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51.1245 (Salt River)

**REPORT ON THE FEASIBILITY OF  
PROVIDING INSTREAM FLOW  
IN SALT RIVER  
INSTREAM FLOW SEGMENT NO. 1  
TEMPORARY FILING NO. 28 3/80**

**November 1994**

Submitted To:

Wyoming Water Development Commission  
Herschler Building  
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Western Water Consultants, Inc. has conducted its work and presents these findings in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions. No other representation and no warranty or guarantee is made or intended.

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## I. SUMMARY

**REPORT ON THE FEASIBILITY OF  
PROVIDING INSTREAM FLOW IN SALT RIVER  
INSTREAM FLOW SEGMENT NO. 1  
TEMPORARY FILING NO. 28 3/80**

**November 1994**

**I. SUMMARY**

The Wyoming Water Development Commission (WWDC) is required by W.S. 41-3-1004 (a) to determine the feasibility of providing unappropriated direct flow of water for instream uses within stream segments requested by the Wyoming Game and Fish Department (WGFD). WGFD has requested a direct flow water right for purposes of providing instream flow for fisheries in a segment of Salt River. WWDC contracted with Western Water Consultants, Inc. (WWC) of Laramie, Wyoming to prepare the technical study. The amount of flow requested by period of the year is as follows:

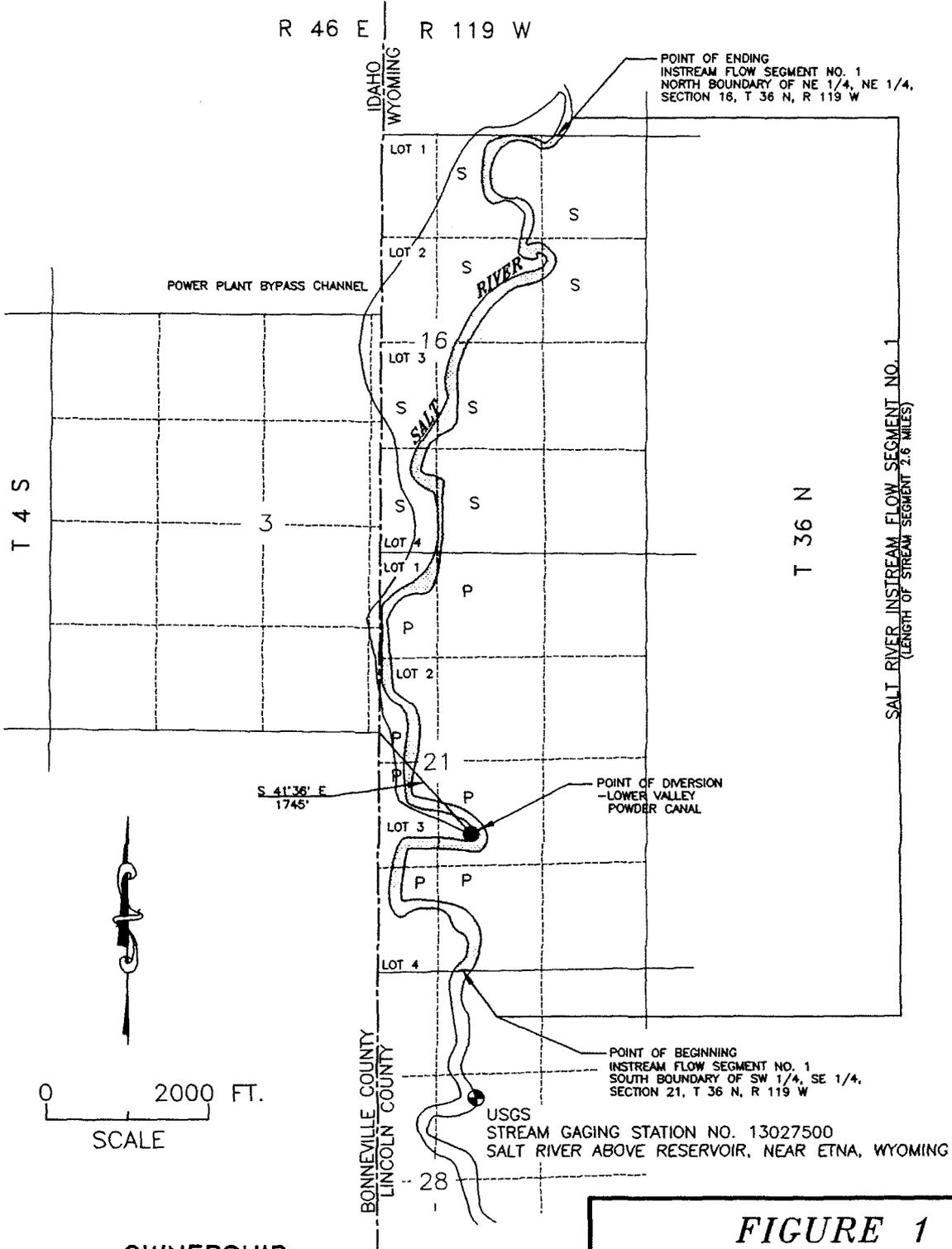
October 1 through December 31	221 cfs
January 1 through September 30	221 cfs

The Salt River Instream Flow Segment Number 1 is defined by an upstream point located on the south line of SW $\frac{1}{4}$ SE $\frac{1}{4}$  in Section 21, Township 36 North, Range 119 West to a downstream point located on the north line of Section 16, Township 36 North, Range 119 West, all in Lincoln County, Wyoming. The segment has a stream length of 2.6 miles and its location is shown on Figure 1.

A proposed hydroelectric facility which diverts near the upstream end of the proposed instream flow segment holds senior Wyoming water rights totaling 440 cfs. This facility falls under the regulation of the Federal Energy Regulatory Commission (FERC). Preliminary FERC license requirements call for the facility to bypass for fishery purposes a minimum streamflow of 221 cfs. At the direction of the WWDC, the main analysis of available stream flows for the proposed instream flow right is based on Wyoming water rights with an analysis based on the FERC requirements included in the summaries and in appendix D.

Mean monthly flow, dry year flow, and daily flow exceedence analyses were conducted for the Salt River Instream Flow Segment No. 1 using records from USGS Gaging Station No.

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**OWNERSHIP**

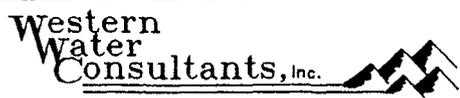
- S - STATE GOVT. /STATE SCHOOL SECTION
- P - PRIVATE LAND /VARIOUS OWNERS WITH PUBLIC FISHING EASEMENT

OWNERSHIP FROM BUREAU OF LAND MANAGEMENT MASTER TITLE PLATS AND FROM RECORDS OF THE LINCOLN COUNTY ASSESSOR.

**FIGURE 1**

SALT RIVER  
INSTREAM FLOW SEGMENT NO. 1

INSTREAM FLOW STUDY  
SOUTHWEST WYOMING



13027500. The mean monthly flow analysis shows that on the average, the requested flow of 221 cfs is available for only the months of April, May, June, and July.

The year 1992 is the driest year on record. During that year, the requested flow was unavailable for all months of the year. By period, the three driest years on record were:

October 1 - December 31	1978, 1991, 1989
January 1 - September 30	1977, 1992, 1961

Considering the average of the three driest years, by period, requested flows will not be available for any month of the year.

Daily flow exceedence analysis showed that the requested flow of 221 cfs would be available 23% of the time during the October 1 - December 31 period and 43% of the time for the January 1 - September 30 period.

If the bypass flows set forth in the proposed FERC license are assumed to exist, the requested instream flows would be available essentially 99-100 percent of the time. Appendix D presents report Tables 2 through 6, Figures 4 through 8, and Appendix B figures prepared under this assumption. Appendix F includes the FERC license application by Scott D. Heiner for the Salt River water power project. Also included in Appendix E is a letter from Scott Heiner indicating that he recognizes that 221 cfs will be bypassed around Salt River Power's diversion works.

## II. WATER RIGHTS

## II. WATER RIGHTS

Two water rights exist within the proposed instream flow segment. Both water rights are associated with plans to reactivate an existing hydroelectric facility located just downstream of the upstream end of the proposed instream flow segment. These rights consist of an adjudicated 1937 right for 240 cfs and an unadjudicated 1992 right for 200 cfs. The point of diversion for both rights is located approximately one mile downstream of the USGS gaging station and about 3500 feet below the upstream end of the proposed instream flow segment. The diverted flows would be conveyed approximately 2.7 miles via the delivery canal to the power plant, and returned to the Salt River below the downstream end of the proposed instream flow segment.

Licensing of the proposed hydroelectric facility falls under the jurisdiction of the Federal Energy Regulatory Commission (FERC). Licensing procedures require an assessment of potential fisheries impacts and, where appropriate, mitigation measures. Based on recommendations by the WGFD and the U.S. Fish and Wildlife Service (FWS) the FERC license will require the diversion for the proposed hydroelectric facility to bypass for fishery purposes a minimum of 221 cfs. The bypass corresponds with the requested instream flow amount.

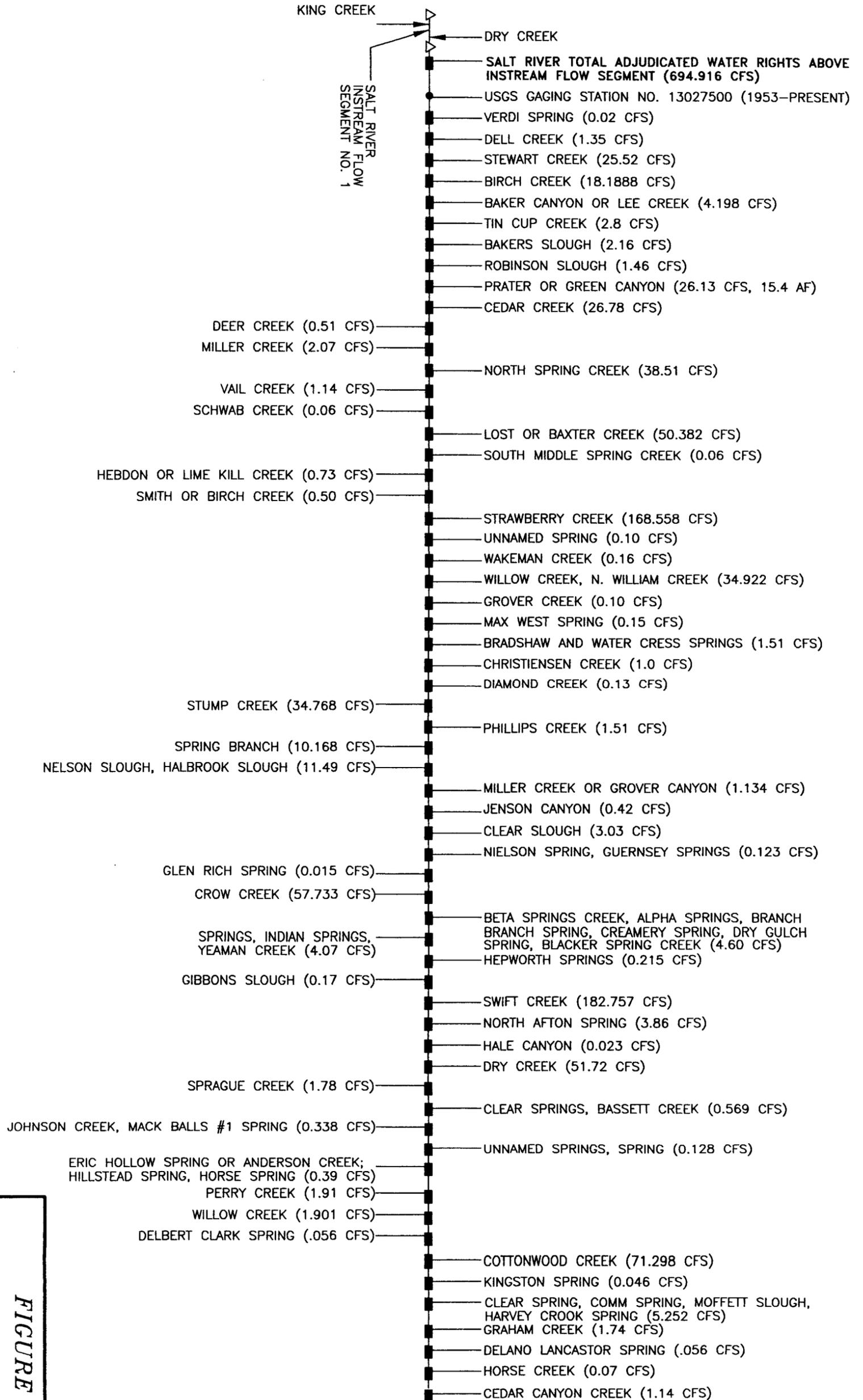
Upstream of the proposed instream flow segment there are 1,176 water rights listed by the Wyoming State Engineer's Office within the Salt River Basin. Of these, 885 are adjudicated, totaling 1,558.5948 cfs and 15.4 AF, 248 unadjudicated and 1 expired water right permits listed. Appendix A presents a listing of the water rights mentioned above and Figure 2 is a schematic illustrating the water rights.

Lisa Johnson, the District Hydrographer was contacted to determine the availability of accurate diversion records, the extent of regulation typically called for, and an estimate of whether most diverters use their full water right. According to Ms. Johnson there is plenty of water available in the basin and there has never been a formal call for regulation. She also indicated that most diverters take at least their full water right appropriation, and probably even additional flows, as is typical in areas where abundant streamflows exist. The current trend in the basin is to replace flood irrigation with more efficient center-pivot sprinkler application of irrigation water. This change in irrigation practice has not led to under-utilization of available

diversion rights because the irrigators typically use any excess water to supplement remaining lands still under flood irrigation. Based on this information, the water rights upstream of the instream flow segment are fully utilized and thus irrigators will not increase their diversions and the flow recorded at the USGS gaging station represents unappropriated water.

The main body of this report is based on the existing Wyoming water rights on the Salt River. This part of the report does not take into consideration the FERC required by-pass of 221 cfs. Appendix D presents the findings using the FERC by-pass requirements.

NOTE: AMOUNTS SHOWN IN PARENTHESES REPRESENT TOTAL AMOUNTS OF ADJUDICATED WATER RIGHTS FOR EACH TRIBUTARY TO SALT RIVER.



**FIGURE 2**  
SALT RIVER WATER RIGHTS SCHEMATIC

Western Water Consultants, Inc.

SOUTHWEST WYOMING INSTREAM FLOW STUDY

### III. STREAMFLOW RECORDS

### III. STREAMFLOW RECORDS

The USGS streamflow gage "Salt River above Reservoir, near Etna, Wyoming" station number 13027500 has a period of record from 1953 to present, and is located approximately 1,650 feet above the upstream end of the instream flow segment. The average monthly flow in cubic feet per second (cfs) recorded at the gage for each month is presented in Table 1 with the mean flow and selected statistical information given at the bottom of the table along with amounts of requested flow. The location of the gage and its drainage area are shown on Figure 3.

As shown on the water rights schematic map (Figure 2) there are only two small tributaries to the Salt River and one diversion for the power plant within the proposed instream flow segment. Thus, the USGS gage can be used to represent the streamflow at the downstream end of the report.

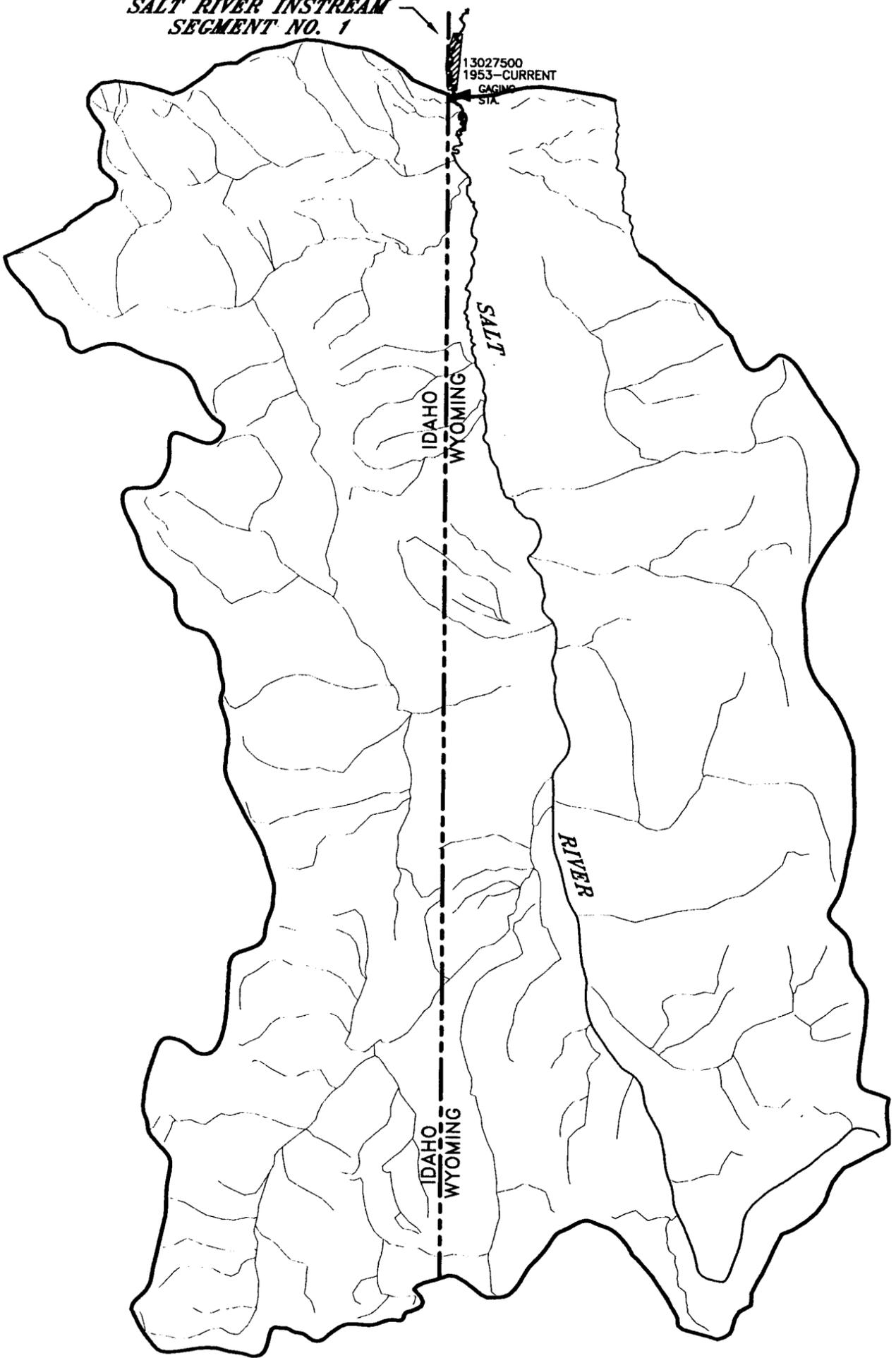
TABLE 1

SALT RIVER ABOVE RESERVOIR, NEAR ETNA, WY  
 Station No. 13027500, USGS Data  
 Average Monthly Flow (cfs)

YEAR	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	ANNUAL(AF)
1954	534.00	554.23	512.16	451.74	422.79	422.39	852.43	1080.03	734.53	679.48	597.71	586.13	448789
1955	579.26	554.00	468.10	418.65	397.32	378.81	511.80	944.16	750.37	537.97	545.16	530.90	399818
1956	533.87	554.67	612.13	552.45	400.62	489.55	1557.27	2138.06	1292.63	814.58	706.00	679.07	625542
1957	638.32	631.20	544.74	482.58	452.21	463.39	761.87	1870.32	1573.00	1028.03	788.81	764.27	604718
1958	703.16	655.60	584.94	501.81	485.18	473.26	787.00	1959.68	1028.93	708.13	636.87	642.40	554598
1959	606.71	584.67	550.16	451.42	414.89	422.94	807.50	994.61	688.10	581.03	548.58	592.17	437578
1960	604.19	569.47	475.94	422.32	401.55	424.39	899.00	869.00	505.23	485.06	474.23	522.83	402551
1961	518.71	547.80	446.23	362.87	372.32	390.19	594.80	552.84	338.07	352.61	380.26	496.83	323043
1962	467.39	472.13	417.58	368.84	429.32	375.42	1362.77	1696.13	1037.83	842.29	769.55	715.30	540930
1963	633.19	597.83	518.97	383.94	702.43	541.06	645.63	1178.06	1024.27	590.26	520.90	672.00	482423
1964	626.00	606.90	493.39	417.06	382.17	367.94	737.67	2005.16	2086.67	1024.52	745.16	740.47	619427
1965	673.45	670.43	703.61	583.23	528.54	445.77	1286.30	1959.68	1491.67	1082.71	836.45	863.87	672405
1966	737.32	686.47	587.45	524.03	461.75	457.16	822.07	1277.35	628.53	467.42	427.58	510.87	458575
1967	501.35	488.40	422.97	382.52	373.86	395.97	664.90	1356.03	1657.00	1165.35	663.55	724.30	531630
1968	704.65	664.70	559.00	494.19	495.86	480.13	754.43	1376.77	1199.63	665.68	748.77	708.70	535761
1969	631.84	610.77	534.26	545.74	461.11	410.68	1122.03	1562.00	956.43	700.71	573.39	557.87	523725
1970	600.03	543.50	469.87	430.29	418.82	385.74	586.17	1626.87	1432.00	862.87	652.84	723.97	527968
1971	674.52	647.47	586.39	467.94	498.86	491.42	1291.03	3251.61	3956.00	1716.77	983.74	961.47	902475
1972	877.42	800.90	679.32	539.10	491.83	805.87	1441.73	2820.65	2512.33	1142.45	782.55	805.40	829385
1973	752.03	691.47	566.00	509.13	480.54	438.19	691.57	1590.65	1007.63	700.16	571.26	683.40	524888
1974	616.77	634.40	513.84	427.10	421.46	512.68	1442.20	2502.26	1927.00	959.90	676.77	643.30	681723
1975	647.03	639.40	550.23	481.23	459.61	487.71	600.47	1835.52	2718.67	1809.03	895.87	795.90	720818
1976	773.68	664.80	606.97	518.94	444.21	450.77	1035.83	3108.71	1848.67	1011.16	747.55	757.77	725654
1977	721.45	655.50	529.74	463.68	423.57	424.94	503.10	305.52	274.93	270.71	266.29	341.83	312546
1978	335.90	347.17	381.26	323.65	337.29	437.87	1520.00	2461.29	2234.67	1371.16	762.74	685.33	677066
1979	680.94	657.17	562.42	433.00	489.18	498.35	815.53	1529.03	815.67	507.13	484.55	462.83	479592
1980	498.68	476.97	403.42	407.77	400.41	417.13	911.47	2032.58	1921.67	904.06	592.23	684.17	583887
1981	642.23	567.17	509.26	438.16	402.61	464.55	563.93	927.58	1093.53	431.87	362.26	428.47	412407
1982	464.48	442.33	420.00	383.03	374.32	481.26	998.67	3069.68	2387.00	1713.55	902.35	923.97	760682
1983	911.84	710.03	614.10	559.61	503.39	578.52	1010.30	2685.48	3213.00	1741.29	996.94	906.10	872738
1984	885.29	838.43	711.81	560.29	572.90	595.26	1223.83	3109.03	2949.00	1497.10	971.39	923.07	898285
1985	837.58	741.50	576.26	499.61	441.96	423.61	1592.97	2169.68	884.60	526.97	484.65	548.27	588036
1986	565.16	544.17	461.26	414.84	568.46	1120.94	2204.00	3085.16	3186.67	1272.00	860.74	897.53	916518
1987	817.26	713.90	588.55	460.39	465.43	442.19	733.90	648.10	646.33	509.35	482.10	462.20	420716
1988	472.97	463.53	410.29	361.90	359.03	362.23	820.67	997.29	553.90	393.32	366.13	389.67	360071
1989	415.32	453.83	407.94	369.74	341.82	450.90	1120.07	1146.23	876.60	547.74	497.65	509.87	430981
1990	523.23	492.70	439.23	405.42	371.21	412.13	721.37	698.74	496.07	388.16	358.90	385.50	343446
1991	436.65	429.07	369.61	343.81	353.46	398.19	586.10	1198.32	1444.90	557.77	475.23	570.47	432189
1992	529.10	559.77	458.06	377.26	381.75	494.26	554.10	404.03	345.67	390.10	302.23	365.80	312291
# RECORDS	39	39	39	39	39	39	39	39	39	39	39	39	39
MIN	335.90	347.17	369.61	323.65	337.29	362.23	503.10	305.52	274.93	270.71	266.29	341.83	312291
MAX	911.84	838.43	711.81	583.23	702.43	1120.94	2204.00	3251.61	3356.00	1809.03	996.94	961.47	916518
STD DEV	133.98	103.56	85.82	67.27	71.84	130.18	375.22	816.49	859.87	422.84	194.52	166.30	169524
C.V.	21%	17%	17%	15%	16%	27%	39%	48%	61%	50%	31%	26%	
MEAN	624.95	593.96	519.16	449.21	440.62	474.71	952.22	1692.92	1413.32	844.88	626.66	645.24	560920
REQUESTED	221	221	221	221	221	221	221	221	221	221	221	221	

SALT RIVER INSTREAM  
SEGMENT NO. 1

13027500  
1953-CURRENT  
GAGING  
STA.



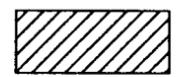
IDAHO  
WYOMING

IDAHO  
WYOMING

SALT  
RIVER



0 25000 FT.  
SCALE



INSTREAM FLOW SEGMENT

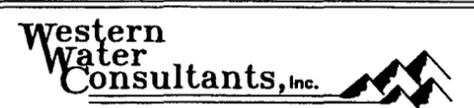


DRAINAGE BASIN BOUNDARY

**FIGURE 3**

SALT RIVER  
GAGING STATION LOCATION MAP

SOUTHWESTERN WYOMING  
INSTREAM FLOW STUDY



## IV. HYDROLOGY

#### IV. HYDROLOGY

Daily streamflow data from the USGS gage "Salt River above Reservoir, near Etna, Wyoming" were obtained from the Wyoming Water Resources Center and were summarized as mean monthly flows for the instream flow segment. This gage is located about 1650 feet upstream of the proposed instream flow segment. There is only one intervening diversion, the proposed hydroelectric facility, between the gage and the downstream end of the proposed instream flow segment. The downstream end of the proposed instream flow segment is the point of administration for the segment. Two small streams enter the Salt River between the USGS gage and the point of administration. Dry Creek enters from the east about ½ mile downstream of the USGS gage and the other, King Creek, enters from the west about 1½ miles downstream of the gage. An existing box culvert allows King Creek to flow under the powerplant delivery canal to the Salt River. Thus flows at the USGS gage less the 440 cfs for the powerplant represent a conservative estimate of unappropriated direct flow available at the downstream end of the proposed instream flow segment. Data from the Etna gaging station for the period of record are shown in Table 1.

## V. MEAN MONTHLY FLOW ANALYSIS

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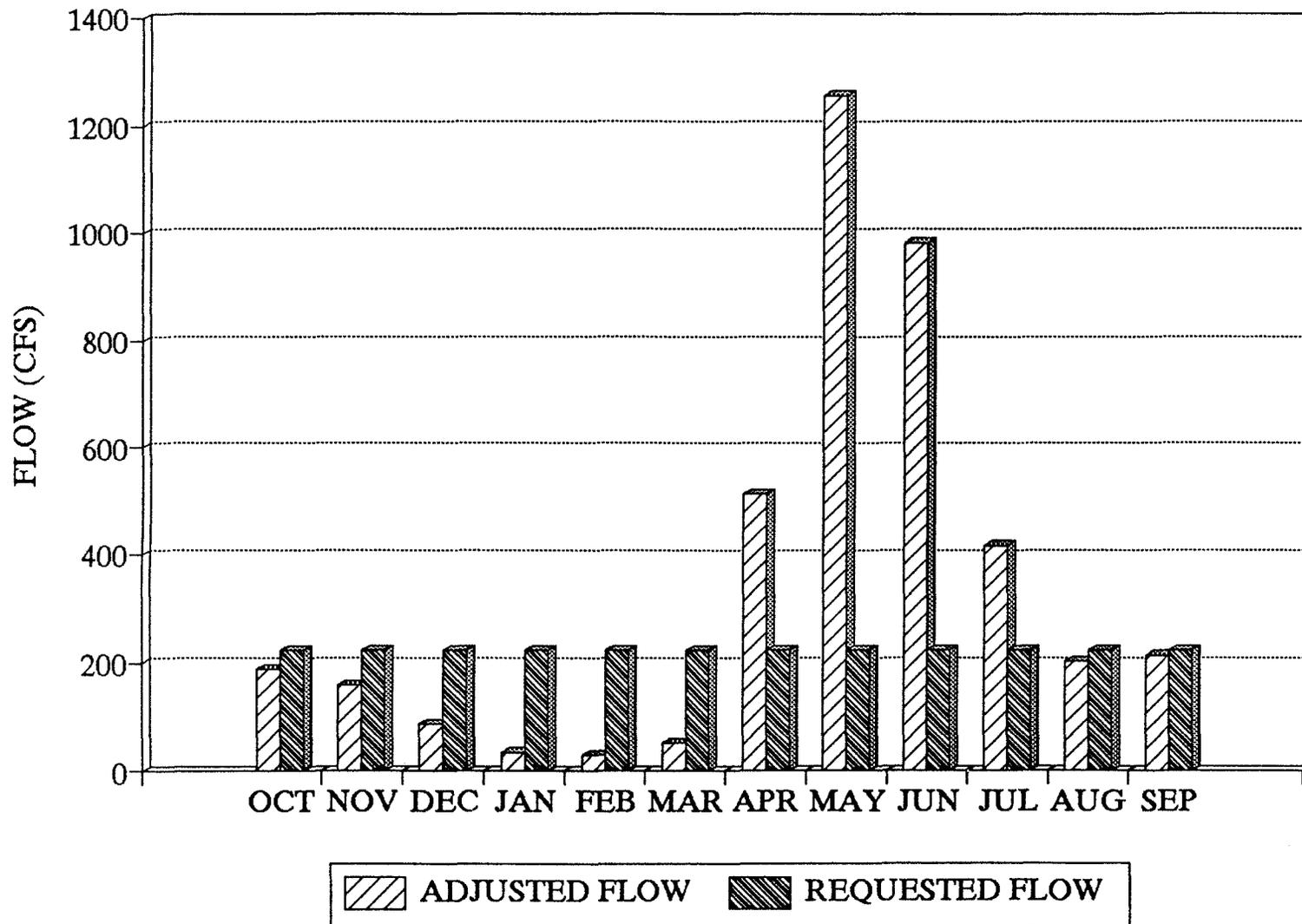
Table 2 presents the mean monthly flows at the downstream end of the instream flow segment adjusted to account for diversions by the proposed hydroelectric facility in accordance with its water right (bypass requirements are not included). At the bottom of the table, standard deviation and coefficient of variance for the period of record are shown along with the minimum and maximum flows, mean monthly flows and requested flows. Figure 4 graphically compares adjusted mean monthly flows to requested flows, and reveals that the requested flow of 221 cfs for each of two periods; October 1 - December 31 and January 1 - September 30 is available, on average, for only the months of April through July. Appendix D presents flows as the same location if FERC bypass requirements are included.

TABLE 2

MODIFIED FLOW OF SALT RIVER ABOVE RESERVOIR, NEAR ETNA, WY  
Based on Station No. 13027500  
Average Modified Monthly Flow (cfs)

YEAR	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	ANNUAL(AF)
1954	94.00	114.23	72.16	11.74	0.00	0.00	412.43	640.03	294.53	239.48	157.71	146.13	132278
1955	139.26	114.00	28.10	0.00	0.00	0.00	71.80	504.16	310.37	97.97	105.16	90.90	88714
1956	93.87	114.67	172.13	112.45	0.00	49.55	1117.27	1698.06	852.63	374.58	266.00	239.07	308385
1957	198.32	191.20	104.74	42.58	12.21	23.39	321.87	1430.32	1133.00	588.03	348.81	324.27	286167
1958	263.16	215.60	144.94	61.81	45.18	33.26	347.00	1519.68	588.93	268.13	196.87	202.40	236048
1959	166.71	144.67	110.16	11.42	0.00	0.00	367.50	554.61	248.10	141.03	108.58	152.17	121472
1960	164.19	129.47	35.94	0.00	0.00	0.00	459.00	429.00	65.23	45.06	34.23	82.83	87387
1961	78.71	107.80	6.23	0.00	0.00	0.00	154.80	112.84	0.00	0.00	0.00	56.83	31169
1962	27.39	32.13	0.00	0.00	0.00	0.00	922.77	1256.13	597.83	402.29	329.55	275.30	232698
1963	193.19	157.83	78.97	0.00	262.43	101.06	205.63	738.06	584.27	150.26	80.90	232.00	167320
1964	186.00	166.90	53.39	0.00	0.00	0.00	297.67	1565.16	1646.67	584.52	305.16	300.47	309172
1965	233.45	230.43	263.61	143.23	88.54	5.77	846.30	1519.68	1051.67	642.71	396.45	423.87	353854
1966	297.32	246.47	147.45	84.03	21.75	17.16	382.07	837.35	188.53	27.42	0.00	70.87	140789
1967	61.35	48.40	0.00	0.00	0.00	0.00	224.90	916.03	1217.00	725.35	223.55	284.30	224042
1968	264.65	224.70	119.00	54.19	55.86	40.13	314.43	936.77	759.63	225.68	308.77	268.70	216228
1969	191.84	170.77	94.26	105.74	21.11	0.00	682.03	1122.00	516.43	260.71	133.39	117.87	206978
1970	160.03	103.50	29.87	0.00	0.00	0.00	146.17	1186.87	992.00	422.87	212.84	283.97	214527
1971	234.52	207.47	146.39	27.94	58.86	51.42	851.03	2811.61	2916.00	1276.77	543.74	521.47	583925
1972	437.42	360.90	239.32	99.10	51.83	365.87	1001.73	2380.65	2072.33	702.45	342.55	365.40	509859
1973	312.03	251.47	126.00	69.13	40.54	0.00	251.57	1150.65	567.63	260.16	131.26	243.40	206449
1974	176.77	194.40	73.84	0.00	0.00	72.68	1002.20	2062.26	1487.00	519.90	236.77	203.30	364996
1975	207.03	199.40	110.23	41.23	19.61	47.71	160.47	1395.52	2278.67	1369.03	455.87	355.90	402268
1976	333.68	224.80	166.97	78.94	4.21	10.77	595.83	2668.71	1408.67	571.16	307.55	317.77	406222
1977	281.45	215.50	89.74	23.68	0.00	0.00	63.10	0.00	0.00	0.00	0.00	0.00	40858
1978	0.00	0.00	0.00	0.00	0.00	0.00	1080.00	2021.29	1794.67	931.16	322.74	245.33	387042
1979	240.94	217.17	122.42	0.00	49.18	58.35	375.53	1089.03	375.67	67.13	44.55	22.83	161473
1980	58.68	36.97	0.00	0.00	0.00	0.00	471.47	1592.58	1481.67	464.06	152.23	244.17	272378
1981	202.23	127.17	69.26	0.00	0.00	24.55	123.93	487.58	653.53	0.00	0.00	0.00	102013
1982	24.48	2.33	0.00	0.00	0.00	41.26	558.67	2629.68	1947.00	1273.55	462.35	483.97	450512
1983	471.84	270.03	174.10	119.61	63.39	138.52	570.30	2245.48	2773.00	1301.29	556.94	466.10	554188
1984	445.29	398.43	271.81	120.29	132.90	155.26	783.83	2669.03	2509.00	1057.10	531.39	483.07	578599
1985	397.58	301.50	136.26	59.61	1.96	0.00	1152.97	1729.68	444.60	86.97	44.65	108.27	270494
1986	125.16	104.17	21.26	0.00	128.46	680.94	1764.00	2645.16	2746.67	832.00	420.74	457.53	599515
1987	377.26	273.90	148.55	20.39	25.43	2.19	293.90	208.10	206.33	69.35	42.10	22.20	102166
1988	32.97	23.53	0.00	0.00	0.00	0.00	380.67	557.29	113.90	0.00	0.00	0.00	67124
1989	0.00	13.83	0.00	0.00	0.00	10.90	680.07	706.23	436.60	107.74	57.65	69.87	125692
1990	83.23	52.70	0.00	0.00	0.00	0.00	281.37	258.74	56.07	0.00	0.00	0.00	44242
1991	0.00	0.00	0.00	0.00	0.00	0.00	146.10	758.32	1004.90	117.77	35.23	130.47	132290
1992	89.10	119.77	18.06	0.00	0.00	54.26	114.10	0.00	0.00	0.00	0.00	0.00	23842
# RECORDS	39	39	39	39	39	39	39	39	39	39	39	39	39
MIN	0.00	0.00	0.00	0.00	0.00	0.00	63.10	0.00	0.00	0.00	0.00	0.00	23842
MAX	471.84	398.43	271.81	143.23	262.43	680.94	1764.00	2811.61	2916.00	1369.03	556.94	521.47	599515
STD DEV	128.03	98.36	76.25	43.67	51.21	121.44	375.22	809.44	848.56	411.07	172.82	155.01	164066
C.V.	68%	62.8%	88.1%	132.3%	184.3%	238.6%	73.3%	64.4%	86.4%	98.9%	85.4%	72.9%	
MEAN REQUESTED	188.34	156.62	86.54	33.00	27.78	50.90	512.22	1257.29	982.58	415.48	202.47	212.64	249830
	221	221	221	221	221	221	221	221	221	221	221	221	

FIGURE 4: SALT RIVER  
ADJUSTED MONTHLY AND REQUESTED FLOWS



## **VI. DRY YEAR FLOW ANALYSIS**

## VI. DRY YEAR FLOW ANALYSIS

The ranking, in ascending order, of the adjusted flows for the proposed instream flow segment adjusted for diversions by the proposed hydroelectric facility are presented in Table 3. The table presents the adjusted flows in acre-feet ranked by annual flow and by flow during each of the two instream flow periods. The ability of the Salt River to meet the requested flows was evaluated for dry years using two methods. First, the requested flows are compared to those available in the adjusted driest year determined by total annual flow. Second, the requested flows are compared to those available during the adjusted average of the lowest three years by instream flow period. This second procedure was utilized because the lowest flow period does not necessarily correspond to the lowest year by total annual flow. The average of the lowest three years is often considered more representative of drought conditions than would be the most extreme dry year.

Table 3 reveals that the driest annual flow year is 1992. Adjusted average monthly flows recorded for 1992 are presented in Table 4 and on Figure 5. Comparing these average monthly flows with the requested flow indicates that the requested flow would not be met during any month of the driest year.

Using the three lowest flow years by instream flow period, results in different years being utilized. By period, the three driest years are:

October 1 - December 31    1978, 1991, 1989

January 1 - September 30    1977, 1992, 1961

Appendix D presents the same analysis if the FERC bypass requirements are included.

TABLE 3

RANKING OF ADJUSTED FLOWS IN ASCENDING ORDER  
Salt River at Downstream End of  
Instream Flow Segment  
(Annual and Period Flow in Acre-Feet)

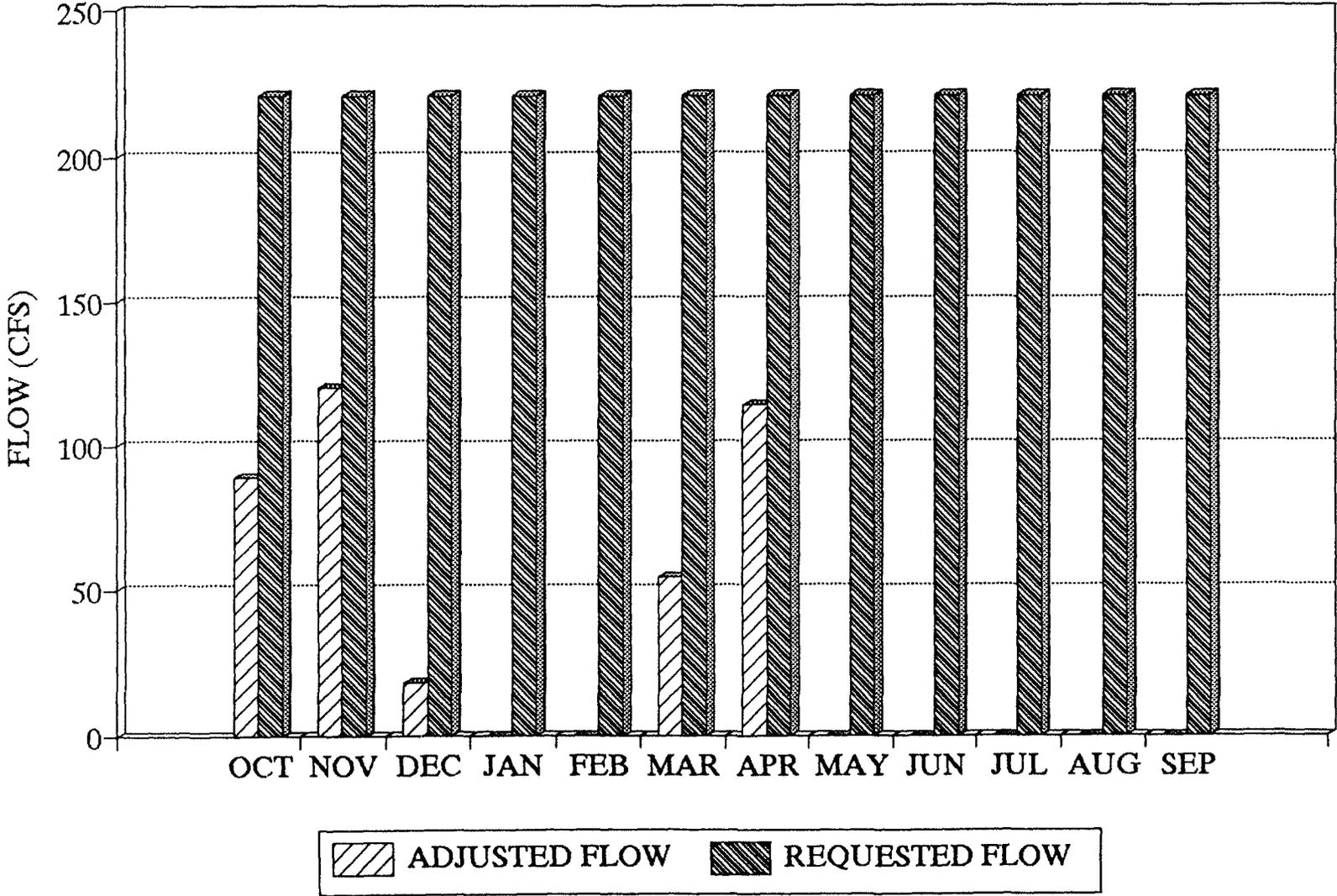
COMPLETE YEAR		OCT 1 - DEC 31		JAN 1 - SEP 30	
Year	Acre-Feet	Year	Acre-Feet	Year	Acre-Feet
1992	23812	1978	0	1977	5211
1961	31169	1991	0	1992	10126
1977	40858	1989	823	1961	19532
1990	44242	1982	1644	1990	35989
1988	67124	1988	3427	1987	53537
1960	87387	1962	3596	1988	63696
1955	88714	1980	5808	1960	67378
1981	102013	1967	6653	1955	71640
1987	102166	1990	8253	1981	77753
1959	121472	1961	11637	1959	95839
1989	125692	1992	13716	1966	98774
1954	132278	1986	15202	1954	115263
1991	132290	1954	17014	1989	124869
1966	140789	1955	17074	1979	126208
1979	161473	1970	17836	1991	132290
1963	167320	1960	20010	1963	141193
1973	206449	1956	23179	1973	164551
1969	206978	1981	24260	1969	179225
1970	214527	1964	24651	1968	179378
1968	216228	1959	25633	1970	196692
1967	224042	1963	26127	1958	198126
1962	232698	1974	26978	1967	217390
1958	236048	1969	27753	1985	219728
1985	270494	1957	30012	1962	229102
1980	272378	1975	31373	1957	256155
1957	286167	1979	35265	1980	266571
1956	308385	1977	35647	1964	284521
1964	309172	1971	35766	1956	285205
1965	353854	1968	36961	1965	309579
1974	364996	1958	37923	1974	338018
1978	387042	1973	41897	1976	362070
1975	402268	1966	42014	1975	370895
1976	406222	1976	44161	1978	387042
1982	450512	1965	44276	1972	446875
1972	509859	1987	48629	1982	448868
1983	554188	1985	50766	1983	498402
1984	578599	1983	55786	1984	511061
1971	583925	1972	63087	1971	548158
1986	599515	1984	67802	1986	584313

**TABLE 4****COMPARISON OF ADJUSTED MONTHLY FLOW DURING DRIEST YEAR ON RECORD (1992) AND REQUESTED FLOW FOR THE SALT RIVER AT DOWNSTREAM END OF INSTREAM FLOW SEGMENT**

<b>Month</b>	<b>Mean Monthly Adjusted Flow (cfs)</b>	<b>Requested Flow (cfs)</b>	<b>Shortage (cfs)</b>	<b>Excess/ (Shortage) (AF)</b>
October	89.10	221	131.90	(8,110)
November	119.77	221	101.23	(6,024)
December	18.06	221	202.94	(12,478)
January	0	221	221	(13,589)
February	0	221	221	(12,274)
March	54.26	221	166.74	(10,253)
April	114.10	221	106.90	(6,361)
May	0	221	221	(13,589)
June	0	221	221	(13,151)
July	0	221	221	(13,589)
August	0	221	221	(13,589)
September	0	221	221	<u>(13,151)</u>
		<b>TOTAL SHORTAGE (AF)</b>		<b>(136,158)</b>

**FIGURE 5: SALT RIVER  
ADJUSTED DRIEST YEAR (1992)  
AND REQUESTED FLOWS**

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Adjusted Monthly flow averages for the three driest years by period are presented in Table 5.

**TABLE 5**

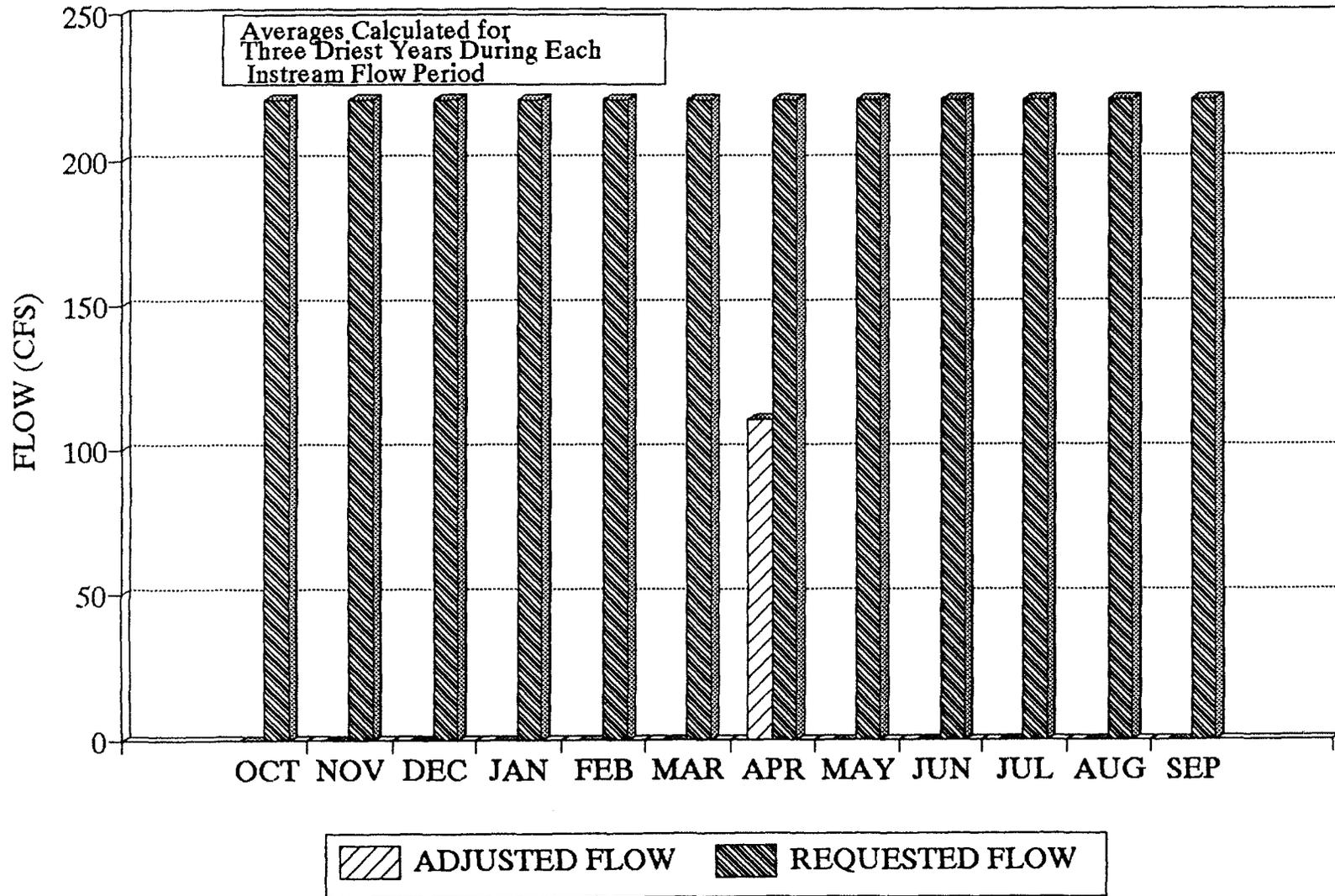
**COMPARISON OF REQUESTED FLOWS AND ADJUSTED AVERAGE OF 3 DRIEST YEARS BY PERIOD - SALT RIVER - DOWNSTREAM END OF INSTREAM FLOW SEGMENT**

Month	3-Year Adjusted Mean Monthly Flow (cfs)	Requested Flow (cfs)	Shortage (cfs)	Shortage
October	0.00	221	221.00	13,589
November	4.61	221	216.39	12,876
December	0.00	221	221.00	13,589
January	7.89	221	213.11	13,104
February	0.00	221	221.00	12,274
March	18.09	221	202.91	12,477
April	110.67	221	110.83	6,565
May	37.61	221	183.39	11,276
June	0.00	221	221.00	13,151
July	0.00	221	221.00	13,589
August	0.00	221	221.00	13,589
September	18.94	221		<u>21,024</u>
TOTAL SHORTAGE (AF)				148,103

As evidenced by this table the requested flow is not met in any month of the year. Figure 6 is a bar graph relating the average of the three lowest years by period to the requested flow.

FIGURE 6: SALT RIVER  
ADJUSTED THREE DRIEST YEAR AVERAGE  
AND REQUESTED FLOWS

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## **VII. DAILY FLOW EXCEEDENCE ANALYSIS**

## VII. DAILY FLOW EXCEEDENCE ANALYSIS

The WWDC considers that an instream flow request is "feasible" if the requested flow is available at least 50% of the time from unappropriated direct flow. To determine the percent of time flows are present at the gage a daily flow duration analysis was conducted.

To perform this analysis, daily flow duration data were obtained from the Wyoming Water Resources Center for Salt River for each of the requested instream flow periods and each month, for the period of record. These data were then adjusted to account for diversions of up to 440 cfs from available gaged flows. Daily flow duration curves were then developed using the data and the curves are presented in Figures 7 and 8.

From the curves a summary of exceedence values is presented in Table 6. These results show the requested instream flows to be available about 23% of the time for October 1 - December 31 period and approximately 43% of the time for the January 1 through September 30 period.

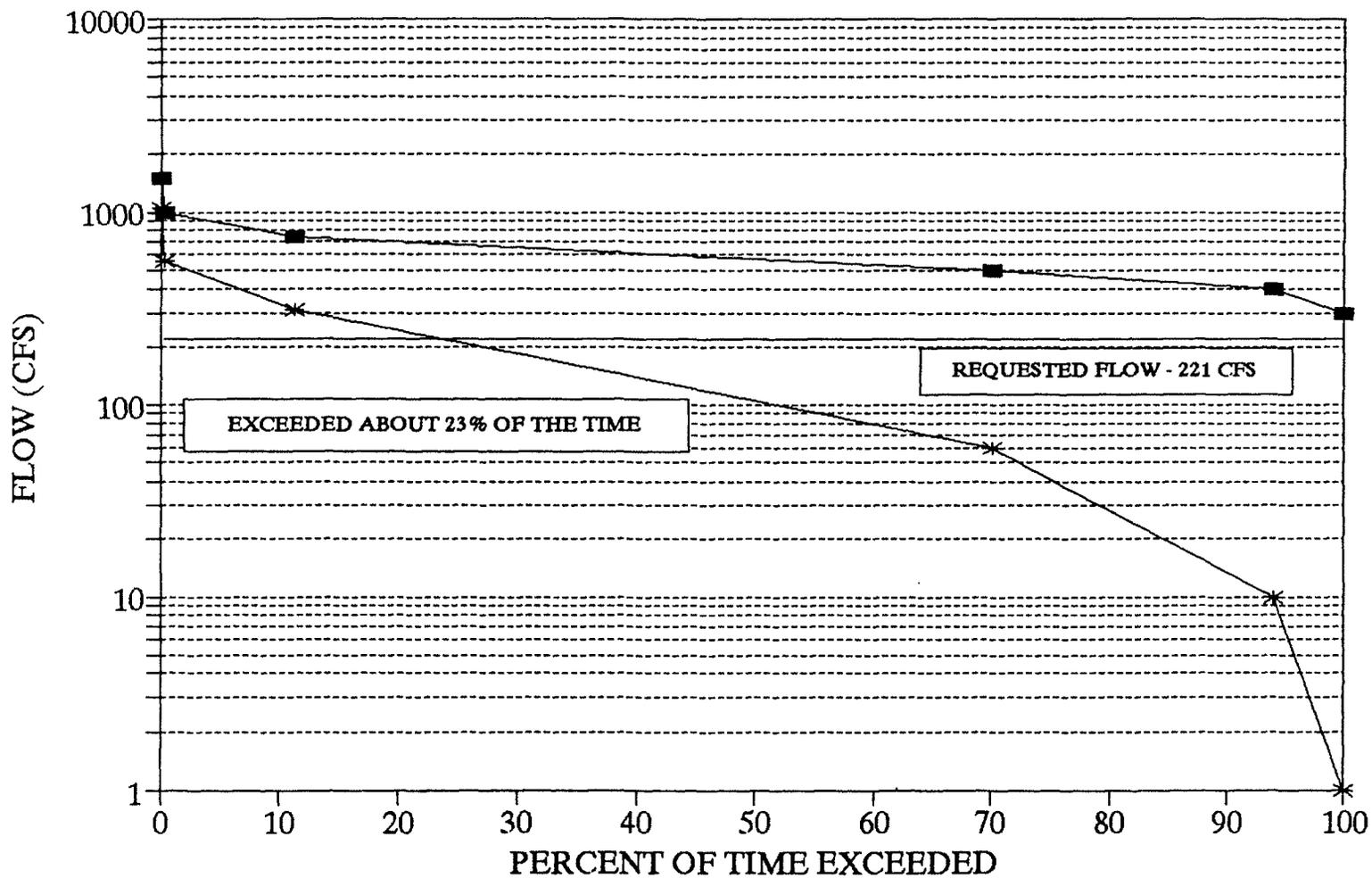
**TABLE 6**

**Daily Flow Exceedence Summary  
Salt River at Downstream End of Instream Flow Segment**

Period	Requested Instream Flow (cfs)	WWDC Exceedence Criteria (% Time) Gage Flows	Exceedence During Period of Record (% Time) Adjusted Flows
Oct. 1 - Dec. 31	221	50%	23%
Jan. 1 - Sep. 30	221	50%	43%

Flow duration analyses with the FERC bypass requirements included are presented in Appendix D.

FIGURE 7: SALT RIVER  
DAILY FLOW DURATION CURVES OCT1 - DEC31



PERIOD OF RECORD: 1953 - PRESENT

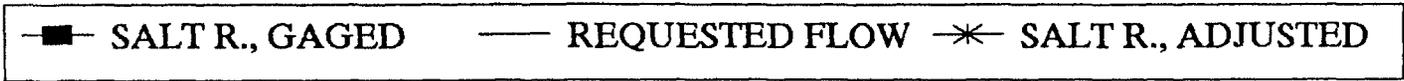
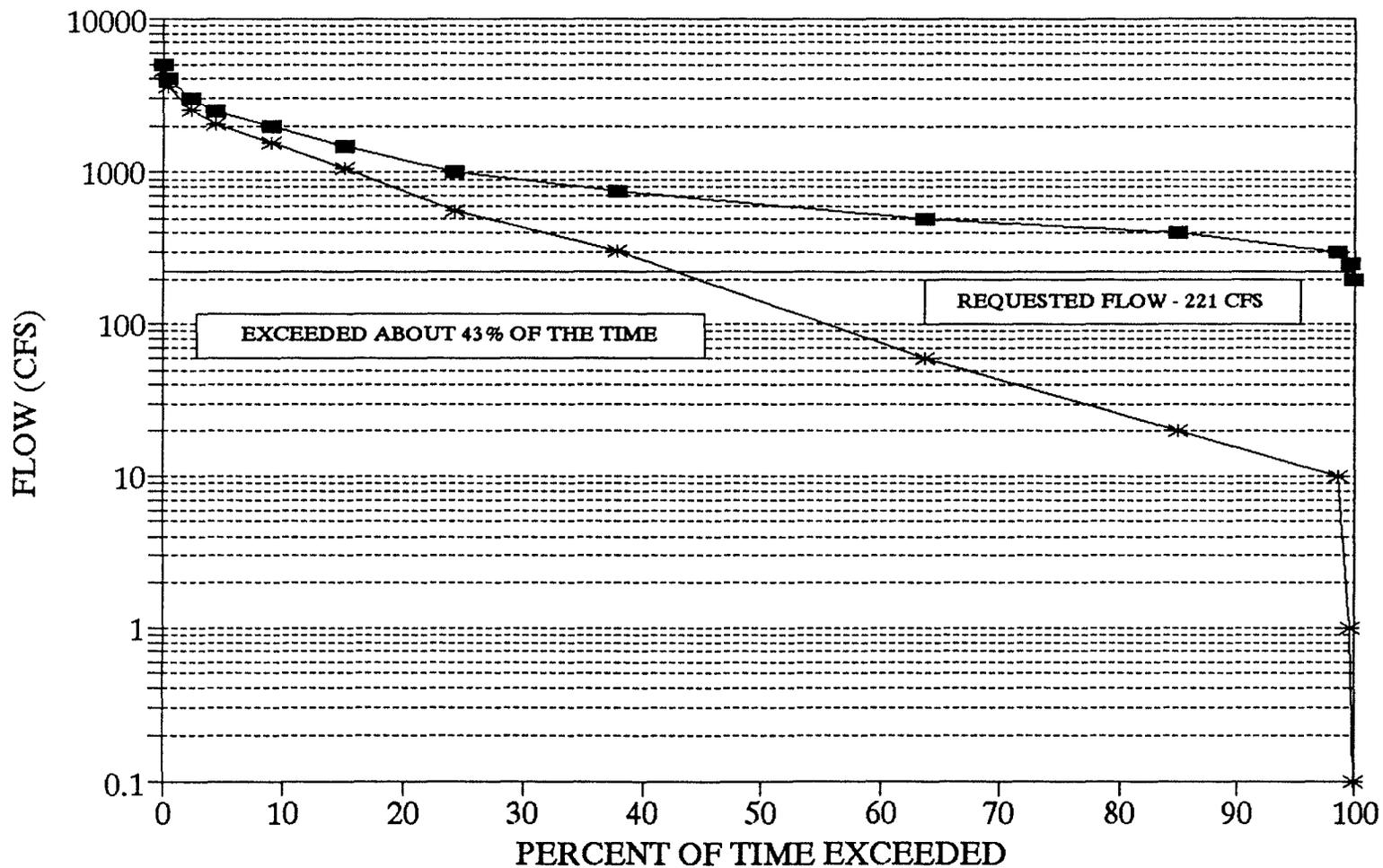
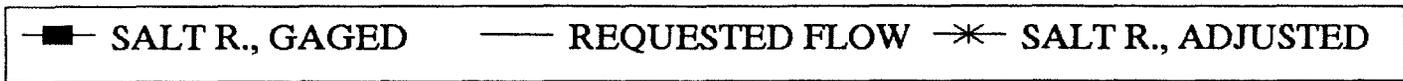


FIGURE 8: SALT RIVER  
DAILY FLOW DURATION CURVES JAN1 - SEP31



PERIOD OF RECORD: 1953 - PRESENT



## VIII. CONCLUSIONS

## VIII. CONCLUSIONS

Mean monthly flow, dry year flow, and daily flow exceedence analyses were conducted for the Salt River Instream Flow Segment No. 1 using USGS Gaging Station No. 13027500. A proposed hydroelectric facility with a point of diversion near the upper end of the proposed instream flow segment holds a senior water right for 440 cfs. All analyses were conducted assuming that the powerplant would divert its water right. The mean monthly flow analysis shows that on the average, the requested flow of 221 cfs is available for only the months of April, May, June, and July.

The year 1992 is the driest year on record. During that year, the requested flow was unavailable during all the months of the year. By period, the driest years on record were:

October 1 - December 31	1978, 1991, 1989
January 1 - September 30	1977, 1992, 1961

Considering the average of the three driest years, by period, requested flows are not available for any month of the year.

Finally, the daily flow exceedence analysis showed that the requested flow of 221 cfs would be available 23% of the time during both the October 1 - December 31 and 43% of the time for the January 1 - September 30 periods.

If the bypass flows set forth in the proposed FERC license are assumed to exist, the requested instream flows would be available essentially 99-100 percent of the time. Appendix D presents alternate Tables 2 through 6, Figures 4 through 8, and Appendix B figures prepared under this assumption.

**APPENDIX A**  
**LISTING OF WATER RIGHTS**  
**ON SALT RIVER**

LISTING OF WATER RIGHTS ON SALT RIVER  
Upstream of the Downstream End of  
Instream Flow Segment No. 1

Permit Number	Facility	Source	Priority Date			Amount (cfs)	Acres	Use*	Status	Diversion Location		
			Mo	Day	Year					Sec.	Twn.	Rng.
10703	Yvonne Ditch	Hazel Spring				0	0	2,3	Unadj.	25	36	119
18689	Supplemental Canal	Pond Springs				SS	4955.25	1,2,3	Adj.	15	33	118
2838E	Broadbent Ditch	Baker Canon Creek				.43	30.00	1	Adj.	12	35	119
5644E	Enl Fairview Pipe Line	Shumway Springs/Campbell Springs				0.2	0	2,4,16	Unadj.	21	31	119
6940E	Enl Rainbow Pipeline Spring #1	Rainbow Spring #1				0	0	2,3	Unadj.	32	31	118
*6941E	Enl Rainbow Pipeline	Rainbow Spring #2				0	0	2,3	Unadj.	32	31	118
9228	July Ditch	Sheep Creek				.78	55.00	1,2,3	Adj.	20	32	119
3/402	Crow Creek Canal	Crow Creek	5	31	1884	2.29	160.00	1	Adj.	34	32	119
1865	Campbell #1 & #2 Ditches	Spring Creek	6	1	1885	1.20	80.00	1,2	Adj.	16	31	119
1866	Campbell #1 & #2 Ditches	Spring Creek	6	1	1885	1.80	125.00	1,2	Adj.	16	31	119
1699	Brown #2 Ditch	Crow Creek	4	26	1886	0.60	40.00	1	Adj.	9	31	119
1568	Henderson & Harmon Ditch	Salt River	5	1	1886	0.60	40.00	1	Adj.	34	32	119
1569	Henderson & Harmon Ditch	Salt River	5	1	1886	0.60	40.00	1	Adj.	34	32	119
1700	Moffett Ditch	Crow Creek	5	1	1886	1.20	80.00	1	Adj.	9	31	119
1570	Child Ditch	Salt River	5	3	1886	1.14	80.00	1	Adj.	2	31	119
1571	Anglesey Ditch	Salt River	5	8	1886	1.30	90.00	1	Adj.	35	32	119
1620	Anglesey Ditch	Salt River	5	8	1886	0.90	60.00	1	Adj.	35	32	119
1747	Afton Canal	Swift Creek	5	8	1886	0	136.58	1,2,4	Adj.	29	32	118
1748	Afton Canal	Swift Creek	5	8	1886	0	130.00	1,2	Adj.	30	32	118
1749	Afton Canal	Swift Creek	5	8	1886	0	120.00	1,2	Adj.	30	32	118
1750	Afton Canal	Swift Creek	5	8	1886	0	4.44	1,2,4	Adj.	29	32	118
1751	Afton Canal	Swift Creek	5	8	1886	0	3.00	1,2,4	Adj.	29	32	118
1752	Afton Canal	Swift Creek	5	8	1886	0	3.79	1,2,4	Adj.	29	32	118
1753	Afton Canal	Swift Creek	5	8	1886	0	2.23	1,2,4	Adj.	29	32	118
1754	Afton Canal	Swift Creek	5	8	1886	0	3.47	1,2,4	Adj.	29	32	118
1755	Afton Canal	Swift Creek	5	8	1886	0	2.50	1,2	Adj.	30	32	118
1756	Afton Canal	Swift Creek	5	8	1886	0	1.76	1,2,4	Adj.	29	32	118
1757	Afton Canal	Swift Creek	5	8	1886	0	2.03	1,2,4	Adj.	29	32	118
1758	Afton Canal	Swift Creek	5	8	1886	0	2.98	1,2,4	Adj.	29	32	118
1759	Afton Canal	Swift Creek	5	8	1886	0	.78	1,2,4	Adj.	29	32	118
1760	Afton Canal	Swift Creek	5	8	1886	0	.44	1,2,4	Adj.	29	32	118
1761	Afton Canal	Swift Creek	5	8	1886	0	3.34	1,2,4	Adj.	29	32	118
1762	Afton Canal	Swift Creek	5	8	1886	0	.79	1,2,4	Adj.	29	32	118
1763	Afton Canal	Swift Creek	5	8	1886	0	7.25	1,2,4	Adj.	29	32	118
1764	Afton Canal	Swift Creek	5	8	1886	0	1.93	1,2,4	Adj.	29	32	118
1765	Afton Canal	Swift Creek	5	8	1886	0	.86	1,2,4	Adj.	29	32	118
1766	Afton Canal	Swift Creek	5	8	1886	0	.14	1,2,4,7	Adj.	29	32	118

LISTING OF WATER RIGHTS ON SALT RIVER  
Upstream of the Downstream End of  
Instream Flow Segment No. 1

Permit Number	Facility	Source	Priority Date			Amount (cfs)	Acres	Use*	Status	Diversion Location		
			Mo	Day	Year					Sec.	Twn.	Rng.
1767	Afton Canal	Swift Creek	5	8	1886	0	3.55	1,2,4	Adj.	29	32	118
1768	Afton Canal	Swift Creek	5	8	1886	0	.50	1,4	Adj.	29	32	118
1769	Afton Canal	Swift Creek	5	8	1886	0	2.26	1,2,4	Adj.	29	32	118
1770	Afton Canal	Swift Creek	5	8	1886	0	2.52	1,2,4	Adj.	29	32	118
1771	Afton Canal	Swift Creek	5	8	1886	0	1.91	1,2,4	Adj.	29	32	118
1772	Afton Canal	Swift Creek	5	8	1886	0	2.05	1,2,4	Adj.	29	32	118
1773	Afton Canal	Swift Creek	5	8	1886	0	1.11	1,2,4	Adj.	29	32	118
1774	Afton Canal	Swift Creek	5	8	1886	0	82.50	1,2,4	Adj.	29	32	118
1775	Afton Canal	Swift Creek	5	8	1886	0	78.75	1,2,4	Adj.	29	32	118
1776	Afton Canal	Swift Creek	5	8	1886	0	89.00	1,2,4	Adj.	29	32	118
1777	Afton Canal	Swift Creek	5	8	1886	0	144.71	1,2,4	Adj.	29	32	118
1778	Afton Canal	Swift Creek	5	8	1886	0	1.29	1,2,4	Adj.	29	32	118
1779	Afton Canal	Swift Creek	5	8	1886	0	1.60	1,2,4	Adj.	29	32	118
1780	Afton Canal	Swift Creek	5	8	1886	0	2.25	1,2,4	Adj.	29	32	118
1781	Afton Canal	Swift Creek	5	8	1886	0	2.10	1,2,4	Adj.	29	32	118
1782	Afton Canal	Swift Creek	5	8	1886	0	9.78	1,2,4	Adj.	29	32	118
1783	Afton Canal	Swift Creek	5	8	1886	0	5.00	1,2	Adj.	30	32	118
1784	Afton Canal	Swift Creek	5	8	1886	0	0		Unadj.	30	32	118
1785	Afton Canal	Swift Creek	5	8	1886	0	79.00	1,2,4	Adj.	28	32	118
1701	Wells Ditch	Crow Creek	5	15	1886	0.60	40.00	1	Adj.	9	31	119
1864	Harmon Ditch	Harmon Creek	5	15	1886	0.30	20.00	1,2	Adj.	28	32	119
1871	Clark Ditch	Phillips Creek	5	15	1886	.40	25.00	1,2	Adj.	33	33	118
2384	Phillips Ditch	Phillips Creek	5	15	1886	0	12.00	1	Adj.	33	33	118
1872	Nelson Ditch	Mill Creek/Grover CA	5	30	1886	.579	38.00	1,2	Adj.	6	32	118
*1572	Salt River Canal	Salt River	6	1	1886	1.20	80.00	1	Adj.	7	30	118
*1573	Salt River Canal	Salt River	6	1	1886	1.05	74.00	1	Adj.	7	30	118
*1574	Salt River Canal	Salt River	6	1	1886	0.50	35.00	1	Adj.	7	30	118
*1577	Salt River Canal	Salt River	6	1	1886	0.50	30.00	1	Adj.	7	30	118
*1579	Salt River Canal	Salt River	6	1	1886	0.50	30.00	1	Adj.	7	30	118
*1581	Salt River Canal	Salt River	6	1	1886	0.60	40.00	1	Adj.	7	30	118
*1582	Salt River Canal	Salt River	6	1	1886	0.60	40.00	1	Adj.	7	30	118
*1583	Salt River Canal	Salt River	6	1	1886	1.07	75.00	1	Adj.	36	31	119
*1584	Salt River Canal	Salt River	6	1	1886	1.20	80.00	1	Adj.	7	30	118

LISTING OF WATER RIGHTS ON SALT RIVER  
Upstream of the Downstream End of  
Instream Flow Segment No. 1

Permit Number	Facility	Source	Priority Date			Amount (cfs)	Acres	Use*	Status	Diversion Location		
			Mo	Day	Year					Sec.	Twn.	Rng.
*1585	Salt River Canal	Salt River	6	1	1886	1.80	120.00	1	Adj.	7	30	118
1575	Kirkbride #1 Ditch	Salt River	6	1	1886	0.80	50.00	1	Adj.	33	35	119
1576	Kirkbride #1 Ditch	Salt River	6	1	1886	0.80	50.00	1	Adj.	33	35	119
1580	Salt River Canal	Salt River	6	1	1886	2.10	145.00	1	Adj.	7	30	118
1682	Welch Ditch	Stump Creek	6	20	1886	0	100.00	1	Adj.	5	32	119
1683	Welch Ditch	Stump Creek	6	20	1886	0	160.00	1	Adj.	5	32	119
1684	Welch Ditch	Stump Creek	6	20	1886	0	150.00	1	Adj.	5	32	119
1857	Dilla Ditch	Vail Creek	6	25	1886	0	100.00	1,2	Adj.	23	33	119
1870	Hepworth Ditch	Hepworth Springs	4	15	1887	0.10	0	2	Adj.	18	32	118
1630	Henderson Ditch	Dry Creek	4	26	1887	1.20	80.00	1	Adj.	8	31	118
1703	Crow Creek Canal	Crow Creek	5	5	1887	1.50	100.00	1	Adj.	34	32	119
1706	Crow Creek Canal	Crow Creek	5	5	1887	1.20	80.00	1	Adj.	34	32	119
1631	Hill Ditch Company Ditch	Dry Creek	5	12	1887	0.90	60.00	1	Adj.	8	31	118
1632	Hill Ditch Company Ditch	Dry Creek	5	12	1887	1.20	75.00	1	Adj.	8	31	118
1633	Sessions Ditch	Dry Creek	5	12	1887	1.20	80.00	1	Adj.	8	31	118
1634	Hill Ditch Company Ditch	Dry Creek	5	12	1887	0.90	65.00	1	Adj.	8	31	118
1586	Henderson #1 Ditch	Salt River	5	15	1887	1.20	80.00	1	Adj.	27	32	119
1702	Crow Creek Canal	Crow Creek	5	15	1887	2.30	160.00	1	Adj.	34	32	119
1704	Crow Creek Canal	Crow Creek	5	15	1887	2.00	140.00	1	Adj.	34	32	119
1705	Crow Creek Canal	Crow Creek	5	15	1887	4.30	300.00	1	Adj.	34	32	119
3/402	Crow Creek Canal	Crow Creek	5	31	1887	2.29	160.00	1	Adj.	34	32	119
3/403	Crow Creek Canal	Crow Creek	5	31	1887	2.29	160.00	1	Adj.	34	32	119
3/403	Crow Creek Canal	Crow Creek	5	31	1887	4.14	290.00	1	Adj.	34	32	119
3/404	Crow Creek Canal	Crow Creek	5	31	1887	1.14	80.00	1	Adj.	34	32	119
1685	Allen Ditch	Stump Creek	6	1	1887	0	160.00	1	Adj.	35	33	119
1867	Campbell Springs Ditch	Cambell/Shumway Spr	6	1	1887	0.30	15.00	1,2	Adj.	15	31	119
1587	Jensen #1 Ditch	Salt River	6	15	1887	0.90	60.00	1	Adj.	2	32	119
1721	Hincks Ditch	Strawberry Creek	6	21	1887	0	90.00	1	Adj.	27	34	118
1722	Hincks Ditch	Strawberry Creek	6	21	1887	0	80.00	1	Adj.	27	34	118
1723	Hincks Ditch	Strawberry Creek	6	21	1887	0	30.00	1	Adj.	27	34	118
1724	Hincks Ditch	Strawberry Creek	6	21	1887	0	18.00	1	Adj.	27	34	118
1588	Hoy & Stanlick Ditch	Salt River	7	4	1887	0.30	15.00	1	Adj.	7	30	118
1589	Hoy & Stanlick Ditch	Salt River	7	4	1887	1.30	90.00	1	Adj.	6	30	118

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Permit Number	Facility	Source	Priority Date			Amount (cfs)	Acres	Use*	Diversion Location			
			Mo	Day	Year				Status	Sec.	Twn.	Rng.
1635	Hardman Ditch	Dry Creek	7	15	1887	2.00	140.00	1	Adj.	8	31	118
1636	Hardman Ditch	Dry Creek	7	15	1887	0.90	60.00	1	Adj.	8	31	118
1590	Morgan & Rawlins Ditch	Spring Branch/Holbrook Slough	8	18	1887	1.20	80.00	1	Adj.	3	32	119
*1657	Creger Ditch Company Ditch	North Channel of Cottonwood Creek	8	24	1887	0.80	50.00	1	Adj.	4	30	118
1653	Creger Ditch Company Ditch	North Channel of Cottonwood Creek	8	24	1887	1.80	120.00	1	Adj.	4	30	118
1654	Creger Ditch Company Ditch	North Channel of Cottonwood Creek	8	24	1887	1.80	120.00	1	Adj.	4	30	118
1655	Creger Ditch Company Ditch	North Channel of Cottonwood Creek	8	24	1887	2.30	160.00	1	Adj.	4	30	118
1656	Creger Ditch Company Ditch	North Channel of Cottonwood Creek	8	24	1887	1.00	70.00	1	Adj.	4	30	118
1658	Bowles Pipeline	Spring Creek	9	25	1887	0.094	0	2,3	Adj.	4	30	118
1707	Redman Ditch	Crow Creek	9	25	1887	0.60	40.00	1	Adj.	27	32	119
1858	Walton Ditch	Vail Creek	10	25	1887	0	145.00	1,2	Adj.	14	33	119
1637	Henderson Ditch	Dry Creek	4	26	1888	0.70	45.00	1	Adj.	8	31	118
1638	Dr Ck Irr Dist PPL	Dry Creek	4	26	1888	1.50	100.00	1	Adj.	8	31	118
1686	Davis Ditch	Stump Creek	5	1	1888	0	160.00	1	Adj.	35	33	119
1725	Beaver Dam Ditch	Strawberry Creek	5	1	1888	0	80.00	1	Adj.	27	34	118
1726	Beaver Dam Ditch	Strawberry Creek	5	1	1888	0	80.00	1	Adj.	27	34	118
1727	Beaver Dam Ditch	Strawberry Creek	5	1	1888	0	80.00	1	Adj.	27	34	118
1639	Veigel & Stumpp Ditch	Dry Creek	5	2	1888	0.50	30.00	1	Adj.	8	31	118
1659	Cottonwood South Ditch	S Channel of Cottonwood Cr	5	14	1888	2.00	140.00	1	Adj.	5	30	118
1660	Cottonwood South Ditch	S Channel of Cottonwood Cr	5	14	1888	1.30	90.00	1	Adj.	4	30	118
1661	Cottonwood South Ditch	N Channel of Cottonwood Cr	5	14	1888	1.20	80.00	1	Adj.	4	30	118
1662	Cottonwood South Ditch	N Channel of Cottonwood Cr	5	14	1888	1.20	80.00	1	Adj.	4	30	118
1663	Cottonwood South Ditch	N Channel of Cottonwood Cr	5	14	1888	0.80	50.00	1	Adj.	4	30	118
1664	Cottonwood South Ditch	S Channel of Cottonwood Cr	5	14	1888	1.20	80.00	1	Adj.	4	30	118
1665	Cottonwood South Ditch	S Channel of Cottonwood Cr	5	14	1888	1.20	80.00	1	Adj.	4	30	118
1666	Cottonwood South Ditch	S Channel of Cottonwood Creek	5	14	1888	0.90	60.00	1	Adj.	4	30	118
1667	Cottonwood South Ditch	S Channel of Cottonwood Cr	5	14	1888	0.90	60.00	1	Adj.	4	30	118
1669	Cottonwood South Ditch	S Channel of Cottonwood Cr	5	14	1888	1.30	90.00	1	Adj.	5	30	118
1670	Cottonwood South Ditch	S Channel of Cottonwood Cr	5	14	1888	0.40	25.00	1	Adj.	4	30	118
1671	Cottonwood South Ditch	S Channel of Cottonwood Cr	5	14	1888	0.30	20.00	1	Adj.	4	30	118
1591	McCombs Ditch	Salt River	5	15	1888	2.00	140.00	1	Adj.	25	33	119
1592	McCombs Ditch	Salt River	5	15	1888	0.50	30.00	1	Adj.	25	33	119
1593	Kirkbride #1 Ditch	Salt River	5	15	1888	7.30	510.00	1	Adj.	33	35	119

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Permit Number	Facility	Source	Priority Date			Amount (cfs)	Acres	Use*	Status	Diversion Location		
			Mo	Day	Year					Sec.	Twn.	Rng.
1594	McCombs Ditch	Salt River	5	15	1888	1.30	90.00	1	Adj.	25	33	119
1728	Hemmert Ditch	Strawberry Creek	5	15	1888	0	80.00	1	Adj.	36	34	119
1730	Hemmert Ditch	Strawberry Creek	5	15	1888	0	160.00	1	Adj.	36	34	119
*1674	Wilber Ditch	North Channel of Cottonwood Cr.	5	17	1888	1.00	70.00	1	Adj.	4	30	118
1672	Wilber Ditch	North Channel of Cottonwood Cr.	5	17	1888	0.50	30.00	1	Adj.	4	30	118
1673	Wilber Ditch	North Channel of Cottonwood Cr.	5	17	1888	1.20	80.00	1	Adj.	4	30	118
1708	Slough Ditch	Crow Creek	5	25	1888	1.20	80.00	1	Adj.	15	32	119
1668	Upper North Canal	Cottonwood Creek	6	1	1888	0.60	40.00	1	Adj.	4	30	118
1687	Hyde Ditch	Stump Creek	6	1	1888	0	100.00	1	Adj.	35	33	119
1688	Hyde Ditch	Stump Creek	6	1	1888	0	60.00	1	Adj.	35	33	119
1709	Fairview Canal & Brown ETAL	Crow Creek	6	10	1888	1.50	100.00	1	Adj.	4	31	119
1710	Brown Ditch	Crow Creek	6	10	1888	1.00	70.00	1	Adj.	4	32	119
1711	Campbell Ditch	Crow Creek	6	10	1888	1.70	115.00	1	Adj.	9	31	119
1712	Brown Ditch	Crow Creek	6	10	1888	1.90	130.00	1	Adj.	4	31	119
1729	Hemmert Ditch	Strawberry Creek	6	15	1888	0	80.00	1	Adj.	36	34	119
1859	Welch Ditch	Sulphur Creek	6	20	1888	0	20.00	1,2	Adj.	23	33	119
*1853	Pine Ditch	Flat Creek	3	27	1889	0.60	40.00	1,2	Adj.	24	34	119
1595	McBride Ditch	Stump Creek	4	21	1889	0.80	50.00	1	Adj.	25	33	119
1640	Perkins Ditch	Dry Creek	4	28	1889	0.80	50.00	1	Adj.	8	31	118
1641	Perkins & Hardman Ditch	Dry Creek	4	28	1889	0.60	40.00	1	Adj.	8	31	118
1642	Perkins & Hardman Ditch	Dry Creek	4	28	1889	0.70	45.00	1	Adj.	8	31	118
1643	Perkins & Hardman Ditch	Dry Creek	4	28	1889	0.60	40.00	1	Adj.	8	31	118
1596	Hepworth Ditch	Salt River	5	1	1889	0.80	50.00	1	Adj.	31	33	118
1597	Hepworth Ditch	Salt River	5	1	1889	2.00	140.00	1	Adj.	31	33	118
1598	Hepworth Ditch	Salt River	5	1	1889	0.90	60.00	1	Adj.	31	33	118
1599	Champion Ditch	Salt River	5	1	1889	2.30	160.00	1	Adj.	14	32	119
1600	Champion Ditch	Salt River	5	1	1889	1.20	80.00	1	Adj.	14	32	119
1601	Champion Ditch	Salt River	5	1	1889	0	0	1	Unadj.	14	32	119
1602	P Nelson Ditch	Salt River	5	1	1889	1.20	80.00	1	Adj.	2	32	119
1603	Hepworth Ditch	Salt River	5	1	1889	0.60	40.00	1	Adj.	31	33	118
1644	Veigel & Stumpp Ditch	Dry Creek	5	2	1889	0.50	35.00	1	Adj.	8	31	118
1873	Double Eagle #2	Bradshaw Springs Creek	5	10	1889	0.10	6.00	1,2	Adj.	31	33	118
1604	Morgan & Rawlins Ditch	Spring Branch/Reeves Sl/Hollbrook Sl	5	15	1889	1.00	70.00	1	Adj.	3	32	119

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Permit Number	Facility	Source	Priority Date			Amount (cfs)	Acres	Use*	Diversion Location			
			Mo	Day	Year				Status	Sec.	Twn.	Rng.
1675	Schwab Ditch	Cottonwood Creek	5	15	1889	1.00	70.00	1	Adj.	4	30	118
1676	Schwab Ditch	Cottonwood Creek	5	15	1889	1.20	75.00	1	Adj.	4	30	118
1713	Brown Ditch	Crow Creek	5	20	1889	0.60	40.00	1	Adj.	4	31	119
1605	Nelson Ditch	Salt River	5	25	1889	2.30	160.00	1	Adj.	11	32	119
*1606	Salt River Canal	Salt River	6	1	1889	0.40	25.00	1	Adj.	7	30	118
*1607	Salt River Canal	Salt River	6	1	1889	0.60	40.00	1	Adj.	7	30	118
1613	Salt River Canal	Salt River	6	1	1889	0.40	25.00	1	Adj.	7	30	118
1689	Putnam Ditch	Stump Creek	6	1	1889	0	240.00	1	Adj.	5	32	119
1617	Bruce & Walton & Pine Grove	Salt River	6	9	1889	3.50	240.00	1	Adj.	17	30	118
1608	Salt River Canal	Salt River	6	15	1889	1.50	100.00	1	Adj.	7	30	118
1609	Salt River Canal	Salt River	6	15	1889	1.43	100.00	1	Adj.	7	30	118
1618	Hardscrabble Ditch	Salt River	6	15	1889	1.20	80.00	1	Adj.	14	32	119
1619	Hardscrabble Ditch	Salt River	6	15	1889	1.20	80.00	1	Adj.	15	32	119
1690	City Ditch	Stump Creek	6	15	1889	0	50.00	1	Adj.	4	32	119
1691	Wood Ditch	Stump Creek	6	15	1889	0	80.00	1	Adj.	5	32	119
1692	Wood Ditch	Stump Creek	6	15	1889	0.6	40.00	1	Adj.	5	32	119
1693	Wood Ditch	Stump Creek	6	15	1889	0.3	20.00	1	Adj.	4	32	119
*1611	Salt River Canal	Salt River	6	25	1889	1.00	70.00	1	Adj.	7	30	118
1610	Salt River Canal	Salt River	6	25	1889	0.90	65.00	1	Adj.	7	30	118
1694	Stump Creek Ditch	Stump Creek	9	5	1889	0	150.00	1	Adj.	6	32	119
1695	Stump Creek Ditch	Stump Creek	9	5	1889	0	90.00	1	Adj.	6	32	119
1696	Stump Creek Ditch	Stump Creek	9	5	1889	0	0	1	Unadj.	6	32	119
1731	Kimball Ditch	Strawberry Creek	10	6	1889	0	60.00	1	Adj.	27	34	118
1732	Kimball Ditch	Strawberry Creek	10	6	1889	0	60.00	1	Adj.	27	34	118
1714	Fairview Canal	Crow Creek	10	15	1889	1.20	80.00	1	Adj.	9	31	119
3522	Martineau & Preston Ditch	Strawberry Creek	12	31	1889	0	80.00	1	Adj.	27	34	118
1621	Reed Ditch	Salt River	5	10	1890	1.80	120.00	1	Adj.	11	32	119
1645	Swanson & Oleson Ditch	Dry Creek	5	15	1890	0.90	60.00	1	Adj.	8	31	118
1612	Salt River Canal	Salt River	6	1	1890	1.30	90.00	1	Adj.	7	30	118
1624	Holbrook Ditch	Spring Br (Reeves Sl) Hollbrook Sl	6	1	1890	2.30	160.00	1	Adj.	3	32	119
1677	Creger Ditch Company Ditch	North Channel of Cottonwood Creek	6	1	1890	0.90	60.00	1	Adj.	4	30	118
1855	McFarland Ditch	Nickel Spring Creek	6	1	1890	1.80	120.00	1,2	Adj.	13	34	119
1622	Hammond Ditch	Crow Creek	6	10	1890	1.50	100.00	1	Adj.	10	32	119

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Permit Number	Facility	Source	Priority Date			Amount (cfs)	Acres	Use*	Diversion Location			
			Mo	Day	Year				Status	Sec.	Twn.	Rng.
1623	Hammond Ditch	Crow Creek	6	10	1890	1.20	80.00	1	Adj.	10	32	119
1647	Wilson Ditch	Dry Creek	6	18	1890	0.60	40.00	1	Adj.	8	31	118
1646	Hill Ditch Company Ditch	Dry Creek	6	20	1890	0.40	20.00	1	Adj.	8	31	118
1733	Anderson & Kimball Ditch	Strawberry Creek	7	5	1890	0	16.00	1	Adj.	27	34	118
1856	Lee Ditch	Birch Creek	8	20	1890	0.60	40.00	1,2	Adj.	36	36	119
1715	Henderson Ditch	Crow Creek	9	15	1890	2.30	160.00	1	Adj.	27	32	119
*44	Phillips	Phillips Creek	5	7	1891	1.03	72.00	1	Adj.	33	33	118
1625	Kirkbride #1 Ditch	Salt River	5	25	1891	0.90	65.00	1	Adj.	33	35	119
1734	Grand Canal	Strawberry Creek	5	29	1891	0	40.00	1	Adj.	27	34	118
1735	Grand Canal	Strawberry Creek	5	29	1891	0	40.00	1	Adj.	27	34	118
1736	Grand Canal	Strawberry Creek	5	29	1891	0	80.00	1	Adj.	27	34	118
1737	Grand Canal	Strawberry Creek	5	29	1891	0	100.00	1	Adj.	27	34	118
1738	Grand Canal	Strawberry Creek	5	29	1891	0	40.00	1	Adj.	27	34	118
*1626	Child Ditch	Salt River	6	1	1891	1.20	80.00	1	Adj.	7	30	118
1614	Salt River Canal	Salt River	6	1	1891	1.50	100.00	1	Adj.	7	30	118
1739	Neuenschwander Ditch	Strawberry Creek	6	1	1891	0	80.00	1	Adj.	34	34	118
1678	Cottonwood South Ditch	S Channel of Cottonwood Cr	6	10	1891	0.60	40.00	1	Adj.	4	30	118
86	Idaho Boundary	Stump Creek	7	1	1891	3.00	200.00	1	Adj.	6	32	119
1740	Thatcher & Fluckiger Ditch	Strawberry Creek	9	30	1891	0	112.00	1	Adj.	27	34	118
1741	Thatcher & Fluckiger Ditch	Strawberry Creek	9	30	1891	0	80.00	1	Adj.	27	34	118
1742	Wolfley & Luthi Ditch	Strawberry Creek	10	3	1891	0	50.00	1	Adj.	27	34	118
1743	Wolfley & Luthi Ditch	Strawberry Creek	10	3	1891	0	22.10	1	Adj.	27	34	118
173	Merritt	Strawberry Creek	11	12	1891	.60	40.00	1	Adj.	32	34	118
*1627	Christensen Ditch	Nelson Slough	6	1	1892	0.90	60.00	1	Adj.	31	33	118
*1628	Christensen Ditch	Nelson Slough	6	1	1892	0.60	40.00	1	Adj.	31	33	118
1716	Fairview Canal	Crow Creek	6	1	1892	0.20	7.00	1	Adj.	9	31	119
1746	Hincks Ditch	Strawberry Creek	6	1	1892	0	25.20	1	Adj.	27	34	118
298	Clark Ditch	Strawberry Creek	6	20	1892	1.14	80.00	1	Adj.	33	34	118
1616	Salt River Canal	Salt River	6	25	1892	0.30	15.00	1	Adj.	7	30	118
1615	Salt River Canal	Salt River	7	1	1892	0.90	60.00	1	Adj.	7	30	118
356	Swanson & Oleson	Dry Creek, Salt River	10	28	1892	0.50	30.00	1	Adj.	7	31	118
360	Kingston	Hanson Creek	11	11	1892	0	0	1	Unadj.	33	33	118
448	Johnson, Swenson, & Oleson	Dry Creek	3	28	1893	2.37	160.00	1	Adj.	7	31	118

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Permit Number	Facility	Source	Priority Date			Amount (cfs)	Acres	Use*	Status	Diversion Location		
			Mo	Day	Year					Sec.	Twn.	Rng.
479	Larsen & Johnson	Dry Creek	5	12	1893	1.21	85.00	1	Adj.	7	31	118
1629	Hoy & Stanlick Ditch	Salt River	5	15	1893	0.60	40.00	1	Adj.	7	30	118
1717	Henderson Ditch	Crow Creek	5	15	1893	1.80	120.00	1	Adj.	27	32	119
493	Upper North Canal	Cottonwood Creek	5	20	1893	4.39	310.00	1	Adj.	4	30	118
497	Johnson, Swenson, & Oleson	Dry Creek	5	26	1893	1.420	100.00	1	Adj.	7	31	118
525	Mallory Company	Lost Creek/Baxter Creek	6	14	1893	6.850	480.00	1	Adj.	16	34	118
533	Henrie Spring Creek	Henrie Spring Cr./Walton Spring Cr.	6	23	1893	.20	10.00	1	Adj.	36	33	119
534	Wilber	North Channel of Cottonwood Creek	6	24	1893	4.05	280.00	1	Adj.	31	31	118
1718	Fairview Canal	Crow Creek	7	1	1893	0.90	60.00	1	Adj.	9	31	119
1719	Fairview Canal	Crow Creek	7	1	1893	0.90	60.00	1	Adj.	9	31	119
*1681	Creger Ditch Company Ditch	North Channel of Cottonwood Creek	7	24	1893	0.60	40.00	1	Adj.	4	30	118
1720	Henderson Ditch	Crow Creek	5	15	1894	0.60	40.00	1	Adj.	27	32	119
784	Wolfley & Crouch	Birch Creek	8	15	1894	2.28	160.00	1	Adj.	36	36	119
785	Bakers	Branch East Fork Big	8	16	1894	0	0	1,2	Unadj.	12	35	119
798	Wolfley	Birch Creek	9	5	1894	.57	40.00	1	Adj.	36	36	119
86E	Enl Turner	Willow Creek	9	26	1894	8.43	335.00	1	Adj.	14	33	118
944	Roberts	North Spring Creek	2	8	1895	2.38	160.00	1	Adj.	11	34	119
98E	Enl Coleman	Dry Creek	2	16	1895	.86	60.00	1,2	Adj.	7	31	118
958	Schwab Ditch #2	Salt River	3	27	1895	.42	30.00	1,2	Adj.	6	30	118
106E	Enl North Canal	Swift Creek	4	1	1895	1.14	80.00	1,2	Adj.	30	32	118
108E	Enl North Canal	Swift Creek	4	1	1895	1.00	70.00	1,2	Adj.	30	32	118
959	Burton #2	Swift Creek	4	1	1895	.29	20.00	1	Adj.	25	32	119
110E	Enl North Canal	Swift Creek	4	11	1895	.50	35.00	1	Adj.	30	32	118
111E	Enl North Canal	Swift Creek	4	11	1895	.86	60.00	1	Adj.	30	32	118
113E	Enl Halling	Swift Creek	4	13	1895	1.14	80.00	1	Adj.	30	32	118
115E	Enl Perkins & Hardman	Dry Creek	5	7	1895	4.21	295.00	1	Adj.	7	31	118
116E	Enl Halling	Swift Creek	5	8	1895	3.43	240.00	1	Adj.	30	32	118
982	Farmer	Cedar Creek	5	27	1895	1.71	120.00	1	Adj.	5	34	118
119E	Enl Henderson	Dry Creek	6	5	1895	2.14	150.00	1	Adj.	7	31	118
120E	Enl North Canal	Swift Creek	6	5	1895	.88	62.00	1	Adj.	30	32	118
122E	Enl Veigel & Stumpp	Dry Creek	6	5	1895	3.21	225.00	1	Adj.	7	32	118
124E	Enl North Canal	Swift Creek	6	5	1895	16.667	1166.70	1	Adj.	30	32	118
118E	Enl Afton Canal	Swift Creek	6	8	1895	3.43	239.86	1	Adj.	31	32	118

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Permit Number	Facility	Source	Priority Date			Amount (cfs)	Acres	Use*	Status	Diversion Location		
			Mo	Day	Year					Sec.	Twn.	Rng.
991	Black Hawk Ditch	South Middle Spring	6	17	1895	1.42	100.00	1	Adj.	13	34	119
126E	Enl Bruce Peterson	Salt River	6	22	1895	2.15	150.70	1	Adj.	17	30	118
132E	Enl Bruce & Peterson	Salt River	6	22	1895	0	0	1	Unadj.	17	30	118
997	Pine Grove	Pine Grove Spring Creek	6	22	1895	0	0	1	Unadj.	8	30	118
*152E	Enl Christopherson	South Dry Creek	6	24	1895	3.47	243.00	1	Adj.	7	31	118
127E	Enl Grand Canal	Strawberry Creek	6	24	1895	8.40	570.00	1	Adj.	28	34	118
128E	Enl South End	Strawberry Creek	6	24	1895	1.94	136.00	1	Adj.	33	34	118
148E	Enl Upper North Canal	Cottonwood Creek	6	24	1895	.14	10.00	1	Adj.	4	30	118
129E	Enl Heill	Dry Creek	6	29	1895	1.99	140.00	1	Adj.	7	31	118
1032	American	Cottonwood Creek	7	5	1895	.28	20.00	1	Adj.	5	30	118
*133E	Enl Salt River Canal	Salt River	7	10	1895	16.11	1130.00	1	Adj.	6	30	118
134E	Enl Hardman	Dry Creek	7	10	1895	.16	10.00	1	Adj.	7	31	118
135E	Enl Fairview Canal	Crow Creek	7	10	1895	.42	130.00	1	Adj.	9	31	119
136E	Enl Martineau & Preston	Strawberry Creek	7	13	1895	11.42	800.00	1	Adj.	27	34	118
137E	Enl Grand Canal	Strawberry Creek	7	13	1895	18.38	1287.00	1	Adj.	28	34	118
1023	Alto Canal	Strawberry Creek	7	18	1895	6.55	460.00	1	Adj.	27	34	118
139E	Enl Beaver Dam	Strawberry Creek	7	18	1895	1.14	80.00	1	Adj.	28	34	118
1025	Jensen	North Channel Cotton	7	23	1895	.37	26.00	1	Adj.	5	30	118
140E	Enl Hardman	Dry Creek	7	24	1895	.60	40.00	1	Adj.	7	31	118
141E	Enl Pine Tree	Flat Creek	7	24	1895	2.38	167.00	1	Adj.	24	34	119
1028	Wolfley	Stewart Creek	7	26	1895	1.00	70.00	1	Adj.	23	36	119
142E	Enl Perkins & Hardman	Dry Creek	7	26	1895	3.28	230.00	1	Adj.	7	31	118
153E	Enl South End	Strawberry Creek	8	20	1895	3.29	230.00	1	Adj.	33	34	118
154E	Enl Hincks	Strawberry Creek	8	21	1895	3.78	265.00	1	Adj.	27	34	118
147E	Enl Bruce Peterson	Salt River	9	3	1895	.570	40.00	1	Adj.	17	30	118
156E	Enl Hincks	Strawberry Creek	9	9	1895	2.27	160.00	1	Adj.	27	34	118
158E	Enl Merritt	Strawberry Creek	9	27	1895	.43	30.00	1	Adj.	31	34	118
167E	Enl Swanson & Oleson	Dry Creek	11	20	1895	1.33	93.30	1	Adj.	7	31	118
168E	Enl Halling	Swift Creek	11	20	1895	1.14	80.00	1	Adj.	30	32	118
198E	Enl Luthi & Wolfley	Strawberry Creek	5	13	1896	3.0	210.00	1	Adj.	28	34	118
1231	Alpha Pipe Ditch	Springs/Springs Draw	6	4	1896	0	0	1,2	Unadj.	14	52	63
207E	Enl Neuenschwander	Strawberry Creek	6	8	1896	1.14	80.00	1	Adj.	33	34	118
1246	Nelson	Flat Creek	6	12	1896	.82	65.00	1	Adj.	24	34	119

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Permit Number	Facility	Source	Priority Date			Amount (cfs)	Acres	Use*	Status	Diversion Location		
			Mo	Day	Year					Sec.	Twn.	Rng.
1369	Miller Ditch	Miller Creek	11	19	1896	1.14	80.00	1,2	Adj.	9	34	119
1492	West Ditch	Brown Creek	5	17	1897	.440	30.00	1,2	Adj.	27	32	119
1507	J C D	Anderson Creek Eric Hollow Spring	6	10	1897	.28	20.00	1,2	Adj.	35	31	119
1529	Sprague	Sprague Creek	7	6	1897	1.57	110.00	1	Adj.	21	31	119
*1579	S.H. Ditch (Changed in Part)	Prater Creek/Green C	9	13	1897	2.07	145.00	1,2	Adj.	32	34	119
284E	Enl Crow Creek Canal	Crow Creek	11	12	1897	.57	40.00	1	Adj.	28	32	119
327E	Enl Cottonwood South	South Channel Cotton	1	24	1898	.99	70.00	1	Adj.	5	30	118
316E	Enl Swanson & Oleson	Dry Creek	2	21	1898	.20	13.30	1,2	Adj.	7	31	118
1770	McLatchie Ditch	Dry Creek	3	4	1898	.850	60.00	1	Adj.	7	31	118
1854	Rico	Salt River	6	20	1898	2.14	150.00	1	Adj.	34	35	119
1866	Maine Canal	Cedar Creek	6	24	1898	.85	59.40	1	Adj.	5	34	118
1867	Porto Canal	Cedar Creek	6	24	1898	3.40	240.00	1	Adj.	5	34	118
351E	Enl Wilson	Dry Creek	7	2	1898	1.42	100.00	1	Adj.	7	31	118
352E	Enl Welch	Stump Creek	7	4	1898	.67	47.00	1	Adj.	5	32	119
1910	Hebdon	Hebdon Creek	7	18	1898	.570	40.00	1	Adj.	21	34	119
357E	Enl Turner	Willow Creek	7	18	1898	2.92	205.00	1	Adj.	14	32	118
1976	Burton-Young Ditch	Middle Fork Powder R	10	6	1898	2.10	147.00	1	Adj.	7	43	81
1981	Kenington Ditch	Clear Creek	10	12	1898	2.57	180.00	1	Adj.	36	33	119
376E	Enl Swainston (Huse)	Cedar Creek	10	12	1898	1.71	119.50	1,2	Adj.	5	34	118
1994	Grover	Mill Creek/Grover CA	10	21	1898	0	0	4	Unadj.	6	32	118
*389E	Enl Salt River Canal	Salt River	11	16	1898	.93	65.00	1	Adj.	7	30	118
2012	Curtis Ditch	Swift Creek	11	16	1898	2.27	160.00	1,2	Adj.	30	32	118
390E	Enl Cottonwood South	South Channel Cotton	11	16	1898	0.78	55.00	1	Adj.	5	31	118
2023	Joe's Ditch	Nickel Spring Creek	1	9	1899	.570	40.00	1	Adj.	14	34	119
2124	Hepworth Ditch	Willow Creek	5	26	1899	1.71	120.00	1	Adj.	17	33	118
423E	Enl Jenson	Bradshaw Springs Creek	5	26	1899	1.14	80.00	1	Adj.	20	33	118
430E	Enl North Canal	Swift Creek	5	26	1899	1.15	80.00	1,2	Adj.	30	32	119
438E	Enl Cottonwood South	South Channel Cotton	6	2	1899	1.63	115.00	1	Adj.	5	30	118
439E	Willow Creek	Willow Creek	6	2	1899	.57	40.00	1,2	Adj.	1	30	119
442E	Enl Salt River Canal	Salt River	6	2	1899	2.57	180.00	1	Adj.	5	30	118
*454E	Enl Creger Ditch Company	North Channel of Cot	6	21	1899	4.56	320.00	1	Adj.	31	31	118
452E	Enl Crow Creek Canal	Crow Creek	7	5	1899	1.13	80.00	1	Adj.	9	32	119
474E	Enl North Canal	Swift Creek	7	31	1899	.57	40.00	1	Adj.	30	32	118

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Permit Number	Facility	Source	Priority Date			Amount (cfs)	Acres	Use*	Status	Diversion Location		
			Mo	Day	Year					Sec.	Twn.	Rng.
2334	Swensen Ditch		10	28	1899	1.71	120.00	7	Adj.	7	31	118
2456	Godfrey Ditch	Spring Creek (N Fork Spring Creek)	1	27	1900	1.10	77.50	1,2	Adj.	31	31	118
2535	Cranney	Spring Creek	2	28	1900	.42	30.00	1	Adj.	32	31	118
516E	Enl Upper North Canal	Cottonwood Creek	2	28	1900	.21	15.00	1,2	Adj.	4	30	118
512E	Enl Merritt	Strawberry Creek	3	16	1900	.88	62.00		Adj.	32	34	118
2600	Hancey Ditch	Soldier Creek	5	31	1900	.65	46.00	1,2	Adj.	11	34	119
2654	Schwab Canal	Salt River	6	2	1900	5.39	378.00	1,2	Adj.	15	34	119
2694	Bwadbent Ditch	N. Middle Spring Creek	6	7	1900	2.28	160.00	1	Adj.	12	34	119
2650	Merrimae	S. Middle Spring Creek	6	8	1900	1.78	125.00	1	Adj.	14	34	119
2651	White Ditch	N. Spring Creek	6	8	1900	2.28	160.00	1,2	Adj.	12	34	119
550E	Enl Porto	Cedar Creek	6	18	1900	7.97	320.00	1,2	Adj.	5	34	118
566E	Enl Vail & Baxter	Lost Creek/Baxter Creek	7	19	1900	.14	10.00	1	Adj.	13	34	119
2732	Cranney Ditch	Salt River	7	24	1900	1.15	82.00	1	Adj.	36	31	119
2775	Schwab Ditch #2	Smith Creek	7	24	1900	.50	35.00	1	Adj.	22	34	119
581E	Enl Fairview Canal	Crow Creek	7	24	1900	2.40	117.00	1	Adj.	9	32	119
2801	White	N/S Middle Spring Creek	8	25	1900	28.25	0	17	Adj.	12	34	119
2798	Thurman Ditch	N. William Creek	9	4	1900	1.14	80.00	1	Adj.	17	33	118
577E	Enl Idaho Boundary Line	Stump Creek	9	4	1900	4.06	280.00	1	Adj.	6	32	119
2884	Hemmert Canal	Salt River	10	29	1900	7.63	533.84	1,2	Adj.	35	34	119
*611E	Enl Grand Canal	Strawberry Creek	12	26	1900	2.28	160.00	1	Adj.	20	34	118
3023	Lilly May	Spring	2	1	1901	.07	5.00	1,2	Adj.	30	32	118
*3157	Lee Ditch	Stewart Creek	5	7	1901	1.5	105.00	1,2	Adj.	24	36	119
3170	Heap Ditch	Spring Creek	5	9	1901	2.26	160.00	1	Adj.	13	34	119
672E	Enl Wells	Crow Creek	5	29	1901	.57	40.00	1	Adj.	9	31	119
667E	Enl Moffitt & Stewart	Swift Creek	5	30	1901	.85	60.00	1	Adj.	14	32	119
3261	Forest Dale Ditch	Salt River	6	26	1901	4.55	320.00	1,3	Adj.	20	30	118
679E	Enl Grand Canal	Strawberry Creek	7	8	1901	1.14	80.00	1	Adj.	28	34	118
688E	Enl Porto Canal	Cedar Creek	7	22	1901	1.14	80.00	1	Adj.	5	34	118
3341	Benzley Ditch	Sulpher Slough	7	30	1901	1.67	117.00	1	Adj.	24	33	119
3345	Vail	Spring	8	5	1901	.280	20.00	1	Adj.	24	34	119
253R	Cottonwood	Cottonwood Creek	8	16	1901	8,252,052.48		1		30	31	117
706E	Cottonwood Water System	Cottonwood Creek	8	16	1901	2.00	140.0	1	Adj.	5	29	118
817E	Enl Welch	Stump Creek	9	24	1901	.57	40.00	1	Adj.	5	32	119

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Permit Number	Facility	Source	Priority Date			Amount (cfs)	Acres	Use*	Diversion Location			
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754E	Enl Schwab	Cottonwood Creek	12	4	1901	.92	65.00	1	Adj.	5	30	118
3724	Kennington Ditch	Sprague Creek	2	14	1902	.21	15.00	1,2	Adj.	23	31	119
798E	Enl Wood	Stump Creek	3	18	1902	1.29	90.00	1	Adj.	5	32	119
809E	Enl North Canal	Swift Creek	3	29	1902	4.06	286.00	1	Adj.	30	32	118
*3913	Swainston (Huse) Ditch	Cedar Creek	5	20	1902	2.25	157.10	1,2	Adj.	5	34	118
853E	Rico	Salt River	5	27	1902	.54	38.00	1	Adj.	34	35	119
854E	Baker & Heap	Salt River	5	27	1902	2.75	193.00	1,2	Adj.	34	34	119
868E	Enl Flagstaff	Swift Creek	5	27	1902	1.42	100.00	1	Adj.	30	32	118
3985	Last Chance Canal	Cedar Creek	6	3	1902	2.85	200.00	1,2	Adj.	5	34	118
4018	Jenkins	North Branch Cedar C	6	26	1902	.00	.00	1,2	Unadj.	6	34	118
4040	Miller	Miller Creek	7	12	1902	.57	40.00	1	Adj.	9	34	119
4041	Ames & Gould	Salt River	7	12	1902	6.33	443.60	1,2	Adj.	28	36	119
4051	Jenkins	Salt River	7	14	1902	.42	30.00	1	Adj.	3	34	119
873E	Enl Kirkbride #1	Salt River	7	14	1902	6.03	424.50	1	Adj.	33	35	119
*904E	Enl S. H. as Changed to Brog	Prater Creek/Green	8	13	1902	2.28	160.00	1,2	Adj.	29	35	118
5018	Welchman	N. William Creek	8	21	1902	1.35	95.00	1,2	Adj.	18	33	118
5095	Mill Creek	Mill Creek	10	8	1902	.28	20.00	1	Adj.	17	27	70
5122	Frederick	Salt River	10	24	1902	1.45	102.00	1,2	Adj.	10	34	119
5238	Wright	North Prater Creek	12	26	1902	0	0	1	Unadj.	29	35	118
984E	Enl Stump Creek	Stump Creek	1	23	1903	2.00	140.00	1	Adj.	6	32	119
1006E	Enl A.L.T. Canal	Swift Creek	3	7	1903	2.00	140.00	1,2	Adj.	30	32	118
5369	Merkley Ditch	Merkley Springs	3	21	1903	.20	14.00	1,2	Adj.	27	30	119
5457	Broadbent Ditch	Baker Canyon or Lee Creek	5	9	1903	1.35	87.31	1,2	Adj.	12	35	119
1072E	Enl Wolfley Ditch	Birch Creek	6	12	1903	1.99	140.00	1	Adj.	1	35	119
1208E	Enl Nilson	Flat Creek	6	12	1903	1.00	70.00	1,2	Adj.	24	34	119
5532	Vannoy Ditch	Seepage Spring	6	12	1903	.130	10.00	1	Adj.	24	34	119
1076E	Enl Wolfley Crouch Ditch	Birch Creek	6	15	1903	3.42	240.00	1	Adj.	1	35	119
5556	Centre Ditch	Baker Canyon or Lee Creek	7	6	1903	0	0	1	Unadj.	12	35	119
1111E	Enl Alt Canal	Strawberry Creek	7	20	1903	.57	40.00	1	Adj.	27	34	119
1112E	Enl South End Ditch	Strawberry Creek	8	1	1903	0	0	1	Unadj.	33	34	118
1096E	Enl Hepworth Ditch	North Willow Creek	8	3	1903	.35	25.00	1	Adj.	17	33	118
6083	Union Canal	Salt River	8	26	1903	11.98	839.00	1,3	Adj.	22	35	119
5710	Walton	Swift Creek	12	10	1903	.57	40.00	1	Adj.	30	32	118

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5787	Osborne Spring Ditch	Osborne Spring Creek	12	30	1903	2.15	151.00	1	Adj.	12	34	119
5978	White Irrigation Ditch	White Creek	2	25	1904	2.00	140.00	1	Adj.	12	34	119
5941	Haderlie Mile Ditch	North Spring/N Middle Spring	3	21	1904	23.30	0	17	Adj.	11	34	119
*5942	Louder Ditch	Nelson Slough	4	16	1904	2.28	160.00	1	Adj.	2	32	119
1206E	Enl McFarland #1	Nickel Spring Creek	5	31	1904	.31	22.00	1	Adj.	14	34	119
1207E	Enl McFarland #2	Nickel Spring Creek	5	31	1904	.25	18.00	1	Adj.	13	34	118
6024	West Fork Cregger Ditch	Cottonwood Creek	5	31	1904	3.97	280.00	1	Adj.	31	31	118
1221E	Enl Schwab	Salt River	6	17	1904	1.40	98.00	1	Adj.	15	34	119
1227E	Enl Ames Canal	Salt River	6	20	1904	7.82	548.29	1,3	Adj.	10	36	119
6105	Fluckiger Neuenschwander Ditch	Fluckiger Spring	6	25	1904	2.14, SS	419.00	1	Adj.	14	33	118
6100	Fairview Water Works	Campbell Spring	6	27	1904	0	0	2,3	Unadj.	15	31	119
6102	No. Fk. Burton #2 Ditch	Swift Creek	6	27	1904	.22	16.00	1	Adj.	25	32	119
1240E	Enl Nelson	Lost Creek	6	30	1904	2.25	158.00	1,2,3	Adj.	9	34	118
1232E	Enl Hancey Ditch	Soldier Creek	7	2	1904	24.133	56.00	1,5	Adj.	11	34	119
1238E	Enl Godfrey Ditch	Spring Creek	7	11	1904	.61	42.50	1,2	Adj.	32	31	118
6254	Enos Hebdon Ditch	Weaver Springs	7	14	1904	.680	48.00	1,2,3	Adj.	13	34	119
6196	Porter Ditch	Salt River	7	30	1904	.78	55.00	1	Adj.	4	29	118
6160	Butterworth Ditch	Butterworth Spring	8	4	1904	0	0	1,2,3	Unadj.	12	34	119
6161	Hinck Ditch	Dry Canyon Creek	8	5	1904	1.42	100.00	1	Adj.	2	33	118
*1266E	Enl Pine Tree (East Side)	Salt River	8	8	1904	59.10, SS	4430.60	1,2,3	Adj.	35	34	119
6213	Coy Ditch	North Prater Creek	8	11	1904	.28	160.00	1,2	Adj.	29	35	118
*6304	Dana Ditch	Titensor Springs	10	20	1904	5.77	405.00	1	Adj.	13	34	119
1284E	Enl Strawberry Creek Canal	Strawberry Creek	10	27	1904	.57	40.00	1	Adj.	27	34	118
1290E	Enl Upper North Canal	Cottonwood Creek	11	11	1904	.10	7.00	1	Adj.	4	30	118
6301	Smoot Ditch	Cottonwood Creek	11	11	1904	.53	38.00	1,2	Adj.	5	30	118
1291E	Enl Roberta & Haderlie	Vail Creek	11	14	1904	1.37	96.00	1	Adj.	10	34	119
6305	Frederick Ditch #2	West Fork Salt River	11	14	1904	.34	24.00	1	Adj.	3	34	119
1302E	Enl Turner	Willow Creek	12	17	1904	1.42	100.00	1	Adj.	14	33	118
6433	Eddins	Salt River	12	22	1904	1.51	106.00	1	Adj.	1	33	119
6434	Barber	Baker Spring	1	11	1905	3.70	260.00	1	Adj.	15	35	119
6430	Bruce	Cottonwood Creek	1	30	1905	.85	80.00	1	Adj.	5	30	118
1343E	Enl Henderson	Dry Creek	2	6	1905	.24	17.28	1	Adj.	7	31	118
1342E	Enl Baker & Heap	Salt River	2	27	1905	2.22	156.00	1	Adj.	34	35	119

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6523	Durney Ditch	Salt River	2	27	1905	1.14	80.00	1	Adj.	22	35	119
6663	Cook	Swift Creek	4	17	1905	.42	30.00	1	Adj.	30	32	118
6664	Turner #2	Willow Creek	4	17	1905	.71	50.00	1	Adj.	14	33	118
1376E	North Fork Burton #2	Swift Creek	4	22	1905	1.34	59.00	1	Adj.	25	32	119
6833	Little Florence Ditch	Dry Creek	6	24	1905	0	0	1,2	Unadj.	7	31	118
6834	Susie Nelson Ditch	Nelson Springs	7	24	1905	.100	7.00	1,2	Adj.	25	34	119
6917	Edmond S. Clark Ditch	Crooked Canyon Creek	7	31	1905	.11	8.00	1,2,3	Adj.	25	35	119
6850	Clark Ames Ditch	Stewart Creek	8	10	1905	1.14	80.00	1,2	Adj.	23	36	119
6918	Livingston Ditch	Birch Creek/Smith Cr	8	18	1905	1.77	124.00	1,2	Adj.	22	34	119
6890	Bateman Ditch	North Fork Stewart Creek	9	15	1905	2.28	160.00	1	Adj.	22	36	119
1449E	North Fork Burton #2	Swift Creek	9	29	1905	.28	20.00	1	Adj.	25	32	119
6984	R.E.W. Ditch	Baker Canon or Lee Creek	11	13	1905	0.57, SS	120.00	1,2	Adj.	12	35	119
1474E	Enl Roberts & Haderlie	Vail Creek	12	11	1905	1.14	80.00	1	Adj.	10	34	119
1506E	Strawberry Creek Canal	Strawberry Creek	2	24	1906	.57	40.00	1,2	Adj.	27	34	118
7166	Canyon Park Ditch	Salt River	4	23	1906	1.60	112.00	1,3	Adj.	12	33	119
7187	Pioneer's Ditch	Birch Creek/Smith Cr	5	3	1906	.50	35.00	1	Adj.	22	34	119
7213	Willard Nelson Ditch	Willow Creek	5	28	1906	1.48	104.00	1,3	Adj.	12	33	119
7214	Stella Nelson Ditch	Willow Creek	5	28	1906	.42	30.00	1,3	Adj.	18	33	118
7241	Jos. Clark Ditch	Birch Creek	6	14	1906	1.95	137.00	1,2,3	Adj.	36	36	119
7256	Dancing-Water Ditch	Gem Spring and Dancing Water Spring	6	23	1906	0	0	2,3	Unadj.	19	35	119
7326	Crystal Spring Ditch	Crystal Spring #2	7	19	1906	0	0	1,2	Unadj.	30	35	118
7298	Jensen Spring Ditch	Jensen Spring	7	23	1906	0	0	2,3	Unadj.	5	30	118
1608E	Crigger	Cottonwood Creek	8	16	1906	0	0	1	Unadj.	30	31	118
1613E	Enl Schwab	Cottonwood Creek	8	27	1906	.86	60.00	1	Adj.	5	30	118
7415	Schwab Power Ditch	Salt River	8	27	1906	16.00	0	5	Adj.	6	30	118
1680E	Freedom Canal	Salt River	12	13	1906	1.94	137.00	1,3	Adj.	4	34	119
7708	Star Ditch	Salt River	12	13	1906	1.51	106.00	1	Adj.	33	35	119
7701	Herman Hyde Jr. Ditch	Glen Creek	2	21	1907	.03	2.00	1,2	Adj.	6	32	119
1679E	Jenkins	Channel of Salt River	2	27	1907	.270	19.00	1,3	Adj.	4	34	119
7709	Jenkins Ditch #2	Salt River	2	27	1907	.95	66.00	1,3	Adj.	3	34	119
7707	John P. Peterson Ditch	Peterson Springs	3	4	1907	.07	5.00	1	Adj.	12	32	119
1714E	Wolfley-Crouch	Crouch Fork Birch Creek	6	1	1907	1.35	95.00	1	Adj.	36	36	119
7790	Eliza Wolfley Ditch	Wolfley Spring	6	1	1907	.83	.58	1	Adj.	12	35	119

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Permit Number	Facility	Source	Priority Date			Amount (cfs)	Acres	Use*	Diversion Location			
			Mo	Day	Year				Status	Sec.	Twn.	Rng.
7800	Power Plant Canal	Swift Creek	6	3	1907	40.00	0	2,5	Adj.	29	32	118
7797	Green Canyon	Prater Creek/Green C	6	5	1907	3.64	255.40	1,2,3	Adj.	29	35	118
7789	Truman Hebdon	Meadow Springs	6	10	1907	.38	27.00	1	Adj.	12	34	119
7928	Nelson Ditch	Lost Creek/Baxter Creek	6	21	1907	0	0	1,2,3	Unadj.	16	34	118
1739E	Enl Upper North Canal	Cottonwood Creek	6	26	1907	.85	60.00	1,2,3	Adj.	4	30	118
7929	Cranney Ditch	Virginia Creek	7	6	1907	0	0	1,2,3	Unadj.	16	34	118
1747E	Enl Pine (Pine Tree)	Flat Creek	7	10	1907	.78	55.00	1,3	Adj.	24	34	119
7917	Annie House Ditch	Cedar Spring	7	29	1907	.71	50.00	1,2,3	Adj.	36	36	119
7960	Corsi #1 Ditch	Corsi Spring/Little Spring	8	9	1907	.28	20.00	1,2,3	Adj.	24	36	119
7961	Corsi #2 Ditch	Stewart Creek	8	9	1907	1.71	120.00	1,2,3	Adj.	24	36	119
7962	Corsi #3 Ditch	Hasel Spring	8	9	1907	.28	20.00	1,3	Adj.	25	36	119
8000	J.J. Rolph Ditch	Deer Creek	9	5	1907	.510	36.25	1	Adj.	4	34	119
1796E	Enl Alto	Strawberry Creek	10	17	1907	0	0	1,3	Unadj.	27	34	118
*1799E	Enl Wilber	North Channel of Cot	12	9	1907	1.70	120.00	1,3	Adj.	31	31	118
1845E	Edward Dray	Cedar Canyon Creek	2	26	1908	.57	40.00	1,2	Adj.	27	30	118
8277	Edward Dray Ditch	Cedar Canyon Creek	3	2	1908	.57	40.00	1,2,3	Adj.	27	30	118
1888E	Enl Cottonwood South	S Channel of Cottonwood Creek	4	16	1908	2.49	174.66	1,3	Adj.	5	30	118
1889E	Enl Creger Ditch Company	N Channel of Cottonwood Creek	4	16	1908	.64	45.34	1,3	Adj.	31	31	118
8415	Hyrum B. Ames Ditch #1	Dell Creek	4	27	1908	1.210	85.00	1,2,3	Adj.	14	36	119
8416	Hyrum B. Ames Ditch #2	Dale Creek	4	27	1908	.410	29.00	1,2,3	Adj.	14	36	119
1912E	Enl Turner	Willow Creek	6	8	1908	.50	35.00	1,3	Adj.	14	33	118
8505	George Merritt Ditch	Aspen Creek/Seepage	6	8	1908	.81	57.00	1	Adj.	4	33	118
8497	Elva	Willow Creek	7	2	1908	.16	11.00	1	Adj.	1	30	119
1914E	Enl Wolfley Crouch	Birch Creek	7	13	1908	2.22	155.15	1	Adj.	36	36	119
1943E	Dana	Titensor Springs	8	8	1908	1.17	82.00	1,2,3	Adj.	13	31	119
*1932E	Enl Kirkbride #1	Salt River	8	24	1908	.826	45.26	1	Adj.	33	35	119
1989E	Baker & Heap	Salt River	9	11	1908	4.98	349.00	1	Adj.	10	35	119
8908	Truman Hebdon Ditch #2	Round Osborne Spring	10	10	1908	SS	4.00	1,2,3	Adj.	1	34	119
1400R	Katherine Reeves	Stradlem Creek	10	13	1908	1.25		1		8	32	119
8727	Katherine Reeves Ditch	Stradlem Creek	10	13	1908	.28	20.00	1,8	Adj.	8	32	119
8804	George Dutson	Hanson Creek	11	2	1908	.08	6.00	1,2	Adj.	33	33	118
8876	Cella Ditch	Cella Spring	1	2	1909	0	.00	2,3	Unadj.	5	34	118
9215	Hardman Brothers Canal	Dry Canyon Creek	4	12	1909	0	0	1	Unadj.	2	33	118

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Permit Number	Facility	Source	Priority Date			Amount (cfs)	Acres	Use*	Status	Diversion Location		
			Mo	Day	Year					Sec.	Twn.	Rng.
9114	Ellen Clark Ditch	North Prater Creek	6	10	1909	2.20	154.00	1,2,3	Adj.	30	35	118
9115	David M. Roso Ditch	Gem Spring and Dancing Water Spring	6	10	1909	.09	6.00	1,2,3	Adj.	19	35	118
9216	Hardman Brothers Canal	Strawberry Creek	6	10	1909	21.23	1490.00	1	Adj.	27	34	118
2172E	Strawberry Creek Canal	Strawberry Creek	6	17	1909	.57	40.00	1	Adj.	27	34	118
9217	Last Chance Ditch	Hasel Spring	6	18	1909	2.28	160.00	1	Adj.	24	36	119
9224	Holly Ditch	Hammon Spring	7	3	1909	.140	10.00	1,2,3	Adj.	21	32	119
9225	Star Ditch	Stradlem Creek	7	3	1909	0	0	1,2,3	Unadj.	8	32	119
9226	Day Ditch	Clark Spring	7	3	1909	.07	5.00	1,2,3	Adj.	17	32	119
9227	Dollie Ditch	Pine Canyon Spring	7	3	1909	0	0	1,2,3	Unadj.	17	32	119
2086E	Enl City	Stump Creek	7	30	1909	2.28	160.00	1,2,3	Adj.	5	32	119
2088E	Enl Turner	Willow Creek	7	30	1909	.78	55.00	1,2,3	Adj.	4	33	118
9239	The HH Ditch	Henrie Spring/Walton Spring	7	30	1909	.17	12.00	1	Adj.	25	33	119
9240	The Dora Ditch	Clear Creek	7	30	1909	2.04	143.00	1	Adj.	25	33	119
2107E	Bateman	N. Fork Stewart Creek	8	13	1909	.94	66.00	1	Adj.	21	36	119
9324	Lloyd	Bell Creek	8	23	1909	.07	5.00	1	Adj.	10	36	119
2108E	Bateman	N. Fork Stewart Creek	9	3	1909	.80	56.00	1	Adj.	21	36	119
2109E	Last Chance	Stewart Creek	9	3	1909	2.28	160.00	1	Adj.	24	36	119
2110E	Katherine Reeves	Stradlem Creek	9	7	1909	1.74	122.00	1	Adj.	8	32	119
*9489	Carl Robert's Ditch	Prater Creek/Green C	12	6	1909	1.13	79.20	1	Adj.	29	35	118
2147E	Enl Edmond S Clark	Crooked Canyon Creek	12	24	1909	.13	17.00	1	Adj.	19	35	118
2234E	Eddins	Salt River	5	23	1910	1.04	73.00	1	Adj.	1	33	119
10032	Hannah Edwards Ditch	Fluckinger Spring	6	27	1910	2.40	168.00	1	Adj.	31	34	118
*2307E	Roberts, Haderlie & Heber	Salt River	10	24	1910	1.41	99.00	1	Adj.	10	34	119
10204	George Hammert Ditch	W. Fk. Salt River	10	24	1910	.33	23.00	1	Adj.	10	34	119
2353E	Wolfley-Crouch Ditch	Birch Creek	12	1	1910	0	0	2	Unadj.	36	36	119
10589	C.P.H. Ditch	Bakers Slough	5	22	1911	.74	52.00	1	Adj.	15	35	119
10590	J A H	Robinsons Slough	5	22	1911	1.46	102.00	1	Adj.	15	35	119
2425E	Durney	Salt River	5	22	1911	.26	18.00	1	Adj.	15	35	119
10704	Swan Ditch	Swan Springs	5	25	1911	.14	0	1,2,3	Adj.	25	36	119
10937	F.M. Thatcher Ditch	Salt Hollow Springs	8	23	1911	.10	0	2,3	Adj.	6	33	118
11015	George S. Kennington Ditch	Kennington Springs	9	18	1911	.14	10.00	1,2,3	Adj.	31	32	118
11207	John Tolman Ditch #1	Richardson Creek	9	23	1911	.510	36.00	1,3	Adj.	32	32	119
11208	John Tolman Ditch #2	Larson Creek	9	23	1911	.070	5.00	1,3	Adj.	4	32	119

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Permit Number	Facility	Source	Priority Date			Amount (cfs)	Acres	Use*	Status	Diversion Location		
			Mo	Day	Year					Sec.	Twn.	Rng.
11209	John Tolman Ditch #3	Child Creek	9	23	1911	.710	50.00	1,2,3	Adj.	4	31	119
*2562E	Enl Pine Tree (East Side)	Salt River	9	29	1911	2.54	178.00	1	Adj.	23	34	119
11078	Neuenschwander	Hell Hole Spring	11	20	1911	.01	1.00	1,2,3	Adj.	5	33	118
11206	Dora Hyde Ditch	Diamond Creek	2	27	1912	.130	9.00	1,2,3	Adj.	30	33	118
11194	L.C. Proctor	Berry Creek	3	15	1912	.28	20.00	1,2,3	Adj.	34	33	119
11238	Burton Pipe Line	Hill Point Springs	4	10	1912	.20	0	1,2,3,10	Adj.	30	32	118
2654E	Joseph Clark	Birch Creek	7	25	1912	.57	40.00	1	Adj.	36	36	119
2800E	Enl Joe Clark	Birch Creek	5	17	1913	.14	10.00	1,2,3	Adj.	1	35	119
3258E	Baker & Heap Ditch	Salt River	9	18	1913	1.20	88.00	1,3	Adj.	10	35	119
12154	Afton Water Works System	Clear Creek (Swift Creek)	10	29	1913	2.50	0	1,2,4,12	Adj.	29	32	118
2895E	Enl Hepworth	Willow Creek	1	2	1914	.86	60.00	1,3	Adj.	17	33	118
12196	Welchman Pipe Line	Terrace Spring	1	5	1914	0	.20	2,3	Adj.	5	32	119
12418	Pine Dale Ditch	Aspen Creek	4	25	1914	2.11	148.00	1,2,3	Adj.	4	33	118
12400	Alma Bassett Ditch	Bassett Creek	5	2	1914	.43	30.00	1,2,3	Adj.	27	31	119
3004E	Nelson	Flat Creek	7	24	1914	.20	0	10	Adj.	24	24	119
3005E	Nelson	Flat Creek	7	24	1914	.20	0	2,3	Adj.	24	34	119
3006E	Nelson	Flat Creek	7	24	1914	.03	2.00	1	Adj.	24	34	119
3062E	Enl Idaho Boundary Line	Stump Creek	9	28	1914	.60	42.00	1	Adj.	6	32	119
12863	Edward Bigler Ditch #2	Bigler Spring	11	20	1914	0	0	1,2,3	Unadj.	8	32	119
12862	Edward Bigler #1 Ditch	Read Spring	12	5	1914	0	0	1,2,3	Adj.	8	32	119
12864	Edward Bigler #3 Ditch	Coyote Spring	12	5	1914	0	0	1,2,3	Unadj.	8	32	119
12911	J.F. Astle Ditch	Water Cress Spring	12	10	1914	.07	5.00	1,2,3	Adj.	30	33	118
12940	O.R. Child Ditch	Child Spring	12	28	1914	.140	10.00	1,2,3	Adj.	4	31	119
12941	O.R. Child Ditch	Swamp Spring	12	28	1914	.030	2.00	1,2,3	Adj.	4	31	119
12988	Hyrum Hillyard Ditch	Hillyard Spring	1	16	1915	.14	10.00	1,2,3	Adj.	14	33	119
3139E	Hardman Brothers Canal	Strawberry Creek	2	23	1915	1.14	80.00	1,3	Adj.	27	34	118
13049	Tolman Pipe Line	Bullfrog Spring	2	24	1915	.200	0	2,3	Adj.	4	31	119
13050	Tolman Pipe Line	Snipe Spring	2	24	1915	0	0	2,3	Unadj.	4	31	119
13051	B.S. Ditch	Miller Creek	3	4	1915	0	0	1	Adj.	9	34	119
3186E	Porter	Salt River	4	10	1915	2.23	156.00	1,2,3	Adj.	4	29	118
13169	The Horse Spring Ditch	Horse Spring	5	19	1915	.20	0	1,2,3	Adj.	34	31	119
3212E	Lost Creek Pipeline	Lost Creek	6	17	1915	1.00	70.00	1,2,3	Adj.	8	34	118
13870	Sun Ditch	Hasel Spring	11	22	1915	.14	10.00	1	Adj.	25	36	119

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13873	Leota Ditch	Smith's Fork	11	22	1915	0	0	1	Unadj.	22	23	119
13874	Get Rich Ditch	Cherry Creek	11	22	1915	0	0	1,2,3	Unadj.	22	33	119
13838	Hebdon Ditch	Hebdon Spring	12	6	1915	0	0	1	Unadj.	13	34	119
14022	Gomm Ditch	Clear Springs	1	3	1916	.014	0	1,2,3	Adj.	29	31	118
3585E	Enl Upper North Canal	Cottonwood Creek	1	3	1916	.49	34.00	1	Adj.	4	30	118
14021	John Ashment Ditch	Corsi Spring	2	7	1916	0	0	1	Unadj.	24	36	119
14019	Hillstead Ditch	Hillstead Spring	2	14	1916	0	0	1,2,3	Unadj.	35	31	119
3705E	Black Hawk	Soldier Creek	6	5	1916	.86	60.00	1	Adj.	13	34	119
14341	Annie Durney Ditch	Durney Spring	6	15	1916	SS	4.00	1,2,3	Adj.	34	33	119
14316	Harrison Spring Pipe Line	Harrison Spring	7	5	1916	0	0	2,3	Unadj.	23	33	119
14317	Sulphur Springs Pipeline	Sulphur Spring	7	5	1916	.36	0	2,7	Adj.	23	33	119
14318	McCoy Ditch	Horse Creek	7	20	1916	0	0	1,2,3	Unadj.	33	30	118
14319	Jasper Ditch	Virginia Creek	7	20	1916	.440	31.00	1,3	Adj.	15	34	118
14320	Jas. T. Lucky Ditch	Schwab Creek	7	21	1916	.06	4.00	1,2,3	Adj.	15	34	119
14325	The Park Ditch	Springs	8	21	1916	SS	74.00	1	Adj.	23	34	119
3745E	Enl Pine Tree	Flat Creek	9	8	1916	1.45	88.00	1,2,3	Adj.	24	34	119
3765E	Enl Alto Canal	Strawberry Creek	10	9	1916	4.31	302.00	1,2,3	Adj.	27	34	118
14696	Arthur Pipe Line	Hawthorn Spring	4	4	1917	0	0	1,2,3	Unadj.	28	33	118
14697	Edgar Ditch	Miller Spring	4	4	1917	0	0	1,2,3	Unadj.	29	33	118
3774E	Enl Pine	Flat Creek	5	14	1917	SS	120.00	1	Adj.	24	34	118
15120	Spring Canal	Springs	7	30	1917	2.51	660.00	1,2,3	Adj.	13	32	119
17471	Taylor Pipe Line	Springs Branch	11	7	1917	0	0	2,3	Unadj.	27	31	119
14984	A.F. Burton Ditch	Crystal Spring	2	6	1918	0	0	2,3	Unadj.	30	35	118
3901E	Hardman Bros. Canal	Strawberry Creek	5	23	1918	.07	5.00	1,2,3	Adj.	27	34	118
*4009E	Enl Pine Tree (East Side)	Salt River	1	22	1919	4.57	320.00	1,2,3	Adj.	35	34	119
4067E	Enl Union Canal	Tin Cup Creek	9	4	1919	2.17	152.00	1	Adj.	22	35	119
*4071E	Enl Pine Tree (East Side)	Salt River	9	8	1919	SS	146.00	1	Adj.	35	34	119
4147E	Enl Coleman	Dry Creek	6	16	1920	.43	30.00	1	Adj.	7	31	118
4150E	Porter	Salt River	7	22	1920	.24	17.38	1	Adj.	4	29	118
15894	Pasture Ditch	Dry Gulch Spring	8	6	1920	0	0	1	Unadj.	14	32	119
4149E	Enl Halling	Swift Creek	8	6	1920	.49	34.00	1	Adj.	30	32	118
17207	Anderson Ditch #1	Swamp Spring	8	18	1920	0	0	2	Unadj.	12	33	119
15929	Willow Ditch	Creamery Spring	8	30	1920	.160	11.47	1	Adj.	14	32	119

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15930	Spring Ditch	Branch Spring	8	30	1920	.40	28.53	1	Adj.	14	32	119
15930	Spring Ditch	Branch Spring	8	30	1920	0.40	28.53	1,2	Adj.	14	32	119
15948	Canyon Ditch	Jensen Canyon Spring	8	30	1920	.420	29.46	1,2	Adj.	6	32	118
15931	Wilde Ditch	South Fork Spring Cr	9	1	1920	.38	26.78	1	Adj.	32	31	118
15932	Spring Ditch	Cranney Spring	9	1	1920	.10	0	2	Adj.	32	31	118
15933	Lost Creek Ditch	Lost Canyon Creek	11	13	1920	.07	5.00	1	Adj.	32	31	118
4192E	Enl Upper North Canal	Cottonwood Creek	11	13	1920	.41	28.75	1	Adj.	4	30	118
16169	Spring Ditch	Spruce Spring	12	17	1920	.03	2.00	1,3	Adj.	5	33	118
16240	Fluckiger Pipe Line	Fluckiger Spring	12	17	1920	.10	0	2,3	Adj.	4	33	118
16510	Preston Ditch	Strawberry Creek	12	17	1920	0	0	1	Unadj.	27	34	118
15953	Ivy Ditch	Dry Canyon Creek	1	3	1921	0	0	1,2	Unadj.	2	33	118
4311E	Strawberry South Canal	Strawberry Creek	2	3	1921	.99	69.25	1,2	Adj.	5	33	118
16124	Upper Ditch	Strawberry Creek	2	11	1921	.19	13.00	1	Adj.	27	34	118
16125	Aspen	Strawberry Spring	2	11	1921	.007	.50	1,2	Adj.	27	34	118
3772R	Salt River	Salt River	4	6	1921	98008.00		1		13	33	119
16106	Worth Supply Ditch	Hepworth Spring/Sage Creek	5	20	1921	.030	2.50	1,2,3	Adj.	18	32	118
16107	Willow Ditch	Salt River	6	1	1921	0.0	0.0	1	Unadj.	11	32	119
16113	Wheeler Ditch	Lost Creek	6	11	1921	1.140	80.00	1	Adj.	17	34	118
16114	Hanson	Hanson Creek	6	17	1921	0	0	1	Unadj.	33	33	118
16155	Teddy Ditch	Graham Creek	7	20	1921	1.00	70.00	1,2	Adj.	29	30	118
4237E	Alto Canal	Strawberry Creek	8	26	1921	.56	39.50	1	Adj.	27	34	118
4239E	Corsi #2	Stewart Creek	8	29	1921	.49	34.00	1	Adj.	23,24	36	119
4267E	Nelson	Flat Creek	10	22	1921	17.1	0	5	Unadj.	24	34	119
4254E	Broadbent	Baker Canon Creek/Lee Creek	10	27	1921	1.07	75.57	1	Adj.	7	35	118
16303	Ferriell Ditch	Clear Slough	1	4	1922	1.60	112.00	1	Adj.	12	32	119
16304	Willow Ditch	Clear Slough	1	4	1922	.23	15.60	1	Adj.	12	32	119
16305	Nield Ditch	Spring Slough	1	4	1922	.450	32.40	1	Adj.	11	32	119
4286E	Enl Pine Tree	Flat Creek	3	4	1922	1.43	100.00	1	Adj.	24	34	119
4348E	Enl Turner	Willow Creek	3	20	1922	2.10	140.00	1	Adj.	14	33	118
16398	Sulpher Ditch	Vail Creek	7	3	1922	.28	20.00	1	Adj.	23	33	119
16399	Swamp Ditch	Meadow Slough	7	3	1922	.40	28.00	1	Adj.	25	33	119
4301E	Enl Elkhorn	Toms Canon Creek	7	3	1922	.93	65.20	1	Adj.	24	33	119
16400	Burton Creamery Pipe Line	Spruce Spring	7	10	1922	.01	0	15	Adj.	5	33	118

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Permit Number	Facility	Source	Priority Date			Amount (cfs)	Acres	Use*	Status	Diversion Location		
			Mo	Day	Year					Sec.	Twn.	Rng.
16454	Burton Creamery Pipeline #2	Staley Spring	9	5	1922	.014	0	15	Adj.	32	31	118
16806	Clark Ames Ditch	North Stewart Creek	9	11	1922	0	0	1	Unadj.	24	36	119
4346E	Enl McComb	Salt River	11	22	1922	.27	19.00	1	Adj.	25	33	119
16532	Charles Ditch	Hell Hole Spring	1	18	1923	.01	1.00	1,2,3	Adj.	5	33	118
4345E	Jasper	Virginia Creek	1	18	1923	1.42	100.00	1	Adj.	15	34	118
4521E	Strawberry North Canal	Strawberry Creek	3	26	1923	2.64	80.00	1,4	Adj.	27	34	118
16874	Aspen Pipe Line	Gem Spring	7	12	1923	0	0	2,3	Unadj.	19	35	118
4579E	Hardman Bro's. Canal	Strawberry Creek	7	12	1923	.68	47.60	1	Adj.	27	34	118
16894	A.F. Burton Pipe Line	Crystal Spring	11	5	1924	0	0	2,3	Unadj.	30	35	118
16932	Perkins	Cedar Creek	2	18	1925	1.93	162.50	1,2	Adj.	5	34	118
4452E	East Side Canal	Salt River	6	10	1925	0.5	0	2,15	Unadj.	35	34	119
17034	Smoot Pipeline	Cranney Spring	12	7	1925	0	0	2	Unadj.	32	31	118
17137	Fairview Pipe Line	Campbell/Shumway Spr	6	8	1926	.04	0	4	Adj.	22	31	119
17120	Edding Stock Watering Trough	Unnamed Spring	6	18	1926	.10	0	3	Adj.	1	33	119
17208	Eddins Pipeline	Unnamed Spring	6	18	1926	0	0	2,3	Unadj.	36	34	119
17218	Deloss Pipeline	Unnamed Spring	4	26	1927	.04	.46	1,2	Adj.	14	33	118
17240	McNeil Ditch #1	Unnamed Spring	4	26	1927	.01	1.20	1	Adj.	32	37	118
17241	Mc Neil Ditch #2	Unnamed Spring	4	26	1927	.001	.70	1	Adj.	31	37	118
17268	Stephen Pipeline	Turner Spring	4	26	1927	.05	0	2,3	Adj.	22	33	118
17290	John Fluckiger Water Lines	John Fluckiger Spring	4	26	1927	.10	0	2,3	Adj.	4	33	118
17279	Domestic Pipeline	Unnamed Spring	9	27	1927	.05	0	2,3	Adj.	32	31	118
17280	Heb Ditch #1	Spring Creek	10	25	1927	.20	13.80	1	Adj.	11	34	119
17281	Heb Ditch #2	Spring Creek	10	25	1927	0.21	15.20	1	Adj.	11	34	119
17339	Power Plant Canal #2	Swift Creek	11	8	1927	0	0	5	Unadj.	29	32	118
4566E	Enl Temple Bench	Swift Creek	11	8	1927	0	0	5	Unadj.	29	32	118
17346	A.F. Burton Pipe Line	Crystal Spring	2	20	1928	0	0	2,3	Unadj.	30	35	118
17388	Gottlieb Pipe Line #1	Gottlieb Spring #1	5	24	1928	.015	0	2,3	Adj.	4	33	118
17389	Gottlieb Pipeline #2	Gottlieb Spring #2	5	24	1928	.008	0	2,3	Adj.	4	33	118
17390	Gottlieb Pipe Line #3	Gottlieb Spring #3	5	24	1928	.005	0	2,3	Adj.	4	33	118
17391	Hyde A Ditch	Hyde Spring	5	24	1928	.57	40.00	1	Adj.	4	32	119
17428	Gomm Sawmill	Dry Creek	7	12	1928	0	0	5	Unadj.	7	31	118
4091R	Afton Electric	Swift Creek	9	5	1928	48.45		5		29	32	118
4599E	Enl Temple Bench	Swift Creek	9	5	1928	0	0	5	Unadj.	29	32	118

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			Mo	Day	Year					Sec.	Twn.	Rng.
17547	Clear Creek Pipe Line	Clear Creek Spring	3	27	1929	0	0	2,3	Unadj.	32	31	118
17548	Clear Creek Pipe Line	Clear Creek Spring	3	27	1929	0	0	2,3	Unadj.	32	31	118
17549	Hale Canyon Pipe Line	Hale Canyon Spring	3	27	1929	.023	0	2,3	Adj.	33	32	118
17550	George Pipe Line	George Spring	3	27	1929	(0.004)	0	2	Unadj.	27	33	119
17552	Porter Pipe Line	Auston Spring	3	27	1929	0	0	2	Unadj.	33	30	118
17625	Parsons Pipe Line	Green Canyon Spring	8	26	1929	0	0	1,2	Unadj.	5	30	118
5758E	Enl Morgan & Rawlins	Spring Br(Reeves SL)/Holbrook Slough	8	26	1929	0	0	1	Unadj.	3	32	119
17657	Osmond Pipe Line	Water Cress Spring #	9	25	1929	.500	0	2,3	Adj.	8	31	118
4678E	Afton Municipal Water System	Swift Creek	9	25	1929	0	0	2,3	Unadj.	29	32	118
17674	Johnson Pipeline	Johnson Spring	2	17	1930	0	0	2	Unadj.	27	31	119
17688	Heber Pipeline	Red Hollow Spring	2	17	1930	0	0	2	Unadj.	20	32	118
17695	Von Alman Pipeline	Fluckiger Spring #2	2	17	1930	0	0	3	Unadj.	4	33	118
17724	Rainbow Pipeline	Rainbow Spring #1	2	17	1930	.100	0	2,3	Adj.	32	31	118
17725	Rainbow Pipeline	Rainbow Spring #2	2	17	1930	.100	0	2,3	Adj.	32	31	118
17726	Roos Pipeline	Ross Spring	2	17	1930	0	0	2	Unadj.	18	33	118
4683E	Spring Creek Canal	Indian Spring	2	17	1930	SS	59.00	1	Adj.	13	32	119
18104	Power Plant Canal #2	Swift Creek	4	14	1930	0	0	5	Unadj.	29	32	118
17680	Anderson #1	Willow Creek	4	24	1930	.45	32.00	1,3	Adj.	16	33	118
17681	Anderson #2	Willow Creek	4	24	1930	1.38	96.40	3	Adj.	17	33	118
18230	Heap Pipeliny	Marion Spring	12	12	1930	.10	0	2	Adj.	14	34	119
17940	Thomas Pipe Line #2	Flat Creek	8	6	1931	0	0	5	Unadj.	2	34	119
4755E	Nelson	Flat Creek	8	6	1931	37	0	5	Unadj.	24	34	119
17897	Childs Pipeline	Child Spring	8	29	1931	.100	0	2,3	Adj.	15	31	119
17898	Nebeker Ditch	Campbell Springs	8	29	1931	0	0	1,2,3	Unadj.	15	31	115
17943	Thomas Pipe Line #3	Cottonwood Creek	9	5	1931	0	0	5	Unadj.	4	30	118
18022	Joe #1	Beta Spring	10	28	1931	.01	1.10	1	Adj.	14	32	119
18023	Joe #2 Ditch	Gamma Spring	10	28	1931	.10	7.00	1	Adj.	14	32	119
18024	Joe #3 Ditch	Yeaman Creek	10	28	1931	.03	2.30	1	Adj.	13	32	119
18025	M-Y #1 Ditch	Delta Spring	10	28	1931	.17	12.60	1	Adj.	14	32	119
18026	M-Y #2 Ditch	Delta Spring	10	28	1931	.19	13.40	1	Adj.	14	32	119
18027	Yeaman #1 Ditch	Yeaman #1 Ditch	10	28	1931	.23	16.00	1	Adj.	13	32	119
18028	Yeaman #2 Ditch	Epsilon Spring	10	28	1931	.06	4.50	1	Adj.	14	32	119
18029	M-L #1 Ditch	Yeaman Creek	10	28	1931	.78	55.30	1	Adj.	13	32	119

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18030	M-L #2 Ditch	Yeaman Creek	10	28	1931	.47	33.70	1	Adj.	14	32	119
18031	Lindford Ditch	Eta Spring	10	28	1931	.28	19.50	1	Adj.	12	32	119
18032	Simpson Ditch	Aspen Creek	12	19	1931	0	0	1,3	Unadj.	32	34	118
18033	S.A. Jensen Ditch #1	Halling Spring	12	19	1931	.68	47.60	1	Adj.	12	32	119
18034	S.A. Jensen Ditch #2	Castile Slough	12	19	1931	0.45	32.20	1	Adj.	11	32	119
4787E	Enl Turner	Willow Creek	12	19	1931	2.76	193.80	1,2,3	Adj.	14	33	118
18038	Call Pipe Line	Hepworth Spring	2	20	1932	.015	0	2,3	Adj.	18	32	118
18039	Call Ditch	Hepworth Spring	2	20	1932	.070	4.60	1,2,3	Adj.	18	32	118
18070	Pine Grove Ditch	Pine Grove Creek	2	20	1932	0	0	1,2,3	Unadj.	8	30	118
18087	Jenkins Ditch	Salt River	6	15	1932	.19	13.80	1,2,3	Adj.	34	35	119
18088	Edgerton Ditch	Dry Canyon Creek	6	15	1932	.30	21.00	1,2,3	Adj.	11	33	118
18159	Gomm Brothers Ditch	Maffet Slough	7	12	1932	SS	25.70	1,2,3	Adj.	17	30	118
18160	Gomm Brothers Ditch	Gomm Spring	7	12	1932	SS	12.70	1,2,3	Adj.	17	30	118
18204	Jensen Pipe Line	John Fluckiger Spring	8	3	1932	0	0	1,2,3	Unadj.	4	33	118
18238	Hebdon	Cedar Creek	8	3	1932	.28	20.00	1,2,3	Adj.	5	34	118
4881E	Enl Turner	Willow Creek	8	3	1932	.82	57.33	1,2,3	Adj.	4	33	118
4890E	Heb Ditch #2	Middle Spring Creek	8	3	1932	0	0	1	Unadj.	11	34	119
4901E	Hinck-Ivy Ditch	Dry Canyon Creek	8	3	1932	0	0	1	Unadj.	2	33	118
18105	C.J. Call Pipe Line	Swift Creek	8	29	1932	SS	0	5	Adj.	29	32	118
4884E	Strawberry North Canal	Strawberry Creek	9	8	1932	.57	40.00	1	Adj.	27	34	118
18211	Ida Ditch	Ida Spring	11	22	1932	0	0	1,2,3	Unadj.	12	32	119
18212	Lowell Ditch	Lowell Spring	11	22	1932	0	0	1	Unadj.	12	32	119
18213	Adolph	Adolph Spring	11	22	1932	0	0	1	Unadj.	12	32	119
4815E	Yeaman #1 Ditch	Epsilon Springs	11	22	1932	.02	1.60	1	Adj.	13	32	119
18231	Alva Ditch	Heap Spring	12	12	1932	.06	4.50	1	Adj.	13	34	119
18232	Garden Ditch	Lever Spring	2	10	1933	.040	3.00	1,2,3	Adj.	3	36	119
18237	Aspen Ditch	John Fluckiger Spring	2	10	1933	0	0	1,2,3	Unadj.	4	33	118
18254	Roberts Ditch	Salt Hollows Spring	2	10	1933	.01	1.00	1,2,3	Adj.	6	33	118
18233	State Line Ditch	Burns Creek	2	15	1933	.30	21.00	1,2,3	Adj.	4	36	119
18234	Cabin Ditch	Burns Creek	2	15	1933	.38	27.00	1,2,3	Adj.	4	36	119
18209	Alexander Ditch	Sandy Spring Creek	3	23	1933	0	0	1	Unadj.	12	34	119
18214	N. Field Ditch	Aspen Creek	3	23	1933	SS	22.00	1,3	Adj.	5	33	118
18215	Wild Hay Ditch	Aspen Creek	3	23	1933	SS	21.00	1,3	Adj.	5	33	118

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18216	Joe Ditch	Aspen Creek	3	23	1933	SS	23.00	1,3	Adj.	5	33	118
18217	Sarah Ditch	Aspen Creek	3	23	1933	SS	23.00	1,3	Adj.	5	33	118
18218	Merritt Ditch	Merritt Spring	3	23	1933	.03	2.00	1,3	Adj.	3	36	119
4889E	Enl Clark Ames	North Fork Stewart Creek	3	23	1933	1.69	118.00	1,2,3	Adj.	24	36	119
18300	Sand Ditch	Branch Salt River	8	5	1933	0	.00	1	Unadj.	16	36	119
5791E	Enl Union Canal	Salt River	8	5	1933	.54	37.70	1,3	Adj.	22	35	119
5832E	Freedom Canal	Salt River	8	5	1933	8.29	580.36	1,3	Adj.	4	34	119
5840E	Enl Kirkbride #1 & #2	Salt River	8	5	1933	4.82	337.40	1,3	Adj.	33	35	119
4916E	Enl Turner	Willow Creek	8	21	1933	0	0	1,3	Unadj.	10	33	118
4917E	Hemmert Ditch	Salt River	8	21	1933	0	0	1	Unadj.	35	34	119
*4996E	Enl Pine Tree Ditch	Salt River	11	14	1933	4.69,SS	412.87	1,3	Adj.	35	34	119
4925E	Ames & Gould Ditch	Salt River	11	14	1933	1.39	97.00	1,3	Adj.	23	36	119
18367	Three Springs	Doyle Spring	3	26	1934	0	0	1,2,3	Unadj.	8	32	119
18368	Three Springs	Lois Spring	3	26	1934	0	0	1,2,3	Unadj.	8	32	119
18369	Three Springs	Jerry Spring	3	26	1934	0	0	1,2,3	Unadj.	8	32	119
19538	Jeanette Ditch	Stewart Creek	3	26	1934	1.70	119.00	1,3	Adj.	24	36	119
18549	Lee Pipe Line	Guernsey Spring #1	6	5	1934	0.02	0	2,3	Adj.	7	32	118
18687	Supplemental Canal	North Springs	6	18	1934	SS	4955.25	1,2,3	Adj.	10	33	118
18688	Supplemental Canal	Marsh Springs	6	18	1934	SS	4955.25	1,2,3	Adj.	10	33	118
18690	Supplemental Canal	Middle Springs	6	18	1934	SS	4955.25	1,2,3	Adj.	10	33	118
18691	Supplemental Canal	Willow Creek	6	18	1934	SS	4955.25	1,2,3	Adj.	15	33	118
18692	Supplemental Canal	Watch Spring	6	18	1934	SS	4955.25	1,2,3	Adj.	15	33	118
18693	Supplemental Canal	Dead Horse Spring	6	18	1934	SS	4955.25	1,2,3	Adj.	15	33	118
18694	Supplemental Canal	South Springs	6	18	1934	SS	4955.25	1,2,3	Adj.	15	33	118
18550	Guernsey Spring #2 Pipe Line	Guernsey Spring #2	9	18	1934	.050	.25	1,2	Adj.	7	32	118
18551	Guernsey Spring #3 Pipe Line	Guernsey Spring #3	9	18	1934	.050	0	1,2	Adj.	7	32	118
18543	Grover Town Pipe Line	Grover Spring	1	10	1935	.022	0	2	Adj.	34	33	118
4980E	Enl Spring	Swift Creek	1	10	1935	1.36	95.50	1,2,3	Adj.	30	32	118
4981E	Enl Turner	Willow Creek	1	10	1935	.32	22.70	1	Adj.	14	33	118
18559	Heber #1	Alpha Spring Creek	1	21	1935	.77	53.80	1,3	Adj.	14	32	119
18560	Heber #3	Alpha Spring Creek	1	21	1935	0	0	1,3	Unadj.	14	32	119
18561	Heber #5	Salt River	1	21	1935	.76	53.70	1,3	Adj.	14	32	119
18562	Burton Pipe Line	Burton Spring	1	21	1935	0	0	2,3	Unadj.	14	32	119

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4986E	Nelson	Flat Creek	2	28	1935	0	0	1,2	Unadj.	24	34	119
4987E	Nelson	Flat Creek	2	28	1935	.20	0	2	Adj.	24	34	119
4989E	Enl Idaho Boundary Line	Stump Creek	2	28	1935	3.67	257.13	1,2,3	Adj.	6	32	119
4991E	Joe #1	Beta Springs	4	17	1935	0	0	1,3	Unadj.	14	32	119
18616	Vail Ditch	Vail Spring	4	24	1935	0	0	1,2,3	Unadj.	4	31	119
19510	George Spring Ditch	George Spring	5	17	1935	0	0	1,3	Unadj.	27	33	119
5027E	Anderson #1	Willow Creek	9	23	1935	.13	9.00	1	Adj.	16	33	118
5028E	Thurman	Willow Creek	9	23	1935	1.02	71.80	1	Adj.	16	33	118
18750	Gomm Pipe Line	Gomm Spring #2	11	23	1935	.044	0	2	Adj.	17	30	118
5077E	Gomm Bros.	Moffet Slouth	11	23	1935	0	0	1	Unadj.	17	30	118
5065E	Nelson	Flat Creek	8	15	1936	20.00	0	5	Adj.	24	34	119
18801	Walton Lehmborg Ditch	Reeves Slough/Spring Branch	9	25	1936	0	0	1,3	Unadj.	15	32	119
19128	W.W. Cranney Ditch	Salt River	9	25	1936	1.04	73.10	1,3	Adj.	1	30	119
18800	Cranney Spring Ditch	Pine Canyon Spring	12	17	1936	.27	19.10	1,2,3	Adj.	17	32	119
5139E	Enl Hebdon	Cedar Creek	3	24	1937	1.71	120.00	1,2,3	Adj.	5	34	118
18813	Nielsen Pipe Line	Nielsen Spring	4	21	1937	.023	0	2,3	Adj.	7	32	118
19110	Royal Ditch	West Fork Salt River	4	21	1937	.11	8.00	1	Adj.	3	34	119
19111	Jenkins #3 Ditch	West Fork Salt River	4	21	1937	.37	26.00	1	Adj.	3	34	119
5160E	Frederick #2	West Fork Salt River	4	21	1937	.31	22.00	1	Adj.	3	34	119
5161E	Freedom Canal	West Fork Salt River	4	21	1937	SS	8.00	1	Adj.	4	34	119
5162E	Jenkins	West Fork Salt River	4	21	1937	SS	8.00	1	Adj.	4	34	119
5091E	Enl Spring	Swift Creek	8	12	1937	.23	16.20	1	Adj.	30	32	118
18930	Etna Pipe Line	Wolfley Spring	8	21	1937	.058	0	1,2,3,4	Adj.	7	35	119
18817	Lower Valley Power Canal	Salt River	8	27	1937	240.00	0	5	Adj.	21	36	119
18868	Pead Spring Ditch	Pead Spring	9	3	1937	0	0	1,2,3	Unadj.	10	31	119
19051	Green Canyon Spring Pipe Line	Green Canyon Spring	8	23	1938	.039	0	2,3	Adj.	5	30	118
18992	Marsh Spring Pipe Line	Marsh Spring	8	26	1938	.40	0	2,3	Adj.	8	30	118
19104	Merritt Ditch	Unnamed Spring	9	12	1938	0	0	1,3	Unadj.	31	37	118
19091	Bowles Pipe Line	Clear Spring	9	26	1938	0	0	2,3	Unadj.	29	31	118
19067	Swamp Spring Pipe Line	Swamp Spring	1	3	1939	.04	0	2,3	Adj.	8	30	118
19068	Clear Spring Pipe Line	Clear Spring	1	3	1939	.04	0	2,3	Adj.	17	30	118
19085	Nelson Spring Pipe Line	Nelson Spring	1	3	1939	0	0	2,10	Unadj.	24	34	119
5152E	Heber #5	Salt River	1	18	1939	0	0	1	Unadj.	10	32	112

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19114	Brog Ditch	Green Canyon Creek	5	3	1939	0	.00	1,2,3	Unadj.	29	35	118
19141	Limerock Ditch	Limerock Creek	6	7	1939	0	0	1,2	Unadj.	12	33	119
19142	Neale #2	Salt River	6	7	1939	0	0	1,2	Unadj.	13	33	119
19143	Neale #1	Salt River	6	7	1939	0	0	1,2	Unadj.	13	33	119
19165	Swift Cr Camp Ground Pipe Line	Unnamed Spring	7	18	1939	.03	0	2,6	Adj.	29	32	118
19167	Grover Park Camp Ground Pipe Line	Unnamed Spring	7	18	1939	.033	0	2,6	Adj.	26	33	118
19192	Fink Pipe Line	Fink Spring	8	7	1939	.04	0	2	Adj.	16	34	118
19221	Duard Erickson Pipeline	Hillstead Spring	9	18	1939	.020	0	2,3	Adj.	35	31	119
19266	Erickson	Eric Hollow Spring/C/Anderson Creek	11	24	1939	.17	11.90	1	Adj.	35	31	119
19293	Smoot Farmers Pipeline	Forks Spring	11	30	1939	.076	0	2,3	Adj.	32	31	118
19294	South Smoot Farmers Pipe Line	Kingston Spring	11	30	1939	.046	0	2,3	Adj.	7	30	118
19295	South Smoot Farmers Pipe Line	Reeves Spring	11	30	1939	0	0	2,3	Unadj.	18	30	118
19281	Star Valley Power & Light Co. Pipeline	Swift Creek	12	8	1939	40.00	0	5	Adj.	21	32	118
5676E	Enl Afton Canal	Swift Creek	6	4	1940	.66	45.96	1,3	Adj.	30	32	118
*19400	Cottonwood Lake Water Supply System	Unnamed Spring	7	1	1940	.078	0	6,2	Adj.	24	31	118
5260E	Enl. Pine Tree/Enl. Pine	Flat Creek	10	7	1940	0.73	51.00	1,2	Adj.	24	34	119
5355R	Hemmert Fish Pond	Flat Creek	10	7	1940	3.77		9		23	34	119
5302E	Smoot Farmers Pipe Line	Forks Spring #2	12	15	1940	.274	0	2,3	Adj.	32	31	118
19488	Osmond Farmers Pipeline	Hillside Spring	12	16	1940	0	0	2,3	Unadj.	8	31	118
19489	Parsons Ditch	Spring Creek	12	16	1940	.78	55.00	1	Adj.	32	31	118
5328E	Enl Heber #5	Salt River	1	18	1941	SS	240.00	1,3	Adj.	10	32	119
19534	Thayne Pipeline	Thayne Spring	3	13	1941	0	0	2	Unadj.	24	34	119
19543	Mary Parsons Ditch	Cottonwood Creek	4	23	1941	0	0	1	Unadj.	5	30	118
19563	John Graham Pipeline	Graham Spring	6	9	1941	0	0	2,3	Unadj.	20	30	118
*19568	Cottonwood Lake Resort	Cottonwood Spring	6	20	1941	.007	0	2	Adj.	25	31	118
19771	Freedom Pipe Line	Prater Creek/Green C	10	29	1941	0	.00	2	Exp.	29	35	118
19729	Hansen Ditch	Deer Creek	3	27	1942	0	0	1	Unadj.	3	36	119
19744	Wilford A. Clark Pipeline	Crystal Spring	6	26	1942	0	0	2,3	Unadj.	30	35	118
5331E	Pine Tree	Salt River	7	24	1942	.10	7.00		Adj.	35	34	119
19738	Spring #2 Pipeline	Spring #2	9	10	1942	.09	0	2	Adj.	6	32	118
5338E	Nelson Spring Pipe Line	Nelson Springs	11	28	1942	.10	40.00	2,3	Adj.	24	34	119
5333E	Enl North Canal	Swift Creek	12	3	1942	2.20,SS	97.00	1,3	Adj.	30	32	118
5341E	Baker & Heap	Salt River	3	3	1943	0	0	1,2	Unadj.	34	35	119

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*19775	Brog Ditch	Prater Creek/Green C	3	19	1943	.59	41.50	1,2,3	Adj.	29	35	118
19911	Otto Ditch	North Spring	7	26	1944	0	0	1,2,3	Unadj.	10	33	118
19912	Joe Ditch	Willow Creek	7	26	1944	0	0	1,2,3	Unadj.	15	33	118
19886	Ames Pipe Line	Ames Spring	7	29	1944	0	0	3	Unadj.	22	36	119
19887	Feed Lot Spring Pipe Line	Feed Lot Spring	7	29	1944	0	0	3	Unadj.	4	31	119
19888	Nield Pipe Line #1	Richardson Spring	7	29	1944	.013	0	2,3	Adj.	33	32	119
19889	Nield Pipe Line #2	Brown Spring Creek	7	29	1944	.013	0	2,3	Adj.	32	32	119
19890	Nield Pipe Line #3	Nield Spring	7	29	1944	.013	0	2,3	Adj.	33	32	119
19891	Ben Nield #1 Ditch	East Blacker Spring	7	29	1944	.060	4.40	1,2	Adj.	14	32	119
19892	Ben Nield #2 Ditch	Middle Blacker Spring	7	29	1944	.59	41.60	1,2	Adj.	14	32	119
19893	Ben Nield #2 Ditch	West Blacker Spring	7	29	1944	-2.00	41.60	1,2	Adj.	14	32	119
19894	N-Triangle Pipe Line #1	Richardson Creek	7	29	1944	.014	0	2,3	Adj.	31	32	119
19895	N-Triangle Pipe Line #2	Little Brown Spring	7	29	1944	.014	0	2,3	Adj.	31	32	119
19896	N-Triangle Pipe Line #3	Brown Spring	7	29	1944	.023	0	2,3	Adj.	31	32	119
19897	E.C.	Beaver Lake Spring	7	29	1944	.120	8.50	1,2	Adj.	15	31	119
19900	Cazier Pipe Line #2	Center Spring	8	8	1944	0	0	2,3	Unadj.	29	32	119
19902	Simpson #1 Ditch	Turner Creek/Spring Creek	8	8	1944	0	0	1,3	Unadj.	22	33	118
19903	Simpson #2 Ditch	Turner or Spring Creek	8	8	1944	0	0	1	Unadj.	15	33	118
19904	Lloyd Ditch	Middle Fork Spring Creek	8	8	1944	SS	43.50	1	Adj.	11	34	119
19942	Taylor Pipe Line #1	Raymond Spring	11	24	1944	.014	0	2,3	Adj.	33	33	119
19943	Taylor Pipe Line #2	Taylor Spring Creek	11	24	1944	.014	0	3	Adj.	33	33	119
*5387E	Enl Salt River Canal	Salt River	3	5	1945	.16	11.00	1,3	Adj.	7	30	118
*5388E	Enl Salt River Canal	Salt River	3	5	1945	.16	11.00	1,3	Adj.	7	30	118
19984	Crook Pipe Line	Bassett Creek	3	5	1945	.08	1.00	1,2,3	Adj.	27	31	119
5389E	Cranney	Salt River	3	5	1945	.19	13.00	1,3	Adj.	25	31	119
5391E	Enl North Canal	Swift Creek	4	18	1945	1.68,SS	99.00	1,3	Adj.	30	32	118
19737	Spring #1 Pipe Line	Spring #1	5	15	1945	.13	0	2	Adj.	6	32	118
20014	Bedford Community Pipe Line	Big Spring	7	3	1945	.613	0	2	Adj.	25	34	118
20021	Shady Spring Pipe Line	Perry Creek	11	16	1945	0	0	3	Unadj.	1	30	119
20022	Johnson Spring Pipe Line	Johnson Spring	11	16	1945	0	0	3	Unadj.	12	30	119
20040	Domestic Pipe Line	Spring	2	23	1946	.05	0	2	Adj.	32	31	118
20041	Larson #1 Ditch	Smith Creek/Birch Creek	2	23	1946	0	0	1,3	Unadj.	22	34	119
20042	Larsen #2 Ditch	Smith or Birch Creek	2	23	1946	.15	10.30	1,3	Adj.	25	35	110

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5425E	Enl North Canal	Swift Creek	7	1	1946	0	0	1,3	Unadj.	30	32	118
20062	Harvey O. Crook Pipe Line	Gomm Spring	7	22	1946	0.22	0	2,3	Adj.	17	30	118
20063	Ralph Ditch	Nelson Spring	7	29	1946	0	0	1,3	Unadj.	31	33	118
20064	Johnson Pipe Line	Johnson Spring #2	8	1	1946	0	0	2,3	Unadj.	22	33	119
20080	Nebeker Ditch	Grover Creek	11	2	1946	.050	3.30	1,3	Adj.	17	33	118
20081	Petersen Ditch	Grover Creek	11	2	1946	0	0	1,3	Unadj.	21	33	118
*5430E	Enl Brog Ditch	Prater Creek/Green	11	18	1946	.51	35.40	1	Adj.	29	35	118
20067	Water Cress Spring Pipe Line	Water Cress Spring	11	18	1946	0	.00	3	Unadj.	30	33	118
20098	Griffeth Spring Pipe Line	Griffeth Spring	11	18	1946	.20	.00	3	Adj.	29	33	118
20103	Kenneth Harrison Pipeline	Kennington Spring	4	7	1947	0	0	1,2,3	Unadj.	31	32	118
5451E	Halling	Swift Creek	5	23	1947	.45	32.00	1,3	Adj.	30	32	118
20137	Nester Ditch	Nester Spring	7	28	1947	SS	20.00	1,3	Adj.	12	33	119
20138	Flat Creek Pipeline	Flat Creek	7	29	1947	1.782	0	2,3,4,10	Adj.	24	34	119
5444E	Enl Cottonwood South	S Channel of Cottonwood Cr	7	29	1947	0	0	1,3	Unadj.	4	30	118
20147	Jensen Pipeline	John Fluckiger Spring	10	5	1947	0	0	1,2,3	Unadj.	4	33	118
20166	Shell Oil Co. Pipeline	Bruce Spring	6	15	1948	0	0	10	Unadj.	17	30	118
20293	Ben Gomm	Ben Gomm Spring	9	1	1948	.110	8.00	1	Adj.	30	32	119
20332	Evan Call Pipe Line	Lone Pine Springs	9	1	1948	.06	0	2,3	Adj.	18	32	118
20351	Dry Canyon #2 Ditch	Dry Canyon Creek	9	1	1948	SS	80.00	1	Adj.	10	33	118
20352	Dry Canyon #2 Ditch	Dry Canyon Creek	9	1	1948	.53	37.00	1	Adj.	10	33	118
20353	Johnson Pipeline	Johnson Spring	9	1	1948	.025	0	2,3	Adj.	12	30	119
5514E	Enl Turner	Willow Creek	9	1	1948	0	0	1	Unadj.	10	33	118
20666	Burton "A" Pipe Line	North Prater Creek	11	10	1948	0	0	2,3	Unadj.	30	35	118
20667	Burton "B" Pipeline	Crooked Canyon Creek	11	10	1948	0	0	2,3	Unadj.	19	35	118
20255	Flat Creek Pipeline	Beta Spring	1	8	1949	.270	0	2,15	Adj.	24	34	119
20256	Flat Creek Pipeline	Alpha Spring Creek	1	8	1949	.600	0	2,15	Adj.	24	34	119
5511E	Bruce	Cottonwood Creek	7	14	1949	0	0	1	Unadj.	4	30	118
20290	Strawberry Creek Pipe Line	Strawberry Creek	9	7	1949	0	0	5	Unadj.	25	34	118
5684R	Strawberry Creek	Strawberry Creek	9	7	1949	10.29		5		25	34	118
20291	Strawberry Creek Pipe Line	Strawberry Creek	10	26	1949	50.00	0	5	Adj.	25	34	118
20378	Sanderson Pipe Line	Hasel Spring	4	19	1950	0	0	2,3	Unadj.	25	36	119
20598	Old Home	Old Home Spring	1	29	1951	.130	9.00	1,2,3	Adj.	17	31	119
20599	Morrel Allred Pipe Line	Allred Springs	1	29	1951	.040	3.00	1,2,3,9	Adj.	9	31	119

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20836	Reynold	Cedar Creek	7	2	1951	2.0,SS	124.70	1,2,3	Adj.	5	34	118
20837	Wiffen #1	North Branch Cedar	7	2	1951	.00	.00	1,2,3	Unadj.	35	35	119
20838	Wiffen #2	North Branch Cedar Creek	7	2	1951	0	0	1,2,3	Unadj.	35	35	119
20822	Flying N Ditch	South Branch Cedar C	8	27	1951	.00	.00	1,2,3	Unadj.	5	34	118
20823	Aullman	Alluman Creek	8	27	1951	SS	16.00	1	Adj.	23	34	119
5584E	Enl Swainston (Huse)	Cedar Creek	8	27	1951	SS	79.20	1,2,3	Adj.	5	34	118
5589E	Enl Wolfley Crouch	Birch Creek	9	21	1951	.016	0	2,3	Adj.	1	35	119
20948	Jackson #1	North Branch Cedar C	10	5	1951	0	.00	1,2	Unadj.	36	35	119
20949	Jackson #2	North Branch Cedar C	10	5	1951	0	.00	1	Unadj.	35	35	119
20853	CH	Meadow Slough	10	10	1951	1.13	79.00	1	Adj.	25	33	119
20934	Cottonwood Pipe Line	Cottonwood Spring	3	26	1952	.033	0	2	Adj.	27	40	116
*5774E	Enl Pine Tree Canal	Salt River	10	21	1952	.86	60.00	1,2,3	Adj.	35	34	119
*21171	Burton Meadows Springs	Burton Meadows Spring	2	25	1953	0	.00	9	Unadj.	11	32	119
21211	E C	Birch Creek	5	12	1953	0	.00	1	Unadj.	36	36	119
5683E	Enl Stump Creek	Stump Creek	5	25	1953	0	0	1	Unadj.	6	32	119
*21217	Zenith Allred Sprinkler	Zenith Allred Subbin	6	11	1953	0	0	1	Unadj.	4	32	119
21257	Evan	Spring Branch	7	10	1953	0	0	7	Unadj.	15	32	119
21269	Seeping Spring Pipe Line	Seeping Spring	9	1	1953	.045	.00	1,2,3,7	Adj.	27	31	119
21270	Othello Brown Pipe Line	Othello Brown Spring	9	1	1953	0	0	1,3	Unadj.	26	31	119
21271	Wilford Hemmert	Salt River	9	1	1953	.33	23.00	1	Adj.	27	34	119
*21414	Bedford Ranger Station	Bedford Spring	5	5	1954	0	0	2	Unadj.	27	34	118
21464	Cold Spring Pipe Line	Cold Spring	7	20	1954	0	0	2,3	Unadj.	9	31	118
5741E	Enl Pine Tree	Salt River	7	26	1954	0	0	1	Unadj.	35	34	119
862S	Carl Heiner	Heiner Draw	8	2	1954	.13		3	Adj.	9	33	118
21492	Delos Sanderson	Salt River	9	13	1954	1.77	123.84	1	Adj.	4	35	119
5760E	Enl Union Canal	Tin Cup Creek	9	13	1954	.63	44.01	1	Adj.	16	35	119
5792E	Enl Union Canal	Tin Cup Creek	1	17	1955	SS	37.70	1	Adj.	16	35	119
21616	Porter Pipe Line	Porter Spring	4	25	1955	0	0	2,3	Unadj.	32	31	118
21632	Spring Creek Spring Pipe Line	Spring Creek Spring	6	21	1955	0	0	2,3	Unadj.	16	33	119
1595S	Elk Watering Tank #1	Elk Spring #1/Unnamed Spring	8	19	1955	.02		3	Adj.	31	37	118
1597S	Elk Watering Tank #3	Elk Spring #3	8	19	1955	.02		3	Adj.	32	37	118
1598S	Elk Watering Tank #4	Elk Spring #4	8	19	1955	.02		3	Adj.	32	37	118
21691	Titensor Spring Pipe Line	Titensor Spring	10	31	1955	.03	0	2,3	Adj.	5	34	118

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5854E	Enl Cottonwood South	Cottonwood Creek	4	16	1956	.57	40.00	1	Adj.	5	30	118
*5872E	Enl Pine Tree	Salt River	4	17	1956	SS	40.00	1	Adj.	35	34	119
21785	Lost Creek Pipe Line	Lost Canyon Creek	7	9	1956	0	0	1	Unadj.	32	31	118
21811	Henderson Cranney Pipe Line	Helm Spring	10	11	1956	0	0	2,3	Unadj.	32	31	118
5884E	Enl Fairview Canal	Crow Creek	11	5	1956	0	0	1,2	Unadj.	9	31	119
1860S	Glenn Heiner	W Heiner Draw	1	10	1957	.41		3	Adj.	5	33	118
*5918E	Enl Pine Tree	Salt River	4	2	1957	0	0	1	Unadj.	35	34	119
21945	Zenneth Allred Pipe Line	Allred Spring	5	5	1958	0	0	3	Unadj.	8	32	119
22026	Max West Pipe Line	Max West Spring	6	10	1959	.15	0	2,3	Adj.	19	33	118
22278	Bagley Pipe Line #1	Bagley Spring	12	14	1959	.022	0	2,3	Adj.	23	33	119
22279	Bagley Pipe Line #2	Roadside Spring	12	14	1959	.018	0	3	Adj.	24	33	119
22089	Flat Creek Springs Pipe Line	Flat Creek Springs	5	10	1960	.250	0	2,3	Adj.	25	34	119
22266	Humphreys-Clark Pipe Line	Humphreys-Clark Spring	6	6	1960	0	0	2,3	Unadj.	19	35	118
*22197	Bigler Spring Stock	Bigler Spring	7	1	1960	.02	0	3	Adj.	8	32	119
*22198	Steed Spring Stock	Steed Spring	7	1	1960	.02	0	3	Adj.	8	32	119
6037E	Enl Pine Tree (East Side) Canal	Salt River	7	22	1960	0	0	1	Unadj.	35	34	119
22323	Seeping Spring Sprinkling System	Seeping Spring	7	25	1960	0	0	1	Unadj.	9	31	119
22435	Lower Gomm Spring Pipe Line	Lower Gomm Spring	10	6	1960	0	0	2,3	Unadj.	29	30	118
6038E	Enl Swainston (Huse)	North Branch Cedar Creek	6	21	1961	0	0	1	Unadj.	5	34	118
22384	Yeaman	Yeaman Spring #3	7	26	1961	0	0	1	Unadj.	14	32	119
23014	Max Larsen Pipe Line	Max Larsen Spring	8	1	1961	.010	0	2,3	Adj.	15	34	119
23015	Max Larsen Sprinkling System	Limekill Creek/Limek	8	1	1961	.570	40.00	1	Adj.	22	34	119
6314E	Enl Afton Canal	Swift Creek	10	10	1961	.07	5.00	1	Adj.	30	32	118
6220E	Enl Strawberry Upper Canal	Strawberry Creek	10	24	1961	.38	26.10	1	Adj.	27	34	118
22226	Parkin Pipe Line	Parkin Spring #1	11	1	1961	0	0	1,2,3	Unadj.	29	30	118
22268	Anglesey Pipe Line	Streamside Spring	11	6	1961	0	0	2,3	Unadj.	7	31	118
22269	Anglesey	Dry Creek	11	6	1961	.070	4.20	1	Adj.	7	31	118
22599	Osmond Pipe Line	Osmond Spring	11	17	1961	.500	0	2,3	Adj.	9	31	118
6039E	Enl Swainston (Huse)	Cedar Creek	7	17	1962	SS	122.00	1,2,3	Adj.	5	34	118
22329	Lost Creek Pipe Line	Lost Creek/Baxter Creek	10	8	1962	1.28	90.00	1	Adj.	16	34	118
22413	Hillside Spring Pipe Line	Hillside Spring	1	24	1963	.11	0	2,3	Adj.	6	32	119
*22680	Green Canyon Spring Pipe	Green Canyon Spring Pipe Line	4	10	1963	.095	0	2,3	Adj.	4	30	118
22434	Rainbow Pipe Line	Rainbow Spring #3	6	11	1963	0	0	2,3	Unadj.	32	31	118

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22702	Stewart Creek Pipe Line	Stewart Creek	6	11	1963	6.50	455.00	1	Adj.	24	36	119
6095E	Enl Rainbow Pipe Line	Rainbow Spring #2	6	11	1963	.15	0	2,3	Adj.	32	30	118
6230E	Enl Etna Pipe Line	Etna Springs	7	9	1963	.28	0	2	Adj.	7	35	118
6171E	Enl Stewart Creek Pipe Line	Stewart Creek	10	21	1963	0	0	1	Unadj.	24	36	119
6096E	Enl Lee	Birch Creek	12	31	1963	2.28	160.00	1,3	Adj.	36	36	119
4234S	Glenn W. Heiner	Heiner Draw	1	13	1964	.58		3	Adj.	5	33	118
6192E	Enl Strawberry North Canal	Strawberry Creek	4	7	1964	.10	7.00	1	Adj.	27	34	118
22642	State Line Pipe Line	State Line Spring	11	2	1964	0	0	3	Unadj.	7	31	119
22591	Humpherys Cassell Pipe Line	North Prater Seeping	11	10	1964	.06	.00	2,3	Adj.	19	35	118
22588	Verdi Pipe Line	Verdi Spring	8	31	1965	.02	0	2,3	Adj.	10	36	119
22655	Happy Valley Pipe Line	Water Cress Spring #	5	9	1966	0	0	2,3	Unadj.	7	31	118
6175E	Enl Brog	Prater Creek/Green Creek	8	12	1966	SS	138.90	1,3	Adj.	29	35	118
6177E	Enl Brog	Prater Creek/Green Creek	11	14	1966	.05	80.00	1	Adj.	29	35	118
7210R	Ben Gomm Fish Pond	Gomm Spring Draw	3	28	1967	5.00		9		17	30	118
22811	Willow Creek Pipe Line	Willow Creek	7	18	1967	.288	0	2,3	Adj.	13	33	118
23161	Jensen Spring	Jensen Spring	7	18	1967	0	0	1	Unadj.	5	30	118
6383E	Enl Hale Canyon Pipe Line	Hale Canyon Spring	10	12	1967	0	0	1,2,3	Unadj.	32	32	118
23162	Jensen Spring Pipe Line	Jensen Spring	2	7	1968	.017	0	2,3	Adj.	5	30	118
23151	Dry Creek Irrigation District Pipeline	Dry Creek	3	21	1968	5.510	386.00	1	Adj.	8	31	118
6276E	Enl Pine Tree (East Side) Canal	Salt River	4	16	1968	SS	44.40	1	Adj.	35	34	119
6277E	Enl Pine Tree (East Side) Canal	Salt River	4	16	1968	.26	18.00	1	Adj.	35	34	119
6205E	Enl Brog	Prater Creek/Green Creek	8	13	1968	0	0	3	Unadj.	29	35	118
6281E	Enl Pine Tree (East Side) Canal	Salt River	10	14	1968	SS	30.00	1	Adj.	35	34	119
*23579	Clifford Turner Sprinkler Pipeline	Dry Canyon Creek	10	17	1969	SS	173.18	1	Adj.	11	33	118
23578	Lloyd Heiner Sprinkler Pipe Line	Dry Canyon Creek	10	17	1969	1.13	79.00	1	Adj.	2	33	118
*23339	Morris Gibbons Sprinkler	Gibbons Slough	11	28	1969	ss	113.00	1	Adj.	23	32	119
23288	Kent Nield	Brown Spring Creek	11	28	1969	0	0	1	Unadj.	28	32	119
23340	Yeaman	Yeaman Spring #3	11	28	1969	.170	12.00	1	Adj.	14	32	119
23794	Lavard Jackson Sprinkler Pipeline	White Springs Draw	12	31	1969	0	0	1	Unadj.	2	34	119
23423	Edmond S Clark #2 Pipe Line	Crooked Canyon Creek	4	27	1970	0	0	1,2,3	Unadj.	19	35	118
23444	Cottonwood Creek Irr Dist Pipe Line	Cottonwood Creek	6	22	1970	5.73,SS	1037.05	1	Adj.	4	30	118
23459	Ron Anderson Pipe Line	Anderson Spring	8	6	1970	0	0	1,2,3	Unadj.	20	33	118
23763	Crook #2 Pipe Line	Harvey Crook Spring	9	23	1970	.056	0	3	Adj.	17	30	118

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23764	Crook #3 Pipeline	Harvey Crook Spring	9	23	1970	.056	.00	3	Adj.	28	30	118
23765	Crook #4 Pipe Line	Harvey Crook Spring	9	23	1970	.056	0	3	Adj.	28	30	118
23766	Crook #5 Pipeline	Harvey Crook Spring	9	23	1970	0	0	3	Unadj.	29	30	118
23769	Delmar Lancaster #1 Pipe Line	Delmar Lancaster Spring	9	23	1970	0	0	3	Unadj.	33	30	118
23770	Delmar Lancaster #2 Pipe Line	Delmar Lancaster Spring	9	23	1970	0	0	1	Unadj.	33	30	118
23771	Delano Lancaster Pipe Line #1	Delano Lancaster Spring	9	23	1970	.056	0	3	Adj.	32	30	118
23772	Delano Lancaster Pipe Line #2	Delano Lancaster Spring	9	23	1970	0	0	3	Unadj.	32	30	118
23554	Glen Rich	Brown Creek	10	13	1970	0	0	1,3	Unadj.	28	32	119
23555	Glen Rich Pipe Line	Glen Rich Spring	10	13	1970	0	0	2,3	Unadj.	28	32	119
23535	Rachel Spring #1 Pipe Line	Rachel Spring #1	11	23	1970	.056	0	2,3	Adj.	6	32	119
23536	Rachel Spring #2 Pipe Line	Rachel Spring #2	11	23	1970	.034	0	3	Adj.	5	32	119
23523	Lamont Merritt Pipe Line	Lamont Merritt Spring	1	5	1971	.056	0	3	Adj.	28	32	119
6416E	Enl Turner	Willow Creek	10	9	1971	0	0	1	Unadj.	10	33	118
6452E	Enl Brog	Prater Creek/Green Creek	4	3	1972	1.0	0	8	Adj.	29	35	118
7528R	Star Valley Ranch	Prater Creek/Green Creek	4	3	1972	15.40		9		30	35	118
*6491E	Enl Cottonwood Creek	Cottonwood Creek	10	17	1972	SS	99.00	1	Adj.	4	30	118
23971	Boyd Eddins Pipe Line	Salt River	10	17	1972	0.07	5.00	1	Adj.	7	30	118
23957	Buck Pasture Spring	Buck Pasture Spring	12	21	1972	.056	0	3	Adj.	35	31	119
24017	Boyd Hand Pipe Line	Boyd Hand Spring	2	14	1973	0	0	2	Unadj.	19	35	118
24114	Child-Merritt Pipe Line	Child Merritt Spring	3	23	1973	0	0	2	Unadj.	UNKNOWN		
24242	Lorain Bagley Pipe Line	Bagley Spring Area	7	26	1973	.050	0	2,3	Adj.	15	31	119
24207	Delbert Clark Spring #1 Pipeline	Delbert Clark Spring	9	6	1973	.056	0	2,3	Adj.	12	30	119
24210	Charles Hale Pipe Line	Charles Hale Spring	10	16	1973	.041	0	3	Adj.	5	31	119
24245	Water Cress #1 Pipe Line	Water Cress #1 Spring	12	3	1973	0	0	3,7,12	Unadj.	8	31	118
24293	Nebeker #1	Shumway Springs/Campbell Springs	2	6	1974	0	0	1,3	Unadj.	15	31	119
*6535E	Enl Salt River Canal	Salt River	3	11	1974	.67	47.00	1	Adj.	7	30	118
24401	Lorain Bagley	Crow Creek	3	22	1974	.740	51.70	1	Adj.	17	31	119
6536E	Enl Dana	Titensor Springs	5	28	1974	0	0	1	Unadj.	2,13	34	119
24594	Wakeman Spring Pipe Line	Wakeman Springs	7	23	1974	.16	0	2	Adj.	1	33	119
24632	Odell Hunsaker Pipe Line	Hunsaker Spring #1	8	8	1974	0	0	1,3	Unadj.	4	30	118
24858	Nebeker #1 Sprinkler System	Lester #1 Spring	10	30	1974	.056	0	3	Adj.	15	31	119
24655	Tolman Spring Area	Tolman Spring Area	11	20	1974	.090	5.80	1,3	Adj.	15	31	119
24737	Nebeker Spring #1 Pipe Line	Nebeker Spring #1	11	20	1974	0	0	1,3	Unadj.	15	31	119

LISTING OF WATER RIGHTS ON SALT RIVER  
Upstream of the Downstream End of  
Instream Flow Segment No. 1

Permit Number	Facility	Source	Priority Date			Amount (cfs)	Acres	Use*	Diversion Location			
			Mo	Day	Year				Status	Sec.	Twn.	Rng.
24738	Nebeker Spring #2 Pipe Line	Nebeker Spring #2	11	20	1974	0	0	1,3	Unadj.	15	31	119
6555E	Enl Stump Creek	Stump Creek	12	23	1974	.07	5.00	1	Adj.	5	32	119
24821	Dale #1 Pipe Line	Trail Spring Creek	12	30	1974	.056	0	3	Adj.	29	32	119
24822	Nelda #1 Pipe Line	Harmon Creek	12	30	1974	.056	0	2,3	Adj.	28	32	119
24641	Morris Gibbons Sprinkler Line #1	Salt River	1	13	1975	0	0	1	Unadj.	15	32	119
24656	Burton #1 Spring Pipe Line	Burton #1 Spring	1	13	1975	.056	0	3	Adj.	28	33	119
24657	Burton #2 Spring Pipe Line	Burton #2 Spring	1	13	1975	.056	0	3	Adj.	28	33	119
24658	Burton #3 Spring Pipe Line	Burton #3 Spring	1	13	1975	.056	0	3	Adj.	28	33	119
24659	Burton #4 Spring Pipe Line	Burton #4 Spring	1	13	1975	.056	0	3	Adj.	28	33	119
24660	Burton #5 Spring Pipe Line	Burton #5 Spring	1	13	1975	.056	0	3	Adj.	28	33	119
24961	Kay Burton Sprinkler Pipe Line	Berry Creek	4	28	1975	SS	80.00	1	Adj.	34	33	119
24823	Nelda #2 Pipe Line	Harmon Creek	8	25	1975	.056	0	3	Adj.	28	32	119
*25719	West Afton Sprinkler	Swift Creek	10	3	1975	0	0	1	Unadj.	30	32	118
24957	Von Allred	Clark Hollow Creek	10	23	1975	.060	4.00	1	Adj.	16	32	119
25079	Bassett Spring #1 Pipe Line	Bassett Spring #1	12	15	1975	0	0	2	Unadj.	8	31	118
25080	Bassett Spring #2 Pipe Line	Bassett Spring #2	12	15	1975	0	0	1,3	Unadj.	8	31	118
6595E	Enl Alto Canal	Strawberry Creek	3	16	1976	0.38	20.00	1	Adj.	27	34	118
25254	Nelson Slough Sprinkler System	Archie Slough	5	10	1976	0	0	1	Unadj.	27	35	119
25280	Larsen Stockwater Spring Pipe Line	Seepage Creek	9	27	1976	.020	0	3	Adj.	22	34	119
25795	Dick Taylor Pipe Line	Spring Branch/Reeves Slough	10	5	1976	0	0	1	Unadj.	10	32	119
25796	Pine Creek Pipe Line	Clark Hollow Creek	10	5	1976	0	0	1	Unadj.	17	32	119
6633E	Enl Holly	Hammon Spring	10	5	1976	0	0	1	Unadj.	21	32	119
25679	Kip O'Conner Spring Pipe Line	Kip O'Conner Spring	1	3	1977	0	0	3	Unadj.	3	30	119
*6803E	Enl Fairview Pipe Line	Shumway Springs	4	28	1977	0	0	2	Unadj.	22	31	119
28873	Swamp Springs Pipe Line	Swamp Springs	6	6	1977	0	0	2,3	Unadj.	7	30	118
27092	Reeves Pipe Line	Reeves Spring Creek	6	20	1977	1.09	127.40	1	Adj.	7	30	118
27093	Reeves Pipe Line - Swamp Springs Diversio	Swamp Springs	6	20	1977	SS	127.40	1	Adj.	7	30	118
28438	Spring #3 Pipeline	Spring #3	9	6	1977	.35	0	7,10	Adj.	34	33	118
6678E	Enl Fairview Canal	Crow Creek	10	27	1977	.36	25.00	1	Adj.	3	31	119
28439	Spring #4 Pipe Line	Spring #4	1	3	1978	0	0	7	Unadj.	6	32	118
6742E	Enl Spring #1 Pipe Line	Spring #1	1	3	1978	0	0	7	Unadj.	6	32	118
6743E	Enl Spring #2 Pipe Line	Spring #2	1	3	1978	0	0	7	Unadj.	6	32	118
6744E	Enl Grover Town Pipe Line	Grover Spring	1	3	1978	0	0	7	Unadj.	34	33	118

LISTING OF WATER RIGHTS ON SALT RIVER  
Upstream of the Downstream End of  
Instream Flow Segment No. 1

Permit Number	Facility	Source	Priority Date			Amount (cfs)	Acres	Use*	Diversion Location			
			Mo	Day	Year				Status	Sec.	Twn.	Rng.
26094	West Side Pipe Line	Salt River	1	6	1978	.64	45.00	1	Adj.	6	30	118
*6680E	Enl Salt River Canal	Salt River	4	17	1978	SS	216.17	1	Adj.	7	30	118
6679E	Enl Fairview Canal	Crow Creek	4	17	1978	SS	225.00	1	Adj.	3	31	119
*6682E	Enl Morris Gibbons	Gibbons Slough	6	1	1978	0	0	1	Unadj.	23	32	119
6852E	Enl Happy Valley Pipe Line	Water Cress Spring #	7	12	1978	0	0	2,3	Unadj.	7	31	118
29416	Darrol #1 Pipe Line	Abba Spring	1	18	1979	.064	3.10	1,3	Adj.	22	33	118
6747E	Enl Power Plant Canal	Swift Creek	4	27	1981	0	0	5	Unadj.	29	32	118
28143	Stewart Pipe Line	Stewart Springs	9	9	1982	0	0	7	Unadj.	28	35	118
6728E	Enl Hoy Stanlick	Salt River	3	28	1983	2.5	0	8	Adj.	7	30	118
8690R	Hale Fishing	Salt River	3	28	1983	2.72		9		7	30	118
6862E	Enl Porto Canal	Cedar Creek	5	19	1983	.47	0	5	Adj.	5	34	118
6765E	Enl Lost Creek Pipe Line	Lost Creek/Baxter Creek	8	17	1984	.038	1.00	1,3	Adj.	9	34	118
*28843	Balls Pipe Line Balls #1	Balls Spring #1	11	13	1984	.024	0	2,3	Adj.	27	31	119
*28844	Balls Pipe Line Balls #2	Balls Spring #2	11	13	1984	.057	.00	2,3	Adj.	27	31	119
29211	Day Pipeline	Lost Creek/Baxter Creek	7	18	1985	0	0	2	Unadj.	16	34	118
6864E	Enl Porto Canal	Cedar Creek	9	27	1985	2.21	154.61	1	Adj.	5	34	118
*29566	New North Afton Pipe Line	North Afton Spring #	11	6	1986	SS	24.00	1,2,10	Adj.	29	32	118
*29567	New North Afton Pipe Line	North Afton Spring #	11	6	1986	SS	24.00	1,2,10	Adj.	29	32	118
*29568	New North Afton Pipe Line	North Afton Spring #	11	6	1986	SS	24.00	1,2,10	Adj.	28	32	118
*29569	New North Afton Pipe Line	North Afton Spring #	11	6	1986	3.86	24.00	1,2,10	Adj.	28	32	118
6853E	Enl Happy Valley Pipe Line	Water Cress Spring #	1	15	1987	0	0	2,3	Unadj.	7	31	118
6854E	Enl Water Cress #1 Pipe Line	Water Cress Spring #	1	15	1987	0	0	2,3	Unadj.	8	31	118
*6850E	Enl Star Valley Power & Light	Swift Creek	3	5	1987	0	0	5	Unadj.	21	32	118
6973E	Enl Stewart Pipeline	Stewart Springs	7	16	1987	2.22	0	14	Unadj.	28	35	118
29939	Edmund S Clark #1 Pipe Line	Crooked Canyon Creek	9	18	1987	.26	0	2	Adj.	19	35	118
29999	Sanderson Pipe Line	Salt River	3	30	1988	146.19	115.20	1	Adj.	4	35	119
*29906	Kennington Springs Pipe	Kennington Spring #1	4	8	1988	1.105	0	2,3	Adj.	22	31	119
*29907	Kennington Springs Pipe	Kennington Spring #2	4	8	1988	1.105	0	2,3	Adj.	28	31	119
6964E	Enl Hemmert	Salt River	4	18	1988	13.34	0	8	Adj.	35	34	119
9557R	Double Eagle Ranch Pond	Salt River	4	18	1988	6.69		3,9		26	34	119
30062	Gardner Pipe Line	Blaney Creek	7	27	1988	.17	12.00	1,3	Adj.	7	32	118
6917E	Enl Wolfley Crouch	Birch Creek	8	8	1988	.092	0	2,3	Adj.	1	35	119
*30275	Rainbow Pipeline Spring	Rainbow Spring #4	10	11	1988	.170	0	2,3	Adj.	29	31	118

TABLE 1

LISTING OF WATER RIGHTS ON SALT RIVER  
Upstream of the Downstream End of  
Instream Flow Segment No. 1

Permit Number	Facility	Source	Priority Date			Amount (cfs)	Acres	Use*	Diversion Locatio			
			Mo	Day	Year				Status	Sec.	Tw	Rng.
6923E	Enl P Nelson	Holbrook Slough	10	19	1988	.71	50.00	1	Adj.	2	32	119
*6942E	Enl Rainbow Pipeline	Rainbow Spring #3	11	2	1988	0	0	2,3	Unadj.	32	31	118
30319	Perkins	Nelson Slough	5	5	1989	8.00	0	8,9	Adj.	31	33	118
9510R	Perkins Upper Pond Res.	Christiensen Creek	5	5	1989	.09		3,9		31	33	118
9511R	Perkins Middle Pond Res	Christiensen Creek	5	5	1989			3,9		31	33	118
9512R	Perkins Lower Pond Res	Christiensen Creek	5	5	1989	.83		3,9		31	33	118
9513R	Porter Dam Pond Res	Christiensen Creek	5	5	1989	.08		3,9		30	33	118
30370	Bedford Community Pipe Line	Spring #1	6	2	1989	0	0	2,3,7,7	Unadj.	25	34	118
6961E	Enl Bedford Community Pipeline	Big Spring	6	2	1989	0	0	2,3,7,7	Unadj.	25	34	118
30393	Perkins Pipeline	Christiensen Creek	6	26	1989	SS	192.00	1	Adj.	31	33	118
6974E	Enl Stewart Pipeline	Stewart Springs	9	8	1989	2.22	0	DSP	Unadj.	28	35	118
30396	Wolfley Pipe Line	Stewart Creek	10	26	1989	0	0	2,3	Unadj.	24	36	119
30397	Wolfley Supply Ditch	Stewart Creek	10	26	1989	0	0	2,8	Unadj.	24	36	119
9568R	Wolfley Fish Pond	Stewart Creek	10	26	1989	1.73		9		24	36	119
30650	Elliot Supply Ditch	Graham Creek	12	15	1989	Res Sup	0	8	Adj.	29	30	118
30651	Elliot Pipeline	Lower Gomm Spring	12	15	1989	0	0	8	Unadj.	29	30	118
9644R	Upper Pond	Graham Creek	12	15	1989	.65		9		29	30	118
9645R	Lower Pond	Graham Creek	12	15	1989	.09		9		29	30	118
30436	Bateman Pipe Line	Miller Creek	3	15	1990	.36	25.00	1	Adj.	28	36	119
30437	Alternate Bateman Pipe Line	Salt River	3	15	1990	SS	25.00	1	Adj.	28	36	119
30705	Garvis Pipeline	Glen Rich Spring	10	10	1990	.015	0	2	Adj.	28	32	119
*7010E	Enl Afton	Periodic Spring	2	27	1991	0	0	4,5	Unadj.	23	32	118
7013E	Enl Richins Irrigation Pipeline	Mill Creek/Grover Ca	4	29	1991	0	0	3	Unadj.	6	32	118
9724R	Randall Pond	Perk Creek	5	20	1991	.70		3,9		3	35	119
11217S	R J	Perry Creek	8	5	1991	1.91		3	Adj.	2	30	119
*30962	Balls Pipeline - Mack	Mack Balls #1 Spring	4	15	1992	.057	0	DSP,3	Adj.	27	31	119
7034E	Enl Lower Valley Power Canal	Salt River	5	21	1992	200	0	7	Unadj.	21	36	119
*31120	Preb-010-3(62) Water Haul	Salt River	10	28	1993	0	0	Ind,Tem	Unadj.	15	34	119
31171	Bros-1200(3) Water Haul	Salt River	3	31	1994	0	0	10	Unadj.	4	35	119

TABLE 1

LISTING OF WATER RIGHTS ON SALT RIVER  
 Upstream of the Downstream End of  
 Instream Flow Segment No. 1

Permit Number	Facility	Source	Priority Date			Amount (cfs)	Acres	Use*	Diversion Locatio		
			Mo	Day	Year				Status	Sec.	Tw

\* Use Description

- 1 = Irrigation, based on 1cfs/70 acres
- 2 = Domestic
- 3 = Stock
- 4 = Municipal
- 5 = Power
- 6 = Recreation
- 7 = Miscellaneous
- 8 = Reservoir
- 9 = Fish
- 10 = Industrial
- 11 = Commercial
- 12 = Fire
- 13 = Temporary
- 14 = Domestic Supply
- 15 = Manufacturing
- 16 = Culinary
- 17 = Milling

\*\* A - Indicates diversion is above  
 upper end of proposed  
 Instream Flow Segment

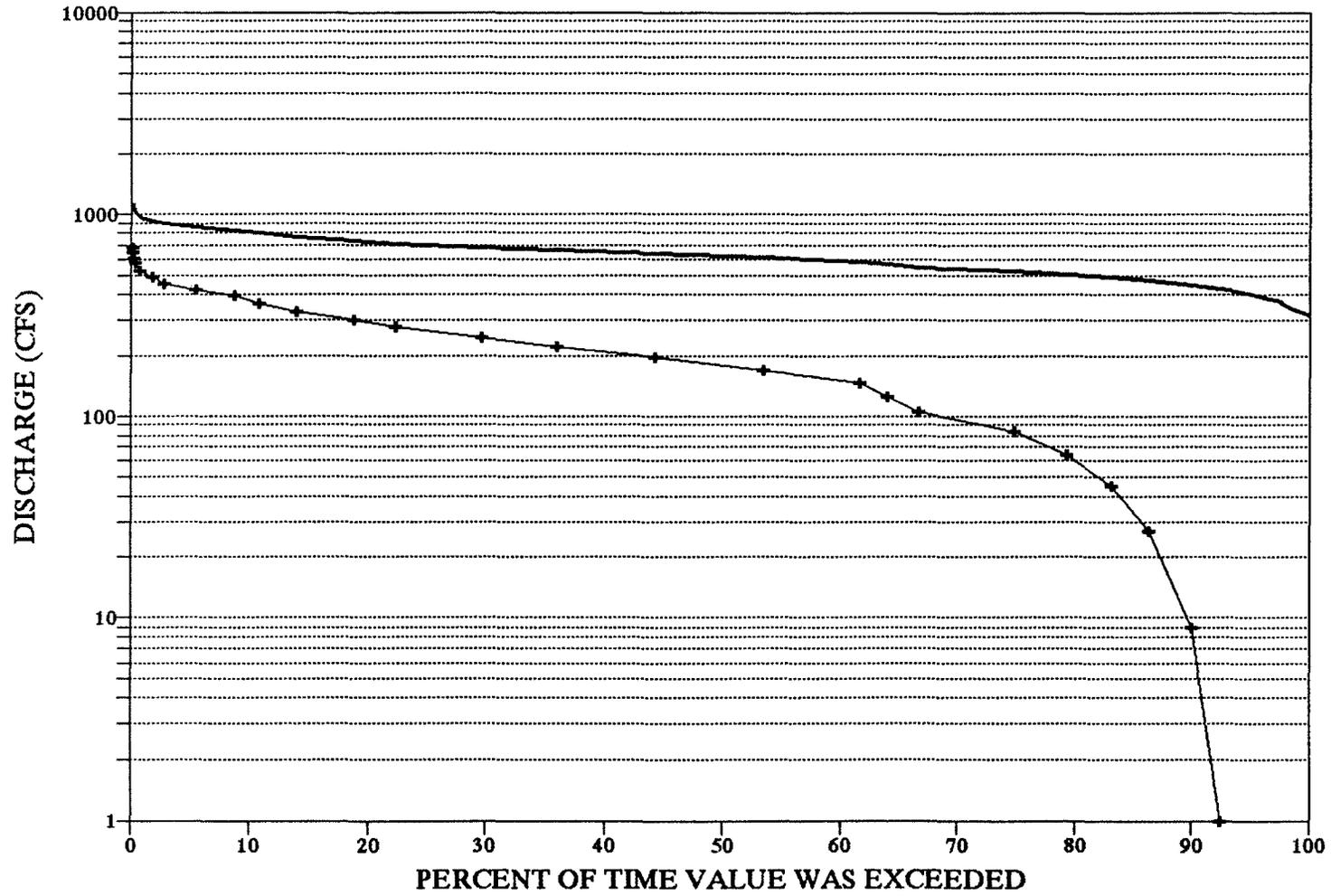
IN - Indicates diversion is within  
 proposed Instream Flow Segment

**APPENDIX B**

**COMPARISON OF DAILY FLOW DURATION  
CURVES BY MONTH FOR THE PERIOD OF RECORD**

# SALT RIVER AB RESERVOIR NR ETNA, WY

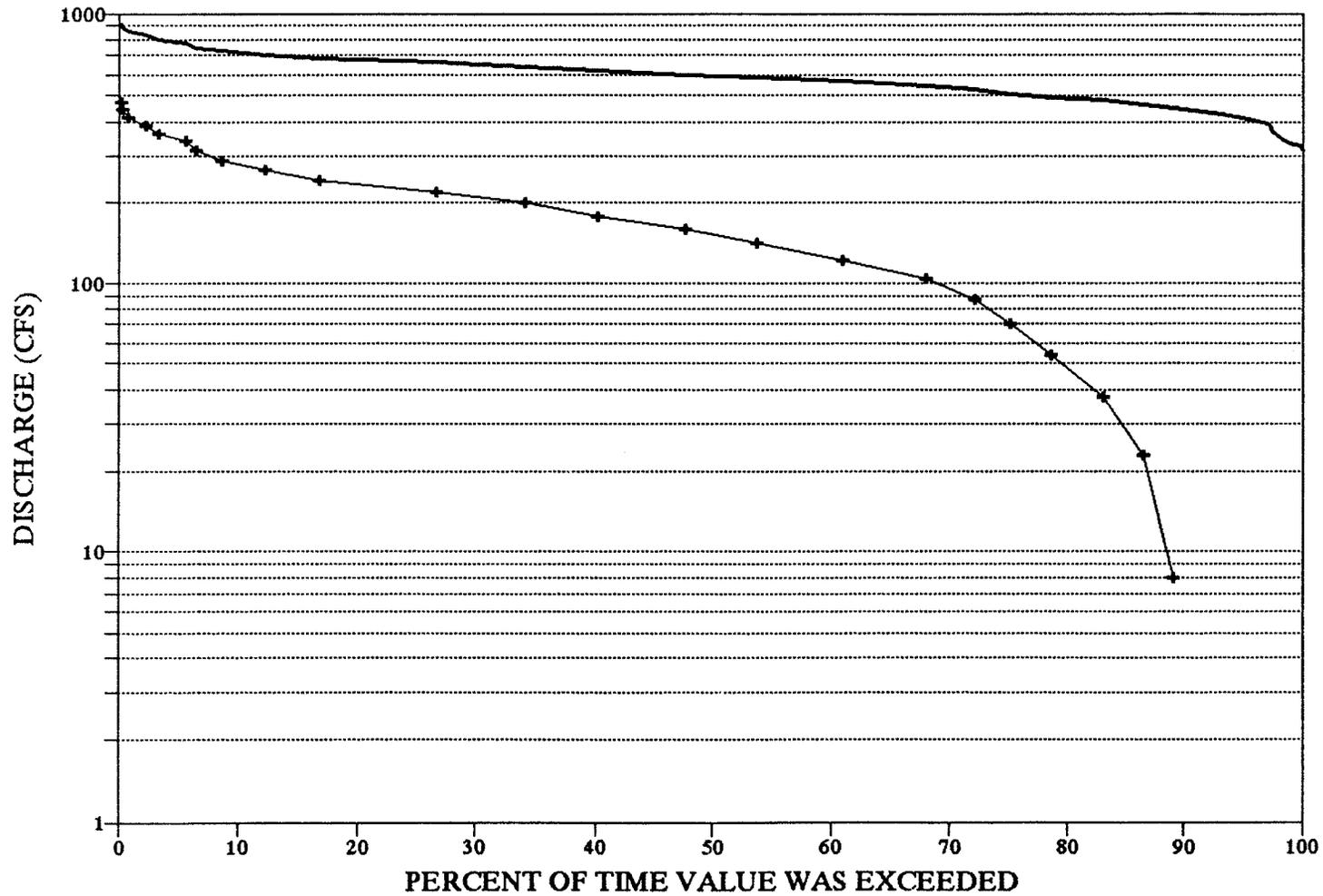
## OCTOBER DURATION PLOT 1954-1994



— Salt River Gaged    + Salt River Adjusted

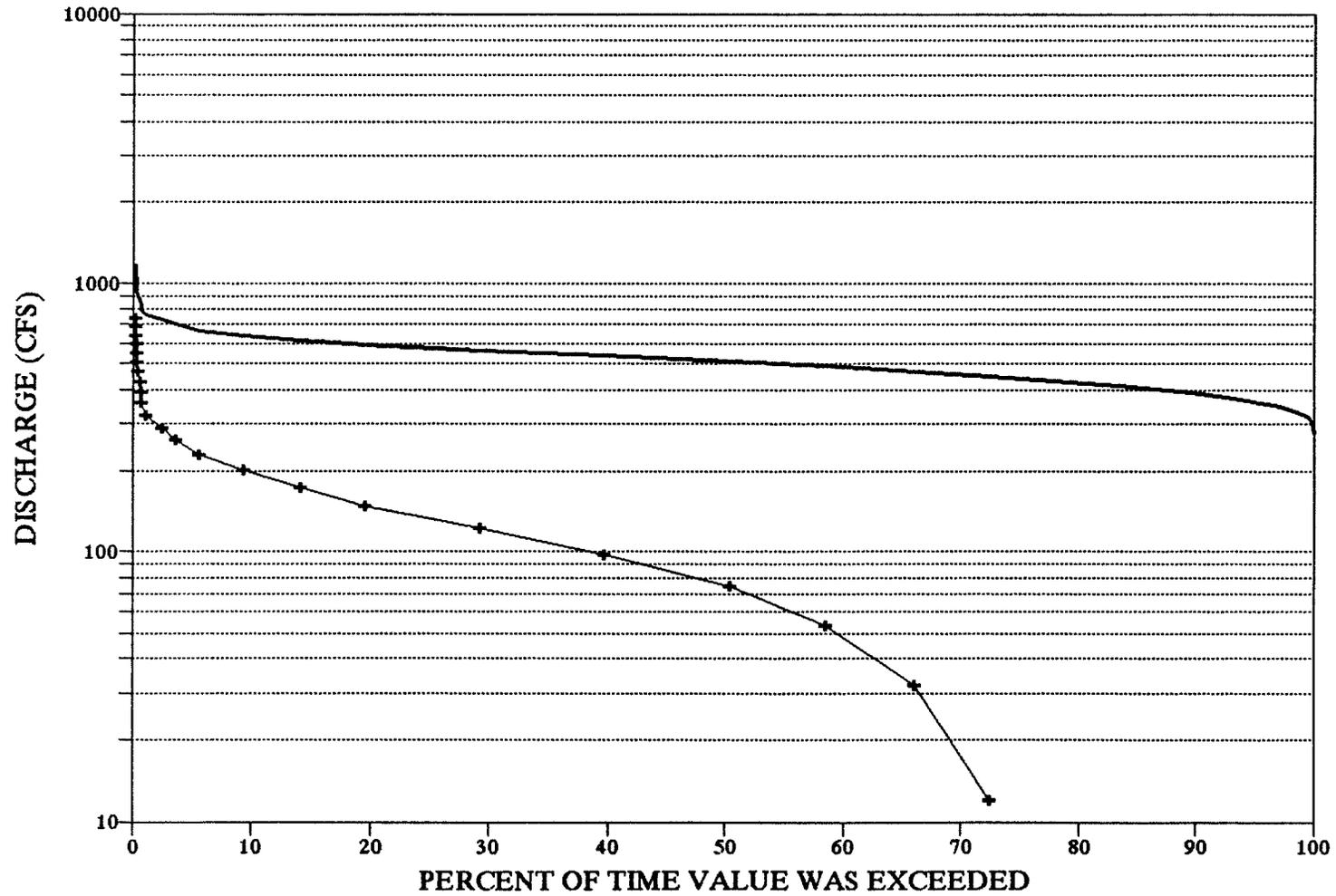
# SALT RIVER AB RESERVOIR NR ETNA, WY

## NOVEMBER DURATION PLOT 1954-1994



— Salt River Gaged    + Salt River Adjusted

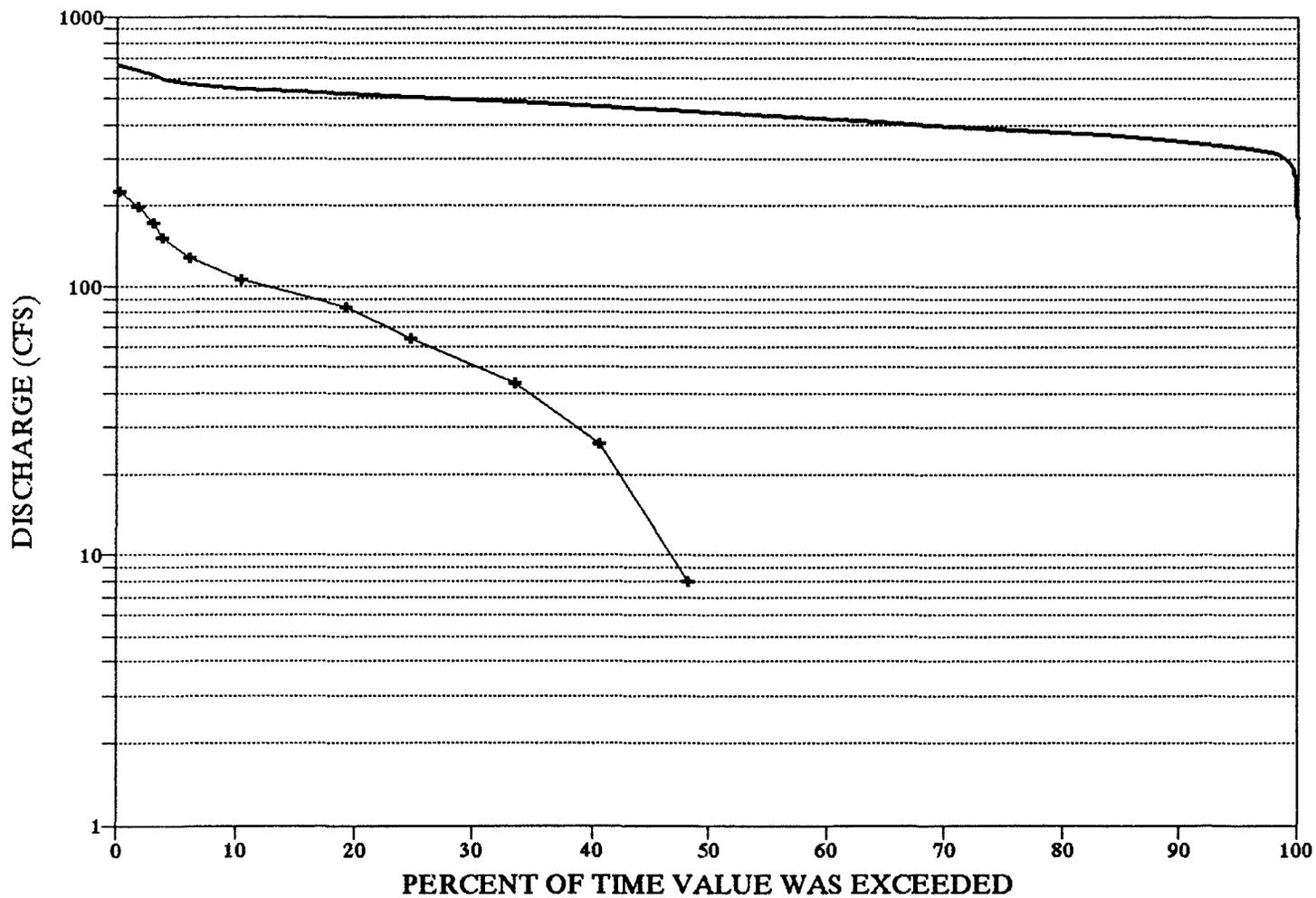
SALT RIVER AB RESERVOIR NR ETNA, WY  
DECEMBER DURATION PLOT 1954-1994



— Salt River Gaged    + Salt River Adjusted

# SALT RIVER AB RESERVOIR NR ETNA, WY

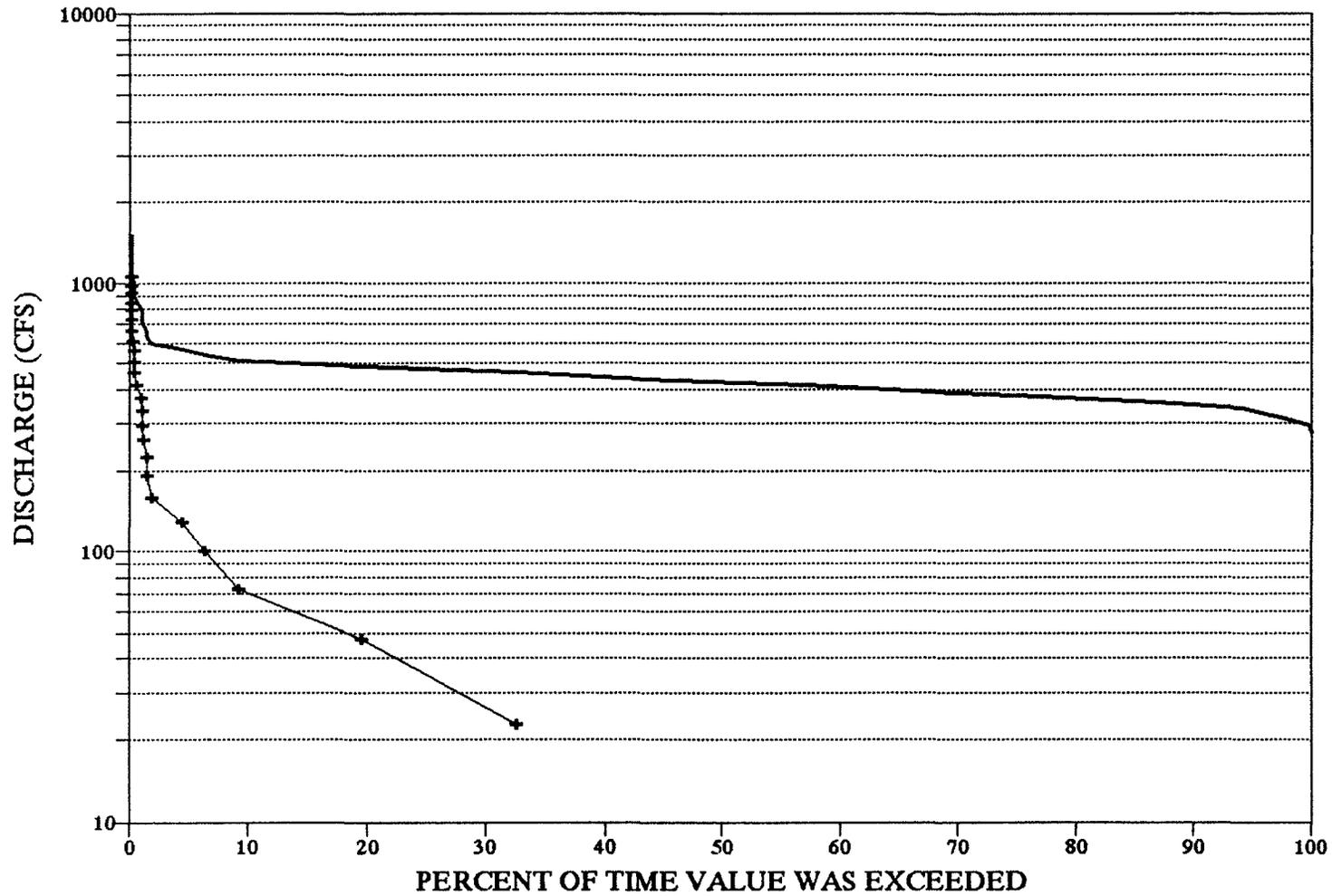
## JANUARY DURATION PLOT 1954-1994



— Salt River Gaged    + Salt River Adjusted

# SALT RIVER AB RESERVOIR NR ETNA, WY

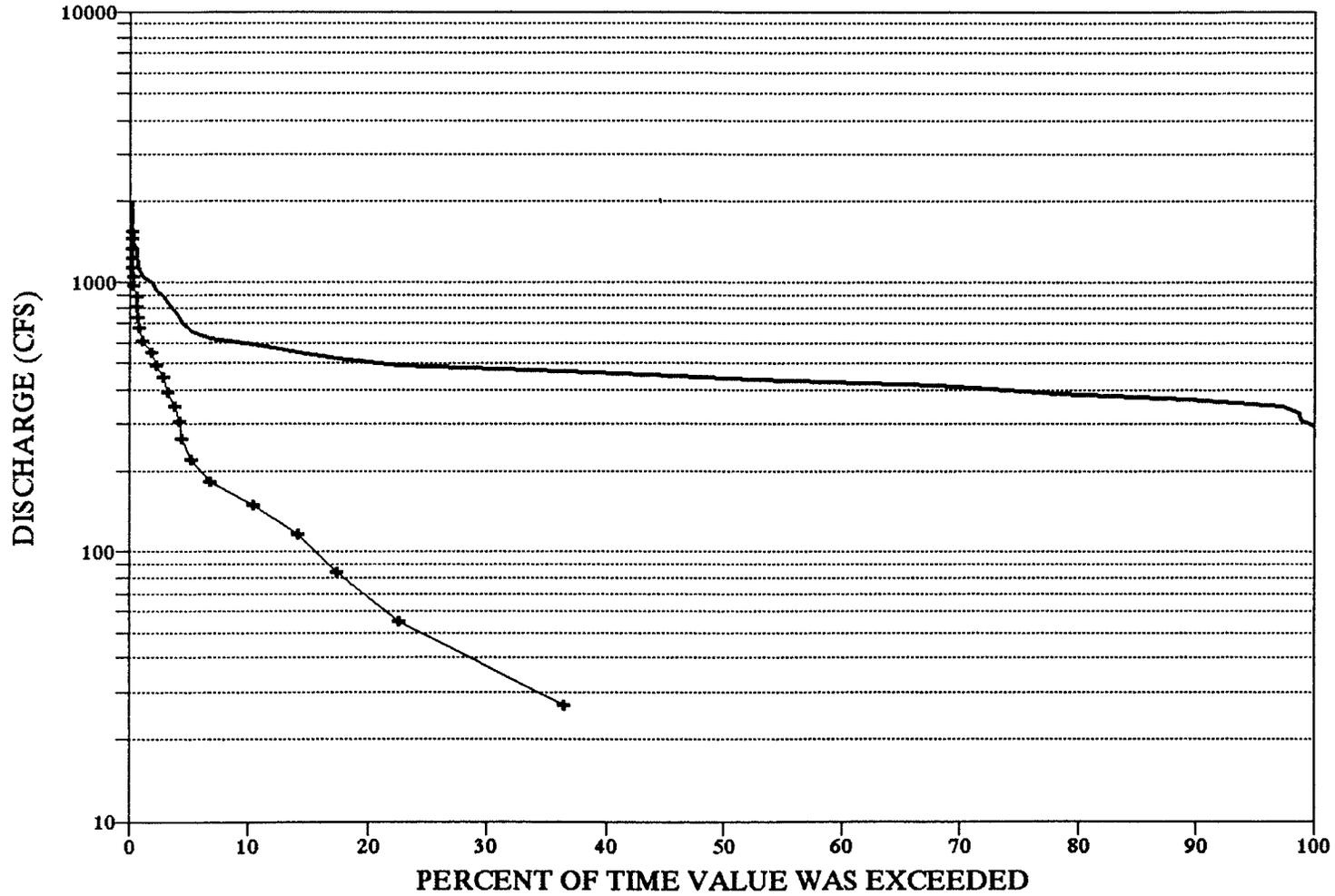
## FEBRUARY DURATION PLOT 1954-1994



— Salt River Gaged    + Salt River Adjusted

# SALT RIVER AB RESERVOIR NR ETNA, WY

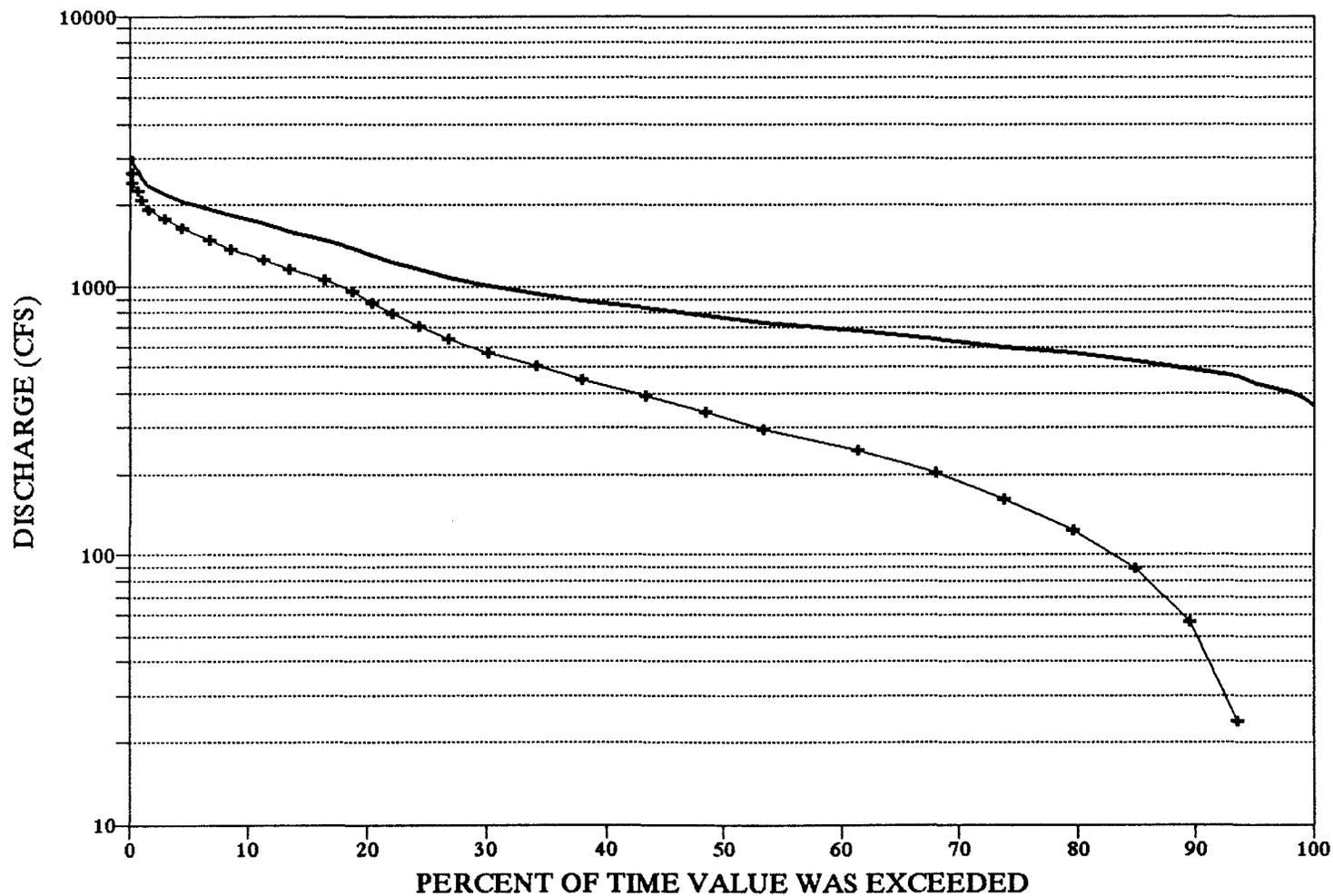
## MARCH DURATION PLOT 1954-1994



— Salt River Gaged    + Salt River Adjusted

# SALT RIVER AB RESERVOIR NR ETNA, WY

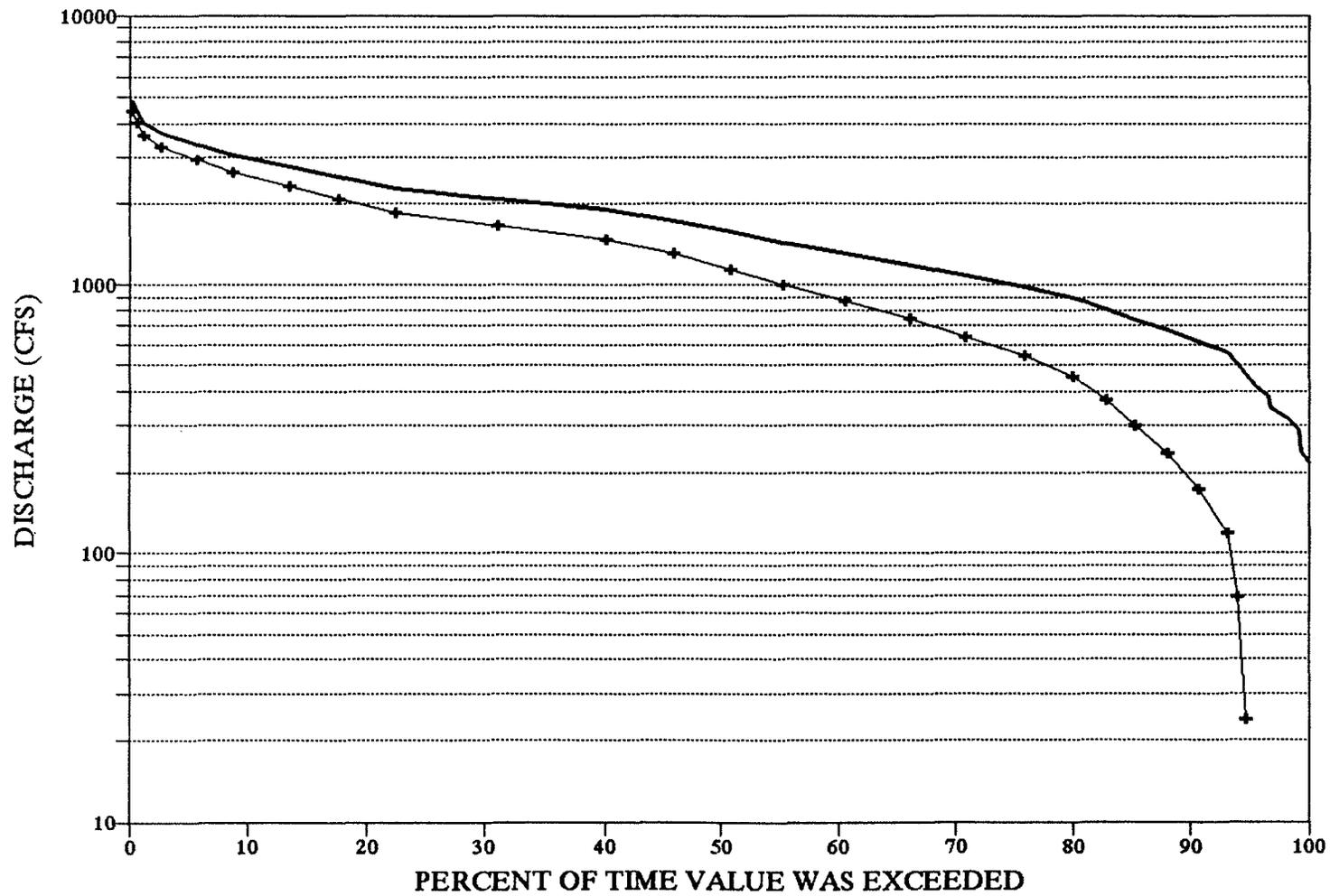
## APRIL DURATION PLOT 1954-1994



— Salt River Gaged    + Salt River Adjusted

# SALT RIVER AB RESERVOIR NR ETNA, WY

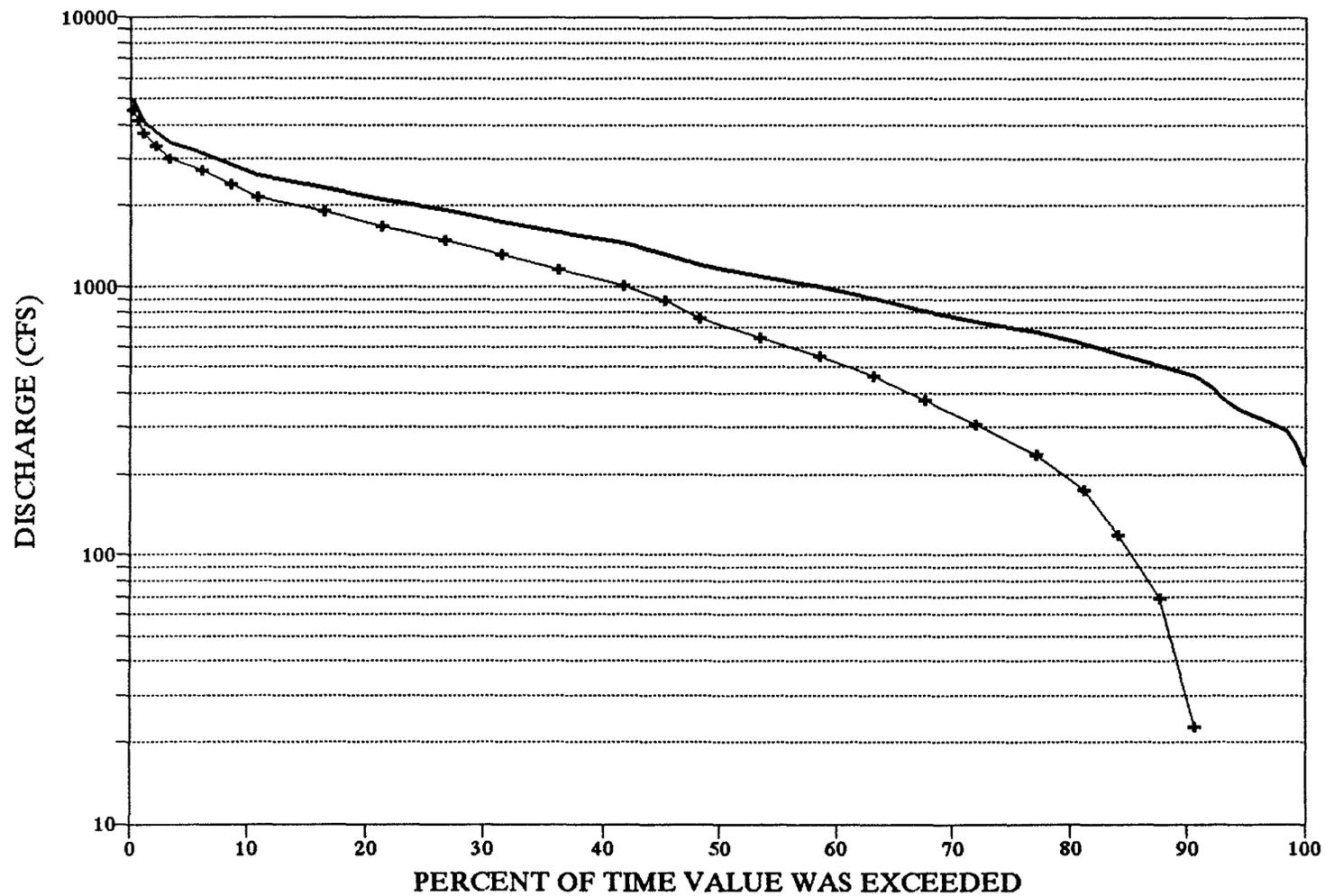
## MAY DURATION PLOT 1954-1994



— Salt River Gaged    + Salt River Adjusted

# SALT RIVER AB RESERVOIR NR ETNA WY

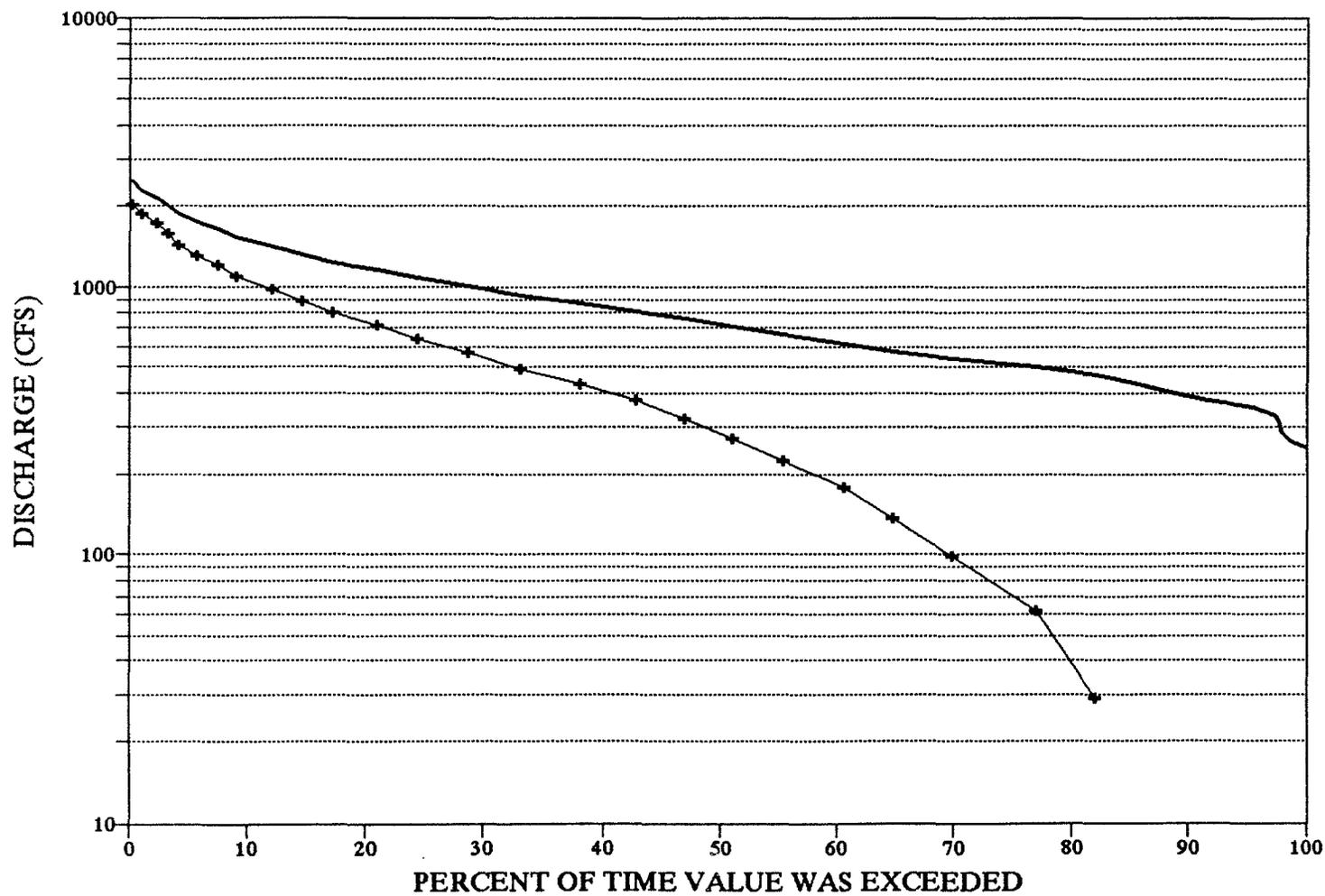
## JUNE DURATION PLOT 1954-1993



— Salt River Gaged    + Salt River Adjusted

# SALT RIVER AB RESERVOIR NR ETNA, WY

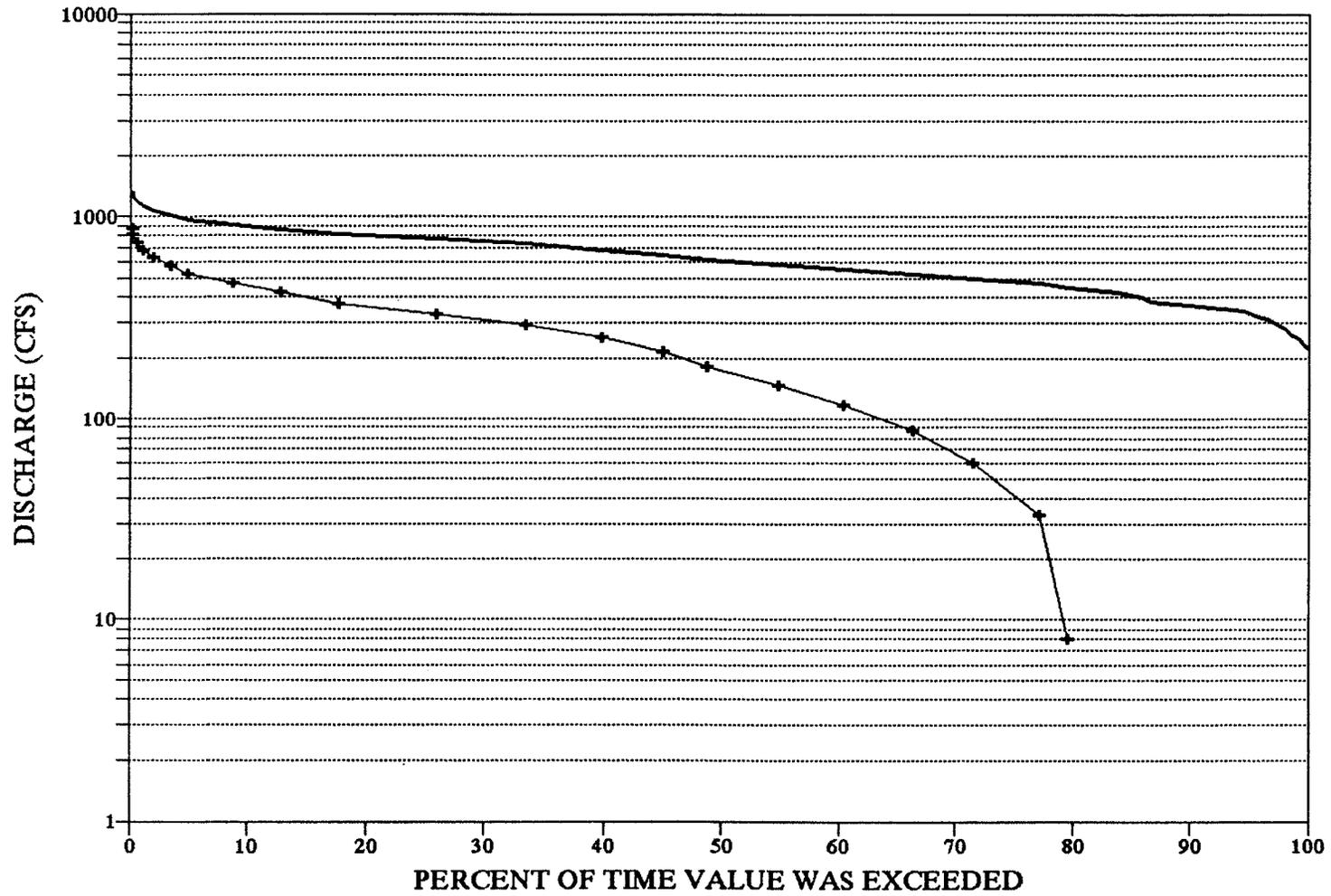
## JULY DURATION PLOT 1954-1993



— Salt River Gaged    + Salt River Adjusted

# SALT RIVER AB RESERVOIR NR ETNA, WY

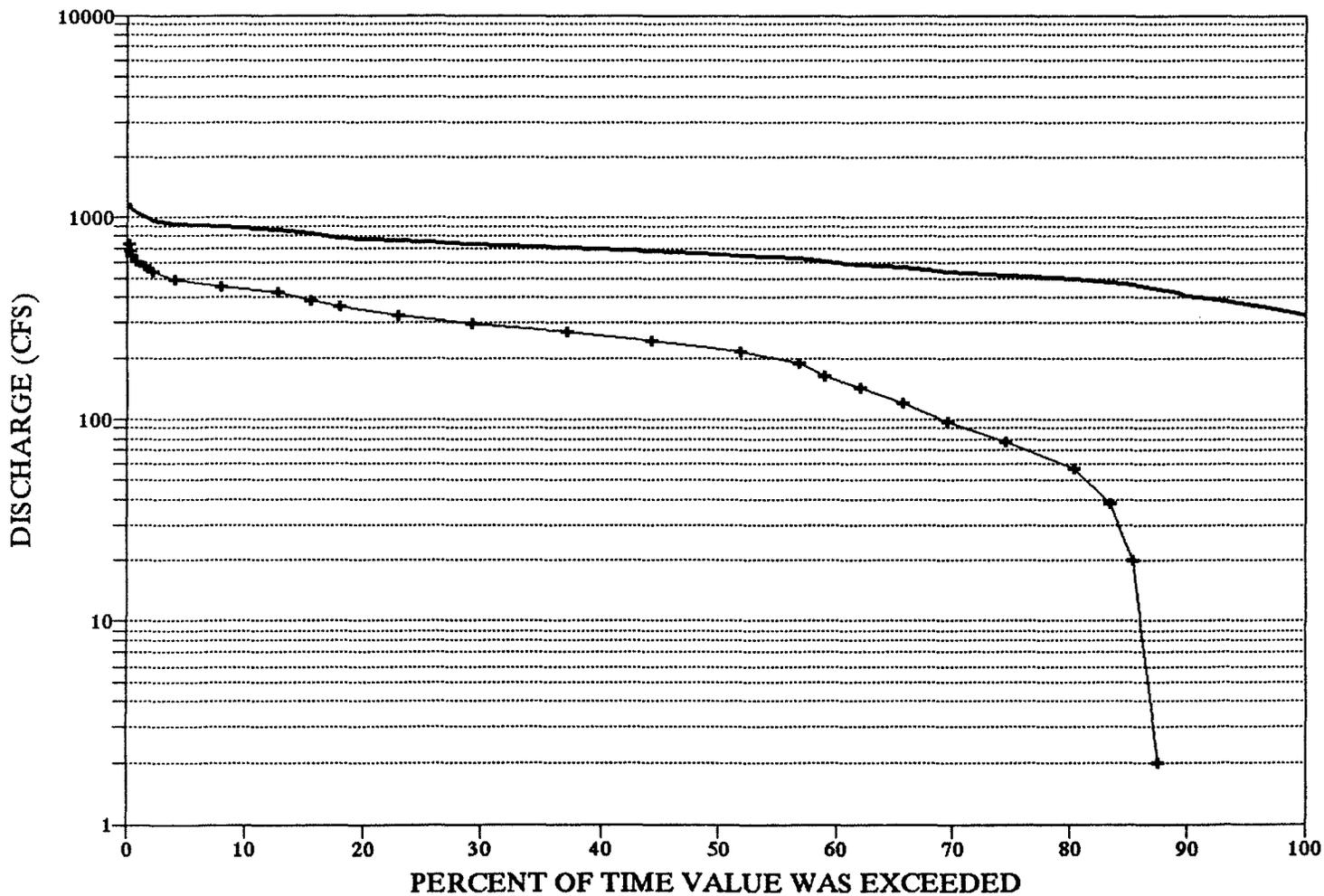
## AUGUST DURATION PLOT 1954-1993



— Salt River Gaged    + Salt River Adjusted

# SALT RIVER AB RESERVOIR NR ETNA, WY

## SEPTEMBER DURATION PLOT 1954-1993



— Salt River Gaged    + Salt River Adjusted

**APPENDIX C**

**WYOMING GAME AND FISH REPORT  
AND APPLICATION TO STATE ENGINEER  
TF NO. 28 3/80**

WYOMING GAME AND FISH DEPARTMENT

FISH DIVISION

COMPLETION REPORT

TITLE: Instream Flow Studies for the Salt River Hydroelectric Project Proposal  
PROJECT: IF-1089-09-8901  
AUTHOR: William H. Bradshaw  
DATE: February 1990

INTRODUCTION

A proposal has been made to develop a small run-of-the-river hydroelectric project on the Salt River by rehabilitating existing facilities. These structures near Alpine, Wyoming were previously operated by the Lower Valley Power and Light Company and consist of diversion structures, a delivery canal and a powerplant building. A maximum of 240 cubic feet per second (cfs) has been proposed for diversion during some or all of the year (Heiner 1988), through a bypass section (headgate to powerplant) approximately 2.7 miles long.

Specific information on trout populations in this reach of the Salt River is limited, and fish population studies should be completed prior to final FERC authorization. However, it is known that the bypass section serves as a migration corridor for brown trout moving to spawning grounds in the upper Salt River Drainage. Additionally, resident populations of Snake River cutthroat trout and brown trout provide a variety of fishing opportunities for both resident and non-resident anglers (WGFD 1985).

Licensing this project under the jurisdiction of the Federal Energy Regulatory Commission (FERC) requires that potential fishery impacts be assessed, and that mitigation measures be developed prior to issuing an operating license. As partial compliance with these FERC requirements, the project sponsor has contracted with WGFD to assess potential impacts of flow reductions on the physical habitat of trout in the area affected by this project.

The specific objectives of this analysis were to 1) assess the amount of physical habitat available in the bypass section for various life stages of cutthroat trout and brown trout at different discharge rates and, 2) determine the discharge necessary to preserve the hydraulic characteristics of the river that are critical for maintenance of trout populations, and 3) determine the discharge necessary to maintain adult trout production during the late summer months.

Objectives 1 and 2 are fully addressed in this report. However, because specific information on fish population dynamics is not available for the bypass section and because flows remained unexpectedly high throughout the 1988 field season, it was not possible to assess potential impacts of this project on trout production.

#### STUDY AREA

The section of the Salt River potentially affected by this project is classified by the Wyoming Game and Fish Department (WGFD) as a Class 2 trout stream. Class 2 trout streams support fisheries of statewide importance and generally exhibit high rates of fish production. This section of the lower Salt River is managed primarily for Snake River cutthroat trout, brown trout and mountain whitefish under the basic yield concept. Trout populations are periodically supplemented with hatchery fish by the WGFD.

The study site was located in about the middle of the proposed bypass section in Township 36 North, Range 119 West, Section 16. The study site is within a Public Fishing Access area (PFA) maintained by the WGFD, and the entire PFA is within the proposed bypass reach (Figure 1). The bypass section is characterized by long stretches of swift, relatively shallow "runs" between an occasional large pool. Because the lower end of the study site contained a large pool, and the upper 60% of the reach consisted of a typical "run", the site was judged to represent conditions found throughout the proposed bypass section. Total length of the study reach was 912 feet.

#### METHODS

Two techniques were used to assess the potential impacts of flow reductions on trout habitat within the bypass section, the Physical Habitat Simulation Model (PHABSIM) and a Habitat Retention method. It should be noted that neither of these models is considered appropriate for addressing impacts to trout populations or production.

The PHABSIM model was developed by the Instream Flow Service Group of the U.S. Fish and Wildlife Service (Bovee and Milhous 1978) to examine incremental changes in the amount of physical habitat available at various discharge rates. The amount of physical habitat available at a given discharge is expressed in terms of weighted usable area (WUA) and reflects the composite suitability of depth, velocity and substrate at a given flow. This model is considered state-of-the-art technology and is the most commonly used method in North America for quantifying changes in physical habitat with changes in discharge (Reiser et al. 1989). Again, the PHABSIM model only addresses changes in physical habitat and is not appropriate for quantifying effects of changing discharge on trout production.

Depth, velocity and substrate data were collected from 10 transects in accordance with guidelines given by Bovee and Milhous (1978). Three stage-discharge pairs and one set of velocity data were collected for each transect over the course of three visits to the study site. Techniques given in Milhous (1984) and Milhous et al. (1984) were used to develop hydraulic simulations, and to determine the range of flows for which WUA could be reliably simulated.

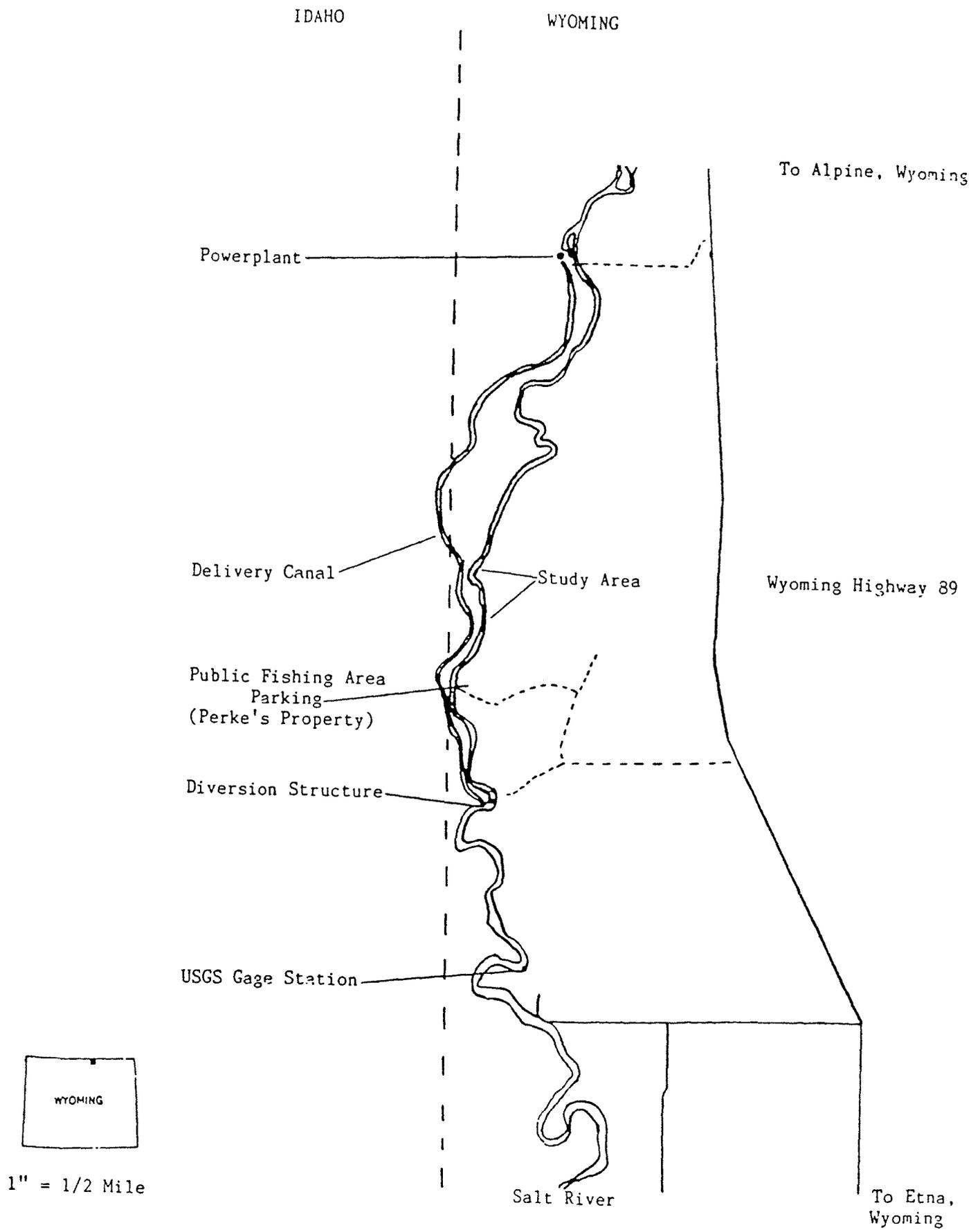


Figure 1. Location of study area on Salt River.

Using calibration and modeling techniques outlined in Milhous (1984) and Milhous et al. (1984), and Habitat Suitability Curves developed by Raleigh et al. (1986) and Hickman and Raleigh (1982), the WUA for cutthroat trout and brown trout adults, juveniles and fry was simulated for flows from 150 to 1000 cfs. Because spawning habitat is generally lacking in the study area the WUA for this life stage was not simulated for either species.

Based on stream gaging records compiled by Peterson (1988), the range of flows for which WUA was simulated appears to encompass the flows likely to be present in the bypass section after a maximum of 240 cfs has been diverted to the delivery canal (Table 1).

Table 1. Selected streamflow statistics for the Salt River for the years 1954-1984. Data are from USGS gage # 13027500, located about 1 mile above the upstream end of the proposed bypass section.

Month	Maximum (cfs)	Minimum (cfs)	Mean (cfs)
October	912	336	638
November	838	347	605
December	712	381	533
January	583	324	461
February	702	337	448
March	806	368	465
April	1560	503	929
May	3250	306	1800
June	3360	275	1510
July	1810	271	915
August	997	266	665
September	961	342	678
Annual	1250	432	805

A Habitat Retention method (Nehring 1979, Annear and Conder 1984) was used to identify a fisheries maintenance flow for the bypass section. A maintenance flow is defined as a continuous flow that will maintain minimum hydraulic criteria at riffle areas in a stream segment. Based on extensive research by Annear and Conder (1983), the maintenance flow is further defined as the discharge at which two of three hydraulic criteria are met for all riffles in the study area (Table 2). Meeting these criteria provides passage for all life stages of trout between different habitat types and maintains survival of trout and aquatic macroinvertebrates during the winter.

The Habitat Retention method was developed to identify a flow that would maintain survival rates of aquatic insects in riffle areas, maintain existing survival rates of trout, and provide passage for trout between different habitat types in streams during the winter. However, because maintenance of these features is important year round, the instream flow identified by the Habitat Retention method is regarded as the lowest flow that will maintain a fishery unless flow recommendations from other methods indicate that a higher stream flow is needed for a particular time of year or purpose.

Data for the Habitat Retention model were collected from transects placed across two riffles in the study area (transects 8 and 9) and analyzed using the IFG-1 computer program (Milhous 1978).

Table 2. Hydraulic criteria used to identify a fisheries maintenance flow using the Habitat Retention method.

Category	Criteria
Average Depth (feet)	Top width <sup>1</sup> X 0.01
Average Velocity (feet per second)	1.00
Wetted Perimeter (percent) <sup>2</sup>	60

1 - At average daily flow

2 - Compared to wetted perimeter at bankfull conditions

Data for both habitat models were collected over a narrow range of discharge rates after peak runoff had occurred (Table 3).

Table 3. Dates and discharge rates when instream flow data were collected from the lower Salt River in 1989.

Date	Discharge Cubic Feet Per Second (cfs)
06-29-89	574
07-13-89	511
11-16-89	452

## RESULTS

### PHABSIM Model

Within the range of simulations, physical habitat for adult cutthroat trout is maximized at 200 cfs. Reductions in physical habitat are rapid as discharge increases above 250 cfs, and at 1000 cfs, WUA is about 25% of the maximum that occurs at 200 cfs (Figure 2). These data apply to times of year that physical habitat parameters are the primary factors affecting the distribution and abundance of adults. This time of year is from October 1 to March 31.

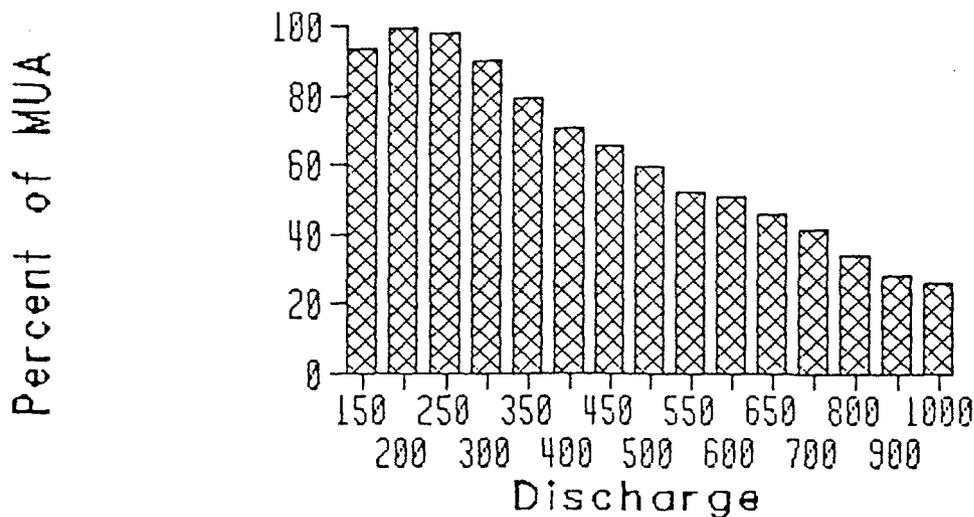


Figure 2. Percent of maximum weighted usable area (MUA) for cutthroat trout adults at the Salt River study site as a function of discharge.

Physical habitat for both cutthroat trout juveniles (Figure 3) and fry (Figure 4) is maximized at 150 cfs. There is a net decrease in availability of physical habitat by about 75% to 80% for both life stages over the range of flow simulations. Physical habitat for juvenile cutthroat trout decreases rapidly and consistently as flows increase to 1000 cfs (Figure 3). For cutthroat trout fry, physical habitat decreases rapidly as flows increase to about 450 cfs, after which reductions in physical habitat are more gradual (Figure 4).

These analyses apply to times of year when physical habitat components are the primary factors affecting these life stages. For juveniles and fry these time periods are from April 1 to April 30, and from May 1 to June 30, respectively. Management precedent is given to maintenance of physical habitat for juvenile and fry life stages over maintenance of physical habitat for adults because juvenile and fry are more heavily influenced by discharge than adults during these time periods.

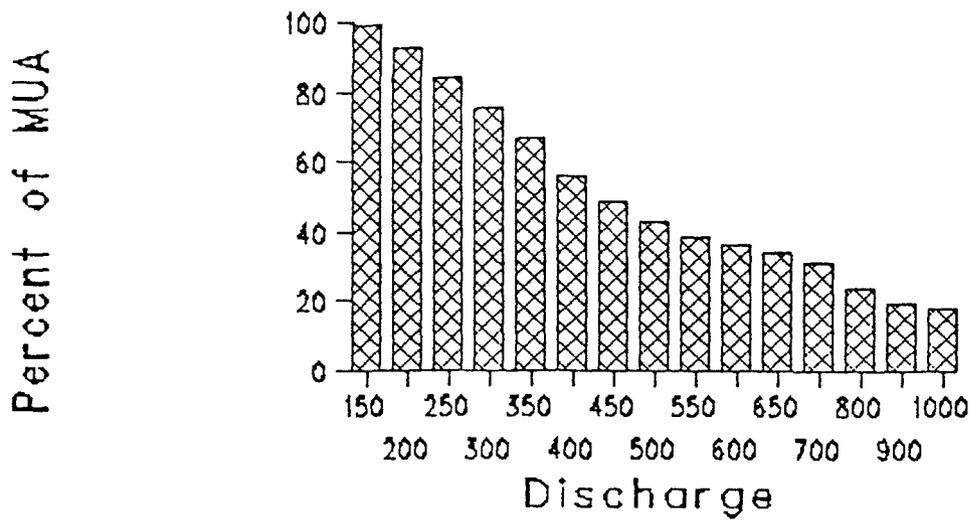


Figure 3. Percent of maximum weighted usable area (MUA) for cutthroat trout juveniles at the Salt River study site as a function of discharge.

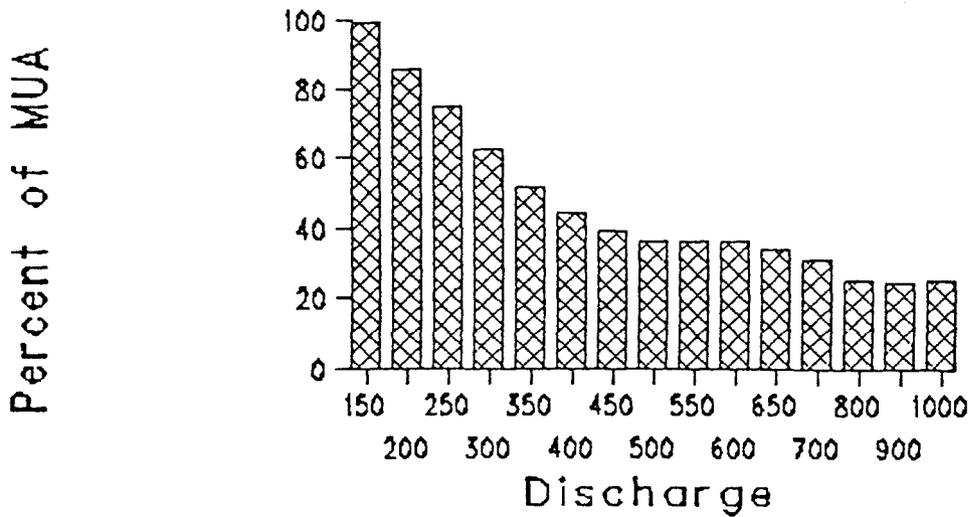


Figure 4. Percent of maximum weighted usable area (MUA) for cutthroat trout fry at the Salt River study site as a function of discharge.

Simulations of WUA for adult brown trout indicate maximum availability of physical habitat at 200 cfs. A gradual reduction in physical habitat of about 20% occurs as discharge increases to 1000 cfs (Figure 5).

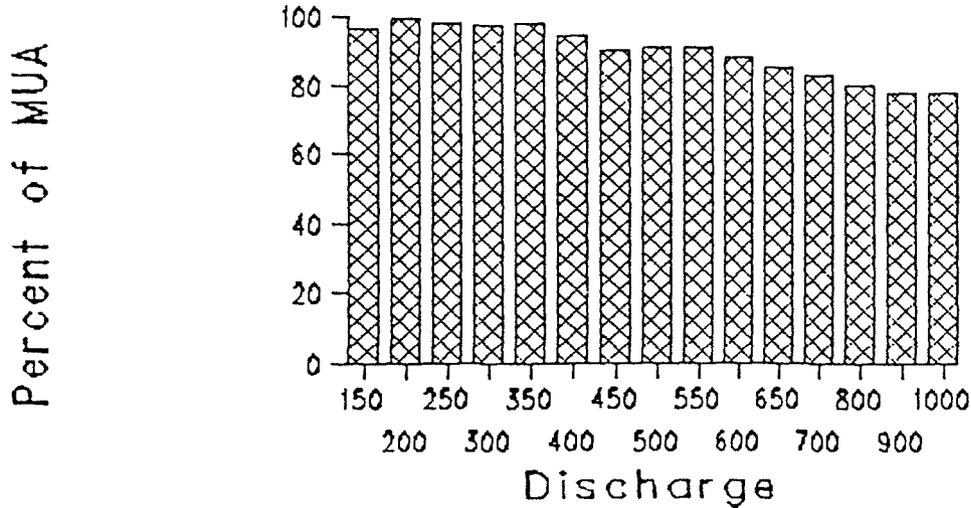


Figure 5. Percent of maximum weighted usable area (MUA) for brown trout adults at the Salt River study site as a function of discharge.

Simulations of WUA for brown trout juveniles and fry are very similar (Figures 6 and 7). Both exhibit reductions in physical habitat of about 75% from the maximum as flows increase from 150 cfs to 1000 cfs. The rate of decrease in physical habitat is rapid and fairly constant for juveniles. For brown trout fry, the rate of decrease in physical habitat is more rapid between 150 cfs and about 450 cfs than at higher flows.

As is the case with cutthroat trout, these analyses apply to times of year when physical habitat components are the primary factors affecting these life stages. For juveniles and fry these times periods are from April 1 to April 30, and from May 1 to June 30, respectively. Again, management precedent is given to maintenance of physical habitat for juvenile and fry life stages over maintenance of physical habitat for adults because juvenile and fry are more heavily influenced by discharge than adults during these time periods.

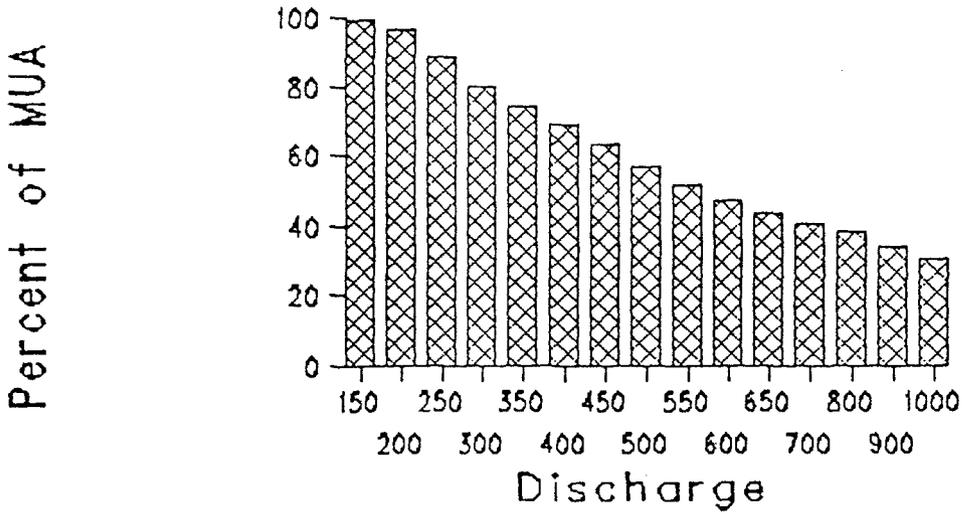


Figure 6. Percent of maximum weighted usable area (MUA) for brown trout juveniles at the Salt River study site as a function of discharge.

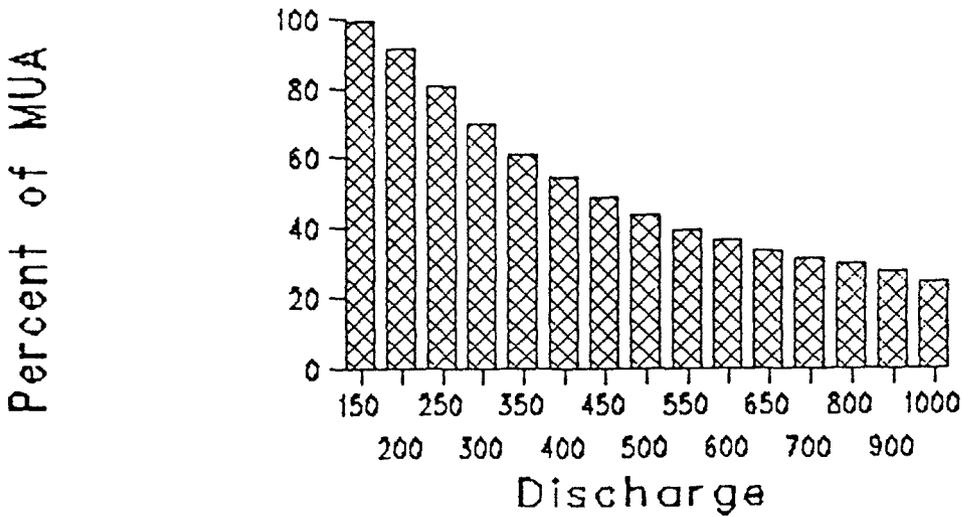


Figure 7. Percent of maximum weighted usable area (MUA) for brown trout fry at the Salt River study site as a function of discharge.

## Habitat Retention Model

Results from the Habitat Retention model indicate that flows of 221 and 183 cfs are necessary to maintain winter survival of trout, aquatic insect production and fish passage at riffles 8 and 9, respectively (Table 4). The maintenance flow recommendation derived from this method is defined as the flow at which two of the three hydraulic criteria are met for the riffles modeled in the study site, which in this case is 221 cfs.

Table 4. Simulated hydraulic criteria for two riffles on the Salt River  
Bankfull discharge = 5,208 cfs; average daily discharge = 805 cfs.  
Velocity criteria met at discharges lower than simulated.

Average Depth (ft)	Average Velocity (ft/sec)	Wetted Perimeter (ft)	Discharge (cfs)
<u>Riffle # 8</u>			
2.81	5.22	129.6	1887
2.12	4.34	125.9	1155
1.89	4.02	124.6	944
1.72	3.78	123.7	805
1.43	3.35	121.2	580
1.36	3.23	107.2	468
1.23 <sup>1</sup>	3.02	104.2	389
1.16	2.91	102.5	346
0.96	2.56	98.3	240
0.92	1.83 <sup>1</sup>	95.6 <sup>1</sup>	221 <sup>2</sup>
<u>Riffle # 9</u>			
3.39	4.56	124.7	1908
2.95	4.16	122.2	1486
2.50	3.73	119.8	1109
2.09	3.31	117.4	805
1.82	3.02	115.5	634
1.39	2.52	110.8	387
1.17 <sup>1</sup>	2.25	108.2	284
0.93	1.94	101.0 <sup>1</sup>	183 <sup>2</sup>
0.89	1.88 <sup>1</sup>	84.9	142

1 - Minimum hydraulic criteria met

2 - Discharge at which 2 of 3 hydraulic criteria are met

## DISCUSSION

As noted previously, specific information on fish population dynamics is not available for the bypass section. In addition, studies to assess potential impacts of the project on trout production were not possible in 1987 because flows remained unexpectedly high throughout the field season. Because of this, discussions of potential project impacts have been restricted to impacts occurring to physical habitat, and have not included predictions about impacts to trout populations or production. Additional information on population numbers, size structure, species composition and trout production are necessary for complete project impact assessment.

The PHABSIM analyses indicate that physical habitat for all life stages of cutthroat trout and brown trout decreases at discharges above 200 cfs, and that the maximum amounts of physical habitat will occur at 150 cfs to 200 cfs. A flow of 150 cfs is just below the recorded minimum daily streamflow of 160 cfs (Peterson 1988), and is substantially lower than the lowest average monthly discharge of 271 cfs (Table 1).

Although physical habitat is maximized at these low flows, maintaining extremely low flows during the winter is potentially damaging to the fishery in the bypass reach. Natural mortality that occurs during the winter can be a significant factor limiting a trout population. Kurtz (1980) found that the loss of winter habitat due to low flow conditions was an important factor affecting mortality rates of trout in the upper Green River, with mortality approaching 90% during some years. Needham et al. (1945) documented average overwinter brown trout mortality of 60% and extremes as high as 80% in a California stream. Butler (1979) reported significant losses of trout and aquatic insects caused by anchor ice formation. Reimers (1957) considered anchor ice, collapsing snow banks and fluctuating flows resulting from the periodic formation and breakup of ice dams, as the primary causes of winter trout mortality.

The PHABSIM model simulates physical habitat but does not account for impacts that may occur during the winter, and does not effectively address maintenance of fish passage between habitat types or aquatic insect survival. Because the Habitat Retention model more accurately accounts for these limiting factors, the maintenance flow value derived from the Habitat Retention model (221 cfs) is considered as the base flow necessary to maintain the fishery in the bypass section whenever other flows are not required to meet other fisheries needs.

The Wyoming Game and Fish Commission approved a Mitigation Policy (Table 5) on September 28, 1985. This policy established mitigation categories, designation criteria, and mitigation objectives for fisheries habitat values that could be impacted by project development. If developed, this project should be built and operated in a manner that meets these objectives.

Table 5. Mitigation categories and descriptions, and mitigation objectives used by the WGFD for fisheries.

Mitigation Category	Description	Mitigation Objective
Irreplaceable	Endangered species Class 1 streams Critical Habitat	No loss of existing habitat value.
High	State rare or protected species Native game fish Class 2 streams Wild (native) or Trophy management concept	No net loss of in-kind habitat value.
Moderate	Non-native game fish Class 3 streams Wild (non-native) game fish and basic yield management concept	No net loss of habitat value while minimizing loss of in-kind habitat value.
Low	Non-game fish Class 4 and 5 streams Put-and-Take management concept	Minimize loss of habitat value.

The bypass section of the Salt River is designated as a Class 2 stream and supports populations of native game fish (Snake River cutthroat trout). The mitigation objective for this situation requires that the WGFD work toward ensuring that "no net loss of in-kind habitat value" results from this project.

Meeting the maintenance flow of 221 cfs through the bypass section will require that no diversion take place during those times of year when diverting flows would reduce discharge below 221 cfs. Data compiled by Peterson (1988) indicates that a discharge of 221 cfs is equalled or exceeded 100% of the time. However, to divert the full 240 cfs from the bypass reach, a flow of 461 cfs would be needed in order to meet the maintenance flow recommendation. This flow is equalled or exceeded between 75% and 80% of the time. Depending on the final analyses addressing impacts to trout production, the amount of time that flow recommendations are exceeded may vary.

SUMMARY

- 1) A Habitat Retention model indicates that a maintenance flow of 221 cfs would meet the hydraulic criteria important for maintaining trout populations, fish passage and aquatic insect survival.
- 2) Physical habitat for cutthroat trout and brown trout was simulated for different life stages at flows ranging from 150 cfs to 1000 cfs. Physical habitat increased with decreasing discharge for both species and all life stages, with physical habitat maximized at 150-200 cfs.
- 3) To maintain physical habitat in the bypass reach and to maintain important hydraulic criteria, the following preliminary flow recommendations for the bypass reach have been determined.

Time Period	Instream Flow Recommendation (cfs)
October 1 to March 31	221
April 1 to April 31	221
May 1 to June 30	221
July 1 to September 30	Undefined*

\* Additional field studies necessary

- 4) Although analyses of physical habitat indicate that a flow of 221 cfs is adequate for the entire year, these analyses do not reflect the importance of biological parameters affecting trout production during the summer months (July 1 to September 30). For this reason, a flow of 221 cfs from July 1 to September 30 should be considered tentative and subject to revision pending further analyses.
- 5) It is unknown if the maintenance flow of 221 cfs will satisfy the WGFD mitigation objective for Class 2 streams because not all of the information necessary to determine "no net loss in habitat value" is available. Additional information required to fully estimate potential impacts (positive or negative) to fish populations in the bypass section includes seasonal population estimates, simulations of flow reduction impacts during the summer on resident trout production, and detailed project design and operation data.

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NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

# STATE OF WYOMING

OFFICE OF THE STATE ENGINEER

## APPLICATION FOR PERMIT TO APPROPRIATE SURFACE WATER

THIS SECTION IS NOT TO BE FILLED IN BY APPLICANT

Filing/Priority Date

THE STATE OF WYOMING, }  
STATE ENGINEER'S OFFICE } SS.

This instrument was received and filed for record on the \_\_\_\_\_ day of \_\_\_\_\_, A.D. 19 \_\_\_\_\_, at \_\_\_\_\_ o'clock \_\_\_\_\_ M.

\_\_\_\_\_  
State Engineer

Recorded in Book \_\_\_\_\_ of Ditch Permits, on Page \_\_\_\_\_.

Fee Paid \$ \_\_\_\_\_ Map Filed \_\_\_\_\_

WATER DIVISION NO. \_\_\_\_\_ DISTRICT NO. \_\_\_\_\_ Temp. Filing No. \_\_\_\_\_

PERMIT NO. \_\_\_\_\_

NAME OF FACILITY Salt River Instream Flow Segment No. 1

1. Name(s), mailing address and phone no. of applicant(s) is/are \_\_\_\_\_  
Wyoming Water Development Commission, Herschler Building  
Cheyenne, WY 82002

(If more than one applicant, designate one to act as Agent for the others)

2. Name & address of agent to receive correspondence and notices Wyoming Game & Fish Department,  
5400 Bishop Boulevard, Cheyenne, WY 82002

3. (a) The use to which the water is to be applied is Instream Flow

(b) If more than one beneficial use of water is applied for, the location and ownership of the point of use must be shown in item 10 of the application and the details of the facilities used to divert and convey the appropriation must be shown on the map in sufficient detail to allow the State Engineer to establish the amount of appropriation. In multiple use applications, stock and domestic purposes are limited to 0.056 cubic feet per second.

4. The source of the proposed appropriation is Salt River, Tributary to Snake River

5. The ~~point of diversion of the proposed work~~ segment of the instream flow is from the south line of SW1/4 SE1/4 ~~XXXXXX~~  
~~XXXXXX~~ of Section 21 T. 36 N.. R. 119 w. ~~XXXXXX~~ to the  
north line of NE1/4 NE1/4 of Section 16 T. 36 N.. R. 119 w. Dependent  
Resurvey.

6. Are any of the lands crossed by the proposed facility owned by the State or Federal Government? If so, describe lands and indicate whether State or Federally owned.

Section 16, T. 36N, R. 119W., is owned by the State of Wyoming, Lands in  
Section 21 are privately owned, but are covered by public fishing easement.

7. The carrying capacity of the ditch, canal, pipeline or other facility at the point of diversion is see remarks cubic feet per second.

8. The accompanying map is prepared in accordance with the State Engineer's Manual of Regulations and Instructions for filing applications and is hereby declared a part of this application. The State Engineer may require the filing of detailed construction plans.

9. The estimated time required for the commencement of work is 30 days for completion of construction is 30 days and to complete the application of water to the beneficial uses stated in this application is 30 days from issue.



**APPENDIX D**

**COMPUTATIONS FERC**  
**ASSUMING BY-PASS REQUIREMENTS**

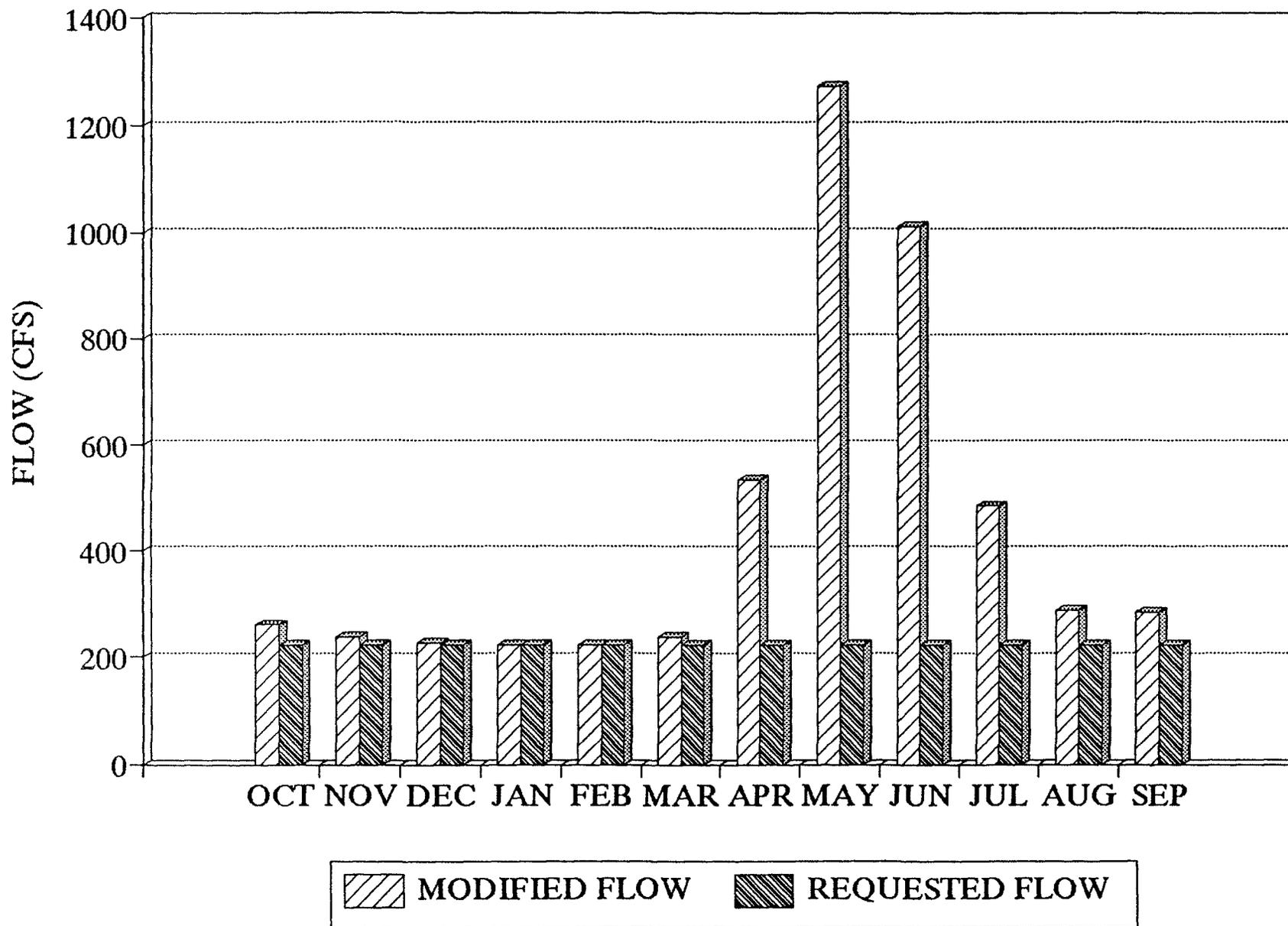


TABLE D-3

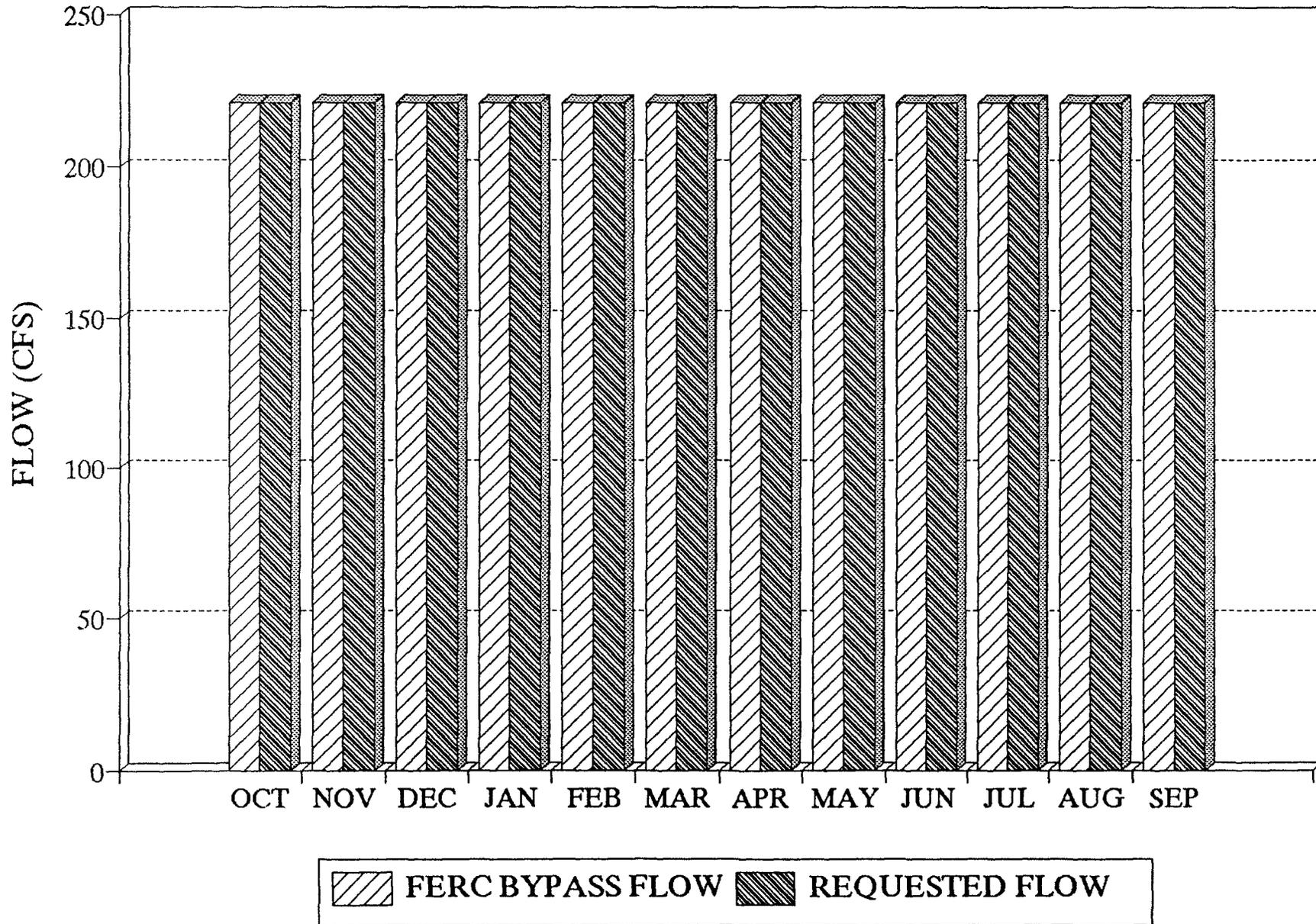
RANKING OF MODIFIED FLOWS IN ASCENDING ORDER  
Salt River at Downstream End of  
Instream Flow Segment  
(Annual and Period Flow in Acre-Feet)

COMPLETE YEAR		OCT 1 - DEC 31		JAN 1 - SEP 30	
Year	Acre-Feet	Year	Acre-Feet	Year	Acre-Feet
1992	159999	1978	40329	1977	119671
1961	159999	1991	40329	1961	119671
1977	163716	1989	40329	1992	120109
1990	165912	1982	40329	1987	124008
1987	177093	1988	40329	1990	125583
1955	182728	1962	40329	1955	142399
1960	186951	1980	40329	1960	147061
1988	190178	1967	40329	1988	150288
1959	190842	1990	40329	1959	150514
1981	202129	1961	40329	1981	161800
1954	202668	1992	40329	1954	162340
1966	213690	1986	40329	1966	167154
1963	216364	1954	40329	1963	176036
1989	229981	1955	40329	1989	189652
1979	232998	1970	40329	1979	191443
1991	239684	1960	40329	1991	199356
1973	250758	1956	40329	1973	203019
1968	253049	1981	40329	1968	210255
1969	262855	1964	40329	1969	222527
1958	274735	1959	40329	1958	231814
1970	281427	1963	40329	1970	241098
1967	297170	1974	40329	1967	256841
1962	308883	1969	40329	1962	268554
1957	331201	1957	40329	1985	281199
1985	337175	1975	40329	1957	290872
1980	350580	1971	41160	1980	310689
1956	355025	1979	41554	1956	315135
1964	364302	1958	42921	1964	324411
1965	379227	1968	43232	1965	334952
1974	414383	1977	44046	1974	374054
1976	443247	1965	44276	1976	396202
1975	447720	1966	46537	1975	407391
1978	466823	1976	47483	1978	426494
1982	526111	1973	47739	1972	464101
1972	526750	1987	53084	1982	485783
1983	577131	1985	55976	1983	518461
1984	593727	1983	58670	1984	526363
1971	620621	1972	63087	1971	579462
1986	643370	1984	67802	1986	603042

**FIGURE D-4: SALT RIVER  
MODIFIED MONTHLY AND REQUESTED FLOWS**



**FIGURE D-5: SALT RIVER  
MODIFIED DRIEST YEAR (1992)  
AND REQUESTED FLOWS**



**FIGURE D-6: SALT RIVER  
MODIFIED THREE DRIEST YEAR AVERAGE AND  
REQUESTED FLOWS**

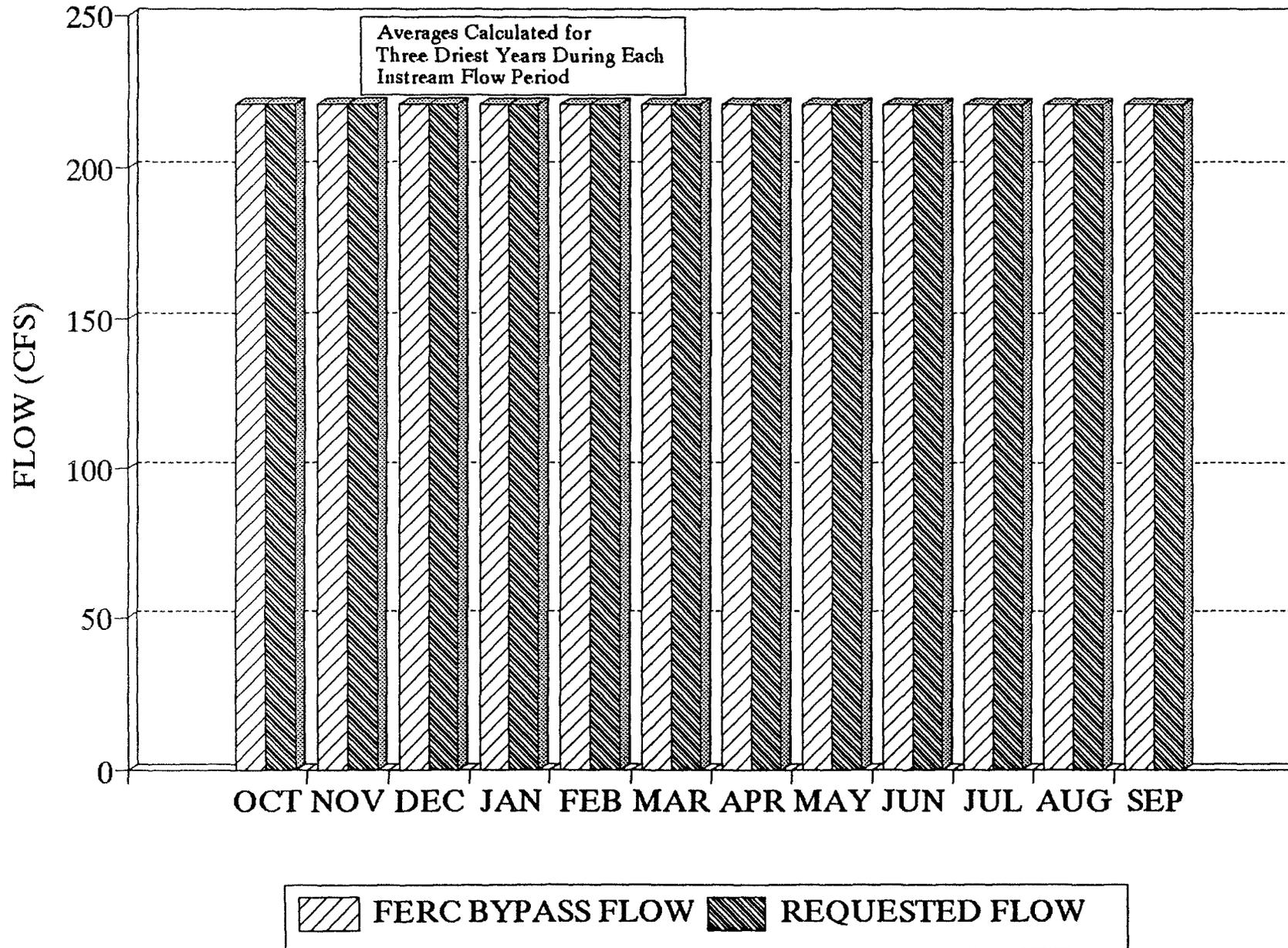
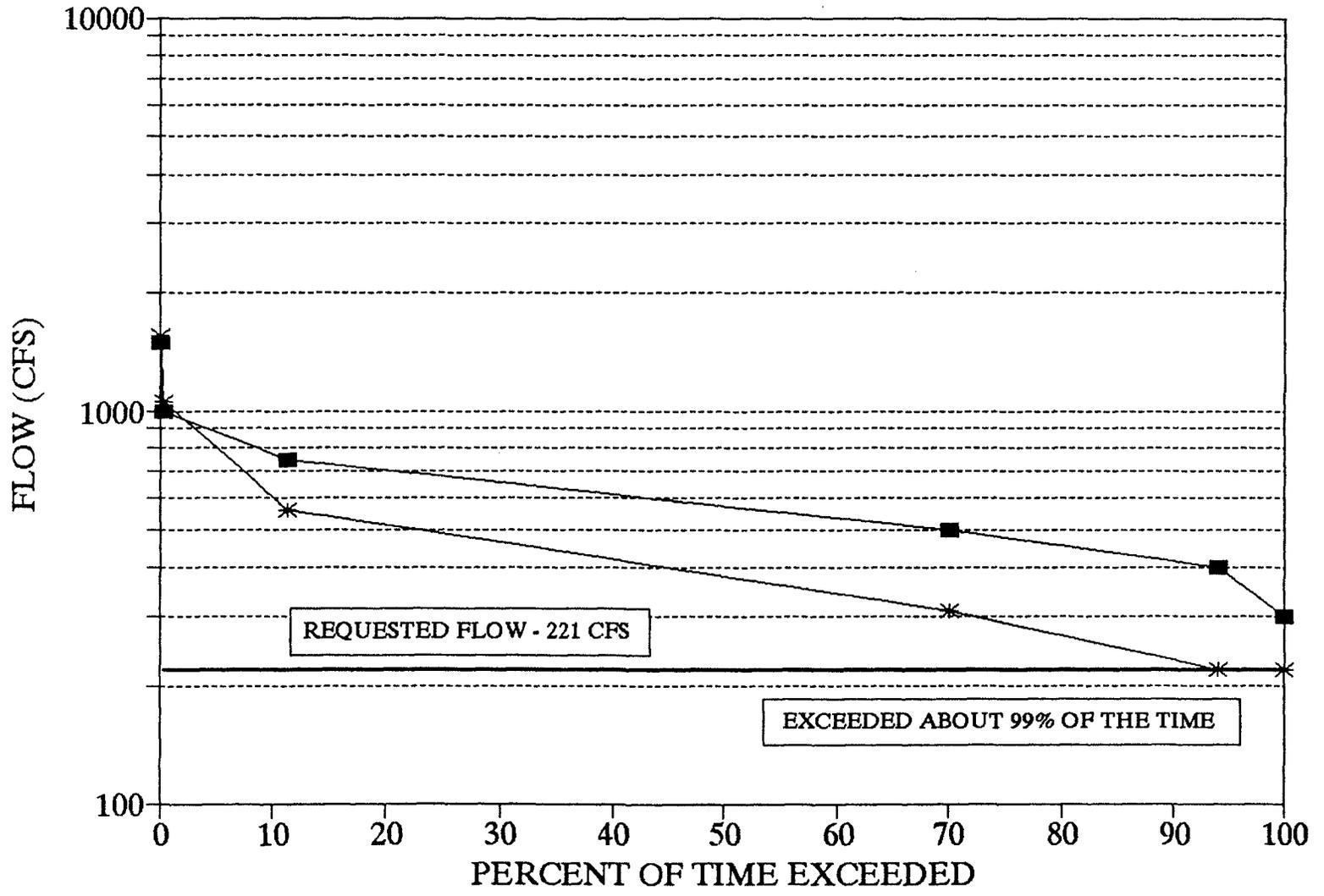


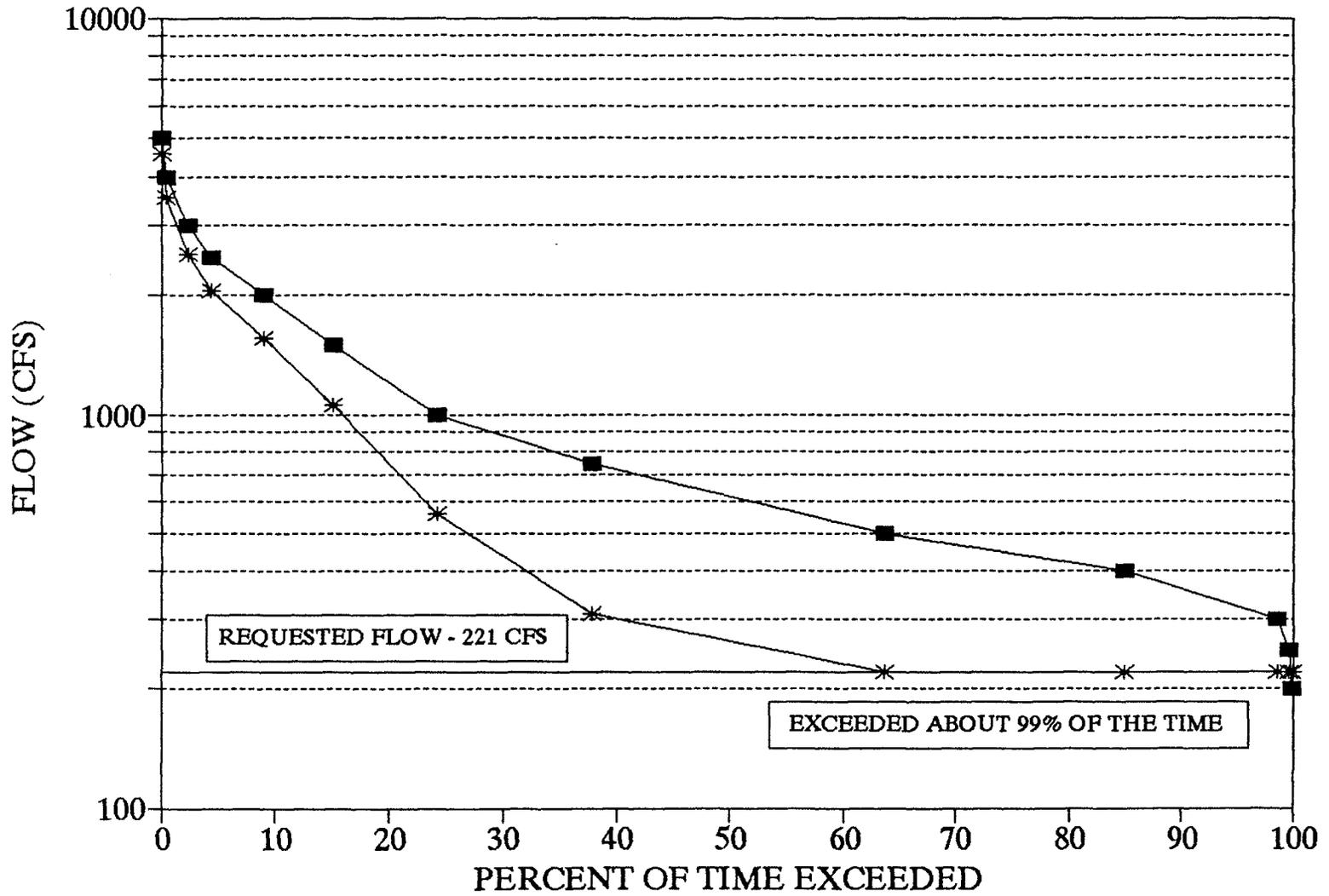
FIGURE D-7: SALT RIVER  
 DAILY FLOW DURATION CURVES OCT1 - DEC31



PERIOD OF RECORD: 1953 - PRESENT



FIGURE D-8: SALT RIVER  
DAILY FLOW DURATION CURVES JAN1 - SEP31

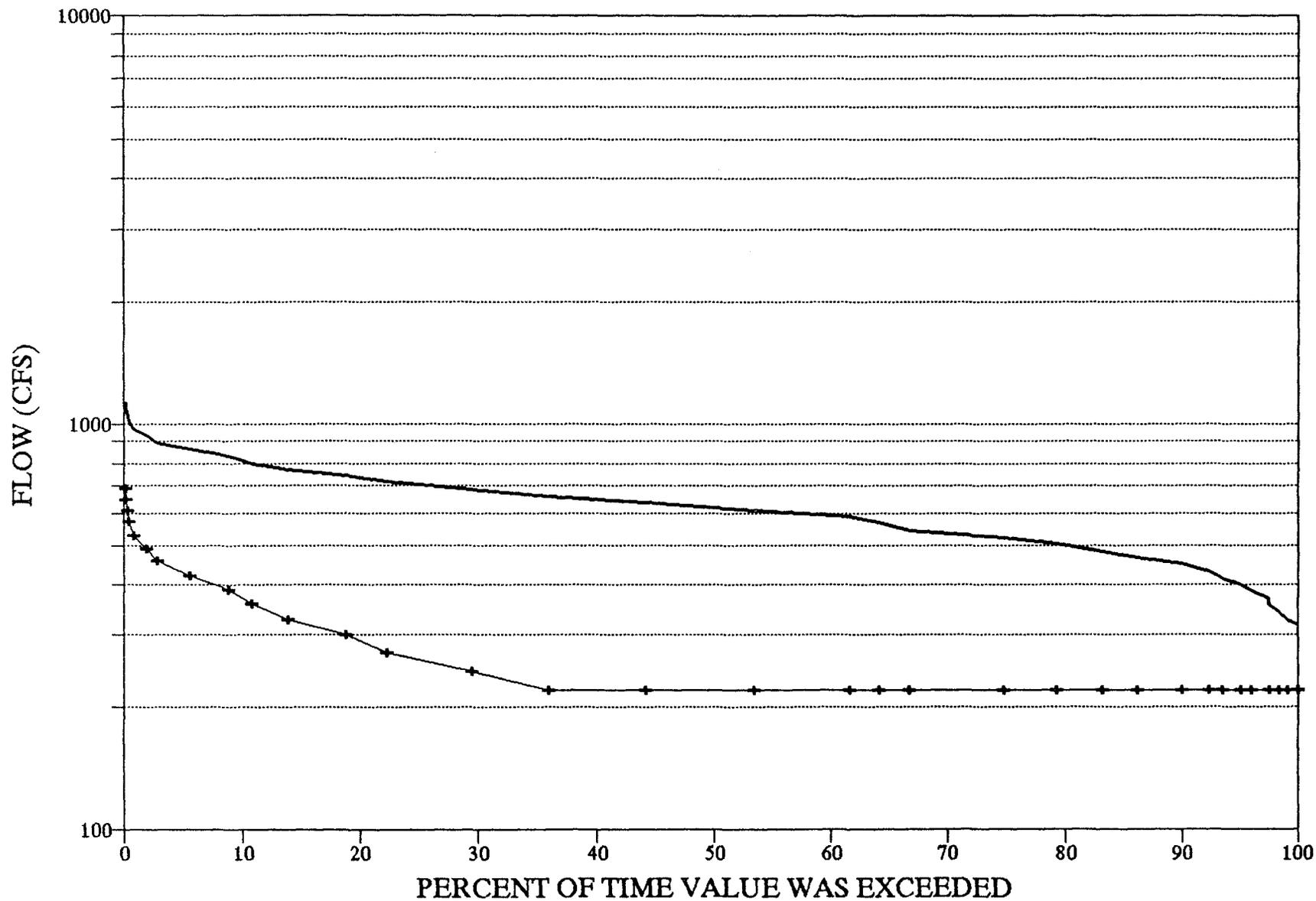


PERIOD OF RECORD: 1953 - PRESENT

SALT R., GAGED     
  REQUESTED FLOW     
 \* SALT R., MODIFIED

# SALT RIVER AB RESERVOIR NR ETNA WY

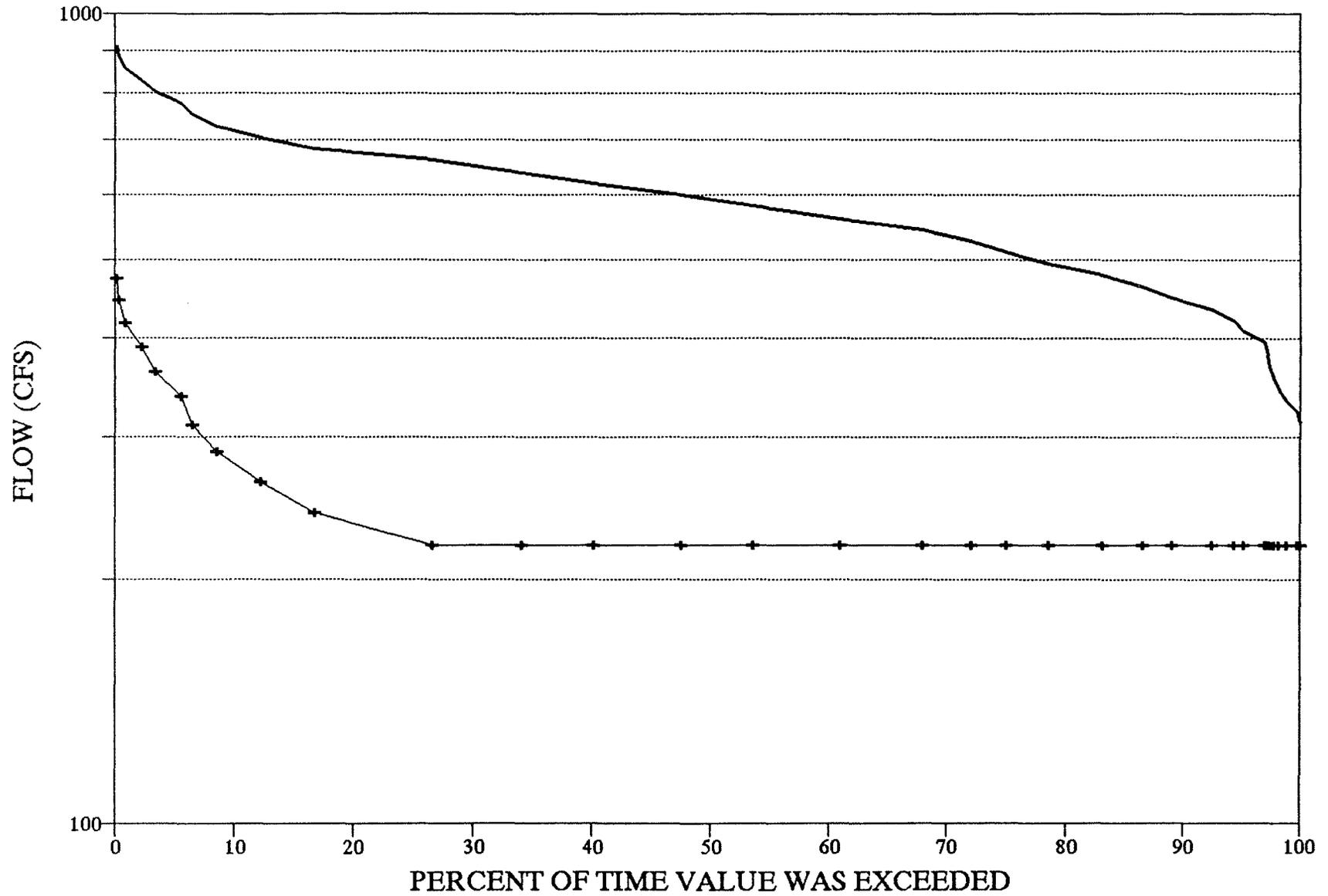
## OCTOBER DURATION PLOT 1954-1994



— Salt River Gaged    + Salt River Modified

# SALT RIVER AB RESERVOIR NR ETNA WY

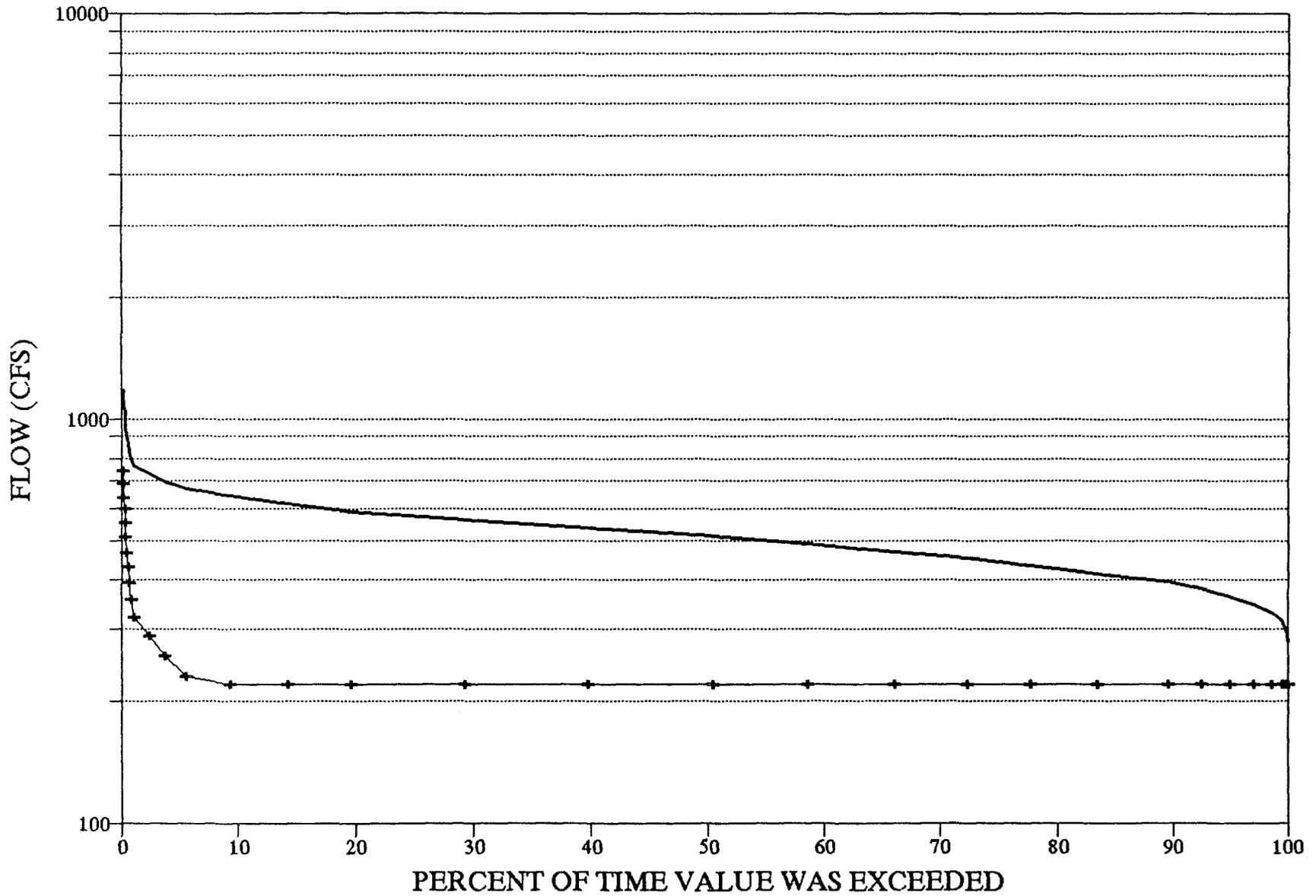
## NOVEMBER DURATION PLOT 1954-1994



— Salt River Gaged    + Salt River Modified

# SALT RIVER AB RESERVOIR NR ETNA WY

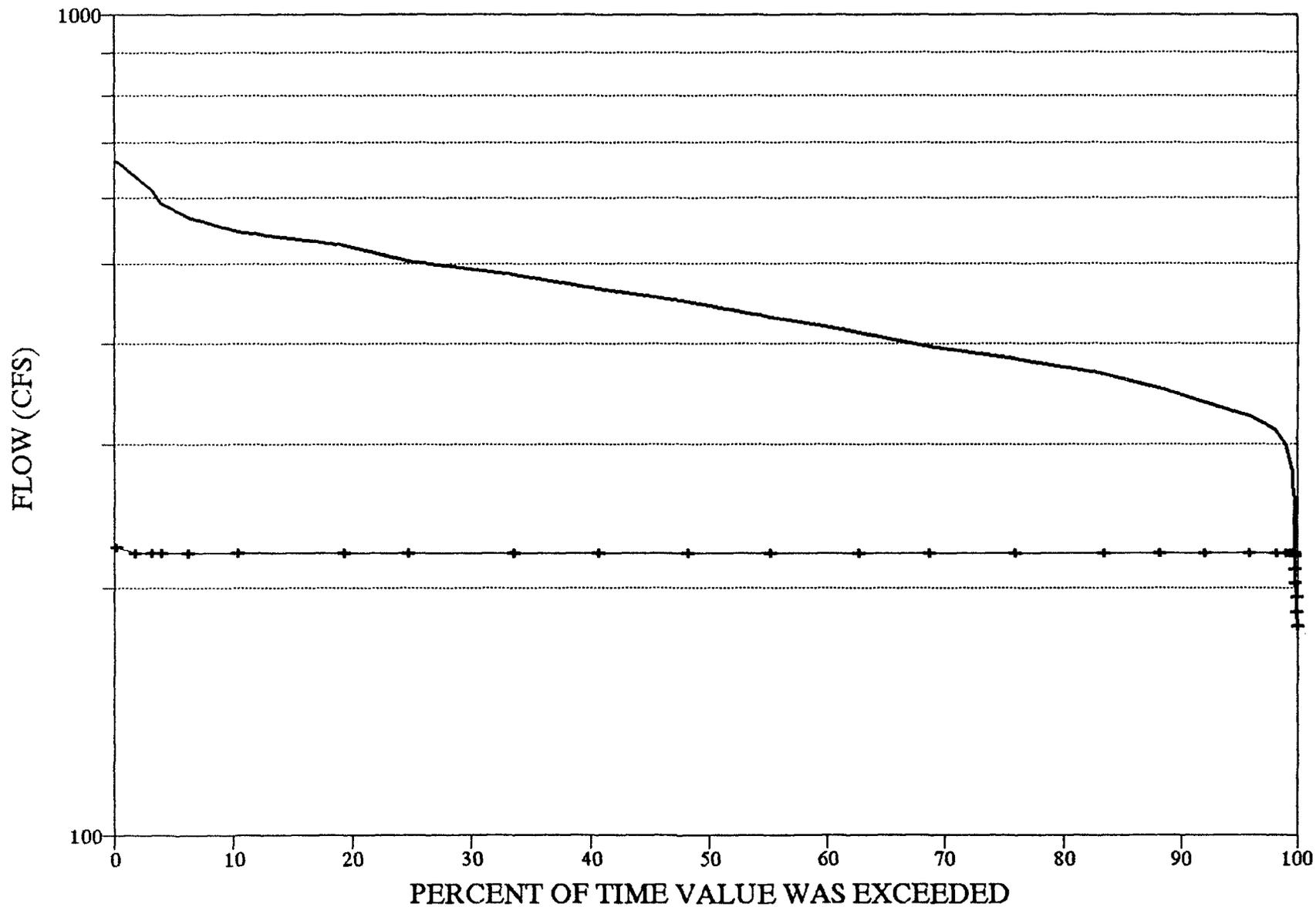
## DECEMBER DURATION PLOT 1954-1994



— Salt River Gaged    + Salt River Modified

# SALT RIVER AB RESERVOIR NR ETNA WY

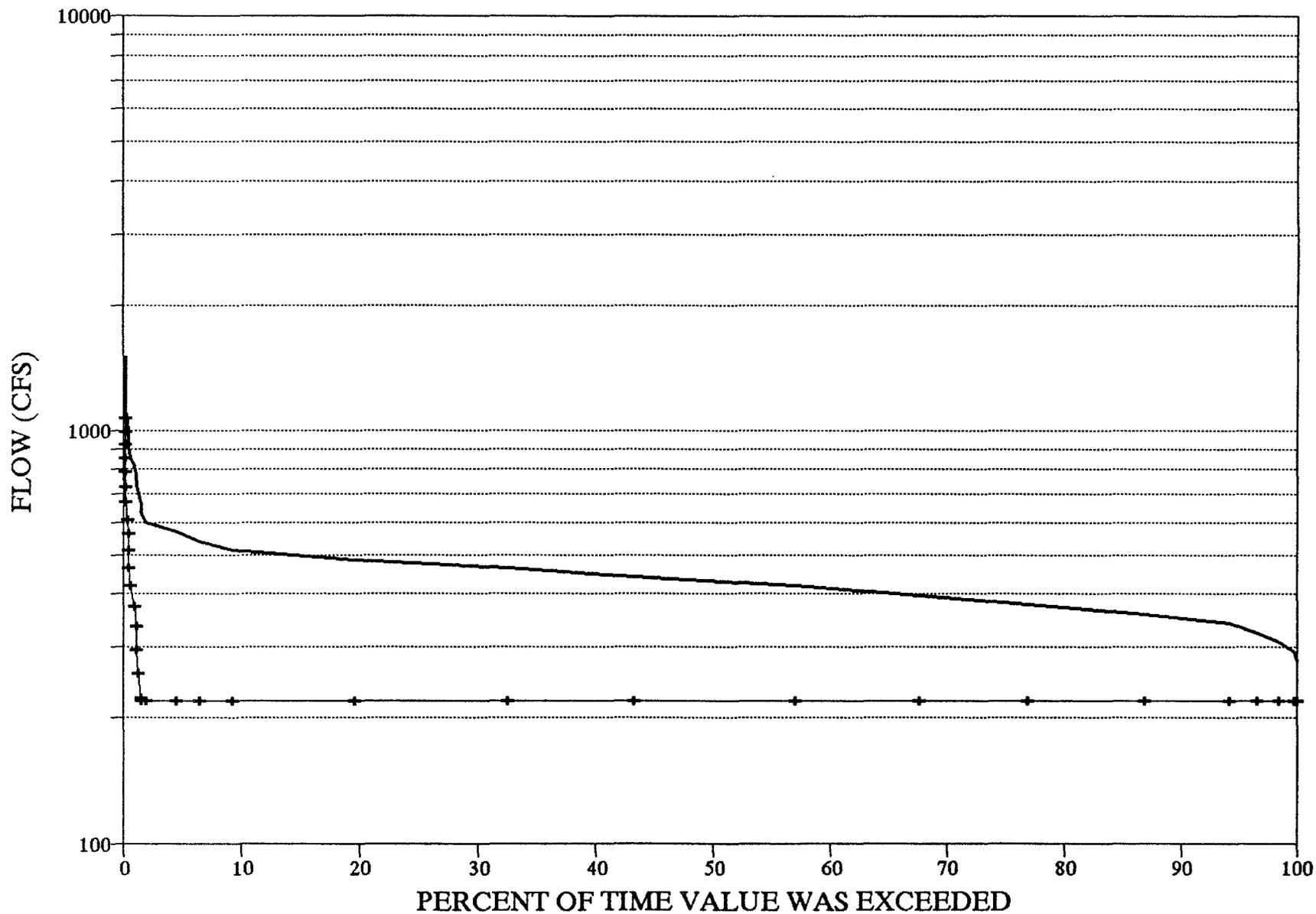
## JANUARY DURATION PLOT 1954-1994



— Salt River Gaged    + Salt River Modified

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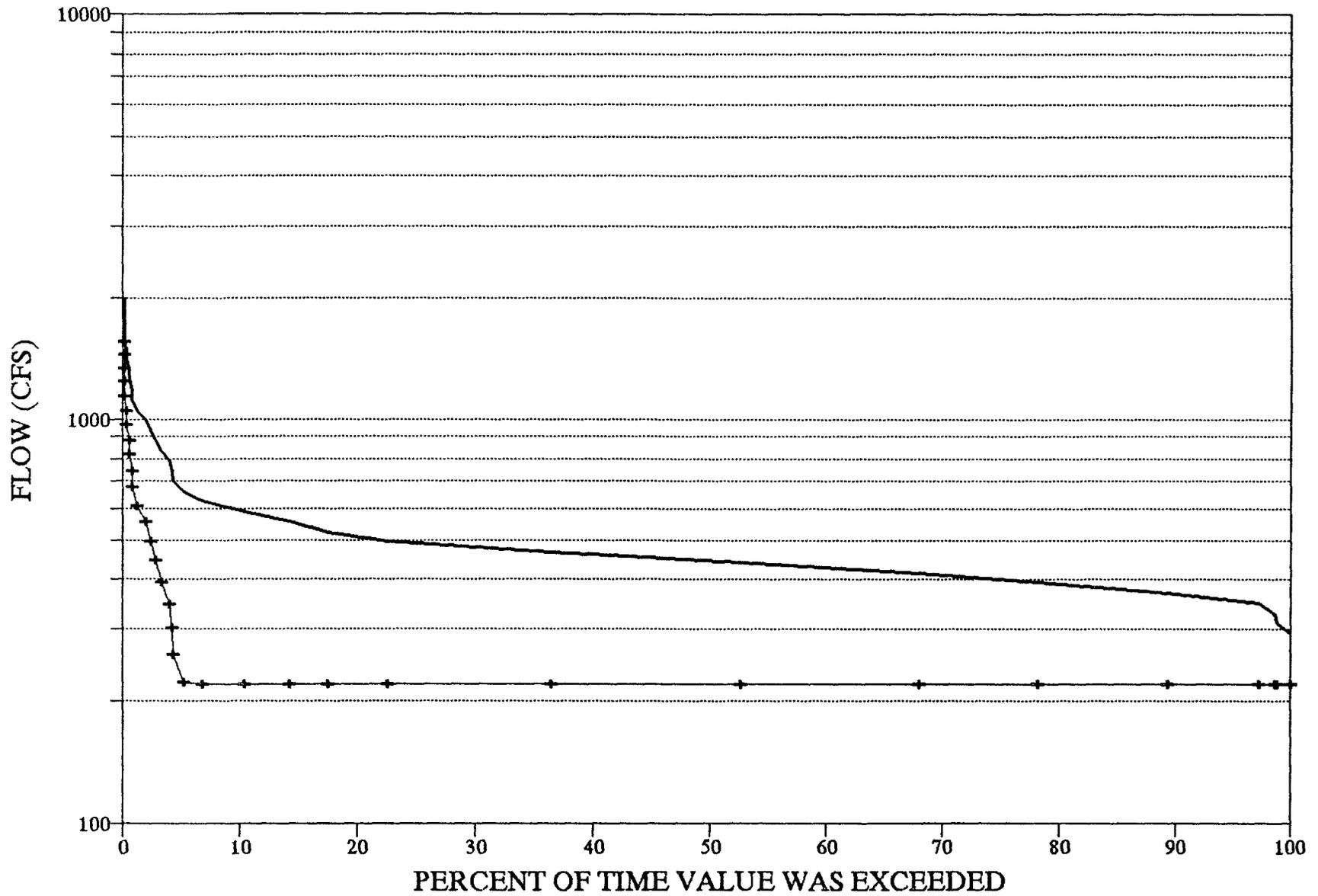
## FEBRUARY DURATION PLOT 1954-1994



— Salt River Gaged    + Salt River Modified

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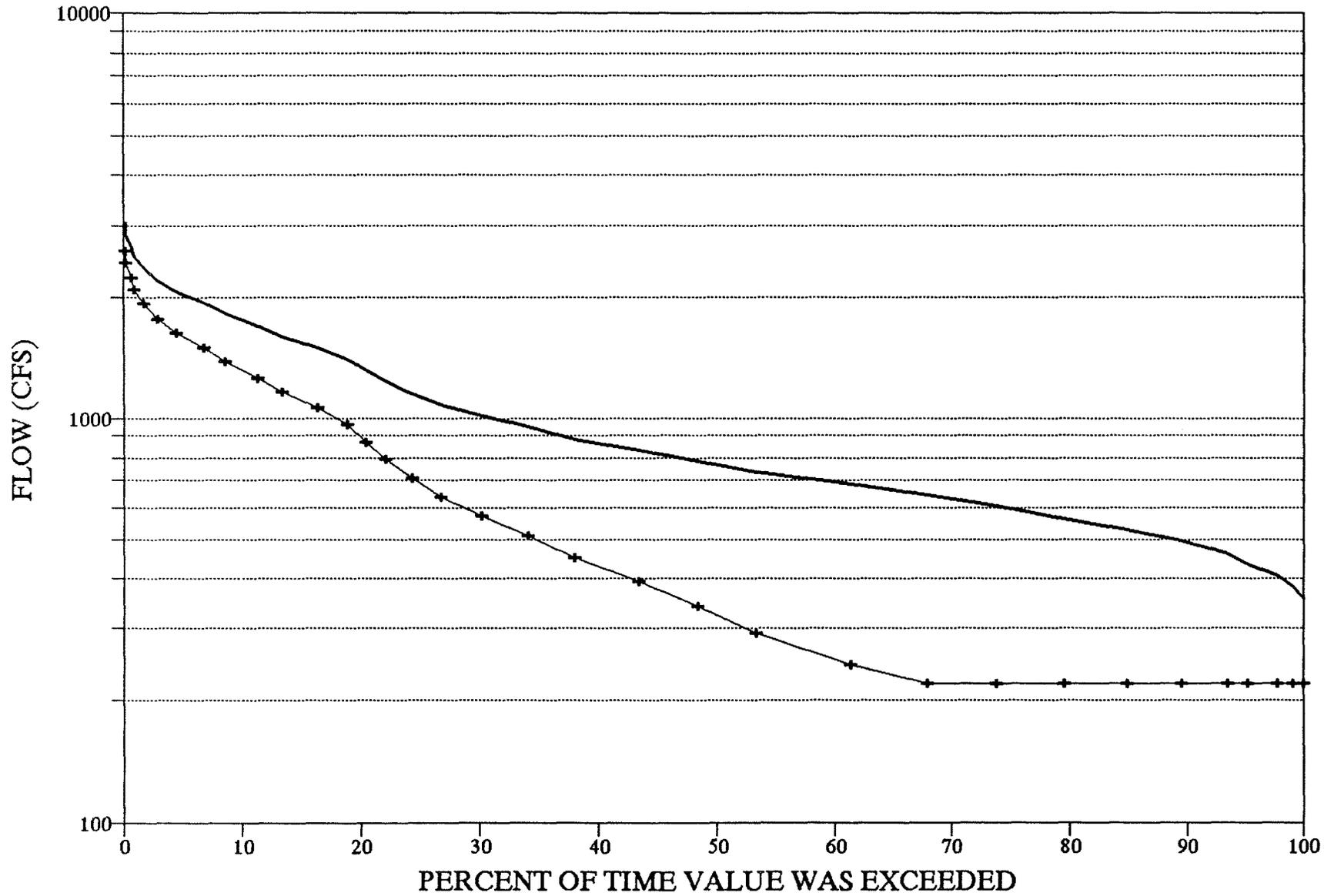
## MARCH DURATION PLOT 1954-1994



— Salt River Gaged    + Salt River Modified

# SALT RIVER AB RESERVOIR NR ETNA WY

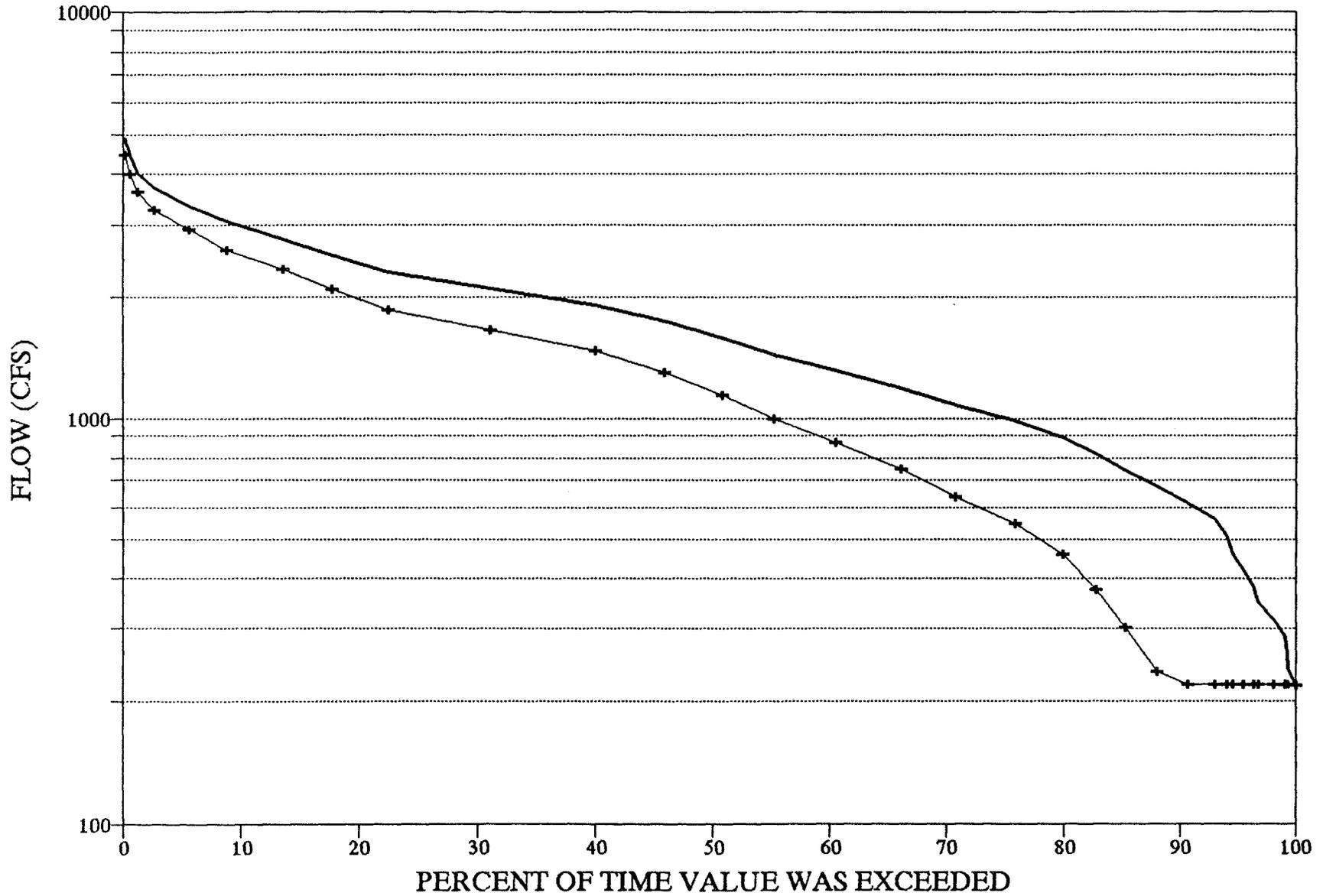
## APRIL DURATION PLOT 1954-1994



— Salt River Gaged    + Salt River Modified

# SALT RIVER AB RESERVOIR NR ETNA WY

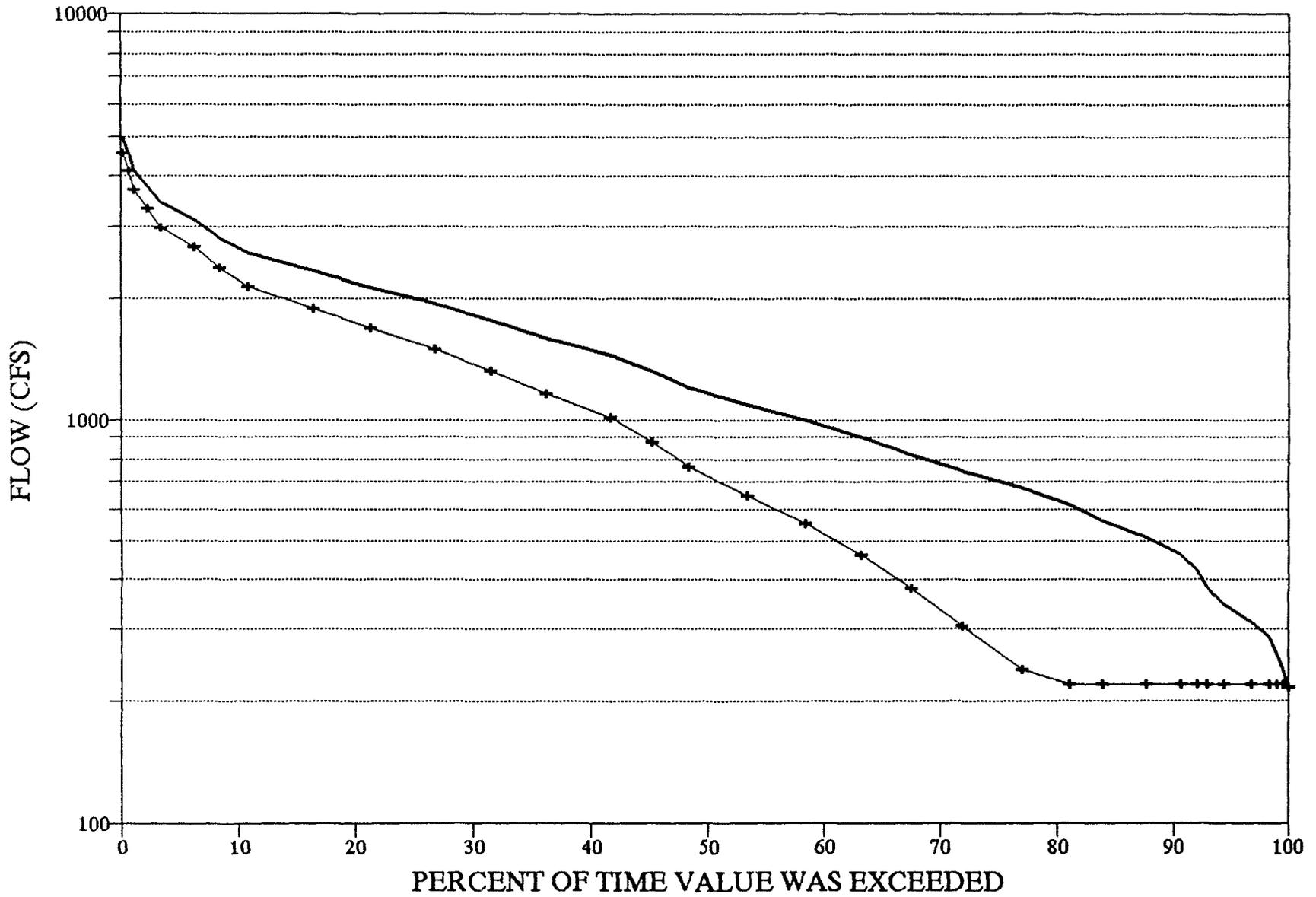
## MAY DURATION PLOT 1954-1994



— Salt River Gaged    + Salt River Modified

# SALT RIVER AB RESERVOIR NR ETNA WY

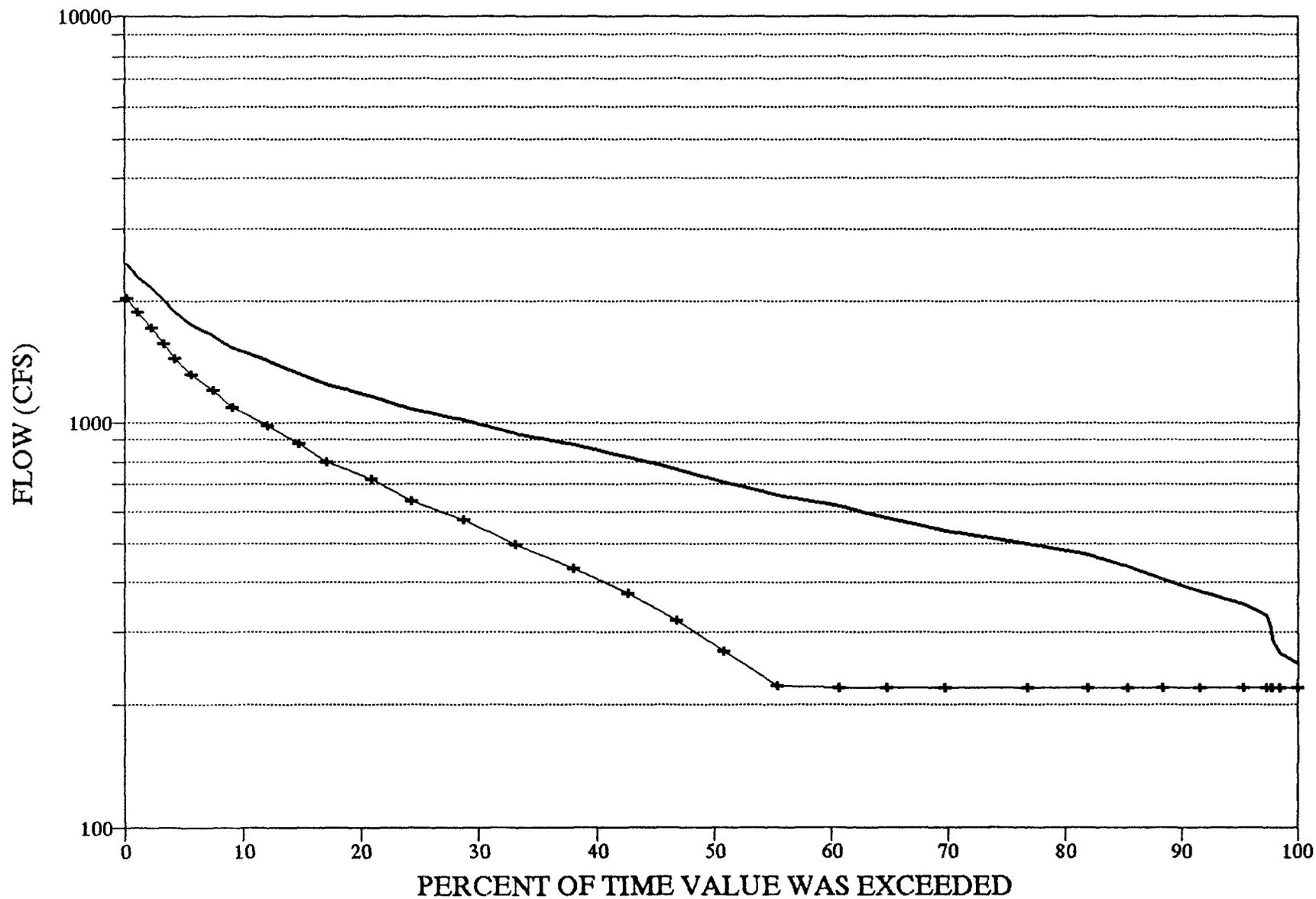
## JUNE DURATION PLOT 1954-1993



— Salt River Gaged    + Salt River Modified

# SALT RIVER AB RESERVOIR NR ETNA WY

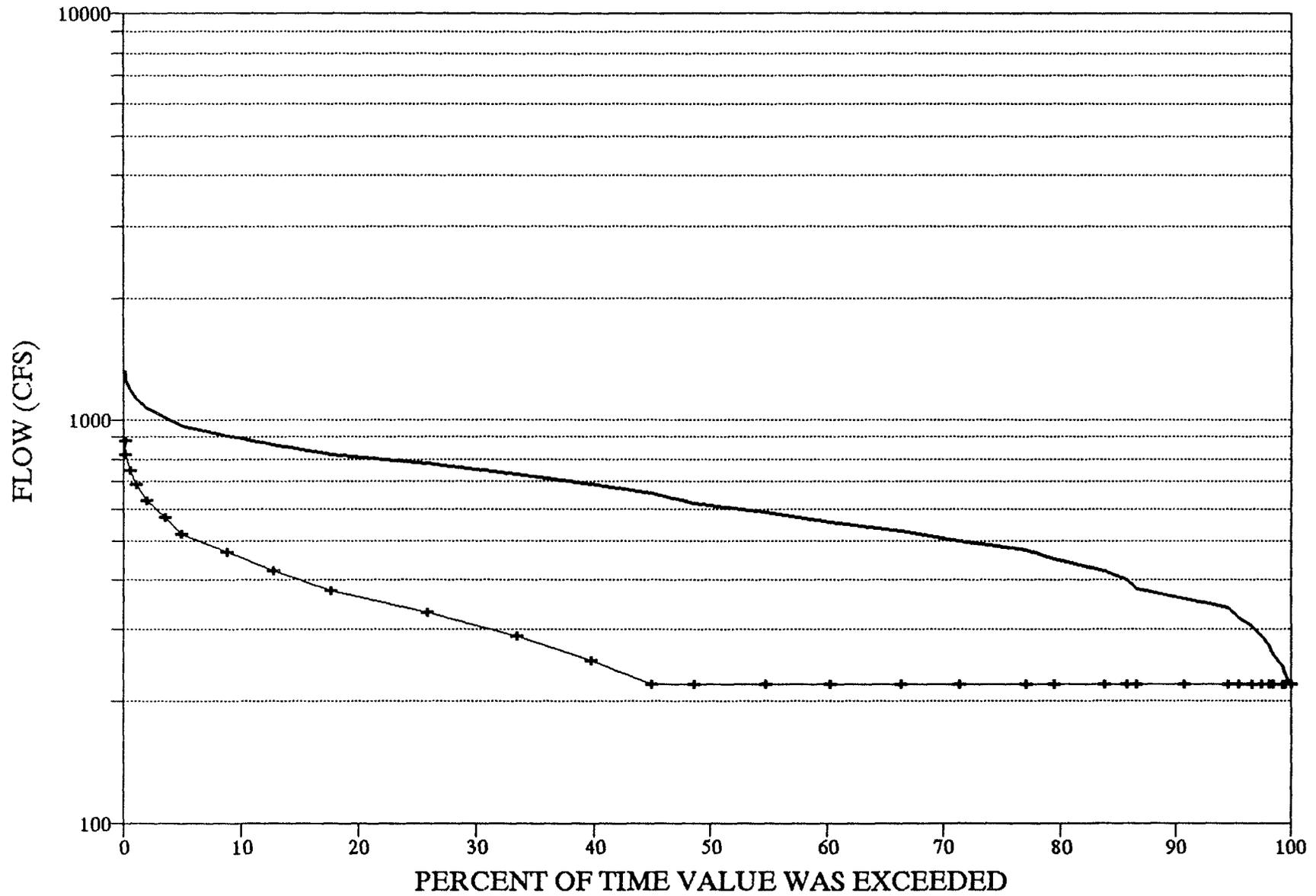
## JULY DURATION PLOT 1954-1993



— Salt River Gaged    + Salt River Modified

# SALT RIVER AB RESERVOIR NR ETNA WY

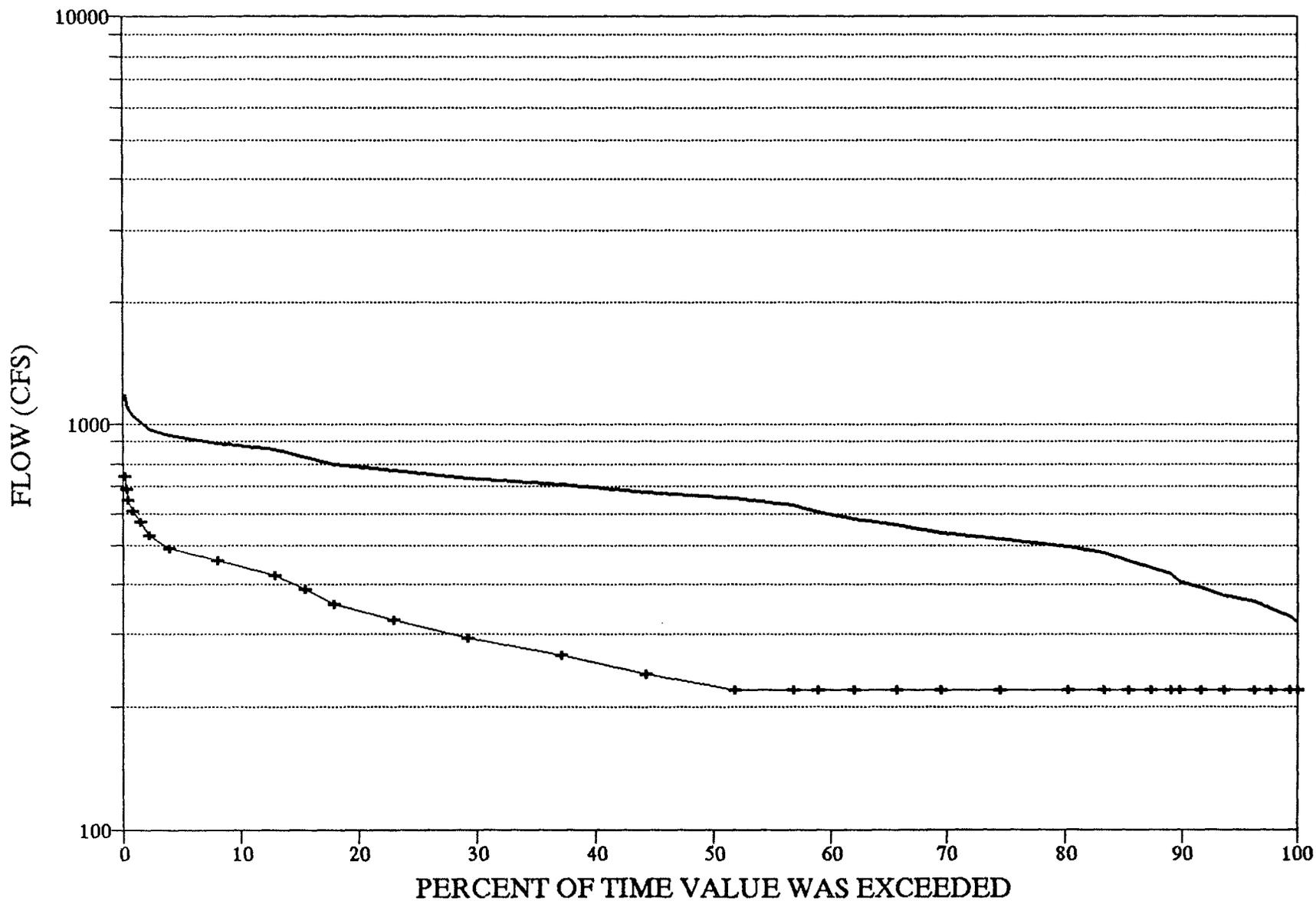
## AUGUST DURATION PLOT 1954-1993



— Salt River Gaged    + Salt River Modified

# SALT RIVER AB RESERVOIR NR ETNA WY

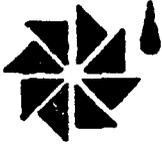
## SEPTEMBER DURATION PLOT 1954-1993



— Salt River Gaged    + Salt River Modified

**APPENDIX E**

**FERC LICENSE DOCUMENTATION  
FOR PROPOSED HYDROELECTRIC FACILITY**



# SALT RIVER POWER

612 Beech Avenue, Kemmerer, Wyoming 83101

April 24, 1992

Instream Flow Water Right

Mr. Thomas C. Annear - Instream Flow Supervisor  
Wyoming Game and Fish Department  
5400 Bishop Boulevard  
Cheyenne, WY 82006-0001

Dear Mr. Annear:

Thank you for advising us that the Wyoming Game and Fish Department (WGFD) is initiating the process of filing an application for an instream flow water right on the Salt River adjacent to the Salt River Hydroelectric Powerplant project area. Our license, issued by the U.S. Federal Energy Regulatory Commission, requires that a year around minimum stream flow of 221 c.f.s. be maintained in the 2.7 mile by-passed region of the Salt River to protect fishery and wildlife habitat.

We have recently filed an application with the Wyoming State Engineer for an enlargement of the power canal and additional water rights in excess of the minimum 221 c.f.s. flow that is to be left in the river. We recognize the 221 c.f.s. that will be bypassed around Salt River Power's diversion works can be used to fulfill the instream flow requirements currently sought by WGFD, and do not object to issuance of that permit.

Sincerely,

Scott D. Heiner  
President, Salt River Power

Post-it <sup>®</sup> Fax Note	7671	Date	10/25/94	# of pages	1
To	Tom Annear	From	SCOTT HEINER		
Co./Dept.	WG & FD	Co.			
Phone #	777-4559	Phone #			
Fax #	777-4610	Fax #			

**BEFORE THE FEDERAL ENERGY REGULATORY COMMISSION;  
APPLICATION FOR LICENSE FOR AN EXISTING MINOR WATER  
POWER PROJECT, LESS THAN 5 MEGAWATTS.**

Scott D. Heiner applies to the Federal Energy Regulatory Commission for a new license for the existing Salt River water power project, as described hereinafter.

The location of the project is:

State: Wyoming  
County: Lincoln  
Nearby Town: Etna, Wyoming  
Stream: Salt River

The exact name, address, and telephone number of the applicant are:

Scott D. Heiner  
612 Beech Avenue  
Kemmerer, Wyoming 83101  
Telephone: 307/276-6248  
307/877-3322

The exact name, address, and telephone number of each person authorized to act as agent for the applicant in this application are:

Scott D. Heiner  
612 Beech Avenue  
Kemmerer, Wyoming 83101  
(307) 276-6248 or 877-3322

Paula I. Heiner  
612 Beech Avenue  
Kemmerer, Wyoming 83101  
(307) 877-3322

The applicant is a citizen of the United States.

The statutory or regulatory requirements of the state in which the project is located that affect the project as proposed with respect to bed and banks and the appropriation, diversion, and use of water for power generating purposes; and with respect to the right to engage in the business of developing, transmitting, and distributing power and in any other business necessary to accomplish the purposes of the license under the Federal Power Act; along with the steps taken or which the applicant plans to take to comply with such laws are:

- a. Wyoming state water quality standards require that the turbidity immediately downstream of the construction not be more than 10 NTU's higher than the upstream value.

All construction activities on the project will be conducted with the canal dry to ensure that no additional erosion will be carried to the Salt River.

- b. All water uses must be appropriated through the State of Wyoming for the specific uses intended.

The existing project includes a Certificate of Appropriation of Water from the State of Wyoming Board of Control dated August 27, 1937, for 240 cubic feet per second to be used for hydroelectric power development (certificate no. 57, page 368). The applicant plans to apply for an additional 200 cfs of water prior to installing the third hydraulic turbine.

- c. The State of Wyoming Public Service Commission has indicated that the initial authority to function under the Public Utilities Regulatory Policy Act must be obtained from the Federal Energy Regulatory Commission. Once the authority for operation has been obtained, the applicant may then apply to the Public Service Commission for authority to sell the generated power.

Brief project description:

- a. Proposed installed generating capacity is 1.1 MW.
- b. Existing side-channel intake to canal with no diversion structure.
- c. Existing run-of-the-river project.

Lands of the United States affected: None

Affected lands consist of surveyed lands owned by private individuals and the State of Wyoming.

Rehabilitation and construction activities of the project are planned to start within 6 months, and are planned to be completed within 12 months, from the date of issuance of license. The third turbine will be installed within 18 months from the date of issuance of license due to long lead-time equipment items.

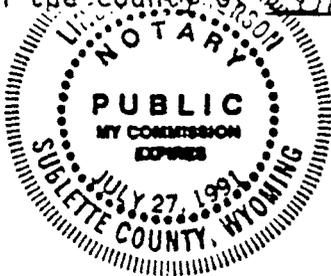
This application is executed in the State of Wyoming, County of Lincoln, by

Scott D. Heiner  
612 Beech Avenue  
Kemmerer, Wyoming 83101

being duly sworn, depose and say that the contents of this application are true to the best of his knowledge or belief. The undersigned applicant has signed this application this 6<sup>th</sup> day of April, 1990.

By: Scott D. Heiner  
Scott D. Heiner

Subscribed and sworn to before me, a Notary Public of the State of Wyoming in the county of Sublette, this 6<sup>th</sup> day of April, 1990.



Gerald H. Dickerson  
Signature

My commission expires July 27, 1991

# EXHIBIT A -- PROJECT DESCRIPTION

## HISTORY

The Salt River Hydroelectric Power Plant was constructed and began operation in 1938 with funding from Rural Electric Association (R.E.A.) loans. This run-of-the-river hydroelectric facility was seen as a means of providing power to the entire Star Valley area. An existing irrigation canal was purchased by the newly formed utility company and expanded to carry the increased flowrates needed to generate enough electricity for the local economy. Two 300 KW turbine generators were installed with provisions for a third unit which was never installed due to slower than expected demand growth. The plant operated until 1967 when it was put on standby. In 1973 the local utility company retired the facility and sold it to a private individual. The canal has not been used since the powerplant was abandoned and is presently dry.

## PROPOSED MODE OF OPERATION

This run-of-the-river power plant, recently nominated for the National Register of Historic Places, will be restored to its original mode of operation. A third turbine will be added to the powerhouse in an existing spare bay to maximize the capacity of the existing facilities. The two existing turbine generators will be restored to operation.

The plant will be operated automatically on a continuous basis tied to the local utility.

## DESCRIPTION

Facilities for the Salt River Power Plant include:

- Turbines** Two existing 30" diameter vertical Francis units located in the powerhouse. Each unit is rated at 300 KW with a flow of 120 c.f.s. at 40 feet of head. Each turbine includes a 300 KVA synchronous generator made by Westinghouse. Operating voltage is 2500 volts.
- An additional vertical Francis turbine will be added to the third bay in the powerhouse. It will be a 40" diameter unit rated at 500 KVA with 200 c.f.s. of flow at 40 feet of head.
- Powerhouse** The existing masonry and reinforced concrete structure is 49'0" long by 25'0" wide and 45'6" high. The building includes three bays, 14'6" wide by 25'0" long.
- Penstocks** The two existing penstocks are 60" in diameter by 44' long. Design capacity is 120 c.f.s. with a maximum flowrate of 200 c.f.s. Construction material is arc-welded 1/4" structural plate steel. The penstock is buried with 2' of cover. Provisions exist for a third 60" diameter penstock for a future turbine which will be added at this time.

Inlet to the penstocks consist of an existing reinforced concrete structure 30'6" wide by 28'0" long with a 12'0" depth. Each penstock has a 6'6" by 6'6" bar trashrack with 2.75" openings and an isolation slide gate.

**Tailrace** Existing earth-lined canal approximately 30' wide by 12' deep that extends 50' from the powerhouse to the Salt River.

**Spillway** The existing spillway is in poor condition and will be replaced. The proposed spillway will be a rectangular chute with stilling pool made of reinforced concrete. The stilling pool will include two rows of pool blocks to ensure adequate energy dissipation. The chute will be 10'0" wide by 104' long and 12'0" deep. Design capacity is 500 c.f.s. A 10'0" wide by 10'0" high adjustable crest gate will be used to regulate flow to the spillway.

**Canal** The existing canal is earth-lined with a 12' bottom width, 1:1 side slopes and a total depth of 15 feet. Its total length is approximately 13,800 feet. Design capacity is 500 c.f.s. with 3' freeboard.

The canal will be cleaned of old silt deposits and vegetation, and a geotextile erosion control fabric will be installed as a canal lining to reduce problems with vegetation growth in the slow moving canal. In the past, the power plant had to be shut down every 2 to 3 years to clean the canal. Slope of the canal is approximately 0.0003 ft/ft.

**Diversion** None needed for side-channel inlet canal.

The original installation included a log diversion structure in the Salt River to raise the water level by 2' and direct flow to the canal. Past operators of the plant indicated that it was not needed due to the natural elevation drop in the side-channel inlet canal. The diversion structure was removed when the power plant was retired.

**Impoundment** None. Run-of-the-river type operation with no impoundment or storage of water.

**Trashrack** Proposed installation at canal inlet would be 20'0" high by 30'0" long trashrack placed at 20 degrees from vertical. Construction materials would be of welded bar grating with 1" bar depth and 1" clear openings between bars. The trashrack will be oriented perpendicular to canal flow and operated on a continuous year-round basis.

**Fish Screens** Proposed installation immediately downstream of trashracks would consist of an angled rotary drum screen 60'0" long by 10'0" diameter with woven wire mesh screen openings of 0.125 inches. The horizontal drum screen will be angled to the canal flow at 26.5 degrees and rotated by means of a small gear motor at 2 to 5 ft/min. Design capacity is 440 cfs with an approach velocity (perpendicular to the screen face) of 0.5 fps and a sweep velocity (parallel to the screen face) of 1 fps. A fish bypass at the downstream end of the screen will divert the fish back to the Salt River. The drum screen will be used from May 1 to November 1 and will be removed during the winter months due to ice clogging.

**Headgate** The existing control headgate is a reinforced concrete structure 36'3" wide by 50'0" long and 10' deep and will be modified to accommodate the installation of the trashrack and fish screens. The completed structure will be 55' wide by 100' long and 10'0" deep. Water flow regulation in the canal is by an existing radial gate 10'0" high by 12'0" wide.

### General Information

The estimated average head on the power plant is 40 feet.

The estimated average annual generation of the power plant is 7,350,000 kilowatt-hours with three turbines installed.

The estimated hydraulic capacity of the plant is 240 cubic feet per second with the two existing turbines and will be expanded to 440 cubic feet per second with the addition of a third turbine.

The estimated average flow for the Salt River is 805 cubic feet per second. A flow duration curve is included in this exhibit. A minimum flow of 221 c.f.s. will be maintained in the river at all times as recommended by the Wyoming Game and Fish Department. Flow information from USGS gage station #13027500, located 1 mile upstream of the existing side-channel intake will be used for stream flow monitoring.

The estimated cost of rehabilitation for this project is \$420,000

Purpose of the project is to sell power output to the utility.

Amounts of Instream Flow requested at the downstream end of stream segment No. 1

MONTH	FLOW (cfs)
October	221
November	221
December	221
January	221
February	221
March	221
April	221
May	221
June	221
July	221
August	221
September	221

Based on the results of a study conducted in 1989 by the Wyoming Game and Fish Department.

The existing USGS gage in the NE 1/4, Section 28, T.36 N., R.119 W., is an appropriate instream flow control gage.

NOTE: PALISADES RESERVOIR  
Normal Pool Elevation 5620  
Approx. 1 Mile Downstream of  
Point Of Ending.

OWNERSHIP LEGEND

S - State Govt. / State School Section  
P - Private Land / Various Owners with Public Fishing Easement

Ownership from Bureau of Land Management Master Title Plats and from records of the Lincoln County Assessor.

TABLE OF INTERVENING PERMITS

Unadjudicated

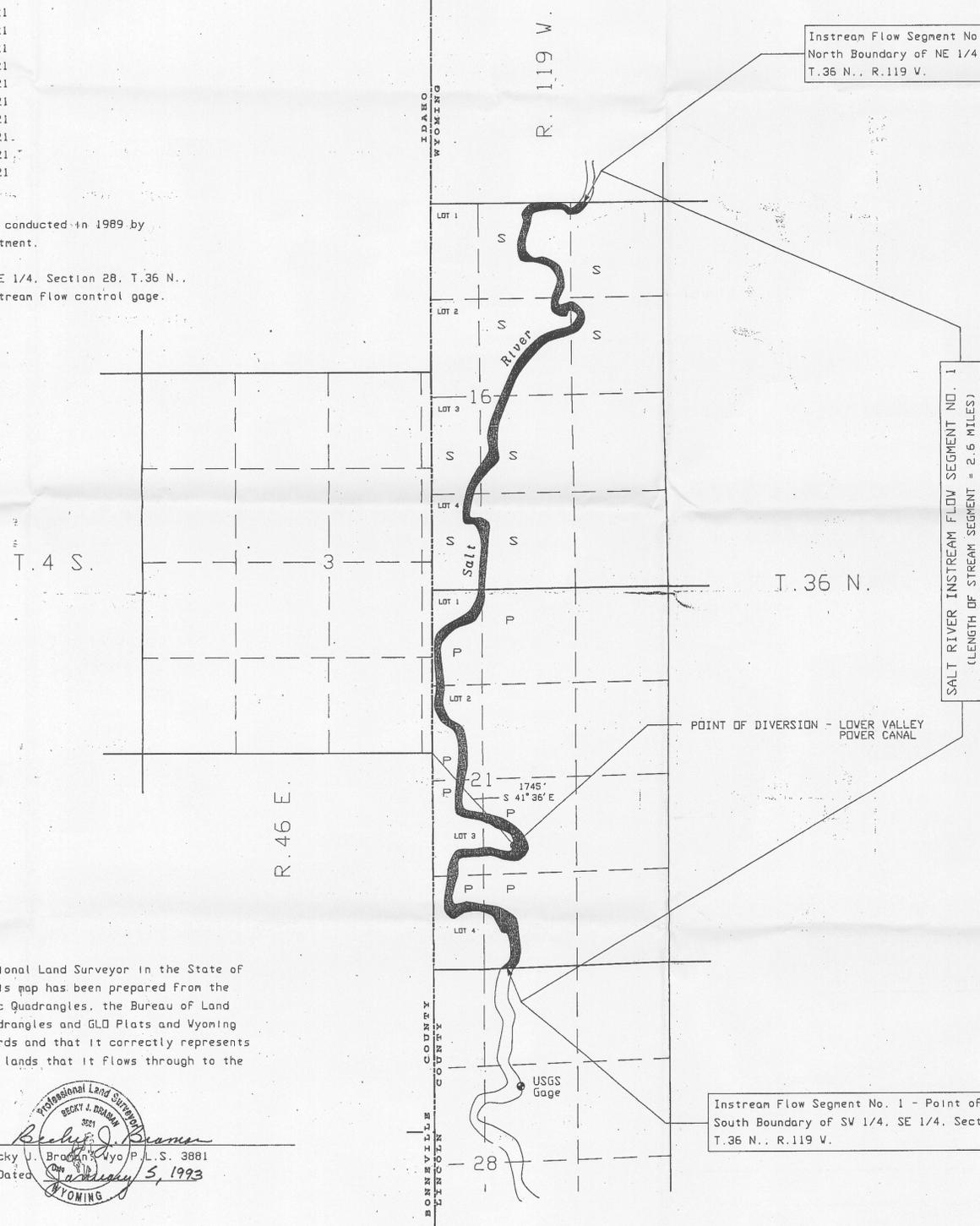
1ST ENLARGED LOWER VALLEY POWER CANAL

Permit No.	Priority	Acres	CFS
7034E	05/21/1992	(Hydro power)	200

Adjudicated

LOWER VALLEY POWER CANAL

Permit No.	Proof No.	Priority	Acres	CFS	Cert. No.
18817	22608	08/27/1937	(Hydro power)	240	Bk 57.Pg 358



Instream Flow Segment No. 1 - Point of Ending  
North Boundary of NE 1/4, NE 1/4, Section 16,  
T.36 N., R.119 W.

POINT OF DIVERSION - LOWER VALLEY POWER CANAL

Instream Flow Segment No. 1 - Point of Beginning  
South Boundary of SW 1/4, SE 1/4, Section 21,  
T.36 N., R.119 W.



CERTIFICATE OF SURVEYOR

STATE OF WYOMING )  
COUNTY OF LARAMIE ) ss

I, Becky J. Braman, a Professional Land Surveyor in the State of Wyoming do hereby certify that this map has been prepared from the U.S. Geological Survey Topographic Quadrangles, the Bureau of Land Management Surface Management Quadrangles and GLO Plats and Wyoming State Engineer's water right records and that it correctly represents the location of the creek and the lands that it flows through to the best of my belief and knowledge.

*Becky J. Braman*  
Becky J. Braman, P.L.S. 3881  
Dated May 5, 1993  
WYOMING

APPROVED \_\_\_\_\_  
STATE ENGINEER

MAP  
TO ACCOMPANY  
APPLICATION FOR  
SALT RIVER  
INSTREAM FLOW SEGMENT NO. 1

APPLICANT:

WYOMING WATER DEVELOPMENT COMMISSION  
HERSCHLER BUILDING  
CHEYENNE, WYOMING 82002