with a Federal Power Commission Project.

AVERAGE DISCHARGE.--11 years, 23.6 ft³/s (0.668 m³/s), 17,100 acre-ft/yr (21.1 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,290 ft³/s (64.8 m³/s) June 18, 1967, including flow over spillway; no flow Aug. 25 to Sept. 11, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 8.2 ft³/s (0.23 m³/s) Oct. 1-4; minimum daily, 5.6 ft³/s (0.16 m³/s) Dec. 30.

DAY	DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977											
	8 OCT	8 NOV	8 DEC	6 JAN	6 FEB	MEAN VALUES 6-8 MAR	8 APR	8 MAY	8 JUN	8 JUL	8 AUG	8 SEP
1	8.2	7.4	6.0	5.9	6.1	6.3	7.8	7.9	7.7	7.3	6.5	6.5
2	8.2	7.4	6.8	6.4	6.1	6.8	7.8	7.9	7.7	7.3	6.5	6.5
3	8.2	7.4	7.9	6.3	6.1	5.9	7.8	8.0	7.7	7.3	6.5	6.5
4	8.2	7.4	7.8	6.2	6.2	6.0	7.8	8.0	7.7	7.3	6.5	6.5
5	8.1	7.4	7.7	6.1	6.1	6.3	7.8	8.0	7.7	7.3	6.5	6.5
6	8.1	7.4	7.6	6.1	6.1	6.3	7.8	8.0	7.7	7.3	6.5	6.5
7	8.1	7.4	7.7	6.1	6.1	6.3	7.8	8.1	7.7	7.3	6.5	6.5
8	8.1	7.4	7.7	6.1	6.1	6.3	7.8	8.1	7.7	7.3	6.5	6.5
9	8.0	7.4	7.7	6.2	6.1	6.3	7.8	8.1	7.8	7.3	6.5	6.5
10	8.0	7.4	7.8	6.3	6.2	6.3	7.8	8.1	7.8	7.3	6.5	6.5
11	8.0	7.4	7.8	6.4	6.3	6.3	7.8	8.1	7.8	7.3	6.5	6.4
12	8.0	7.4	7.8	6.3	6.3	6.2	7.8	8.1	7.7	7.3	6.5	6.4
13	8.0	7.4	7.8	6.3	6.3	6.2	7.8	8.1	7.7	7.1	6.5	6.4
14	8.0	7.4	7.8	6.3	6.3	6.2	7.8	8.0	7.7	7.1	6.5	6.4
15	7.9	7.4	7.8	6.3	6.3	6.2	7.8	8.0	7.7	7.1	6.5	6.4
16	7.9	7.4	7.9	6.3	6.3	6.2	7.8	8.0	7.5	6.9	6.5	6.4
17	7.9	7.4	7.9	6.3	6.3	6.2	7.7	8.0	7.5	6.7	6.5	6.4
18	7.8	7.4	8.0	6.3	6.3	6.2	7.7	7.9	7.5	6.7	6.5	6.4
19	7.8	7.4	8.0	6.3	6.3	6.2	7.7	7.9	7.5	6.5	6.5	6.4
20	7.8	7.4	8.1	6.3	6.3	6.2	7.7	7.9	7.5	6.7	6.5	6.4
21	7.7	7.5	8.1	6.3	7.5	6.1	7.7	7.9	7.5	6.9	6.5	6.4
22	7.7	7.5	8.1	6.3	6.9	6.1	7.7	7.8	7.5	6.9	6.5	6.4
23	7.7	7.5	8.1	6.3	6.7	6.1	7.7	7.8	7.8	6.9	6.5	6.4
24	7.7	7.6	8.1	6.3	6.6	6.3	7.7	7.8	8.0	6.5	6.5	6.4
25	7.7	7.7	8.1	6.3	6.5	6.5	7.8	7.8	8.1	6.5	6.5	6.4
26	7.5	7.8	8.1	6.2	6.4	6.5	7.8	7.7	8.1	6.5	6.5	6.4
27	7.2	7.9	8.1	6.2	6.3	6.5	7.8	7.7	8.1	6.5	6.5	6.4
28	7.3	7.9	8.1	6.2	6.3	6.5	7.8	7.7	8.1	6.5	6.5	6.4
29	7.4	8.0	7.1	6.2	---	6.5	7.9	7.7	8.1	6.5	6.5	6.4
30	7.4	8.0	5.6	6.2	---	7.1	7.9	7.7	8.1	6.5	6.5	6.4
31	7.4	---	5.8	6.1	---	7.8	---	7.7	7.6	6.5	6.5	6.4
TOTAL	243.0	225.4	248.1	193.4	177.4	196.1	233.4	245.6	232.2	214.9	281.5	193.8
MEAN	7.84	7.51	7.75	6.24	6.34	6.33	7.78	7.92	7.74	6.93	6.58	6.43
MAX	8.2	8.0	8.1	6.4	7.5	7.8	7.9	8.1	8.1	7.3	6.5	6.5
MIN	7.2	7.4	5.6	5.9	6.1	5.9	7.7	7.7	7.5	6.5	6.5	6.4
AC-FT	482	447	476	384	352	389	463	487	461	428	490	383
†	7960	7910	4570	5140	2970	6440	1250	331	5240	9980	19110	11870

GAL YR 1976 TOTAL 4254.2 MEAN 11.6 MAX 20 MIN 5.6 AC-FT 8440
 WTR YR 1977 TOTAL 2595.9 MEAN 7.11 MAX 8.2 MIN 5.6 AC-FT 5150

† Diversion, in acre-feet, from Hell Hole Reservoir to Middle Fork powerplant, furnished by Placer County Water Agency.

17 23 18 1 7 30 14 24 31 31 30

= 231 days

11428800 RUBICON RIVER BELOW HELL HOLE DAM, NEAR MEEKS BAY, CA

LOCATION.--Lat 39°03'24", long 120°24'25", in NE¼NE¼ sec.21, T.14 N., R.14 E., Placer County, Eldorado National Forest, on right bank 600 ft (183 m) downstream from outlet of dam, and 15.3 mi (24.6 km) west of Meeks Bay.

DRAINAGE AREA.--114 mi² (295 km²).

PERIOD OF RECORD.--November 1965 to current year.

GAGE.--Water-stage recorder and V-notch sharp-crested weir. Datum of gage is 4,231.52 ft (1,289.767 m) National Geodetic Vertical Datum of 1929 (levels by Placer County Water Agency).

REMARKS.--Flow regulated by Hell Hole Reservoir (station 11428700) beginning December 1965. Water is diverted out of the basin above the station through Buck-Loon tunnel (station 11428300). Water is diverted from Middle Fork American River basin by tunnel from French Meadows Reservoir (station 11427400) to Hell Hole Reservoir. Water is diverted from Hell Hole Reservoir through a tunnel to Middle Fork powerplant. Diversion began Sept. 8, 1966. During years when Hell Hole Dam spills, records include flow which bypasses the station. See schematic diagram of Middle Fork American and Rubicon River basins.

COOPERATION.--Records collected by Placer County Water Agency, under general supervision of the Geological Survey, in connection with a Federal Energy Regulatory Commission Project.

AVERAGE DISCHARGE.--12 years, 23.1 ft³/s (0.654 m³/s), 16,740 acre-ft/yr (20.6 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,290 ft³/s (64.8 m³/s) June 18, 1967, including flow over spillway; no flow Aug. 25 to Sept. 11, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 240 ft³/s (6.80 m³/s) June 28, gage height, 5.61 ft (1.710 m); minimum daily, 6.2 ft³/s (0.18 m³/s) Oct. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.5	10	6.8	28	7.2	20	26	17	21	20	16	11
2	6.2	10	6.8	19	13	24	24	16	21	19	16	11
3	6.5	10	6.8	21	18	24	23	16	21	19	16	11
4	6.5	11	6.8	25	18	34	23	17	22	19	16	11
5	6.6	7.9	6.8	54	19	36	23	17	22	19	16	11
6	7.0	6.8	7.1	44	22	26	23	16	21	19	16	12
7	7.1	6.8	7.1	27	26	23	23	16	21	19	13	11
8	7.2	6.8	7.5	27	22	23	24	17	20	19	10	11
9	7.2	6.6	7.5	62	24	22	25	18	20	19	10	11
10	7.3	6.5	7.1	38	20	22	25	18	19	19	9.8	12
11	8.1	6.6	7.1	28	19	23	24	18	19	19	9.0	11
12	8.1	6.7	7.1	21	19	22	24	19	19	19	11	11
13	8.3	6.8	6.8	23	19	21	23	19	19	18	11	11
14	8.2	6.8	10	60	19	21	23	20	18	18	10	11
15	6.2	6.8	4.5	48	19	20	23	22	18	18	9.7	11
16	8.3	6.8	8.0	58	18	21	22	20	18	18	9.4	11
17	8.4	6.8	6.6	44	18	21	22	19	18	18	9.3	11
18	8.6	6.9	21	39	18	21	22	20	18	18	9.1	11
19	8.8	7.1	9.4	26	19	21	21	20	17	18	8.9	12
20	9.1	7.1	7.9	17	19	22	21	20	17	17	8.6	12
21	9.3	25	7.1	15	19	23	21	21	17	17	8.5	12
22	9.3	30	30	13	19	25	19	21	17	17	8.2	12
23	9.3	7.8	6.6	12	19	26	19	20	17	17	8.1	12
24	9.3	7.1	21	11	19	25	19	20	17	17	9.9	12
25	9.5	7.1	11	9.8	20	24	28	19	17	17	12	12
26	9.7	6.8	12	9.3	19	24	22	19	17	18	12	12
27	10	6.8	4.6	9.0	19	22	20	19	17	15	12	12
28	10	6.8	3.6	8.9	19	20	19	21	24	15	11	12
29	10	6.5	6.8	8.6	---	21	18	22	20	16	11	12
30	10	6.8	5.5	8.1	---	22	17	21	20	16	11	12
31	10	---	34	7.2	---	26	---	21	---	16	11	---
TOTAL	258.6	261.5	644.7	803.9	529.0	725	666	589	572	553	349.5	344
MEAN	8.34	8.72	20.8	25.9	18.9	23.4	22.2	19.0	19.1	17.8	11.3	11.5
MAX	10	30	68	62	26	36	28	22	24	20	16	12
MIN	6.2	6.5	6.8	7.2	7.0	20	17	16	17	15	8.1	11
AC-FT	513	519	1280	1590	1650	1440	1320	1170	1130	1100	693	682
†	1760	2850	3460	25120	43960	39610	13450	45630	22130	29420	44410	24690

CAL YR 1977 TOTAL 3052.2 MEAN 8.36 MAX 68 MIN 5.9 AC-FT 6050
 WTR YR 1978 TOTAL 6296.2 MEAN 17.2 MAX 68 MIN 6.2 AC-FT 12490

† Diversion, in acre-feet, from Hell Hole Reservoir to Middle Fork powerplant, furnished by Placer County Water Agency.

10 24 15 1 23 6 17 18 24 12

= 150 day 2

SACRAMENTO RIVER BASIN

11428800 RUBICON RIVER BELOW HELL HOLE DAM, NEAR MEEKS BAY, CA

LOCATION.--Lat 39°03'24", long 120°24'25", in NE&NEH sec.21, T.14 N., R.14 E., Placer County, Hydrologic Unit 18020128, Eldorado National Forest, on right bank 600 ft (183 m) downstream from outlet of dam, and 15.3 mi (24.6 km) west of Meeks Bay.

DRAINAGE AREA.--114 mi² (295 km²).

PERIOD OF RECORD.--November 1965 to current year.

GAGE.--Water-stage recorder and V-notch sharp-crested weir. Datum of gage is 4,231.52 ft (1,289.767 m) National Geodetic Vertical Datum of 1929 (levels by Placer County Water Agency).

REMARKS.--Flow regulated by Hell Hole Reservoir (station 11428700) beginning December 1965. Water is diverted out of the basin above the station through Buck-Loon tunnel (station 11428300). Water is diverted from Middle Fork American River basin by tunnel from French Meadows Reservoir (station 11427400) to Hell Hole Reservoir. Water is diverted from Hell Hole Reservoir through a tunnel to Middle Fork powerplant. Diversion began Sept. 8, 1966. During years when Hell Hole Dam spills, records include flow which bypasses the station. See schematic diagram of Middle Fork American and Rubicon River basins.

COOPERATION.--Records collected by Placer County Water Agency, under general supervision of the Geological Survey, in connection with a Federal Energy Regulatory Commission Project.

AVERAGE DISCHARGE.--13 years, 22.6 ft³/s (0.640 m³/s), 16,370 acre-ft/yr (20.2 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,290 ft³/s (64.8 m³/s) June 18, 1967, including flow over spillway; no flow Aug. 25 to Sept. 11, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 67 ft³/s (1.90 m³/s) Jan. 11, gage height, 4.37 ft (1.332 m); minimum daily, 9.1 ft³/s (0.26 m³/s) Oct. 21.

DAY	DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979											
	10 OCT	14 NOV	14 DEC	14 JAN	MEAN VALUES 20 FEB	20 MAR	20 APR	20 MAY	20 JUN	20-15 JUL	15-10 AUG	10 SEP
1	12	19	15	14	18	17	17	23	15	22	15	11
2	12	19	15	14	19	17	17	22	14	22	15	11
3	12	19	15	14	20	17	18	22	15	22	15	11
4	12	19	15	14	20	18	18	23	17	22	15	11
5	12	19	15	14	20	20	19	24	22	22	15	10
6	12	19	15	13	19	21	20	24	22	22	14	10
7	12	19	15	13	19	19	20	26	21	22	10	11
8	12	18	15	14	19	19	20	23	21	22	9.3	12
9	12	18	15	14	19	18	20	21	21	22	9.7	11
10	12	18	15	15	19	18	20	21	20	22	9.6	11
11	11	17	15	40	19	18	20	20	20	22	9.5	11
12	9.8	17	14	22	19	18	20	21	20	22	9.7	11
13	9.8	17	14	18	21	17	20	22	20	22	9.7	11
14	9.7	17	14	17	24	18	20	22	19	21	9.7	11
15	9.7	16	14	17	18	19	21	22	19	21	9.6	11
16	9.7	16	14	16	18	18	21	22	19	21	9.8	11
17	9.6	16	15	16	17	18	20	21	19	21	9.7	11
18	9.3	15	15	15	17	18	17	22	21	21	9.7	10
19	9.3	15	15	15	17	17	17	23	23	20	9.7	10
20	9.3	15	14	15	17	17	16	22	24	20	9.5	10
21	9.1	15	14	15	17	17	16	21	24	20	9.7	10
22	9.2	15	14	15	17	17	16	21	23	20	11	10
23	9.5	14	14	15	17	17	18	10	22	20	10	10
24	9.3	14	14	14	17	17	19	17	22	20	10	10
25	9.3	14	14	14	17	17	18	17	22	20	10	10
26	9.3	14	14	14	17	17	23	17	22	16	10	10
27	9.3	13	14	14	18	22	26	17	22	16	10	10
28	9.3	13	14	14	18	21	24	16	22	16	11	10
29	9.3	13	14	14	---	19	23	15	22	16	11	10
30	9.3	13	14	14	---	18	23	15	22	16	11	10
31	10	---	14	15	---	18	---	15	---	16	11	---
TOTAL	320.1	486	448	487	517	562	587	635	615	625	338.9	316
MEAN	10.3	16.2	14.5	15.7	18.5	18.1	19.6	20.5	20.5	20.2	10.9	10.5
MAX	12	19	15	40	24	22	26	26	24	22	15	12
MIN	9.1	13	14	13	17	17	16	15	14	16	9.3	10
AC-FT	635	964	889	966	1030	1110	1160	1260	1228	1240	672	627
†	9280	30710	13000	31970	31860	5170	3130	30490	27970	39610	47100	38210

CAL YR 1978 TOTAL 6385.5 MEAN 17.5 MAX 62 MIN 7.0 AC-FT 12670
 WTR YR 1979 TOTAL 5937.0 MEAN 16.3 MAX 40 MIN 9.1 AC-FT 11780

† Diversion, in acre-feet, from Hell Hole Reservoir to Middle Fork powerplant, furnished by Placer County Water Agency.

19 4 1 23 27 139 5 1 14

= 119 days

11428800 RUBICON RIVER BELOW HELL HOLE DAM, NEAR MEEKS BAY, CA

LOCATION.--Lat 39°03'24", long 120°24'25", in NE1/4 sec. 21, T.14 N., R.14 E., Placer County, Hydrologic Unit 18020128, Eldorado National Forest, on right bank 800 ft (183 m) downstream from outlet of dam, and 15.3 mi (24.6 km) west of Meeks Bay.

RAINAGE AREA.--114 mi² (295 km²).

PERIOD OF RECORD.--November 1965 to current year.

GAGE.--Water-stage recorder and V-notch sharp-crested weir. Datum of gage is 4,231.52 ft (1,289.767 m) National Geodetic Vertical Datum of 1929 (levels by Placer County Water Agency).

REMARKS.--Flow regulated by Hell Hole Reservoir (station 11428700) beginning December 1965. Water is diverted out of the basin above the station through Buck-Loon tunnel (station 11428300). Water is diverted from Middle Fork American River basin by tunnel from French Meadows Reservoir (station 11427400) to Hell Hole Reservoir. Water is diverted from Hell Hole Reservoir through a tunnel to Middle Fork powerplant. Diversion began Sept. 8, 1966. During years when Hell Hole Dam spills, records include flow which bypasses the station. See schematic diagram of Middle Fork American and Rubicon River basins.

COOPERATION.--Records collected by Placer County Water Agency, under general supervision of the Geological Survey, in connection with a Federal Energy Regulatory Commission Project.

AVERAGE DISCHARGE.--14 years, 22.2 ft³/s (0.629 m³/s), 16,080 acre-ft/yr (19.8 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,290 ft³/s (64.8 m³/s) June 18, 1967, including flow over spillway; no flow Aug. 25 to Sept. 11, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 170 ft³/s (4.81 m³/s) Jan. 13, gage height, 5.31 ft (1.618 m); minimum daily, 4.3 ft³/s (0.12 m³/s) Oct. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MEAN VALUES											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	13	15	21	19	18	20	20	18	20	15	10
2	11	13	15	18	19	16	20	20	18	21	15	10
3	11	13	15	16	18	16	20	21	18	21	15	12
4	11	14	15	17	18	14	20	21	19	20	15	13
5	11	13	15	15	16	16	23	21	19	20	14	13
6	11	13	15	16	18	14	22	21	19	20	11	13
7	11	14	15	19	18	15	21	20	18	21	11	13
8	11	14	15	18	17	15	21	20	19	21	11	13
9	5.0	15	15	26	18	15	20	20	19	21	11	13
10	5.0	15	15	26	18	16	20	19	22	22	11	13
11	5.0	15	15	24	18	21	21	19	22	22	11	13
12	4.3	15	15	69	19	22	21	19	22	21	11	13
13	7.8	15	15	116	19	22	21	19	22	21	11	13
14	7.8	15	15	48	20	22	22	19	22	21	11	13
15	7.8	15	15	26	24	22	22	19	21	21	11	13
16	7.8	15	15	24	27	22	22	19	20	21	11	13
17	9.5	15	15	23	35	22	23	20	20	21	11	13
18	10	15	15	15	44	21	24	21	20	22	10	15
19	10	15	15	12	40	21	24	21	20	22	11	13
20	10	15	15	11	28	18	25	21	20	22	11	13
21	9.7	15	15	11	28	17	25	21	20	22	11	13
22	9.7	15	15	12	26	17	24	21	20	22	11	13
23	9.7	15	16	11	25	17	24	20	20	22	11	13
24	9.7	16	17	12	24	19	24	19	20	19	11	13
25	9.9	16	14	13	25	20	24	19	20	17	11	13
26	9.9	17	16	13	21	20	24	18	20	17	11	11
27	9.9	15	16	15	17	20	25	18	20	17	11	8.9
28	9.7	15	16	13	20	20	25	16	20	19	10	8.9
29	9.9	15	16	12	17	20	22	18	20	15	10	9.9
30	9.9	15	21	12	---	20	20	18	20	15	10	11
31	9.0	---	28	15	---	21	---	18	---	15	10	---
TOTAL	284.0	441	492	695	658	583	669	608	599	618	355	367.7
MEAN	9.16	14.7	15.9	22.4	22.7	18.8	22.3	19.6	20.0	19.9	11.5	12.3
MAX	11	17	28	116	44	22	25	21	22	22	15	13
MIN	4.3	13	15	11	17	15	20	18	18	15	10	6.8
AC-FT	563	875	976	1380	1316	1160	1336	1210	1190	1230	704	726
†	24400	24390	32890	26270	39360	58080	56500	57310	36240	44430	28930	27490
CAL YR 1979 TOTAL	5899.9			MEAN 16.2	MAX 40	MIN 4.3	AC-FT 11700					
WTR YR 1980 TOTAL	6369.7			MEAN 17.4	MAX 116	MIN 4.3	AC-FT 12630					

† Diversion, in acre-feet, from Hell Hole Reservoir to Middle Fork powerplant, furnished by Placer County Water Agency.

20 5 12 14 15 15 9 2 1 3

96 days

SACRAMENTO RIVER BASIN

11428800 RUBICON RIVER BELOW HELL HOLE DAM, NEAR MEEKS BAY, CA

LOCATION.--Lat 39°03'24", long 120°24'25", in NE4 sec. 21, T.14 N., R.14 E., Placer County, Hydrologic Unit 18020128, Eldorado National Forest, on right bank 600 ft (183 m) downstream from outlet of dam, and 15.3 mi (24.6 km) west of Meeks Bay.

DRAINAGE AREA.--114 mi² (295 km²).

PERIOD OF RECORD.--November 1965 to current year.

GAGE.--Water-stage recorder and V-notch sharp-crested weir. Datum of gage is 4,231.52 ft (1,289.767 m) National Geodetic Vertical Datum of 1929 (levels by Placer County Water Agency).

REMARKS.--Flow regulated by Hell Hole Reservoir (station 11428700) beginning December 1965. Water is diverted out of the basin above the station through Buck-Loon tunnel (station 11428300). Water is diverted from Middle Fork American River basin by tunnel from French Meadows Reservoir (station 11427400) to Hell Hole Reservoir. Water is diverted from Hell Hole Reservoir through a tunnel to Middle Fork powerplant. Diversion began Sept. 8, 1966. During years when Hell Hole Dam spills, records include flow which bypasses the station. See schematic diagram of Middle Fork American and Rubicon River basins.

COOPERATION.--Records collected by Placer County Water Agency, under general supervision of the Geological Survey, in connection with a Federal Energy Regulatory Commission Project.

AVERAGE DISCHARGE.--15 years, 21.9 ft³/s (0.620 m³/s), 15,870 acre-ft/yr (19.6 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,290 ft³/s (64.8 m³/s) June 18, 1967, including flow over spillway; no flow Aug. 25 to Sept. 11, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 718 ft³/s (20.3 m³/s) May 6, gage height, 7.60 ft (2.316 m); minimum daily, 8.6 ft³/s (0.24 m³/s) Aug. 20.

† Diversion, in acre-feet, from Hell Hole Reservoir to Middle Fork powerplant, furnished by Placer County Water Agency.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

MEAN VALUES

DAY	New Agreement											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	14	14	14	15	21	22	22	23	22	15	11
2	11	14	14	15	17	21	21	21	23	21	15	11
3	11	14	15	15	21	21	21	20	23	21	15	10
4	11	14	16	15	22	20	21	20	24	21	14	11
5	11	14	14	14	22	20	21	19	24	21	12	11
6	11	15	14	15	22	20	21	22	24	21	9.5	11
7	11	15	13	15	22	20	21	22	24	21	9.7	11
8	12	15	13	15	22	20	21	22	24	21	9.7	11
9	12	14	13	15	22	20	21	21	24	21	10	11
10	12	14	13	15	22	20	21	21	22	21	11	11
11	12	14	13	15	23	20	21	20	22	21	13	11
12	12	14	13	15	23	20	21	20	22	21	14	11
13	12	14	14	15	24	20	21	21	22	21	12	11
14	12	14	14	15	28	20	21	22	22	22	9.1	10
15	12	14	14	15	24	20	22	22	22	21	8.9	10
16	12	14	14	15	23	20	22	22	22	21	8.9	10
17	12	14	13	14	24	20	22	22	22	21	8.0	10
18	12	14	13	14	24	20	23	24	21	20	8.0	10
19	12	14	13	14	24	21	23	24	21	20	8.0	10
20	12	14	13	14	24	22	22	23	21	20	8.6	10
21	12	14	13	14	23	23	22	23	21	20	8.9	9.7
22	12	14	13	14	23	23	23	23	21	20	8.9	9.7
23	12	14	13	15	23	22	24	23	21	20	8.9	9.7
24	12	14	14	15	22	22	25	23	21	18	8.9	9.7
25	12	14	14	14	20	32	24	23	21	15	8.9	9.7
26	12	14	14	14	20	27	24	24	21	15	8.0	9.7
27	11	14	14	20	21	24	22	23	21	15	9.0	9.3
28	11	14	14	17	21	23	22	23	21	15	11	9.3
29	11	14	14	15	---	23	24	23	21	15	11	9.3
30	10	14	14	15	---	22	24	24	21	15	11	9.3
31	14	---	14	15	---	21	---	24	---	15	11	---
TOTAL	365	423	424	462	621	668	661	686	662	602	329.1	107.4
MEAN	11.8	14.1	13.7	14.9	22.2	21.5	22.0	22.1	22.1	19.4	10.6	10.2
MAX	14	15	16	20	28	32	25	24	24	22	15	11
MIN	11	14	13	14	15	20	21	19	21	15	8.6	9.3
AC-FT	724	839	841	916	1230	1320	1310	1360	1310	1190	653	610
+	18900	40100	50060	17630	8430	7300	5310	5590	6730	8970	5720	10070
CAL YR 1980 TOTAL	6264.7											
WTH YR 1981 TOTAL	6210.5											
MEAN	17.4											
MAX	116											
MIN	8.9											
AC-FT	12620											
AC-FT	12320											

† Diversion, in acre-feet, from Hell Hole Reservoir to Middle Fork powerplant, furnished by Placer County Water Agency.

13 2 8 31 30

= 84 days

11428800 RUBICON RIVER BELOW HELL HOLE DAM, NEAR MEEKS BAY, CA

LOCATION.--Lat 39°03'24", long 120°24'25", in NE 1/4 NE 1/4 sec.21, T.14 N., R.14 E., Placer County, Hydrologic Unit 18020128, Eldorado National Forest, on right bank 600 ft (183 m) downstream from outlet of dam, and 15.3 mi (24.6 km) west of Meeks Bay.

DRAINAGE AREA.--114 mi² (295 km²).

PERIOD OF RECORD.--November 1965 to current year.

GAGE.--Water-stage recorder and V-notch sharp-crested weir. Datum of gage is 4,231.52 ft (1,289.767 m) National Geodetic Vertical Datum of 1929 (levels by Placer County Water Agency).

REMARKS.--Flow regulated by Hell Hole Reservoir (station 11428700) beginning December 1965. Water is diverted out of the basin above the station through Buck-Loon tunnel (station 11428300). Water is diverted from Middle Fork American River basin by tunnel from French Meadows Reservoir (station 11427400) to Hell Hole Reservoir. Water is diverted from Hell Hole Reservoir through a tunnel to Middle Fork powerplant. Diversion began Sept. 8, 1966. During years when Hell Hole Dam spills, records include flow which bypasses the station. See schematic diagram of Middle Fork American and Rubicon River basins.

COOPERATION.--Records collected by Placer County Water Agency, under general supervision of the Geological Survey, in connection with a Federal Energy Regulatory Commission Project.

AVERAGE DISCHARGE.--16 years, 27.7 ft³/s (0.784 m³/s), 20,070 acre-ft/yr (24.7 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,380 ft³/s (266 m³/s) Dec. 20, 1981, including flow over spillway; no flow Aug. 25 to Sept. 11, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,380 ft³/s (266 m³/s) Dec. 20, including flow over spillway; minimum daily, 0.34 ft³/s (0.01 m³/s) June 11.

DAY	DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.6	13	19	66	21	27	21	639	207	23	17	9.7
2	9.3	13	19	22	21	29	20	764	223	23	17	9.6
3	9.3	13	18	22	21	26	20	788	206	23	16	9.5
4	9.4	13	18	22	21	25	20	827	172	23	16	9.6
5	9.5	13	18	22	21	24	19	796	140	23	15	9.6
6	9.6	13	18	21	21	34	19	598	122	23	14	9.6
7	9.7	13	18	21	20	23	19	694	81	23	13	9.3
8	10	13	18	21	20	23	19	764	45	23	13	9.2
9	10	13	18	21	20	23	20	543	23	23	11	9.2
10	10	13	18	21	20	29	28	263	12	23	9.5	9.2
11	11	13	18	21	20	35	58	108	.34	23	9.6	9.2
12	11	15	19	20	20	27	35	158	55	23	9.6	9.2
13	11	23	20	20	23	26	28	372	187	22	9.3	9.2
14	10	22	20	20	40	27	27	568	330	21	9.2	9.2
15	10	20	21	20	70	26	25	622	363	21	9.2	9.2
16	10	18	20	20	302	25	23	691	242	21	9.2	9.2
17	10	23	19	20	1190	23	23	809	180	21	9.2	9.2
18	10	18	19	19	672	22	23	808	141	21	9.2	9.2
19	10	17	68	19	425	22	23	884	2.1	19	9.2	9.2
20	10	16	4350	18	338	22	22	946	73	18	9.2	9.2
21	10	33	2420	18	371	22	22	775	195	18	9.2	9.2
22	10	28	669	18	465	22	22	661	187	18	9.0	9.2
23	10	30	322	18	391	22	153	513	129	18	9.1	9.2
24	10	35	177	18	165	22	397	426	44	18	9.7	9.7
25	10	23	44	19	40	21	396	327	19	18	9.6	11
26	10	22	24	20	25	21	418	198	35	17	9.6	11
27	10	21	383	19	25	22	441	107	35	17	9.6	11
28	12	20	178	18	24	22	557	181	29	17	9.6	11
29	11	19	118	19	---	21	517	388	24	17	9.6	11
30	12	19	498	21	---	21	441	422	24	17	9.6	11
31	13	---	268	21	---	21	---	311	---	17	9.6	---
TOTAL	317.4	565	9857	665	4816	745	3856	16851	3525.44	632	338.6	289.9
MEAN	10.2	18.8	318	21.5	172	24.0	129	544	118	20.4	18.9	9.66
MAX	13	35	4350	66	1190	35	557	946	363	23	17	11
MIN	9.3	13	18	18	20	21	19	107	.34	17	9.0	9.2
AC-FT	630	1120	19550	1320	9550	1480	7650	33420	6998	1250	672	575
a	11630	23430	53700	55590	46590	58200	54670	60370	57080	55280	55270	32870

CAL YR 1981 TOTAL 15737.90 MEAN 43.1 MAX 4350 MIN 8.6 AC-FT 31220
 WTR YR 1982 TOTAL 42458.34 MEAN 116 MAX 4350 MIN .34 AC-FT 34220

a Diversion, in acre-feet, from Hell Hole Reservoir to Middle Fork powerplant, furnished by Placer County Water Agency.

31 18 12

3 13 31 30

= 138 Days