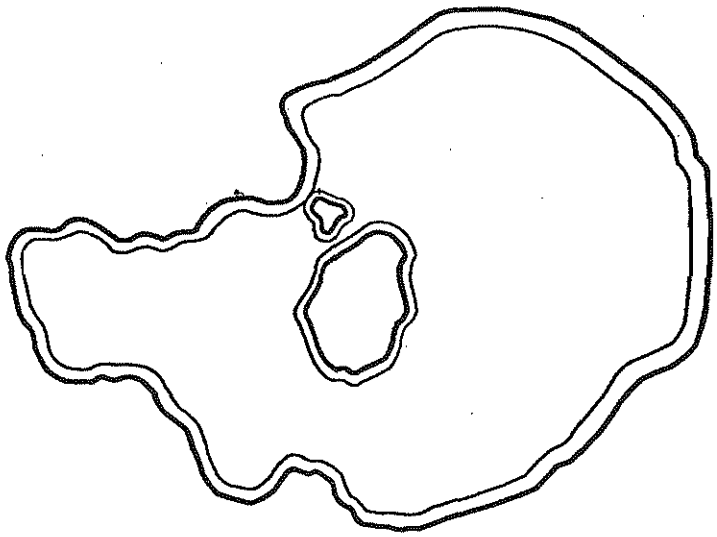
An Auxiliary Report
Prepared for the

MONO BASIN WATER RIGHTS EIR

Summary of Hydrologic Simulations of Mono Basin EIR
Alternatives with the LAAMP Aqueduct Operations Model



Prepared under the Direction of:

California State Water
Resources Control Board
Division of Water Rights
P.O. Box 2000
Sacramento, CA 95810

Prepared With Funding from:

Los Angeles Department of
Water and Power
Aqueduct Division
P.O. Box 111
Los Angeles, CA 90051

Mono Basin EIR Auxiliary Report No. 18

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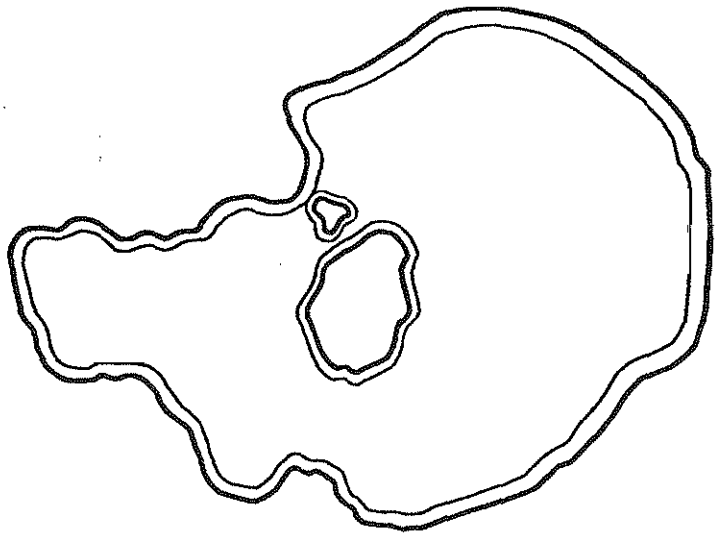

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Mono Basin EIR Auxiliary Report No. 18

An Auxiliary Report
Prepared for the
Mono Basin Water Rights EIR Project

This auxiliary report was prepared to support the environmental impact report (EIR) on the amendment of appropriative water rights for water diversions by the City of Los Angeles Department of Water and Power (LADWP) in the Mono Lake Basin. Jones & Stokes Associates is preparing the EIR under the technical direction of the California State Water Resources Control Board (SWRCB). EIR preparation is funded by LADWP.

SWRCB is considering revisions to LADWP's appropriative water rights on four streams tributary to Mono Lake, Lee Vining Creek, Rush Creek, Parker Creek, and Walker Creek. LADWP has diverted water from these creeks since 1941 for power generation and municipal water supply. Since the diversions began, the water level in Mono Lake has fallen by 40 feet.

The Mono Basin water rights EIR examines the environmental effects of maintaining Mono Lake at various elevations and the effects of possible reduced diversions of water from Mono Basin to Owens Valley and the City of Los Angeles. Flows in the four tributary creeks to Mono Lake and water levels in Mono Lake are interrelated. SWRCB's decision on amendments to LADWP's water rights will consider both minimum streamflows to maintain fish populations in good condition and minimum lake levels to protect public trust values.

This report is one of a series of auxiliary reports for the EIR prepared by subcontractors to Jones & Stokes Associates, the EIR consultant, and contractors to LADWP. Information and data presented in these auxiliary reports are used by Jones & Stokes Associates and SWRCB, the EIR lead agency, in describing environmental conditions and conducting the impact analyses for the EIR. Information from these reports used in the EIR is subject to interpretation and integration with other information by Jones & Stokes Associates and SWRCB in preparing the EIR.

The information and conclusions presented in this auxiliary report are solely the responsibility of the author.

Copies of this auxiliary report may be obtained at the cost of reproduction by writing to Jim Canaday, Environmental Specialist, State Water Resources Control Board, Division of Water Rights, P.O. Box 2000, Sacramento, CA 95810.

Summary of Hydrologic Simulations of Mono Basin EIR Alternatives with the LAAMP Aqueduct Operations Model

Prepared for:

California State Water Resources Control Board
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INTRODUCTION

The Los Angeles Aqueduct Monthly Program (LAAMP) simulation model has been used to estimate hydrologic conditions in Mono Basin and the Owens River basin that would occur under each of the Mono Basin environmental impact report (EIR) alternatives and point-of-reference conditions. This auxiliary report provides a short description of the LAAMP model and summarizes the inputs, assumptions, and LAAMP model results for each alternative and point-of-reference condition. These simulation results have been used by SWRCB staff and consultants to prepare the draft EIR.

Additional discussions of the model, hydrologic inputs, and modeling assumptions are provided in Chapter 2, "Alternative Descriptions"; Chapter 3A, "Hydrology"; Appendix A, "Mono Lake Monthly Water Balance"; and Auxiliary Report 5, "LAAMP Documentation".

Copies of the executable LAAMP model (or the FORTRAN source code), the Lotus 1-2-3 spreadsheet files used to create model input sequences and analyze model outputs, and model output files for each alternative and reference case can be obtained from SWRCB staff, if necessary. The Lotus 1-2-3 files that are used to analyze these output files include statistical summaries and graphs of the results. Some of these results for each alternative or point-of-reference condition are provided in the tables and figures in this auxiliary report.

A detailed summary of the EIR alternatives and necessary information to use the LAAMP model for additional studies is also included in this report. Following are a short review of the LAAMP model development, a description of the most important model assumptions, a summary of Owens Valley groundwater pumping estimates, a comparison of LAAMP results for each alternative and point-of-reference condition, selected hydrologic sequences for socioeconomic assessments, and instructions for changing model inputs and obtaining results for different conditions than those simulated for the Mono Basin EIR alternatives.

REVIEW OF LAAMP MODEL DEVELOPMENT

The LAAMP model was developed specifically for the Mono Basin EIR as an assessment model that could accurately simulate the relationships between tributary inflows, Mono Lake surface elevation, and downstream aqueduct system operations. During the EIR scoping phase, SWRCB staff determined that the entire LA Aqueduct system must be considered to properly evaluate indirect effects of Mono Basin exports on possible downstream water supply, power generation, fisheries, and water quality.

A Technical Advisory Group (TAG) was organized by SWRCB staff to provide guidance and review of model development. LADWP offered to formulate and program the model and provide necessary basic hydrologic data, LA Aqueduct capacities and operating constraints, and other information needed to produce a successful simulation model.

LADWP formulated a conceptual plan and schedule in August 1989 (LADWP 1989) and provided the initial version of the model in April 1991.

Because the initial version of the aqueduct model was not considered by SWRCB to be flexible enough to simulate the various Mono Basin EIR alternatives, SWRCB directed its consultant to modify the initial aqueduct model to include more input variables that could be changed by the model user and to develop output summary statistics and graphics for comparing and analyzing results from the model (Rich pers. comm.). These tasks were accomplished, and an initial version of LAAMP was released for TAG review in July 1991.

A series of TAG meetings and additional discussions with SWRCB and its consultant, which would actually be using the simulations for impact assessment, resulted in several significant changes, and the second version of LAAMP (to be used in the Mono Basin EIR) was released for TAG review in January 1992.

The simulations of EIR alternatives and point-of-reference conditions using the second version of LAAMP were prepared and released for SWRCB review in January 1992. Several modifications of the assumptions used to characterize the alternatives were made following SWRCB suggestions, and the final set of results, presented in this auxiliary report, were released for SWRCB and consultant use in April 1992.

GENERAL LAAMP MODEL ASSUMPTIONS

A detailed description of the LAAMP model is provide in Auxiliary Report No. 5 "LAAMP (Los Angeles Aqueduct Monthly Program) Documentation, Version 2". A general summary of the model approach and general assumptions is given in Chapter 2 of the EIR. The specific assumptions that were used to simulate the Mono Basin EIR alternatives and point-of-reference conditions are described in the following sections. A general description of the LAAMP model is included at the end of this report as Appendix 1.

Some LAAMP model assumptions are built into the FORTRAN code and cannot be easily changed by the model user. However, most assumptions are specified in the two input spreadsheets, INPUT.WK1 and USES.WK1, and can be changed for comparative purposes by the model user. The INPHYD.WK1 spreadsheet can be used to change the historical 1940-1989 sequence of hydrologic inputs. The first section of attached tables and graphs contains printouts of input files.

Period of Simulation

The period of simulation generally used 50-year sequences of monthly hydrology for runoff years 1940-1989. Monthly rainfall, runoff, and spring flows from April 1940 through March 1990 obtained from LADWP records are used as hydrologic inputs. For alternative

lake levels that require more than 50 years for dynamic equilibrium of the fluctuating lake levels to be achieved, the 1940-1989 hydrologic sequence is repeated.

INPHYD.WK1 is an input spreadsheet that may be used to prepare a nonhistorical hydrologic sequence for LAAMP simulation. INPHYD.WK1 allows the runoff years to be shuffled and reordered in any sequence desired, including in an order that repeats specific years. This technique was used to prepare 20-year sequences for socioeconomic topic areas (water supply, recreation, power generation).

Initial Mono Lake Surface Elevation

The initial Mono Lake surface elevation for all simulations is 6,376.3 feet (U.S. Geologic Survey datum), the elevation at the end of August 1989, the point-of-reference elevation for the Mono Basin EIR assessments.

Hydrologic Runoff Year-Type Classification

A runoff year beginning on April 1 and extending to March 31 of the following calendar year has been used by LADWP for predicting runoff and planning aqueduct operations because most of the seasonal snowpack has accumulated by April 1 and peak runoff occurs during May-July.

"Dry" and "wet" hydrologic runoff years are defined as years with the lowest 20% and highest 20% of runoff, respectively. For the Mono Lake tributary streams, these correspond to less than 70% and greater than 135% of the average runoff of 123.5 thousand acre-feet per year (TAF/yr). For Owens River basin and Mono Basin combined runoff, these correspond to less than 65% and greater than 125% of the average runoff of 593 TAF/yr. Normal runoff years are the remaining 60% of the years.

Los Angeles Export Targets

The Los Angeles export targets from Haiwee Reservoir are set to match average export during years with the lowest 20%, the middle 60%, and the highest 20% of runoff over the 1971-1989 period when both aqueduct barrels were operating. The monthly targets are specified to provide a constant daily flow of water to Los Angeles through the LA Aqueduct. The dry year target is 400 TAF/yr, the normal year target is 480 TAF/yr, and the wet year target is 540 TAF/yr, which would provide a long-term average target of 475 TAF/yr for water exported to Los Angeles. The historical 1971-1989 export averaged 470 TAF/yr.

The export targets for monthly Los Angeles water supply reflect the seasonal pricing of Metropolitan Water District of Southern California (MWD) water. Exports of water are

highest in April-September and reduced in October-March. Targets are set at aqueduct capacity (1,600 acre-feet per day [af/day]) during April-September and reduced during September-March to provide the annual target. These winter targets are 1,350 af/day for wet years, 1,080 af/day for normal years, and 590 af/day for dry years, which corresponds to the pattern of forecasts used by LADWP water supply planning.

Mono Tributary Irrigation Diversions

Irrigation diversions are input to the model as constant monthly values estimated from the historical 1970-1989 period. The Mono Basin irrigation diversions are simulated for the No-Restriction Alternative and the point-of-reference scenario. Historical Mono Basin irrigation diversions of approximately 8 TAF/yr have been eliminated for the other Mono Basin EIR alternatives. A small non-LADWP diversion on Lee Vining Creek (O-Ditch) was simulated for all EIR alternatives.

Mono Lake Evaporation

Evaporation from Mono Lake is assumed to be 48 inches per year, with a constant monthly pattern identified in Appendix A, "Monthly Water Balance". This rate corresponds to the value determined by heat budget modeling of Mono Lake by University of California Santa Barbara (UC Santa Barbara) staff. Rainfall at Mono Lake is assumed to equal rainfall at Cain Ranch (annual average of 11 inches).

Specified Minimum Monthly Tributary Streamflows

Minimum monthly streamflows are estimated for each Mono Lake tributary based on the lowest 10% frequency flows during the 1940-1989 runoff years. Because most years have well-sustained baseflow throughout summer and fall, these monthly minimum flows are relatively constant. For most EIR alternatives, the 50% (median) June flows were used as a required level for flushing and riparian seeding establishment.

The annual total volume of these monthly minimum streamflows is approximately 70 TAF/yr, about 55% of the average runoff volume of 123.5 TAF/yr. Additional water required to achieve or maintain a target Mono Lake level is released as soon as available during the runoff season of May-August.

Lake Level Control Triggers

The LAAMP model allows many different combinations of lake release triggers to be specified. (A trigger is a rule specifying lake releases.) Relatively simple triggers were selected for the Mono Basin EIR alternatives.

Mono Lake level triggers are specified at elevations 1, 2, and 3 feet above the target protected level. For each runoff year type, some fraction of runoff is required if a trigger is activated during that year. The simulated lake level at the beginning of a runoff year (April 1) is used to determine if a trigger will be activated. The minimum monthly streamflows are assumed to reduce the required supplemental releases of water to the lake. All available runoff is used for lake releases until the estimated lake release required, in addition to the releases provided by minimum specified streamflows, has been met. This modeled release pattern maintains the natural pattern of highest tributary streamflows during the peak snowmelt period.

For example, under the 6,372-Ft Alternative, the target protected lake level is controlled with triggers at 1, 2, and 3 feet above the target "protected" lake level. If the lake is below the first (lowest) trigger level (6,373 feet), 100% of runoff must be released to the lake regardless of year type. If the lake is below the second trigger (6,374 feet), 50% of runoff must be released to the lake regardless of year type. If the lake is below the third trigger (6,375 feet), 25% of runoff must be released to the lake regardless of year type. These triggers were modified for higher lake level targets to allow some export of water during the transition period when the lake was being raised to the target elevation.

Reservoir Storage Operations

The LAAMP model allows monthly minimum and maximum storage targets for Lake Crowley reservoir and Grant Lake reservoir, for each water year type. However, for the Mono Basin EIR alternatives, Grant Lake reservoir and Lake Crowley reservoir minimum and maximum end-of-month storage targets are constants for all runoff year types and all months. The minimum and maximum storage targets in Grant Lake reservoir are 20 TAF and 30 TAF, and the capacity of the reservoir is almost 50 TAF. The minimum and maximum Lake Crowley reservoir storage targets are 120 TAF and 150 TAF, and the capacity of the reservoir is 180 TAF.

The LAAMP model attempts to keep the reservoir storage at the maximum target value. However, the LAAMP model will fill the reservoirs to capacity during periods of excess runoff and will empty the reservoirs to the minimum target storage during periods of water shortage. These relatively high target storage values were specified to provide a reasonable level for recreation use.

Upper Owens River Flow Targets

Reduction of the lake level fluctuations for the EIR alternatives has been accomplished by specifying a minimum flow for the Owens River below East Portal of 300 cubic feet per second (cfs), which is equal to the maximum specified flow at the Inaja Ranch to prevent channel erosion. This minimum flow target forces the export of all available excess water from the Mono Lake tributary streams. Minimum flows and lake releases were not affected, but spilling of excess water to Mono Lake was greatly diminished.

Monthly LAAMP Input Values

Many additional monthly values are specified in the USES.WK1 spreadsheet (a printout for the No-Restriction Alternative is included). These monthly values include aqueduct capacities, minimum and maximum streamflows along the aqueduct, uses, losses (or gains), diversions, and evaporation estimates. Historical averages for each use or capacity are given to the right of each model input, as a reference for selecting appropriate values. Only a few of these were modified to simulate each alternative.

Several of the monthly losses can be specified as functions of runoff, spreading, irrigation, pumping, and reservoir storages. The general form of these monthly terms is:

$$\text{Loss} = \text{constant} + A \times \text{runoff} + B \times \text{irrigation} + C \times \text{rain}$$

where A, B, and C are specified fractions (positive or negative) to form the appropriate relationships. However, for the Mono Basin EIR alternatives, only the constant monthly terms are specified.

Evaporation from Grant, Lake Crowley, Tinemaha, and Haiwee reservoirs is specified in terms of constant monthly losses per 1,000 acres of surface area (equivalent to hundredths of feet).

The irrigation diversions and other values specified in USES.WK1 have been determined from historical 1970-1989 records available from LADWP. Some of the recreation, enhancement, and mitigation uses have only recently been initiated, and the historical values may be subject to change.

GROUNDWATER PUMPING ESTIMATES

Groundwater pumped from the Owens Valley is a significant component of the LA Aqueduct water supply. Because groundwater pumping is regulated by the Inyo County-Los Angeles groundwater pumping agreement that includes ongoing annual negotiations, the LAAMP model assumptions were constrained to match the Inyo-Los Angeles groundwater

pumping agreement (Inyo-Los Angeles 1990). The groundwater pumping was simulated for the No-Restriction Alternative, and used as a fixed input for the other alternatives.

The groundwater pumping summary table and graphs are shown for the No-Restriction Alternative only because these results were fixed and used for all subsequent simulations. This was accomplished for the EIR alternatives with the ALAAMP model, a modified version of LAAMP. The ALAAMP model considers groundwater pumping as a hydrologic input and does not increase or decrease pumping in response to the Haiwee Reservoir export target and available runoff, as does the original LAAMP model. LAAMP was used for the No-Restriction Alternative, and ALAAMP was used for all the other alternatives and point-of-reference conditions.

Table 1 provides a summary of LAAMP simulations of Owens Valley groundwater pumping for each of the four subbasins: Laws Ditch, Bishop Creek, Big Pine Creek, and Tinemaha Reservoir to Haiwee Reservoir. Monthly minimums and maximums (well-field capacities) are shown. If the annual maximum pumping value is exceeded, the monthly maximum pumping values are set to zero for remaining months in that runoff year. The pumping is divided into "uses" and "export" components for each subbasin. The total Owens Valley pumping also is shown. Minimums, averages, maximums, and totals are given for each column of simulated monthly values. Annual minimums, averages, and maximums for each variable also are given. Annual averages for the 1971-1989 period are given for comparison with the historical records.

Table 2 shows the frequency distribution of monthly pumping for each of the subbasins, and for combined Owens Valley pumping. Pumping is generally required during the April-September period when the Haiwee Reservoir export target is specified as maximum aqueduct capacity and when in-basin uses are highest.

Figure 1 shows the simulated annual pumping values, with the historical annual pumping given as reference. Significant historical pumping occurred in 1960 and 1961 (dry runoff period) and from 1971 to the present (when the second barrel of aqueduct was operating, thereby increasing export capacity).

Figure 2 shows the distribution of pumping in each of the four pumping areas. Bishop Creek pumping is lowest and most stable. Tinemaha Reservoir to Haiwee Reservoir is the most variable and often the greatest during dry runoff periods.

Figure 3 shows Owens River pumping as a function of total Mono Lake and Owens River runoff. The simulated annual pumping increases as runoff decreases because more pumping is required in low runoff years to meet the export targets. However, in dry years, the reduced export targets reduce the required pumping. Much less pumping is required when the runoff exceeds the export targets, although a minimum pumping of 40 TAF/yr is specified to meet in-basin uses that depend on particular wells.

Figure 4 shows the LAAMP simulated pumping compared to historical pumping for the 1971-1989 period. The minimum pumping of approximately 40 TAF occurred even during wet runoff years (1978, 1980, 1982, and 1983). Maximum pumping of about 200 TAF

Owens Valley Ground Water Pumping
04/01/92
Mono EIR Alternatives
Initial Alternatives - 1st 50 years:
(4/1/92) Owens Pumping for Mono EIR Alternatives

Table 1. Summary of LAAMP Simulations of Owens Valley Groundwater Pumping

	Laws Minimum Pumping (AF)	Laws Maximum Pumping (AF)	Laws Uses Pumping (AF)	Laws Export Pumping (AF)	Laws Total Pumping (AF)	Bishop Minimum Pumping (AF)	Bishop Maximum Pumping (AF)	Bishop Uses Pumping (AF)	Bishop Export Pumping (AF)	Bishop Total Pumping (AF)	Big Pine Minimum Pumping (AF)	Big Pine Maximum Pumping (AF)	Big Pine Uses Pumping (AF)	Big Pine Export Pumping (AF)	Big Pine Total Pumping (AF)
Minimum:	150	0	150	0	150	100	0	100	0	100	1820	0	1820	0	1820
Average:	150	3899	620	1078	1698	100	1113	789	44	833	1977	4155	2038	884	2922
Maximum:	150	4185	1731	5580	6435	100	1612	5339	4180	5339	2015	5580	3355	5210	7160
Total (TAF/yr):	1.8	46.8	7.4	12.9	20.4	1.2	13.4	9.5	0.5	10.0	23.7	49.9	24.5	10.6	35.1
71-89 Total:	1.8	46.8	7.0	9.9	16.9	1.2	13.2	8.5	0.3	8.8	23.7	49.5	24.6	8.3	32.8
71-89 Historical:					16.5					5.5					30.1
Annual:															
Minimum:	1800		1800	0	1800	1200		1200	0	1200	23725		23725	0	23725
Average:	1800		7441	12938	20379	1200		9470	522	9992	23725		24452	10611	35063
Maximum:	1800		11447	31729	41520	1200		13442	4180	16959	23725		26261	20870	45845

	Tinemaha Minimum Pumping (AF)	Tinemaha Maximum Pumping (AF)	Tinemaha Uses Pumping (AF)	Tinemaha Export Pumping (AF)	Tinemaha Total Pumping (AF)	Owens Minimum Pumping (AF)	Owens Maximum Pumping (AF)	Owens Uses Pumping (AF)	Owens Export Pumping (AF)	Owens Total Pumping (AF)
Minimum:	1000	7348	1000	0	1000	3070	10080	3070	0	3070
Average:	1000	10575	1598	2172	3770	3227	19742	5045	4178	9223
Maximum:	1000	11160	3409	10160	11160	3265	22537	12975	16990	26264
Total (TAF/yr):	12.0	126.9	19.2	26.1	45.2	38.7	236.9	60.5	50.1	110.7
71-89 Total:	12.0	124.8	18.9	20.1	38.9	38.7	234.3	58.9	38.6	97.4
71-89 Historical:					56.7					108.7
Annual:										
Minimum:	12000		12732	0	12732	38725		39457	0	39457
Average:	12000		19173	26064	45236	38725		60535	50135	110670
Maximum:	12000		21170	75786	96809	38725		71429	126034	195688

Table 2. Monthly Frequency Distribution of Simulated Groundwater Pumping in each Owens Valley Subbasin

Owens Valley Ground Water Pumping
04/01/92
Mono EIR Alternatives
Initial Alternatives – 1st 50 years:
(4/1/92) Owens Pumping for Mono EIR Alternatives

	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
Laws:												
0%	150	150	150	150	150	150	150	150	150	150	150	150
10%	385	150	150	150	150	150	150	150	150	150	150	150
20%	920	575	320	475	674	860	460	413	428	150	150	150
30%	1725	575	561	690	725	2952	460	413	428	208	150	150
40%	2735	715	740	690	3051	3281	460	413	428	208	150	150
50%	3281	1300	740	736	3390	3645	530	825	855	208	150	150
60%	3645	2845	740	3051	3767	4050	1800	825	855	415	150	150
70%	4050	3390	2952	3767	4185	4050	2760	973	855	415	150	150
80%	4050	3767	3281	3767	4185	4050	4185	2415	2225	415	150	150
90%	4410	4185	3700	4185	4185	4680	4210	4205	3478	2325	743	853
100%	5980	5440	4800	4185	5853	5970	5160	5485	6435	4275	3423	2393
Bishop:												
0%	100	100	100	100	100	100	100	100	100	100	100	100
10%	1137	100	100	100	100	100	100	100	100	100	100	100
20%	1404	1175	100	100	100	100	100	100	100	100	100	100
30%	1404	1451	100	1173	1381	100	100	100	100	100	100	100
40%	1560	1451	1264	1612	1451	1404	100	100	100	100	100	100
50%	1560	1612	1404	2348	1612	1560	100	100	100	100	100	100
60%	1560	1612	1560	2701	1612	1560	515	100	100	100	100	100
70%	1560	1612	1560	3763	1612	1560	515	100	100	100	100	100
80%	1560	1612	1560	4174	1612	1560	535	280	270	250	200	215
90%	1560	1612	1560	4545	1612	1560	2050	280	270	250	200	215
100%	3680	1612	2745	5339	3345	1560	5210	1630	790	250	200	1250
Big Pine:												
0%	1950	2015	1950	2015	2015	1950	2015	1950	2015	2015	1820	2015
10%	1950	2015	1950	2015	2015	1950	2015	1950	2015	2015	1820	2015
20%	2240	2015	1950	2015	2015	1950	2015	1950	2015	2015	1820	2015
30%	3290	2015	1950	2015	2015	1950	2015	1950	2015	2015	1820	2015
40%	3937	2015	1950	2015	3675	1950	2015	1950	2015	2015	1820	2015
50%	4610	2155	1950	2015	4675	4330	2015	1950	2015	2015	1820	2015
60%	4860	4105	1950	4068	5022	5400	2015	1950	2015	2015	1820	2015
70%	5400	4520	3937	5022	5580	5400	2015	1950	2015	2015	1820	2015
80%	5400	5005	4374	5022	5580	5400	2085	1950	2015	2015	1820	2015
90%	5530	5580	4860	5580	5580	5770	5305	2510	2535	2015	1820	2015
100%	7160	6580	5860	6015	7125	7060	6255	4560	5065	4185	2340	3165

Owens Valley Ground Water Pumping
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Initial Alternatives – 1st 50 years:
(4/1/92) Owens Pumping for Mono EIR Alternatives

	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
Tinemaha to Haiwee:												
0%	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
10%	1732	1000	1000	1000	1000	1917	1000	1000	1000	1000	1000	1000
20%	2022	2550	1000	1000	1000	1917	1000	1000	1000	1000	1000	1000
30%	3072	2550	1000	3262	2613	4157	1000	1000	1000	1000	1000	1000
40%	4082	2550	2949	3262	5273	6517	1000	1000	1000	1000	1000	1000
50%	5102	2690	2949	3262	7323	7873	1000	1000	1000	1000	1000	1000
60%	5972	4820	2949	5922	9040	9720	1880	1000	1000	1000	1000	1000
70%	7873	5540	4999	9040	10044	10800	2840	1360	1000	1000	1000	1000
80%	9720	9040	7873	10044	11160	10800	4290	2590	2450	1650	1000	1330
90%	10800	10044	9720	11160	11160	10800	5240	4500	4050	3170	2030	2630
100%	10800	11160	10800	11160	11160	10800	11160	10800	6580	7140	7340	10790
Total Owens Valley:												
0%	3200	3265	3200	3265	3265	3200	3265	3200	3265	3265	3070	3265
10%	5627	3265	3200	3265	3265	4117	3265	3200	3265	3265	3070	3265
20%	6162	6752	3370	3690	3789	6287	3575	3463	3543	3323	3070	3265
30%	9647	6752	3611	6925	6965	12875	3990	3643	3713	3473	3070	3265
40%	12677	7070	7199	7579	14377	14079	3990	3643	3713	3473	3070	3265
50%	15899	7477	7199	10042	18256	16719	4070	3875	3970	3530	3070	3265
60%	17667	13562	7199	17266	20284	19629	6655	3875	3970	3530	3170	3380
70%	19629	16297	13563	21011	20755	21497	8834	4595	3970	3530	3170	3380
80%	20717	18256	16889	22223	22537	21810	16085	8645	7910	5273	3170	4585
90%	21810	20284	19629	24764	22537	21810	17460	11255	12050	8110	5203	6855
100%	21810	22537	21810	26264	24270	21810	21025	16900	15130	11250	9543	13055

Figure 1. Owens Valley Annual Pumping

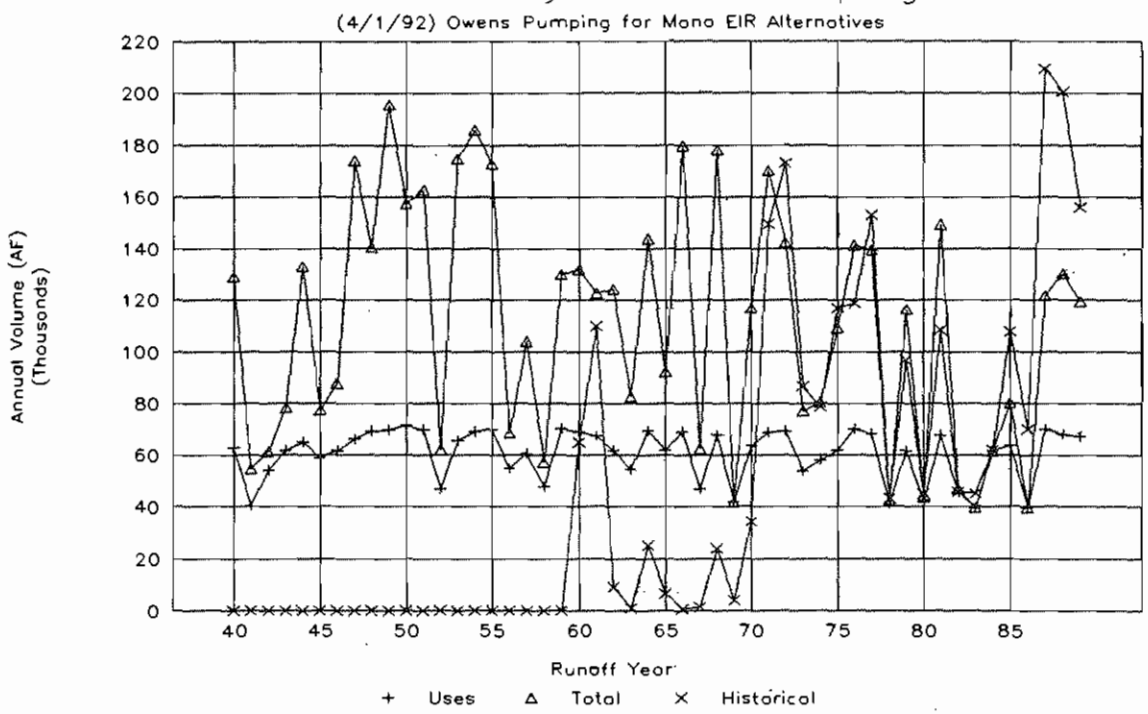


Figure 2. Owens Valley Annual Pumping

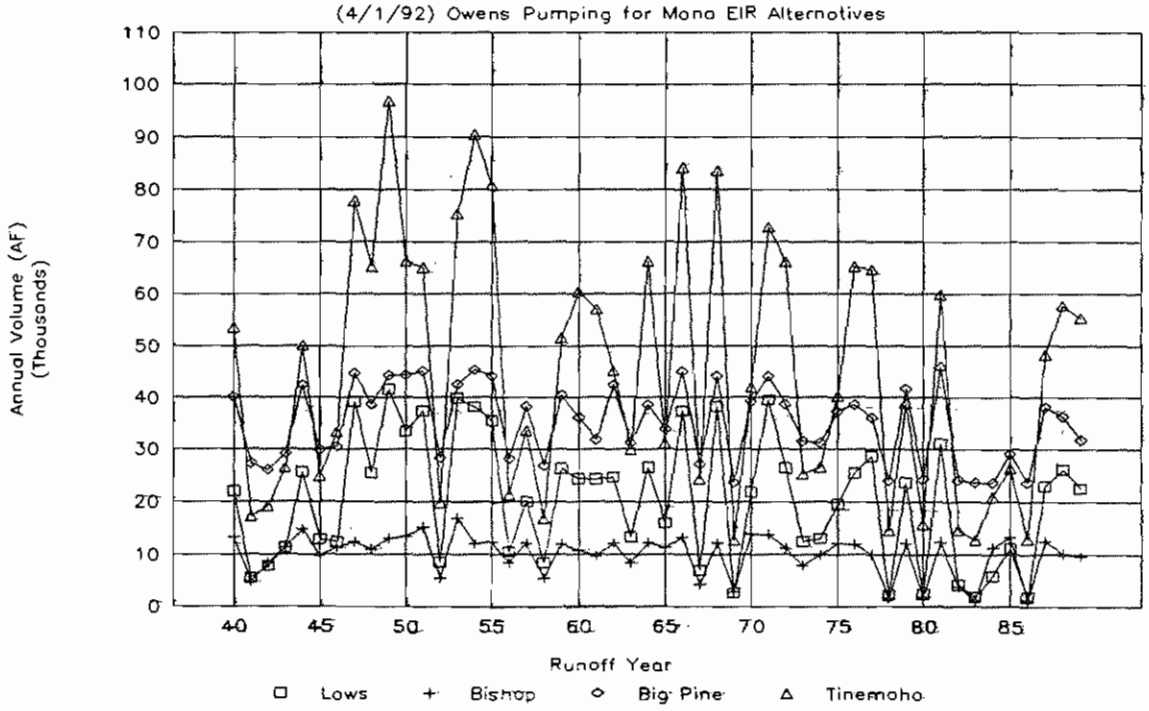


Figure 3. Owens Pumping vs. Runoff

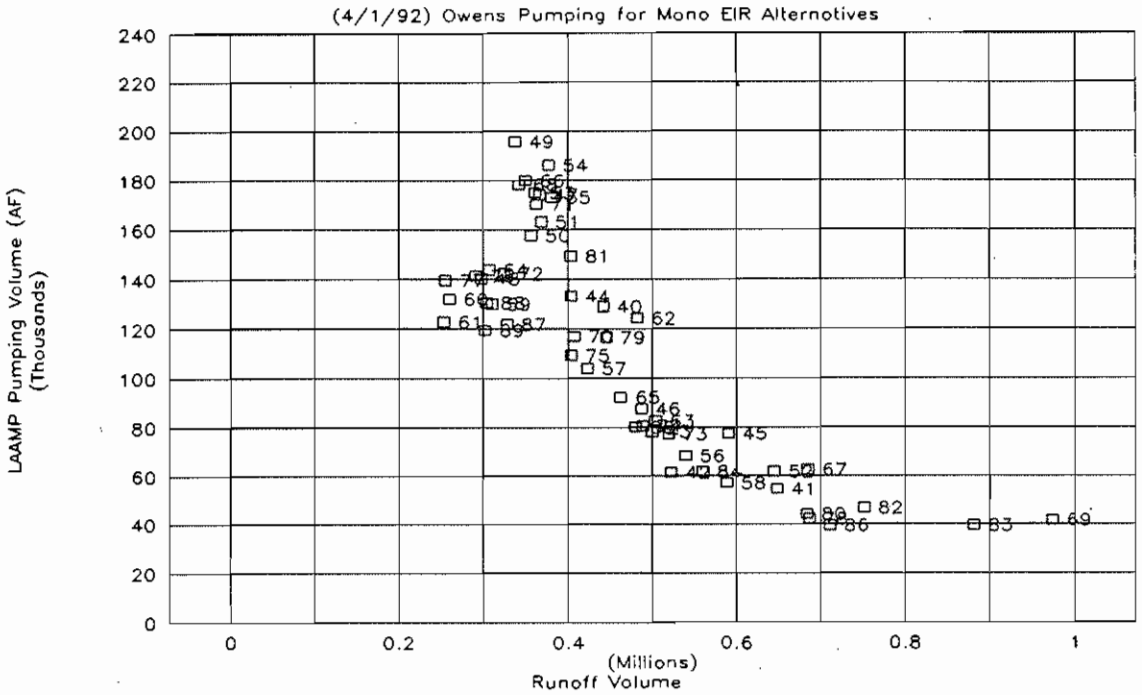
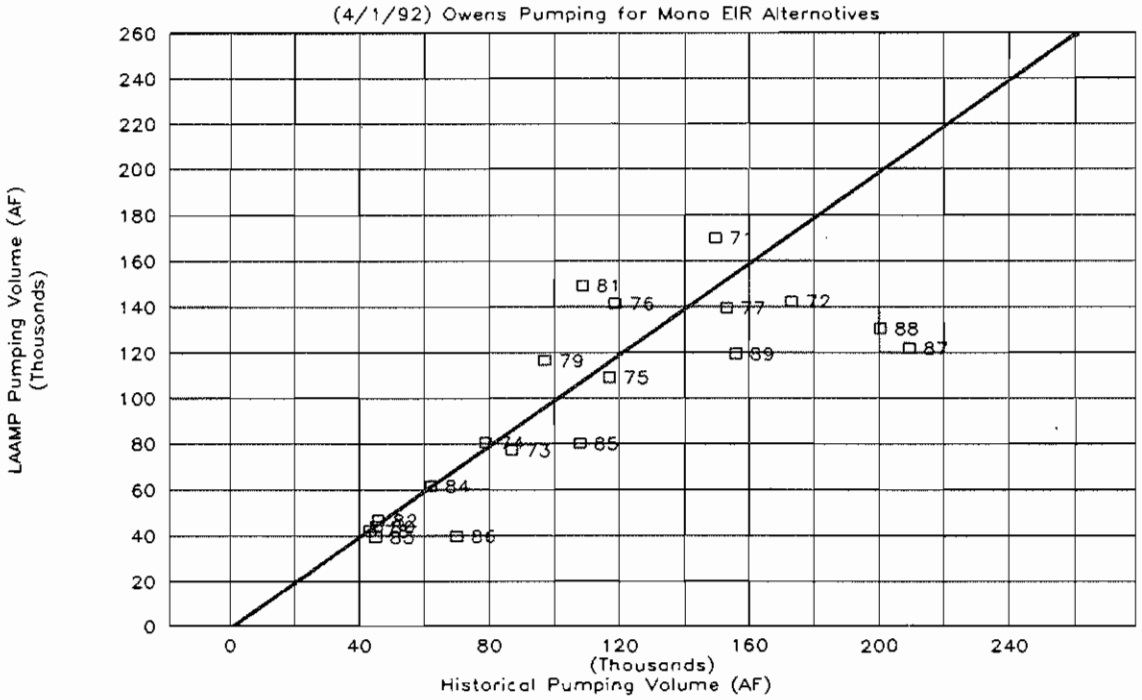


Figure 4. LAAMP vs. Actual 71–89 Owens Pumping



occurred in dry runoff years (1987 and 1988). Pumping was limited by various injunctions and agreements in other dry years (1976 and 1977). The LAAMP simulated pumping volumes averaged less than the historical pumping for 1971-1989. The historical average was 109 TAF/yr, while the simulated average was about 97 TAF/yr. Because the LAAMP simulated pumping is less than the expected long-term average pumping allowable under the Inyo County-Los Angeles groundwater pumping agreement, these LAAMP results appear to be acceptable.

COMPARISON OF LAAMP RESULTS FOR EACH ALTERNATIVE

An overall comparison of the LAAMP simulations for each alternative is shown in Table 3. In the first column, the LAAMP simulation is identified. Each alternative required one or more 50-year simulations to allow comparisons during the transition period and the dynamic equilibrium period. The initial, minimum, median, maximum, and ending Mono Lake levels are given. Annual averages of the releases to Mono Lake, Mono exports, Pleasant Valley outflow, and exports to Los Angeles provide a summary of the aqueduct flows. Annual averages of Owens River basin total uses, spreading, and aqueduct spilling (to Owens Lake) provide a summary of aqueduct operations in the Owens Valley. The average streamflow below the aqueduct diversions for Lee Vining, Walker, Parker, and Rush Creeks provides a summary of Mono Lake tributary flows. The annual average power provides a measure of hydroelectric generation on the aqueduct system.

Mono Basin Exports

The most fundamental comparison of the alternatives is the split of Mono Lake tributary streamflow between releases to Mono Lake and export through the Mono Craters tunnel to the Owens River. For the No-Restriction Alternative, the LAAMP model indicates that LADWP would likely export an average of 85 TAF/yr, in addition to the 9 TAF/yr irrigation diversion, leaving 32 TAF/yr to be released to the lake during periods when the water is not needed to meet aqueduct export targets to Los Angeles.

The LAAMP results for the 1971-1989 period suggest that 73 TAF/yr would have been exported, slightly less than the 78 TAF/yr average of the historical record for this period. This difference is considered acceptable given the many factors governing historical aqueduct operations that may not be adequately considered in the LAAMP model. The model provides a reasonable split between exports and lake releases for the No-Restriction Alternative.

Table 3 shows the simulated average split between exports and lake releases for each alternative. Under the point-of-reference scenario, an average of 72.7 TAF/yr were exported, 8.9 TAF/yr diverted for irrigation, and 44.6 TAF/yr released to Mono Lake. As the target lake level increases, more water is required for lake releases so less is exported. When a second or third 50-year simulation is required, more water is exported because the

TABLE 3. COMPARISON OF LAAMP MODEL RESULTS FOR MONO EIR ALTERNATIVES

Final Simulations For Impact Assessments: Annual Averages

LAAMP Case	Mono Lake Elevations Start (ft)	Min (ft)	Median (ft)	Max (ft)	Ending (ft)	Mono Lake Releases (TAF)	Mono Basin Exports (TAF)	Lee Vining Creek Flow (cfs)	Walker Creek Flow (cfs)	Parker Creek Flow (cfs)	Rush Creek Flow (cfs)	Pleasant Valley Outflow (TAF)	Exports to Los Angeles (TAF)	Owens Valley Uses (TAF)	Owens Valley Spread (TAF)	Owens Valley Spill (TAF)	Total queduct Power (GWH)
No Restriction:																	
First 50 Years	6376.3	6350.4	6362.2	6376.6	6363.1	32.2	85.0	19.0	0.0	0.0	25.3	303.8	445.9	114.8	10.2	7.8	1058.9
Second 50 Years	6363.1	6345.5	6355.3	6366.2	6360.0												
Third 50 Years	6360.0	6344.3	6353.6	6365.4	6359.2												
Point of Reference:																	
First 50 Years	6376.3	6360.4	6368.2	6376.5	6370.8	44.6	72.7	21.2	0.0	0.0	40.2	291.7	437.8	109.7	10.4	8.6	1026.2
Second 50 Years	6370.8	6359.0	6365.9	6375.6	6370.1												
6372 Target: 10% Flows																	
First 50 Years	6376.3	6372.2	6375.1	6378.8	6375.5	61.2	64.3	35.8	3.1	7.2	38.4	283.4	421.0	110.0	16.6	12.7	990.0
6377 Target: 10% with 50% June Flows																	
First 50 Years	6376.3	6376.5	6379.2	6382.9	6379.1	73.8	51.8	42.3	3.7	7.9	48.2	271.1	412.2	108.3	15.7	12.1	956.2
6383.5 Target:																	
First 50 Years	6376.3	6376.5	6384.8	6389.5	6384.8	88.0	37.7	48.6	3.7	7.9	60.0	257.2	403.2	106.5	13.3	11.0	919.5
Second 50 Years	6384.8	6382.9	6385.8	6389.6	6384.9	82.2	43.5					262.9	408.0	107.1	13.5	11.0	
6390 Target:																	
First 50 Years	6376.3	6376.5	6387.5	6395.0	6390.1	95.9	29.8	51.8	3.7	7.9	69.1	249.3	398.6	106.2	13.2	10.5	899.0
Second 50 Years	6390.1	6388.8	6391.6	6395.2	6390.2	88.7	37.0					256.4	404.3	106.8	13.7	11.3	
6410 Target:																	
First 50 Years	6376.3	6376.5	6392.4	6407.7	6404.0	114.8	11.0	62.0	3.7	7.9	84.8	230.7	385.8	105.0	9.5	7.8	849.0
Second 50 Years	6404.0	6403.6	6408.8	6414.9	6409.3	108.0	17.7					237.3	389.5	105.1	12.0	9.6	
Third 50 Years	6409.3	6407.9	6410.9	6415.1	6409.5	104.0	21.7					241.3	393.3	105.5	12.0	9.4	
No Diversions:																	
First 50 Years	6376.3	6376.3	6395.8	6413.8	6410.2	124.2	0.0	67.0	7.5	12.6	84.5	219.9	373.6	104.5	9.3	6.9	814.5
Second 50 Years	6410.2	6409.4	6417.6	6429.0	6424.9												
Third 50 Years	6424.9	6424.0	6428.3	6436.5	6432.1												

lake level has reached dynamic equilibrium and the extra water required to raise the lake level has already been supplied.

Los Angeles Exports

Exports of water from Haiwee Reservoir to Los Angeles are significantly affected by decreases in Mono Basin exports. Under the No-Restriction Alternative, water exports to Los Angeles are 446 TAF/yr for the entire simulation and 439 TAF/yr for the 1971-1989 period (less than the 1971-1989 historical average of 470 TAF/yr). Under the No-Diversion Alternative, the exports are reduced to 374 TAF/yr. This decrease of 72 TAF/yr is less than the 85 TAF/yr lost from Mono Basin exports because of a reduction of 13 TAF/yr in Owens Valley uses, spreading, and spilling.

SUMMARY OF LAAMP RESULTS FOR EACH ALTERNATIVE

The following alternatives and point-of-reference conditions have been simulated for the Mono Basin EIR, and the LAAMP results are summarized with standardized graphs and tables. Several of these cases require a significant portion of the first 50 years to achieve dynamic equilibrium above the target lake elevation. Therefore, a second (and third) 50 years has been simulated, with the lake elevation starting at the level simulated at the end of the first 50 years.

- No-Restriction Alternative - Base case for pumping of Owens River Valley groundwater. Mono Basin irrigation. No minimum flow target for Upper Owens River. Equilibrium lake level fluctuates between 6,345 and 6,365 feet.

- Point-of-reference scenario (19 cfs on Rush Creek; 5 cfs on Lee Vining Creek) - Otherwise same as No-Restriction Alternative.

- 6,372-Ft Alternative - No Mono Basin irrigation. Mono Lake tributary minimum monthly flows of 10% cumulative frequency distribution. No additional lake level releases required.

- 6,377-Ft Alternative - Mono Lake tributary minimum monthly flows of 10% cumulative frequency distribution with 50% June flows for flushing and riparian vegetation seeding. Lake release triggers of 25% runoff if below 6,375 feet, 50% runoff if below 6,374 feet, and 100% runoff if below 6,373 feet.

- 6,383.5-Ft Alternative - Modified lake level triggers to allow export of some water during transition to higher lake level. Wet/normal/dry triggers of 70%, 85%, and 100% for 6,384.5 feet trigger level. Wet/normal/dry triggers of 60%, 75%, and 100% for 6,385.5 feet trigger level. Wet/normal/dry triggers of 50%, 65%, and 100% for 6,386.5 feet trigger level.

- 6,390-Ft Alternative - Same trigger conditions as for 6,383.5-feet target elevation (at 6,391, 6,392, and 6,393 feet).

- 6,410-Ft Alternative - Modified lake level triggers to allow less export so that lake level can be established within 100 years. Wet/normal/dry triggers of 95%, 90%, and 100% for 6,411 feet trigger level. Wet/normal/dry triggers of 85%, 80%, and 100% for 6,412 feet trigger level. Wet/normal/dry triggers of 75%, 70%, and 100% for 6,413 feet trigger level.

- No-Diversion Alternative - Equilibrium lake level fluctuates between 6,425 and 6,435 feet for 100-150 years after diversions cease.

Output Spreadsheets

Several output spreadsheets have been created to review and analyze results from LAAMP simulations. Each spreadsheet is related to a particular topic. Figure 5 shows the available output spreadsheets, which generally correspond to a LAAMP output file. The spreadsheet imports the appropriate LAAMP output file, calculates annual averages and other statistics, and forms useful summary tables for printout. "Named" graphs are available for viewing the simulated patterns.

The following output spreadsheets are available:

- SUMMARY provides an overall monthly summary of aqueduct operations. Several graphs and two output tables (aqueduct summary and monthly distribution of Grant Lake reservoir and Long Valley elevations) are created from SUMMARY.

- MONOTRIB provides a detailed accounting of water in Lee Vining, Walker, Parker, and Rush Creeks. Minimum flows, irrigation diversion, lake level releases, operational spills, and conduit diversions are given for each stream. The water balance for Grant Lake reservoir also is shown in this spreadsheet. Several graphs and two output tables (tributary summary and monthly distribution of streamflows) are created from MONOTRIB.

- PUMPING provides a summary of groundwater pumping for each of the four areas in the Owens Valley. The pumping is separated into minimum, uses, and export categories. Graphs and two summary tables are created from PUMPING.

- POWER provides a summary of the hydroelectric generation along the aqueduct system. Graphs and a summary table of monthly distribution of power generation from the gorge and Haiwee Reservoir to Los Angeles power plants are created from POWER.

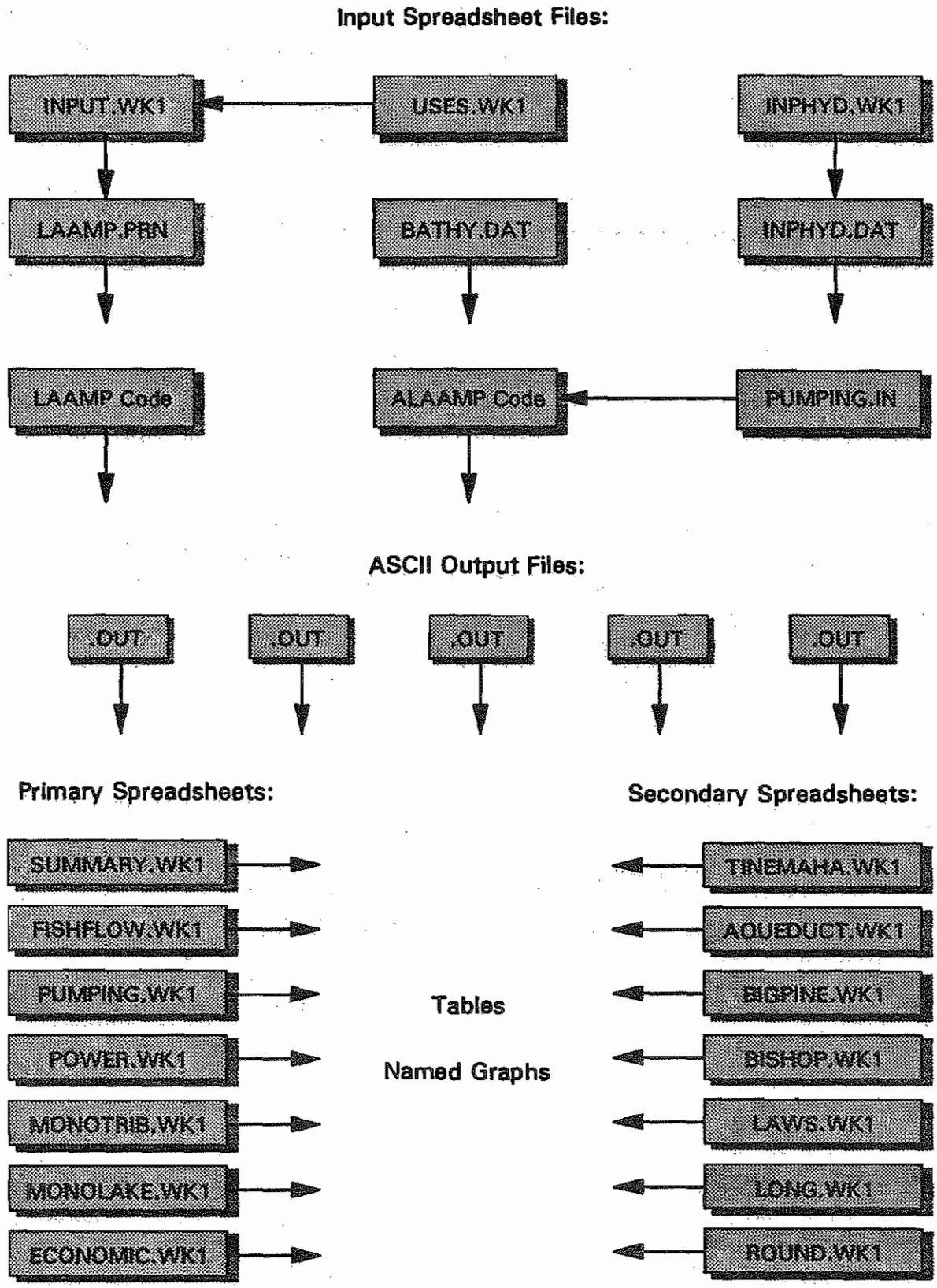


Figure 5. Organization of Input and Output files for LAAMP Simulations

- FISHFLOW provides streamflows in the Owens River for fishery instream flow evaluations above and below East Portal and at several locations between Pleasant Valley and Tinemaha Reservoir. Graphs and a table with monthly distributions of streamflow (in cfs) are created from FISHFLOW.

- MONOLAKE provides the water budget for Mono Lake. The LAAMP model assumes that inflows other than the diverted streams can be estimated as a constant and a fraction of runoff from the four diverted streams. The regression with runoff depends on the assumed evaporation rate. Rainfall (Cain Ranch data) and evaporation volumes depend on the lake area.

- LONG provides the complete water balance for Long Valley reservoir (Lake Crowley reservoir), including inflows (with East Portal and Rock Creek diversions), gains, evaporation, storage, and releases to the Owens River gorge and powerplants.

- ROUND, LAWS, BISHOP, BIGPINE, and TINEMAHA provide detailed accounting of the available runoff, diversions, pumping, and uses supplied in each subbasin. AQUEDUCT provides a summary of the aqueduct flows prior to storage and pumping operations. These output files are not used extensively in the analyses of the Mono EIR alternatives but may be useful for other applications of the LAAMP model.

Summary Tables for Each Alternative

Overall Aqueduct Summary

The first table for each alternative provides a general summary of aqueduct flows, exports, and storage values. The upper left provides an identification of the alternative and any special conditions (e.g., first or second 50 years). Minimums, averages, maximums, and annual averages are given for each variable. The 1971-1989 annual averages are given for comparison with the historical records for this period when the entire aqueduct system (both "barrels") were operating. Monthly averages, the frequency distribution of Mono Lake levels, and annual minimums, averages, and maximums for each variable also are presented.

Tributary Streamflows

The second table provides information about the four Mono Lake tributary streams. The LAAMP model allocates runoff from each stream into minimum required streamflows, Mono Lake releases, irrigation diversions, conduit diversions to Grant Lake reservoir, and spills. The water balance terms for Grant Lake reservoir, including the inflows, basin gains, net evaporation, outflows, and storage changes, are shown. Finally, the streamflows in each stream resulting from the combination of minimum flows, lake level releases, and spills are

calculated in units of cfs. Minimums, averages, maximums, and totals are given for each variable. Annual minimums, averages, and maximums for each variable are also given.

Monthly Cumulative Frequency of Tributary Streamflows

The third table provides cumulative distribution tables for monthly flows in the four tributary streams in 10% increments. Minimum flows are shown as 0%. Maximum flows are shown as 100%.

Monthly Cumulative Frequency of Reservoir Elevations

The fourth table gives the monthly cumulative distribution of lake elevations for Grant Lake and Lake Crowley reservoirs.

Monthly Cumulative Frequency of Owens River Flows

The fifth table gives the monthly cumulative distributions of streamflows at eight locations on the Owens River. Streamflows above and below East Portal can be compared to determine the contribution of East Portal flow from the Mono Craters tunnel. Six locations along the Middle Owens River show the effects of the various diversions and return flows from Laws Ditch and Bishop Creek.

Aqueduct Power Generation

The sixth table provides cumulative monthly power generation estimates for the gorge power plants, Haiwee Reservoir to Los Angeles power plants, Owens River tributary power plants, and the combined total generation for the aqueduct hydroelectric power plants. The annual total is given for reference at the top.

Groundwater Pumping

Two tables that summarize simulated groundwater pumping in the Owens Valley can be obtained from PUMPING spreadsheet, and examples have been shown for the No-Restriction Alternative.

Summary Graphs for Each Alternative

Several named graphs are provided in various output spreadsheets that summarize the aqueduct simulation with monthly or annual values. Some of these were selected to be shown in the auxiliary report for each alternative. These selected graphs are:

- "Mono Lake Surface Elevation" shows the simulated monthly fluctuations in Mono Lake elevation for the 50-year period. A second graph may be included showing a second and third 50-year sequence.

- "Mono Tributary Streamflows" shows the simulated monthly streamflows in the four tributary streams below the aqueduct diversions.

- "Mono Elevation Cumulative Distribution" shows the cumulative frequency distribution of the simulated monthly elevations for Mono Lake.

- "Grant Lake and Long Valley Reservoir Storage" shows the monthly fluctuations in storage in Grant Lake and Long Valley Reservoir (Lake Crowley reservoir).

- "Mono Exports and Lake Releases" shows the annual pattern of Mono Basin exports and total releases to Mono Lake. This graph summarizes the basic split between export and releases to Mono Lake.

- "Mono Basin and Los Angeles Exports and Owens River Pumping" shows the annual pattern of Los Angeles exports and the contribution from Owens Valley groundwater pumping and Mono Basin exports. This graph allows the effect of reduced Mono Basin exports on Los Angeles exports to be evaluated.

- "Sources for Los Angeles Exports" shows the point of origin for aqueduct water. The contribution from the Mono Basin is shown first. Water originating from upstream of Pleasant Valley in Round Valley, Long Valley, and Mono Basin is shown with the second (cumulative) line.

- "Aqueduct Releases and Los Angeles Exports" shows the releases of water to Mono Lake, spreading, and spilling in comparison to Los Angeles exports. These releases are greatest in high runoff years.

- "Mono Exports and Lake Releases" shows the monthly pattern of exports and releases to Mono Lake.

- "Mono Basin Export and Haiwee Reservoir Export to Los Angeles" shows the monthly Haiwee Reservoir targets and exports, along with Mono Basin contributions to the Los Angeles exports.

- Four graphs show the cumulative distribution of monthly flows for the diverted tributary streams in 20% frequency increments. The snowmelt runoff dominates the seasonal pattern for each stream.

- Four more graphs show the allocation of downstream flows for each stream between minimum flows, lake level releases, and spills.

- Two graphs show the cumulative monthly lake elevations for Grant Lake and Lake Crowley reservoirs.

- Four graphs show the cumulative monthly distributions of flows along the Upper and Middle Owens River.

- Two more graphs show the monthly flows on the Upper Owens River below East Portal and the Middle Owens River at Pleasant Valley.

- Two graphs show the cumulative monthly generation for the gorge and Haiwee Reservoir to Los Angeles power plants.

- Two graphs show the power generation for the aqueduct hydroelectric power plants. One graph shows the monthly values while the second shows the annual totals.

SELECTED 20-YEAR HYDROLOGIC SEQUENCES FOR SOCIOECONOMIC ASSESSMENTS

Assessments of impact on socioeconomics for the Mono Basin EIR will use 20-year projections of water demand, power demand, and economic discount rates to develop cost and benefit comparisons between the EIR alternatives and point-of-reference conditions.

For these simulations, the input hydrology data for the selected 20 years were arranged chronologically to form a new hydrology input file using the input spreadsheet INPHYD.WK1. The LAAMP model was run for each alternative and point-of-reference condition using these 20 years in sequence. The output spreadsheets were modified to analyze the 20-year simulations. Graphs and tables are identical to the original 50-year LAAMP simulations, except that they extend only 20 years.

When comparing the 20-year averages with the 50-year averages, some slight difference is expected because the average runoff and export targets are different. Table 4 shows the comparison of selected 20-year and historical 50-year simulation results for annual averages of major variables. The average Mono Basin tributary runoff for the two periods is nearly identical.

INSTRUCTIONS FOR USING LAAMP AND ASSOCIATED LOTUS 1-2-3 FILES

The disks contain executable and FORTRAN files for LAAMP and ALAAMP in appropriate subdirectories. The Lotus 1-2-3 files were developed with release 2.2 and the ALLWAYS add-in program. With some minor changes, the spreadsheet files should work for other Lotus 1-2-3 releases or other spreadsheet programs.

Table 4. COMPARISON OF LAAMP MODEL RESULTS FROM 20 AND 50 YEAR SIMULATIONS FOR MONO EIR ALTERNATIVES

Final Simulations For Impact Assessments: Annual Averages

	6372 ft Alternative				6377 ft Alternative				6383 ft Alternative				6390 ft Alternative			
Simulation Year	Mono Basin Exports		Haiwee to LA Exports		Mono Basin Exports		Haiwee to LA Exports		Mono Basin Exports		Haiwee to LA Exports		Mono Basin Exports		Haiwee to LA Exports	
	20 yr (AF)	50 yr (AF)	20 yr (AF)	50 yr (AF)	20 yr (AF)	50 yr (AF)	20 yr (AF)	50 yr (AF)	20 yr (AF)	50 yr (AF)	20 yr (AF)	50 yr (AF)	20 yr (AF)	50 yr (AF)	20 yr (AF)	50 yr (AF)
42	109738	109817	483144	468829	3172	84326	423561	481401	27887	27950	440149	442138	27887	27950	440149	453144
43	97290	97354	465671	484230	78150	85182	445368	473994	25558	25622	408141	417314	25558	25622	408141	438202
46	76488	76488	471051	484160	65603	65603	448792	481247	21929	21929	401629	426016	21929	21929	401629	424503
47	27833	27833	379969	414948	25322	25322	374486	410197	0	14236	358809	386045	0	0	358809	368638
52	113392	113392	509391	509568	2901	108344	478063	504519	55165	55626	512163	513946	55165	55626	512163	512943
54	29045	29045	404966	394298	24990	24990	385669	401352	0	14493	360357	387162	0	0	360357	375998
57	50733	50733	433040	421625	38357	38357	417317	413408	17404	28744	396952	378309	17404	18243	396952	374816
58	102589	102589	476761	473679	90415	80736	485801	465575	25732	57203	468849	460088	25732	25732	468849	455859
61	18480	18480	249818	213906	15482	2392	242999	206170	0	1114	209126	200982	0	0	209126	199727
65	88024	73487	470194	470714	75841	73508	462158	469039	23140	37953	411545	443675	23140	23813	411545	424529
67	114411	114411	522696	524847	114411	90539	522711	518461	64247	90539	501810	518461	64247	64247	501810	514440
68	27296	27296	392078	410956	24503	24503	389669	405517	0	24503	369851	405517	0	0	369851	368675
69	113136	113136	557579	556356	113136	113136	557579	556407	87036	93723	553083	552418	69792	69792	545096	545096
71	59986	59986	437411	422129	47130	47130	424555	406076	47130	47130	435589	388069	19354	19354	411939	375698
78	116107	116107	541990	541990	111984	91631	541990	541990	91631	56040	528972	537146	56040	54885	523874	537315
79	67505	67505	451371	474172	55638	55638	438387	460570	55638	45071	441633	453286	20684	20684	395652	438376
81	46105	46105	385712	407094	37458	37458	376673	408179	37458	37458	370008	412325	17377	27439	357185	396021
87	16015	16015	285942	295913	15518	15518	286358	287762	0	15518	279259	287762	0	15518	278930	302456
88	16076	16076	289468	288844	14578	14578	287653	287653	0	14578	269957	287653	0	0	269957	275187
89	32867	32867	294193	294193	26484	26484	288211	288211	24784	26484	282128	288211	13627	25432	272356	280152
Minimum:	16015	16015	249818	213906	2901	2392	242999	206170	0	1114	209126	200982	0	0	209126	199727
Average:	66156	65436	425122	427623	49054	55269	413900	423386	30237	36796	400001	409326	22897	24813	394719	403089
Maximum:	116107	116107	557579	556356	114411	113136	557579	556407	91631	93723	553083	552418	69792	69792	545096	545096

Complete the following steps to run organize the LAAMP model:

- Create a new directory on your hard disk: MD /LAAMP.
- Copy all files from the floppy disks into this new directory. FORTRAN source codes are in subdirectories /LAAMP and /ALAAMP.
- Enter Lotus 1-2-3 (Version 2.01 or higher will work) and change the default directory to /LAAMP.
- If a nonhistorical hydrology sequence is desired, retrieve INPHYD and specify the desired sequence of years. Run the macro (Alt-Z) to create the modified input hydrology file INPHYD.DAT.
- Retrieve USES, and make any desired changes. Be sure to run the macro (Alt-Z) if you make any changes.
- Retrieve INPUT, make any desired changes, and run the macro (Alt-Z) to create a new ASCII input file for LAAMP. It will be named LAAMP.PRN. Now exit Lotus 1-2-3 with QUIT (because LAAMP uses too much memory to run from "SYSTEM" while still in Lotus 1-2-3).
- From DOS, type "LAAMP" or "ALAAMP" to simulate the conditions that you have specified in the spreadsheets and create the ASCII output files.
- Return to Lotus 1-2-3. You are now ready to analyze the results with the output spreadsheets.
- If you are interested in saving the results for comparison with another run, save the .OUT files onto a floppy disk, print the statistical summary tables, or save the graphs as .PIC files for later printing. The graphs can be saved onto a floppy in the A: drive with macros in each spreadsheet (Alt-G). A complete set of tables can be printed by retrieving TABLE1 (ALLWAYS should be attached as APP1 in Lotus 1-2-3, version 2.2).

CITATIONS

Printed References

Los Angeles Department of Water and Power. 1990a. Development of a computer simulation model of the Los Angeles Aqueduct system. Aqueduct Division, Southern District Engineering Operations. Los Angeles, CA.

_____. 1990b. Green book for the long-term groundwater management plan for the Owens Valley and Inyo County. Inyo County and City of Los Angeles. Los Angeles, CA.

Personal Communications

Rich, Charles A. Senior water resources control engineer. California State Water Resources Control Board, Sacramento, CA. June 5,1 991 - letter to Jordan Lang.

Section 1. LAAMP Input Files

Input LAAMP Spreadsheet Version 3.0 (1/23/92)
04/01/92
Mono EIR Alternatives
Initial Alternatives - 1st 50 years:
(4/1/92) Owens Pumping for Mono EIR Alternatives (Graph Label)
Alt-Z to create new LAAMP input file LAAMP.PRN

Alt-Z /REOUTPUT~
Macro (goto)u16~/fccnID~USES~
(goto)u61~/fccnOUTPUT~USES~
/PFLAAMP.prn~RGQ
/FS~R
(Goto)(home)~

Starting and Ending Years from Available Historical Hydrology 1940-1989
1940 1989

Initial Mono Lake Elevation, Grant and Crowley Storages
6376.3 20000 120000 Base: 6376.3 20000 120000

Dry and Wet Runoff Fractions and Normal Mono-Owens Runoff (AF/yr)
0.65 1.25 593000

Is Grant Storage available for fish flows?
1 1= No (Only Rush Creek inflows for fish releases)
IDRFF 2= Yes (Use Grant storage if above minimum monthly)

Three Line Description of Minimum Flows for Mono Lake Tributaries:
Minimum Monthly Flows for LV Walker Parker and Rush
No Minimum Flows
1940-1989 Adjusted Hydrology

Mono Basin Wet/Dry/Normal Definitions:
WET/DRY/N 1.35 0.7 122300

Years between required Flushing Flows:

1	1	1	1	0
L V	Walker	Parker	Rush	FISH FLOWS? 1 = YES 0 = NO

Monthly Required Minimum Flows (cfs) and Flushing Volumes (TAF):

WET YEAR MINIMUM FLOWS (CFS)

	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
LEE VININ	25.9	75.6	93.5	47.1	29.1	19.9	18.8	17.7	19.0	19.2	17.7	16.2
WALKER CR	1.1	2.5	10.0	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.2	2.1
PARKER CR	4.2	7.4	20.7	18.3	11.0	5.7	3.8	3.1	3.3	3.2	3.0	3.3
RUSH CREE	31.6	49.9	61.4	40.6	26.9	33.4	34.8	32.6	25.9	27.5	27.4	21.2

NORMAL YEAR MINIMUM FLOWS (CFS)

	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
LEE VININ	25.9	75.6	93.5	47.1	29.1	19.9	18.8	17.7	19.0	19.2	17.7	16.2
WALKER CR	1.1	2.5	10.0	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.2	2.1
PARKER CR	4.2	7.4	20.7	18.3	11.0	5.7	3.8	3.1	3.3	3.2	3.0	3.3
RUSH CREE	31.6	49.9	61.4	40.6	26.9	33.4	34.8	32.6	25.9	27.5	27.4	21.2

DRY YEAR MINIMUM FLOWS (CFS)

	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
LEE VININ	25.9	75.6	93.5	47.1	29.1	19.9	18.8	17.7	19.0	19.2	17.7	16.2
WALKER CR	1.1	2.5	10.0	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.2	2.1
PARKER CR	4.2	7.4	20.7	18.3	11.0	5.7	3.8	3.1	3.3	3.2	3.0	3.3
RUSH CREE	31.6	49.9	61.4	40.6	26.9	33.4	34.8	32.6	25.9	27.5	27.4	21.2

WET FLUSHING FLOWS (AF) (IN ADDITION TO MINIMUM FLOW)

	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
LEE VININ	0	0	0	0	0	0	0	0	0	0	0	0
WALKER CR	0	0	0	0	0	0	0	0	0	0	0	0
PARKER CR	0	0	0	0	0	0	0	0	0	0	0	0
RUSH CREE	0	0	0	0	0	0	0	0	0	0	0	0

NORMAL FLUSHING FLOWS (AF) (IN ADDITION TO MINIMUM FLOW)

	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
LEE VININ	0	0	0	0	0	0	0	0	0	0	0	0
WALKER CR	0	0	0	0	0	0	0	0	0	0	0	0
PARKER CR	0	0	0	0	0	0	0	0	0	0	0	0
RUSH CREE	0	0	0	0	0	0	0	0	0	0	0	0

DRY FLUSHING FLOWS (AF) (IN ADDITION TO MINIMUM FLOW)

	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
LEE VININ	0	0	0	0	0	0	0	0	0	0	0	0
WALKER CR	0	0	0	0	0	0	0	0	0	0	0	0
PARKER CR	0	0	0	0	0	0	0	0	0	0	0	0
RUSH CREE	0	0	0	0	0	0	0	0	0	0	0	0

Reference Flows:

1940-1989 Actual 10%(50% June) Flows

	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
LEE VININ	25.9	75.6	183.0	47.1	29.1	19.9	18.8	17.7	19.0	19.2	17.7	16.2
WALKER CR	1.1	2.5	20.7	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.2	2.1
PARKER CR	4.2	7.4	31.8	18.3	11.0	5.7	3.8	3.1	3.3	3.2	3.0	3.3
RUSH CREE	31.6	49.9	159.1	40.6	26.9	33.4	34.8	32.6	25.9	27.5	27.4	21.2

1940-1989 Actual 10% Flows

LEE VININ	25.9	75.6	93.5	47.1	29.1	19.9	18.8	17.7	19.0	19.2	17.7	16.2
WALKER CR	1.1	2.5	10.0	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.2	2.1
PARKER CR	4.2	7.4	20.7	18.3	11.0	5.7	3.8	3.1	3.3	3.2	3.0	3.3
RUSH CREE	31.6	49.9	61.4	40.6	26.9	33.4	34.8	32.6	25.9	27.5	27.4	21.2

Three Line Description of Mono Lake Level Triggers:
Mono Lake Level Triggers for EIR Alternatives
No Restrictions
No Triggers

Wet/Dry/Normal Definitions for Lake Level Triggers:

1.35	0.7	123542	48
Wet	Dry	Normal (AF/yr)	Evaporation (inches)

Mono Lake Level Triggers (3 elevations) for each runoff year type:

Specify: 1) Fraction of Runoff
2) Acre Feet to Lake
3) Acre Feet to Export (if negative)

	173 TAF		74 TAF
ELEVATION	WET	NORMAL	DRY
6300	0.00	0.00	0.00
6310	0.00	0.00	0.00
6320	0.00	0.00	0.00

Three Line Description of Grant and Crowley Storage Targets:
Reservoir Storage Targets for Grant and Crowley
Grant Rules: 20000 Min 30000 Max
Crowley Rules: 120000 Min 150000 Max

Grant Maximum and Minimum Storage Targets by Runoff Year Type:
Reservoir Capacity is modeled as 50,000 AF.

	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
WET MAX	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000
WET MIN	20000	20000	20000	20000	20000	20000	20000	20000	20000	20000	20000	20000
NORM MAX	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000
NORM MIN	20000	20000	20000	20000	20000	20000	20000	20000	20000	20000	20000	20000
DRY MAX	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000
DRY MIN	20000	20000	20000	20000	20000	20000	20000	20000	20000	20000	20000	20000

Crowley Maximum and Minimum Storage Targets by Runoff Year Type:
Reservoir Capacity is modeled as 180,000 AF.

	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
WET' MAX	150000	150000	150000	150000	150000	150000	150000	150000	150000	150000	150000	150000
WET' MIN	120000	120000	120000	120000	120000	120000	120000	120000	120000	120000	120000	120000
NORM' MAX	150000	150000	150000	150000	150000	150000	150000	150000	150000	150000	150000	150000
NORM' MIN	120000	120000	120000	120000	120000	120000	120000	120000	120000	120000	120000	120000
DRY' MAX	150000	150000	150000	150000	150000	150000	150000	150000	150000	150000	150000	150000
DRY' MIN	120000	120000	120000	120000	120000	120000	120000	120000	120000	120000	120000	120000

Uses Spreadsheet version 2.1 (9/4/91)
Mono EIR Alternatives
Mono Irrigate, MWD Seasonal Targets

All inputs are 12 monthly values and the annual total, in acre-feet.
Alt-Z to range value new conditions; save file

1 O-Ditch Diversions (Separate Water Right off Lee Vining Creek)

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
5	93	171	180	144	103	52	0	0	0	0	0	747

ODITCH

1970-1989 Monthly Averages for O-Ditch

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
Diversion:	5	93	171	180	144	103	52	0	0	0	0	0	747
% of Total:	1%	12%	23%	24%	19%	14%	7%	0%	0%	0%	0%	0%	

2 Gibbs Creek (off Tributary to Lee Vining Creek)

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
2	53	229	386	293	100	17	0	0	0	0	0	1079

GIBDIV

1970-1989 Monthly Averages for Gibbs Creek

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
Diversion:	2	53	229	386	293	100	17	0	0	0	0	0	1079
% of Total:	0%	5%	21%	36%	27%	9%	2%	0%	0%	0%	0%	0%	
Gibbs Creek:	59	107	477	533	380	150	69	57	52	42	34	36	2095
% of Creek:	3%	50%	48%	72%	77%	67%	25%	0%	0%	0%	0%	0%	52%

3 Gibbs and Farrington Siphons (between Lee Vining and Walker)

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
61	202	339	352	209	41	0	0	0	0	0	0	1202

GIBFAR

1970-1989 Monthly Averages for Gibbs and Farrington Siphons

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
Diversions:	61	202	339	352	209	41	0	0	0	0	0	0	1202
% of Total:	5%	17%	28%	29%	17%	3%	0%	0%	0%	0%	0%	0%	

4 Walker Creek Irrigation Release (below Conduit)

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
23	206	403	578	257	16	10	0	0	0	0	0	1492

1970-1989 Monthly Averages for Walker Irrigation Releases

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
Diversions:	23	206	403	578	257	16	10	0	0	0	0	0	1492

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
% of Total:	2%	14%	27%	39%	17%	1%	1%	0%	0%	0%	0%	0%	
Walker Creek	179	614	1363	993	590	347	364	497	231	211	187	210	5786
% of Creek	13%	34%	30%	58%	44%	5%	3%	0%	0%	0%	0%	0%	26%

WALIRR

5 Sand Trap #3 (between Walker and Parker)

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
25	203	127	301	242	38	0	0	0	0	0	0	935

SAND3

1970-1989 Monthly Averages for Sand Trap #3 Releases

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
Diversions:	25	203	127	301	242	38	0	0	0	0	0	0	935
% of Total:	3%	22%	14%	32%	26%	4%	0%	0%	0%	0%	0%	0%	

6 Parker Creek Irrigation Diversions (above conduit)

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
33	199	229	637	366	29	0	0	0	0	0	0	1492

PARDIV

1970-1989 Monthly Averages for Parker Creek Diversions

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
Diversions:	33	199	229	637	366	29	0	0	0	0	0	0	1492
% of Total:	2%	13%	15%	43%	25%	2%	0%	0%	0%	0%	0%	0%	
Parker Creek	467	1061	2022	2069	1312	690	375	310	296	285	258	340	9484
% of Creek	7%	19%	11%	31%	28%	4%	0%	0%	0%	0%	0%	0%	16%

7 Parker Creek Irrigation Release (below conduit)

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
42	282	364	652	335	27	0	0	0	0	0	0	1702

PARIRR

1970-1989 Monthly Averages for Parker Creek Releases

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
Diversions:	42	282	364	652	335	27	0	0	0	0	0	0	1702
% of Total:	2%	17%	21%	38%	20%	2%	0%	0%	0%	0%	0%	0%	
Parker Creek	467	1061	2022	2069	1312	690	375	310	296	285	258	340	9484
% of Creek	9%	27%	18%	32%	26%	4%	0%	0%	0%	0%	0%	0%	18%

8 Sand Trap #4 Releases (between Parker and Grant)

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
23	165	147	206	178	32	0	0	0	0	0	0	751

SAND4

1970-1989 Monthly Averages for Sand Trap #4

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
Diversions:	23	165	147	206	178	32	0	0	0	0	0	0	751
% of Total:	3%	22%	20%	27%	24%	4%	0%	0%	0%	0%	0%	0%	

9 Grant Lake Evaporation (per 1000 acres surface area)

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
288	396	504	576	504	396	288	180	108	72	108	180	3600

GRAEV

Grant fluctuates from 650 acres at 12000 AF to 1000 acres at 45000 AF

Assumed Monthly fractions of 3600 total (Same as Crowley)

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
8%	11%	14%	16%	14%	11%	8%	5%	3%	2%	3%	5%	3600
288	396	504	576	504	396	288	180	108	72	108	180	

10 Miscellaneous Gains (necessary for Grant Lake water balance)

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
603	868	781	-127	160	137	217	451	421	450	481	618	5060
0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	

1970-1989 Monthly Averages for Miscellaneous Gains

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
	315	868	781	-127	160	137	217	271	313	378	373	438	4125
% of Total:	8%	21%	19%	-3%	4%	3%	5%	7%	8%	9%	9%	11%	

LAAMP: Constant + % Runoff + % Irrigation + % Rain
MBGAIN

11 Grant Outlet Capacity (includes Mono Gate #1 and West Portal)

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
23700	24490	23700	24490	24490	23700	24490	23700	24490	24490	22120	24490	288350

Constant (AF/day): 790 (395 cfs) Actual 790 af/day

23700	24490	23700	24490	24490	23700	24490	23700	24490	24490	22120	24490	288350

GRCAP

1936-1989 Monthly and Annual Maximums for East Portal

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
17711	17237	16683	16312	17395	16051	12977	12466	12583	13112	11485	14863	166540

1941-1989 Monthly and Annual Maximums for West Portal

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
17109	16592	16002	15690	16703	15113	12172	11663	11885	12163	10905	14235	156994

167000 Annual water right.

12 Rush and Lee Vining Maximum Flow Targets (400 350 Max Observed)

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
30000	31000	30000	31000	31000	30000	31000	30000	31000	31000	28000	31000	365000
24000	24800	24000	24800	24800	24000	24800	24000	24800	24800	22400	24800	292000

Constant (AF/day): 800 (365 cfs)

24000	24800	24000	24800	24800	2400D	24800	24000	24800	24800	22400	24800	292000

MONO1 and LVMAX

13 West Portal Conduit Capacity

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot	
17250	17825	17250	17825	17825	17250	17825	17250	17825	17825	16100	17825	209875	
												167000	Water Right Maximum
Constant (AF/day): 575 (290 cfs)													
17250	17825	17250	17825	17825	17250	17825	17250	17825	17825	16100	17825	209875	

WPORT

14 Upper Owens (Inaya) Target Limits (Minimum and Maximum)

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot	
0	0	0	0	0	0	0	0	0	0	0	0	0	(400 cfs)
23760	24552	23760	24552	24552	23760	24552	23760	24552	24552	22176	24552	289080	(400 cfs)
Constant (AF/day): 792 (400 cfs)													
23760	24552	23760	24552	24552	23760	24552	23760	24552	24552	22176	24552	289080	

EPTARG

15 Long Valley Irrigation Diversions

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
350	3732	6260	5213	3411	1103	25	2	0	0	0	0	20096

1970-1989 Monthly Averages for Long Valley Irrigation

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
Diversion:	350	3732	6260	5213	3411	1103	25	2	0	0	0	0	20096
% of Total:	2%	19%	31%	26%	17%	5%	0%	0%	0%	0%	0%	0%	

LADWP claims 2500 acres on Mammoth/Hot/Owens
LADWP claims 4000 acres along other tributary streams

LVIRR

16 Long Valley Evaporation (per 1000 acres surface area)

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
288	396	504	576	504	396	288	180	108	72	108	180	3600

1970-1989 Monthly Averages for Long Valley Evaporation

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
Evaporation:	0	402	482	523	484	402	297	174	0	0	0	0	2764
% of Total:	0%	15%	17%	19%	18%	15%	11%	6%	0%	0%	0%	0%	

Long Valley fluctuates between 2500 and 5000 acres

Assumed Monthly fractions of 3600 total (Same as Grant)

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
8%	11%	14%	16%	14%	11%	8%	5%	3%	2%	3%	5%	3600
288	396	504	576	504	396	288	180	108	72	108	180	

LONGEV

17 Long Valley Gains (necessary for Long Valley water budget)

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
3036	1479	2520	2193	2369	1898	1415	2356	2547	2926	2811	3660	29210
0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	

LAAMP: Constant + % Runoff + % Irigation + % Rain
These are so constant, that springflow is suggested as dominant source.
LVGAIN

1970-1989 Monthly Averages for Long Valley Gains from LADWP Aqueduct

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
Gains:	2221	2491	3665	3053	2901	2925	2502	3582	3666	3829	4054	4041	38931
% of Total:	6%	6%	9%	8%	7%	8%	6%	9%	9%	10%	10%	10%	

Adjusted T&M Flowing GW - Hot Springs + Irrigation

2316	1479	2520	2193	2369	1898	1415	1906	2367	2656	2541	3210	26870

18 Long Valley Outflow Capacity (Gorge Powerplants)

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
40980	42346	40980	42346	42346	40980	42346	40980	42346	42346	38248	42346	498590

Constant (AF/day): 1366 (690 cfs)

40980	42346	40980	42346	42346	40980	42346	40980	42346	42346	38248	42346	498590

LVCAP

1969-1990 Monthly Maximum Long Valley Outflow

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
41829	37707	40233	34750	39487	40210	33342	36607	31742	34300	28248	37201	320672

19 Rock Creek Minimum Monthly Flows

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
1188	1350	1485	1535	1350	1188	921	891	921	921	832	921	13502

Specified Flows in cfs

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
20	22	25	25	22	20	15	15	15	15	15	15

RCKFSH

1907-1989 Rock Creek at Little Round Valley

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
Average:	1200	3209	5080	4527	2383	1258	966	888	913	925	806	894	23050
Minimum:	629	848	1309	1083	704	487	421	406	379	467	395	510	9174
Maximum:	2446	8264	12405	13281	6799	3769	2578	2321	1694	2767	1333	1537	48640

There appears to be water lost between this gage and the diversion

20 Round Valley Irrigation (w/ stockwater, recreation and wildlife)

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
920	1700	1970	1780	1420	940	220	140	130	130	120	160	9630

RVIRR

1970-1989 Monthly Averages for Round Valley Irrigation

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
Irrigation:	920	1700	1970	1780	1420	940	220	140	130	130	120	160	9630
% of Total:	10%	18%	20%	18%	15%	10%	2%	1%	1%	1%	1%	2%	

21 Owens Gorge Transit Gain (Upper Gorge springs and seepage)

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
769	1180	1020	1054	1239	1106	866	780	67	662	620	853	10216

1970-1989 Monthly Averages for Owens Gorge Transit Gains

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
Gains	769	1180	1020	1054	1239	1106	866	780	67	662	620	853	10216

```
    0     0     0     0     0     0     0     0     0     0     0     0
    0     0     0     0     0     0     0     0     0     0     0     0
LAAMP: Constant + % Long Valley Storage + % Rain
Constant (AF/day):   29
  870   899   870   899   899   870   899   870   899   899   812   899 10585
RVTRAN
```

22 Round Valley Miscellaneous Losses

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
	506	1990	3241	2789	1409	746	-79	-559	-792	-909	-829	-402	7111
% of Total:	7%	28%	46%	39%	20%	10%	-1%	-8%	-11%	-13%	-12%	-6%	

```
    0     0     0     0     0     0     0     0     0     0     0     0
    0     0     0     0     0     0     0     0     0     0     0     0
    0     0     0     0     0     0     0     0     0     0     0     0
LAAMP: Constant + % Runoff + % Irrigation + % Rain

RVLOS
```

23 Pleasant Valley Release Targets (Minimum and Maximum)

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
7500	7750	7500	7750	7750	7500	7750	7500	7750	7750	7000	7750	91250
37500	38750	37500	38750	38750	37500	38750	37500	38750	38750	35000	38750	456250

```
Constant (AF/day):  250
 7500  7750  7500  7750  7750  7500  7750  7500  7750  7750  7000  7750 91250
PVTARG
```

Pleasant Valley Evaporation (per 100 acre surface area)

	0	40	48	52	48	40	30	17	0	0	0	0	275

Based on Long Valley Data

1935-1989 Monthly Averages for Round Valley Losses

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
Losses:	506	1990	3241	2789	1409	746	-79	-559	-792	-909	-829	-402	7111
% of Total:	7%	28%	46%	39%	20%	10%	-1%	-8%	-11%	-13%	-12%	-6%	

24 Laws Area Recreation, Wildlife, Enhancement and Mitigation

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
	150	230	640	560	660	1150	780	780	810	370	100	80	6310
% of Total:	2%	4%	10%	9%	10%	18%	12%	12%	13%	6%	2%	1%	

```
LAWREC
```

1970-1989 Monthly Averages for Laws Area Rec/Wild/Enhan/Mitig Uses

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
Uses:	150	230	640	560	660	1150	780	780	810	370	100	80	6310
% of Total:	2%	4%	10%	9%	10%	18%	12%	12%	13%	6%	2%	1%	

25 Laws Area Irrigation and Stockwater

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
	620	920	840	820	770	570	140	45	45	45	45	45	4905
% of Total:	13%	19%	17%	17%	16%	12%	3%	1%	1%	1%	1%	1%	

```
LAWIRR
```

1975-1989 Monthly Averages for Laws Area Irrigation/Stockwater

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
Diversions:	620	920	840	820	770	570	140	45	45	45	45	45	4905

26 Laws Area Miscellaneous Loss

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
210	330	360	530	510	470	520	390	350	370	340	330	4710
0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	

1970-1989 Monthly Averages for Laws Area Rec/Wild/Enhan/Mitig Uses

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
Losses:	239	339	412	572	547	447	511	391	350	442	337	334	4921
% of Total:	5%	7%	8%	12%	11%	9%	10%	8%	7%	9%	7%	7%	

LAAMP: Constant + % Runoff + % Irrigate + % Spread + % Pump + % Rain

LAWLOS

27 Laws Area Spreading Capacity

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
5250	5425	5250	5425	5425	5250	5425	5250	5425	5425	4900	5425	63875

Constant (AF/day): 175 Capacity of McNally Canals or spreading areas?

5250	5425	5250	5425	5425	5250	5425	5250	5425	5425	4900	5425	63875

1970-1989 Monthly Maximums for Laws Area Spreading

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
	5250	2864	5091	5992	4138	3127	4717	1605	2240	3407	2680	4068	
Monthly %:	11%	13%	19%	21%	17%	12%	7%	0%	0%	0%	0%	0%	100%
For >160%:								2000	2000	2000	2000	2000	

LAWSPD

28 Laws Area Pumping Constraints (Minimum, Maximum, Monthly Fractions)

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot	
150	150	150	150	150	150	150	150	150	150	150	150	1800	
4050	4185	4050	4185	4185	4050	4185	4050	4185	4185	3780	4185	38000	
13.0	13.0	13.0	13.0	4.5	3.5	3.5	3.5	3.5	3.5	13.0	13.0	100.0	Wet
8.2	8.5	8.2	8.5	8.5	8.2	8.5	8.2	8.5	8.5	7.7	8.5	100.0	Norman
8.2	8.5	8.2	8.5	8.5	8.2	8.5	8.2	8.5	8.5	7.7	8.5	100.0	Dry

1970-1989 Monthly Maximums for Laws Area Pumping

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
Maximum:	2827	3222	3095	3240	3851	3443	3388	3178	4114	4126	3210	3210	38841
Minimum:	4	5	149	161	170	128	5	2	2	2	2	2	945

This includes E&M pumping that is not part of LADWP T&M records
These minimums may not be accurate under present Inyo County Agreements.

LAWGW

29 Bishop Area Flowing Wells (along Owens River)

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
387	398	382	391	387	373	386	372	381	379	348	385	4569

Constant (AF/day): 12

1970-1989 Monthly Averages for Bishop Flowing Wells

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
Wells:	387	398	382	391	387	373	386	372	381	379	348	385	4569
% of Total:	8%	9%	8%	9%	8%	8%	8%	8%	8%	8%	8%	8%	

360	372	360	372	372	360	372	360	372	372	336	372	4380

BISSPR

30 Bishop Area Recreation, Wildlife, and Indian Uses

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
620	820	1040	1200	1130	1030	670	350	320	270	200	200	7850

1970-1989 Monthly Averages for Bishop Recreation, Wildlife, Indian Uses

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
Uses:	620	820	1040	1200	1130	1030	670	350	320	270	200	200	7850
% of Total:	8%	10%	13%	15%	14%	13%	9%	4%	4%	3%	3%	3%	

BISREC

31 Bishop Area Irrigation and Stockwater

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
2600	3590	3740	4060	3860	2860	360	210	220	230	200	230	22160

1978-1989 Monthly Averages for Bishop Irrigation and Stockwater

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
Irrigation:	2600	3590	3740	4060	3860	2860	360	210	220	230	200	230	22160
% of Total:	12%	16%	17%	18%	17%	13%	2%	1%	1%	1%	1%	1%	

BISIRR

32 Bishop Area Miscellaneous Losses

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
1997	2231	2460	3091	2739	2235	2126	1367	1159	980	898	1536	22819
0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	

1970-1989 Monthly Averages for Bishop Losses

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
Losses:	1997	2231	2460	3091	2739	2235	2126	1367	1159	980	898	1536	22819
% of Total:	9%	10%	11%	14%	12%	10%	9%	6%	5%	4%	4%	7%	

LAAMP: Constant + % Runoff + % Irrigate + % Pump + % Rain

BISLOS

33 Bishop Pumping Constraints (Minimum, Maximum, Monthly Fractions)

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot	
100	100	100	100	100	100	100	100	100	100	100	100	1200	Maximum:
1560	1612	1560	1612	1612	1560	1612	1560	1612	1612	1456	1612	12000	Minimum:
26.0	26.0	26.0	6.0	1.0	1.0	1.0	1.0	1.0	1.0	5.0	5.0	100.0	Wet
13.5	13.5	13.5	13.5	13.5	13.5	5.3	4.6	4.6	1.5	1.5	1.5	100.0	Normal
11.5	11.5	11.5	11.5	11.5	11.5	11.5	5.4	5.4	2.9	2.9	2.9	100.0	Dry

1970-1989 Monthly Averages for Bishop Cone Pumping

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
Maximum:	1580	1600	1553	1609	1627	1526	1297	782	651	589	538	703	13008
Minimum:	0	0	0	0	0	0	0	0	0	0	0	0	0

BISGW

34 Bishop Canal Capacity at Owens River

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot

1970-1989 Monthly Maximum for Bishop Canal Diversions

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot

4650	4805	4650	4805	4805	4650	4805	4650	4805	4805	4340	4805	56575

Constant (AF/day): 155

4650	4805	4650	4805	4805	4650	4805	4650	4805	4805	4340	4805	56575

Maximum:	3953	4094	4761	4896	4492	3429	2749	1998	1567	1439	1505	2335	32722

BISCAP

35 Big Pine Area Recreation, Wildlife, Enhancement, Mitigation, Indian

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
260	600	620	720	790	570	120	120	120	0	0	170	4090

1970-1989 Monthly Averages for Big Pine Rec/Wild, Enh-Mit, Indian Lands

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
Rec/Wild:	41	97	78	106	103	94	5	0	0	0	0	0	524
E-M(87-89):	160	500	450	600	400	300	225	50	200	0	0	350	3235
Indian:	53	132	143	165	173	119	12	1	0	0	0	1	799
Sum:	254	729	671	871	676	513	242	51	200	0	0	351	4558

BIGREC

36 Big Pine Irrigation and Stockwater

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
1070	1690	1920	1960	1890	1430	240	120	130	130	130	150	10860

1970-1989 Monthly Averages for Big Pine Irrigation and Stockwater

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
Diversions:	1071	1689	1919	1959	1886	1428	244	120	127	131	125	147	10846
% of Total:	10%	16%	18%	18%	17%	13%	2%	1%	1%	1%	1%	1%	

BIGIRR

37 Big Pine Spreading Capacity (Big Pine Canal Capacity?)

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
4350	4495	4350	4495	4495	4350	4495	4350	4495	4495	4060	4495	52925

Constant (AF/day): 145

4350	4495	4350	4495	4495	4350	4495	4350	4495	4495	4060	4495	52925

Average Monthly Big Pine Spreading for 1978, 80, 82, 83, 86

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
Spreading:	1405	1951	2602	2833	1582	940	488	364	503	665	889	934	15156
% of Total:	9%	13%	17%	19%	10%	6%	3%	2%	3%	4%	6%	6%	

1970-1989 Monthly Maximum Big Pine Spreading

Maximum:	2458	3768	4841	3972	2809	1410	1015	1097	1174	1893	3055	2314	19492

BIGSPD

1970-1989 Monthly Maximum Big Pine Canal at Owens River

3919	4497	4309	4116	3693	3662	1736	1554	1375	1138	1302	1851	23950

38 Big Pine Pumping Constraints (Minimum, Maximum, Monthly Fractions)

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot	
1950	2015	1950	2015	2015	1950	2015	1950	2015	2015	1820	2015	23725	
5400	5580	5400	5580	5580	5400	5580	5400	5580	5580	5040	5580	42000	
8.2	8.5	8.2	8.5	8.5	8.2	8.5	8.2	8.5	8.5	7.7	8.5	100.0	Wet

1970-1989 Monthly Maximum Big Pine Pumping

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
4838	5522	5295	5496	5393	5026	4404	4168	4154	3854	3540	3794	48663

1970-1989 Fish Springs Wells: approximately 2000 month

6.5	6.5	6.5	6.5	6.5	6.5	6.5	10.9	10.9	10.9	10.9	10.9	100.0	Normal
8.2	8.5	8.2	8.5	8.5	8.2	8.5	8.2	8.5	8.5	7.7	8.5	100.0	Dry

BIGGW

39 Big Pine Miscellaneous Losses

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
1524	2183	2801	3017	2278	1830	1403	1005	803	778	590	957	19169
0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	

LAAMP: Constant + % Runoff + % Irrigate + % Spread + % Pump + % Rain

1970-1989 Monthly Averages for Big Pine Miscellaneous Losses

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
Losses:	1524	2183	2801	3017	2278	1830	1403	1005	803	778	590	957	19169

BIGLOS

40 Owens River Transit Loss (between PV and Tinemaha)

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
2208	2944	4416	5888	5520	4416	3312	2576	1840	1472	736	1472	36800
0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	

LAAMP: Constant + % Runoff + % PV Outflow + % Big Pine Pump + % Rain

1970-1989 Monthly Averages for Owens River PV to Tinemaha Transit Loss

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
Losses:	2208	2944	4416	5888	5520	4416	3312	2576	1840	1472	736	1472	36800
% Total:	0.06	0.08	0.12	0.16	0.15	0.12	0.09	0.07	0.05	0.04	0.02	0.04	1

PVTRAN

41 Tinemaha Reservoir Evaporation (per 1000 acres surface area)

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
480	660	840	960	840	660	480	300	180	120	180	300	6000

Tinemaha fluctuates between 500 acres and 1500 acres

LAAMP assumes 500 acres.

TINEV

1970-1989 Monthly Averages for Tinemaha Evaporation

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
Evaporation:	522	689	838	923	812	618	438	242	155	147	205	368	5957
% of Total:	9%	12%	14%	15%	14%	10%	7%	4%	3%	2%	3%	6%	

Assumed Monthly fractions of 3600 total (Same as Grant and Crowley))

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
8%	11%	14%	16%	14%	11%	8%	5%	3%	2%	3%	5%	6000
480	660	840	960	840	660	480	300	180	120	180	300	

42 Tinemaha to Haiwee Springs (Seeley, Blackrock) and Flowing Wells (Indep.)

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
431	431	402	420	425	393	402	396	368	328	292	344	4632

1970-1989 Monthly Averages for Tinemaha to Haiwee Springs/Flowing wells

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
Spring/well:	431	431	402	420	425	393	402	396	368	328	292	344	4632
% of Total:	9%	9%	9%	9%	9%	8%	9%	9%	8%	7%	6%	7%	

Flowing Wells greatly reduced since higher pumping began in 1971

THSPR

43 Tinemaha to Haiwee Rec/Wild, E&M, Indian Land (West/East)

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
830	900	1070	1360	1240	860	420	170	120	130	110	240	7450
1050	1550	2090	2490	2430	1870	1390	1070	780	620	510	610	16460

1970-1989 Monthly Averages for Tinemaha to Haiwee Rec/E+M/Indian

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
(West)	830	900	1070	1360	1240	860	420	170	120	130	110	240	7450
(East)	1050	1550	2090	2490	2430	1870	1390	1070	780	620	510	610	16460
(Total)	1880	2450	3160	3850	3670	2730	1810	1240	900	750	620	850	23910
% of Total:	8%	10%	13%	16%	15%	11%	8%	5%	4%	3%	3%	4%	

THREC

44 Tinemaha to Haiwee Irrigation and Stockwater (West/East)

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
902	1650	1879	1902	1373	1057	445	359	351	343	314	378	10953
361	403	443	528	477	467	349	281	264	255	216	251	4295

1970-1989 Monthly Averages for Tinemaha to Haiwee Irrigate/Stockwater

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
(West)	902	1650	1879	1902	1373	1057	445	359	351	343	314	378	10953
(East)	361	403	443	528	477	467	349	281	264	255	216	251	4295
(Total)	1263	2053	2322	2430	1850	1524	794	640	615	598	530	629	15248
% of Total:	8%	13%	15%	16%	12%	10%	5%	4%	4%	4%	3%	4%	

THIRR

45 Tinemaha to Haiwee Spreading Capacity and Maintenance Spilling (Minimum)

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
27000	27900	27000	27900	27900	27000	27900	27000	27900	27900	25200	27900	328500
500	500	500	500	500	500	500	500	500	500	500	500	6000

1970-1989 Monthly Maximums for Tinemaha to Haiwee GW Recharge and Spilling

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
GW Recharge:	5108	16413	28352	28139	15426	2350	619	212	288	259	166	2262	58800
Spilling:	250	395	541	595	509	603	395	242	173	144	103	113	5583

Constant (AF/day): 900

27000 27900 27000 27900 27900 27000 27900 27000 27900 27900 25200 27900 328500

THSPD AND THSPIL

46 Tinemaha to Haiwee Pumping Constraints (Minimum, Maximum, Monthly Fractions)

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot	
1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	12000	
10800	11160	10800	11160	11160	10800	11160	10800	11160	11160	10080	11160	98700	
8.2	8.5	8.2	8.5	8.5	8.2	8.5	8.2	8.5	8.5	7.7	8.5	100.0	Wet
10.0	5.0	5.0	5.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	100.0	Normal
8.2	8.5	8.2	8.5	8.5	8.2	8.5	8.2	8.5	8.5	7.7	8.5	100.0	Dry

1970-1989 Monthly Maximums for Tinemaha to Haiwee GW Pumping

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
Maximum:	10365	10801	10438	10718	11159	10871	10075	9758	10291	9910	9010	10006	111512
Minimum:	111	141	206	369	1451	955	601	852	870	873	1038	1224	15679

These include E&M wells that are not in T&M records.

Green Book Annual limit = 98700

THGW

47 Owens River and Aqueduct Transit Gains (can be net loss)

1970-1989 Monthly Averages for Tinemaha to Haiwee Transit Gain

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
415	863	512	288	208	684	799	966	1250	1329	1158	858	9330
0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
Gains:	415	863	512	288	208	684	799	966	1250	1329	1158	858	9330
% of Total:	4%	9%	5%	3%	2%	7%	9%	10%	13%	14%	12%	9%	

LAAMP: Constant + % Runoff + % Tinemaha Out + % Pump + % Rain

THTRAN

48 Tinemaha to Haiwee Miscellaneous Losses

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
2057	3643	4520	4298	3187	2720	2733	1980	1858	1876	1679	2051	32602
0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	

1970-1989 Monthly Averages for Tinemaha to Haiwee Transit Gain

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
Losses:	2057	3643	4520	4298	3187	2720	2733	1980	1858	1876	1679	2051	32602
% of Total:	6%	11%	14%	13%	10%	8%	8%	6%	6%	6%	5%	6%	

LAAMP: Constant + % Runoff + % Irrigate + % Spread + % Pump + % Rain

THLOS

49 Haiwee Evaporation (per 1000 acres surface area)

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
360	495	630	720	630	495	360	225	135	90	135	225	4500

1970-1989 Monthly Averages for Haiwee Evaporation

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
Evaporation:	386	534	655	712	622	458	305	163	86	86	142	264	4413
% of Total:	9%	12%	15%	16%	14%	10%	7%	4%	2%	2%	3%	6%	

North Haiwee is about 500 acres, South Haiwee is now about 500 acres (was 1000 ac)

Assumed Monthly fractions of 3600 total (Same as Grant and Crowley))

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
8%	11%	14%	16%	14%	11%	8%	5%	3%	2%	3%	5%	4500
360	495	630	720	630	495	360	225	135	90	135	225	

NAEV

50 Haiwee to Los Angeles Export Target (WET, NORMAL, DRY)

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot	70-89 Averages	
48000	49600	48000	49600	49600	48000	41850	40500	41850	41850	37800	41850	538500	1475/d	540
48000	49600	48000	49600	49600	48000	33480	32400	33480	33480	30240	33480	489360	1340/d	490
48000	49600	48000	49600	49600	48000	18290	17700	18290	18290	16520	18290	400180	1095/d	400

MWD seasonal pricing schedule is lowest in October-March.

Flow to LA Monthly Maximum for 1970-1989

Constant (AF/day): 590 (Most to LA in Jul and Aug)

													1600/d Max
17700	18290	17700	18290	18290	17700	18290	17700	18290	18290	16520	18290	215350	

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
To LA:	49984	48608	46589	49137	49155	47728	47748	44249	43535	47285	39248	44845	558111
To Cal Aq:	14726	14420	14124										

LATARG

51 Haiwee to LA Transit Loss (Bouquet Complex losses)

Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
763	918	932	1088	1062	694	935	1022	774	1073	692	344	10297
0	0	0	0	0	0	0	0	0	0	0	0	

1970-1989 Monthly Average Haiwee to LA Transit Loss

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Tot
Losses:	763	918	932	1088	1062	694	935	1022	774	1073	692	344	10297
% of Total:	7%	9%	9%	11%	10%	7%	9%	10%	8%	10%	7%	3%	

Annual Summary of Historical 1940-1989 Hydrologic Data for LAAMP Simulations

Runoff Year	Lee Vining Creek (AF)	Walker Creek (AF)	Parker Creek (AF)	South & East Parker Creek (AF)	Rush Creek (AF)	Cain Ranch Rain (in)	Mono Tunnel Make (AF)	Owens Above East Portal (AF)	Long Valley Runoff (AF)	Mammoth Creek (AF)	Hot Springs (AF)	Rock Creek (AF)	Long Valley Rain (in)	Round Valley Runoff (AF)	Birchim Canyon Springs (AF)	Laws Runoff (AF)	Fish Springs (AF)	Bishop Runoff (AF)	Keogh Springs (AF)	Big Pine Runoff (AF)	Tinemaha Rain (in)	Tinemaha Haiwee Runoff (AF)	Haiwee Rain (in)
40	62835	4799	8003	640	54565	12.7	18805	33126	100859	15447	27265	25813	11.1	68005	17342	2022	5972	78195	869	47624	9.2	95700	12.4
41	75300	8112	12109	1555	87282	10.3	17695	42060	139438	23056	31658	35027	10.7	96876	9799	2277	6527	107033	859	70962	5.7	181641	8.0
42	75384	6843	10801	1702	71728	9.8	16371	46899	128946	23750	30290	25440	9.6	70679	9716	1948	6631	93428	844	60162	9.5	110019	8.3
43	73544	6639	10046	1444	61871	10.6	15484	44023	119262	19065	28527	27004	7.8	68551	14818	2195	6576	85469	878	51744	5.4	124375	11.3
44	40056	3815	7503	850	49890	9.9	13860	38844	91064	11356	26797	19657	11.0	51522	17400	1723	6225	71607	860	41825	7.4	105590	4.4
45	61937	6667	10657	1735	76498	12.5	14350	42896	132559	22636	30804	33082	11.8	90596	6065	1807	6387	92411	890	65507	7.9	139863	10.7
46	51587	5207	9918	1412	64118	12.5	13602	43959	113788	15151	28754	28743	10.5	78907	13986	2153	6402	90266	946	58832	6.9	105170	8.6
47	32942	3693	6886	754	39329	3.7	13926	36702	87620	10232	25365	18282	2.4	52216	14733	2179	6057	66556	950	43180	0.7	80337	2.6
48	37603	3689	6322	428	46142	9.0	12965	29298	71934	9685	23389	13098	7.2	43240	3000	2012	6160	60229	941	32357	3.4	50452	2.8
49	29751	3526	7412	751	49402	6.6	12095	27184	75950	9924	23294	15677	6.8	46033	11716	2008	6186	68294	918	40059	3.6	67448	4.1
50	45821	4628	7440	840	52508	11.8	11076	29176	90286	13967	22791	19746	9.5	52516	11801	1839	6301	66716	966	41353	5.7	72121	2.0
51	50472	4873	7668	624	49749	19.7	11102	30679	93489	12706	21332	21407	18.1	57768	6092	1537	6650	70802	920	40780	13.0	72426	10.7
52	67070	7365	11842	1948	89663	6.0	12224	44114	140908	23229	31462	31888	6.4	92367	2251	2186	5870	104348	976	74161	4.0	173241	3.9
53	40602	4038	6920	656	43711	10.0	11510	43243	95952	10320	25668	17926	11.5	50433	15797	1970	6183	69310	928	40477	6.5	71068	4.1
54	34082	3259	5745	576	40334	6.5	12585	39290	92161	10176	25595	17764	7.5	51071	8925	1958	5810	65439	933	43776	3.4	77587	2.8
55	35717	4421	7235	919	51982	16.1	10867	39111	98058	11768	25079	18368	15.6	53681	8372	1808	5879	69252	901	46287	10.1	70416	4.7
56	68387	7263	11331	2067	80797	9.9	12013	52385	147165	26162	28076	32514	9.6	86249	8287	1841	6156	89528	868	60665	6.2	119437	5.4
57	44464	4559	7748	884	48147	15.3	11918	41049	104242	14711	26164	20358	13.0	60450	8078	1745	6326	78209	863	45681	9.5	95840	6.8
58	59732	6939	12366	1921	78502	9.9	11919	46527	135495	23703	29181	27059	9.2	83121	8588	2092	6183	90731	834	64741	6.6	148154	4.2
59	29123	2762	6747	547	35469	6.5	9658	35356	74056	7298	24903	12338	5.0	42053	9019	1895	5594	53817	908	40821	2.4	50758	3.2
60	30016	2410	5303	318	33190	7.4	6792	28131	58092	4326	22851	10839	6.0	36128	8582	1753	5429	49773	935	31132	3.5	42500	4.8
61	32122	3038	6342	247	31072	13.0	6978	23479	53397	3920	22048	10869	16.0	35175	7390	1570	5606	49954	895	33592	7.8	40365	9.0
62	51153	5819	10541	1201	64765	14.7	9708	32643	106497	17077	25584	20868	12.2	63294	9053	1759	5619	75132	903	51458	9.3	118653	6.1
63	53856	6415	9035	1595	68293	9.5	13057	35640	118211	19129	26659	23628	6.9	70495	11836	1865	5449	85292	912	58146	3.5	128367	5.7
64	34583	3327	6516	565	40694	11.1	13357	32895	78137	9405	23748	13847	6.4	45578	8955	1828	5331	59155	886	36582	3.7	56247	2.6
65	56991	6364	9737	1363	69425	12.6	10748	36850	115400	21055	28049	21687	10.4	66789	9762	1760	5462	77509	821	44463	6.3	112310	9.6
66	35500	3222	7576	989	49190	14.8	8709	35741	85945	11414	24923	13255	13.3	45835	9351	1746	5893	56002	825	41385	12.0	67730	8.4
67	70703	7719	14466	2563	105565	8.2	13230	49730	164576	31995	31329	32435	5.8	100308	10631	1958	6253	109975	811	79576	3.4	161692	7.3
68	32135	3362	7030	617	39599	16.5	12094	37377	77699	7007	25816	12082	23.8	45049	11053	1885	7659	66463	813	41086	21.0	71559	13.1
69	80425	9564	15348	2677	108821	10.2	15179	61809	211249	40424	39406	42796	6.9	133136	8909	2070	6240	143635	783	117058	3.6	270258	4.8
70	43754	5143	7260	753	46940	7.3	11803	45810	111696	14002	31075	16972	7.2	58286	11135	2371	6235	75962	772	48807	3.3	82868	4.4
71	46760	4486	8622	1079	54987	9.4	9737	38699	97674	12497	27036	15238	8.0	53088	11022	2199	6438	65722	760	39563	3.0	62002	4.1
72	34439	3918	7872	793	44190	12.6	12032	39565	85384	9112	24813	13315	13.1	45918	10752	2577	6777	61065	725	35940	9.4	45929	7.5
73	49331	6730	10282	1467	66799	13.1	16228	41168	121314	19072	31055	22403	10.9	71586	11163	3599	6485	89492	718	53286	6.3	124517	7.5
74	53199	6069	9957	1378	63046	10.7	13859	50435	132052	19492	26638	24407	6.9	74613	12113	3097	6006	85726	846	55738	5.3	112086	6.3
75	44899	5835	9580	1560	59739	7.9	13721	52184	118633	18473	27669	17456	4.5	57092	15766	3058	6219	78031	979	44190	4.0	76875	6.3
76	21878	3108	5580	345	24610	6.6	15951	35755	66845	5254	23183	11392	6.9	39074	14264	2769	5988	44119	958	31740	6.4	64385	6.9
77	19852	2878	4690	196	25498	21.2	12243	30253	53148	2482	21558	9174	20.2	32758	14917	2595	6387	47403	955	28244	15.0	57833	19.8
78	60280	8278	12963	1863	97475	14.1	9546	58873	173377	28351	32657	31662	10.3	97651	18603	3746	5876	108689	958	72909	5.4	186754	7.4
79	45138	5818	10231	1623	60506	14.7	11662	39049	112233	15862	27052	19296	13.5	64923	16232	3294	5766	78276	992	52915	7.8	97310	8.3
80	66512	7994	12347	2606	83677	8.3	13079	51688	159383	27822	31129	32235	6.9	98632	11235	2752	6046	106425	1096	75037	4.0	167260	6.5

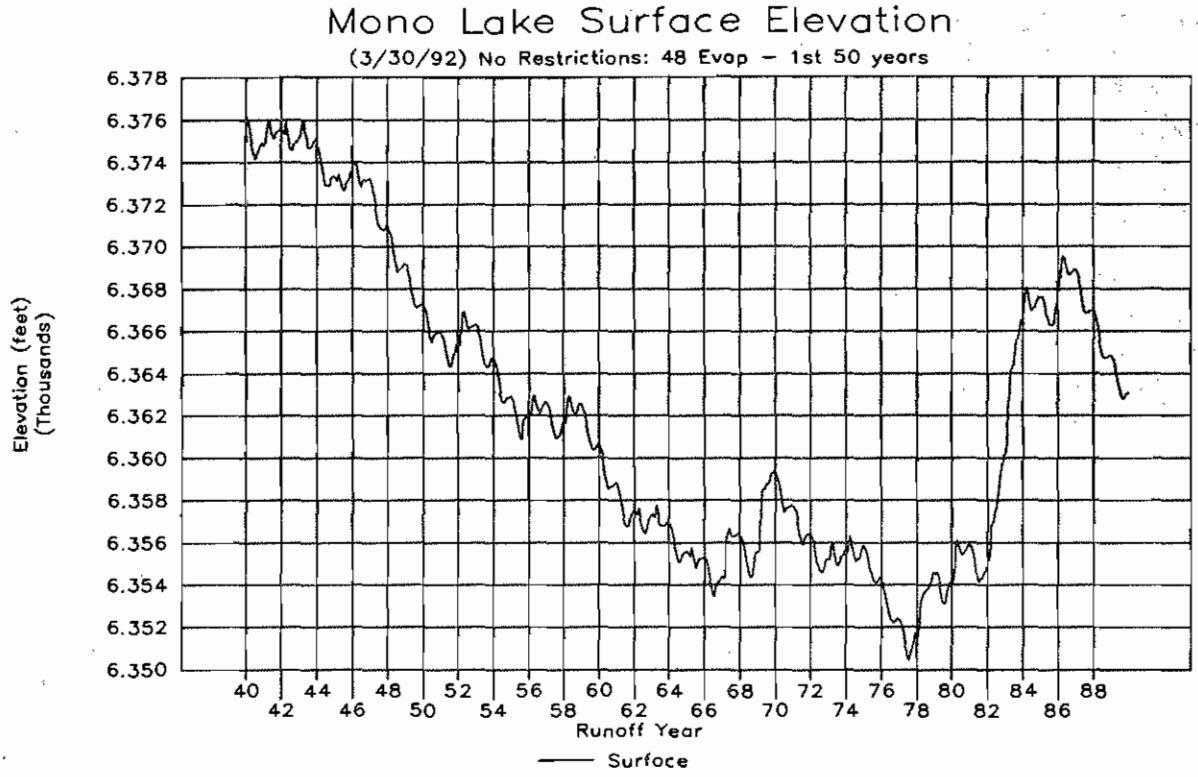
81	39115	4518	8872	1110	47883	12.6	13514	44196	95353	8872	27017	15525	11.1	56482	5308	2811	5161	72475	1068	46955	7.7	80372	7.0
82	83898	9477	13736	2120	105228	23.2	12570	55743	183717	36274	36233	37363	27.1	111084	19523	3117	5997	119723	1026	80005	13.6	167861	15.2
83	92303	12132	16759	3620	117750	11.9	13739	77498	219691	44607	40572	43558	9.4	129160	16759	4903	5489	133534	963	82289	5.5	219517	7.2
84	64298	6813	11042	1389	65645	6.9	12882	61093	137819	20766	33585	25945	6.7	80102	16521	4800	5684	102626	1006	63723	6.8	113394	11.2
85	44881	4686	8795	893	50821	17.3	14155	59218	114289	11205	31559	17656	17.7	62065	17231	4708	5785	79154	1017	50025	13.0	118522	8.2
86	67915	7786	12521	2473	81845	5.6	14586	61316	169283	29336	38040	35277	4.6	103582	14405	5617	6087	114575	1052	77116	2.8	183698	4.4
87	26822	3127	6195	525	31773	8.0	12732	41939	75241	6515	27141	10512	6.9	45036	13383	4873	5831	67512	1021	36393	3.6	57945	5.4
88	28689	3230	6134	287	32357	4.9	9406	33056	62065	5527	22597	10615	5.9	41678	13276	4313	5428	58575	1070	33833	3.7	57957	7.2
89	36477	3690	6250	414	40965	7.5	11430	32007	68548	6009	22704	11164	6.0	39494	14719	3754	5294	54552	1024	32068	2.6	63467	1.7
Average	49287	5401	9126	1218	59681	11.0	12575	42195	111204	16432	27802	21693	10.1	66009	11593	2567	6040	79763	913	51725	6.6	104438	6.9

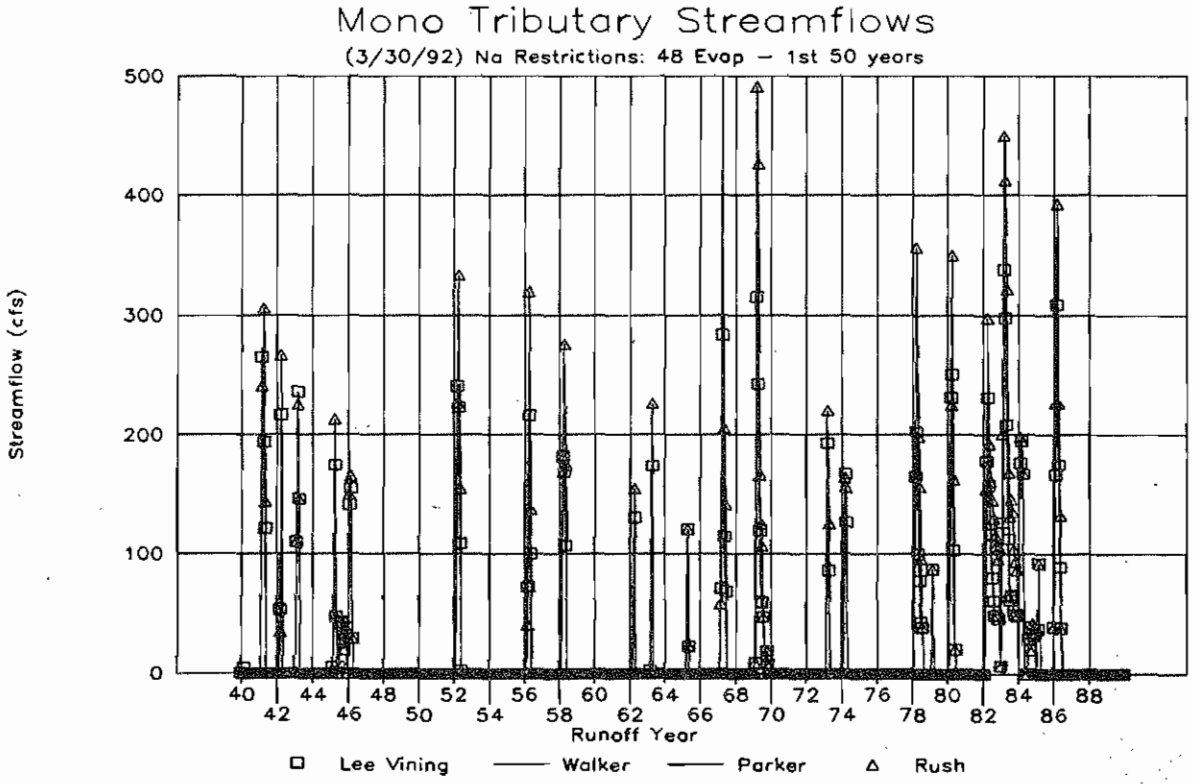
Runoff Year	Lee Vining Creek (AF)	Walker Creek (AF)	Parker Creek (AF)	South & East Parker Creek (AF)	Rush Creek (AF)	Cain Ranch Rain (in)	Mono Tunnel Make (AF)	Owens Above East Portal (AF)	Long Valley Runoff (AF)	Mammoth Creek (AF)	Hot Creek Springs (AF)	Rock Creek (AF)	Long Valley Rain (in)	Round Valley Runoff (AF)	Birchim Canyon Springs (AF)	Laws Runoff (AF)	Fish Springs (AF)	Bishop Runoff (AF)	Keogh Springs (AF)	Big Pine Runoff (AF)	Tinemaha Rain (in)	Tinemaha Haiwee Runoff (AF)	Haiwee Rain (in)

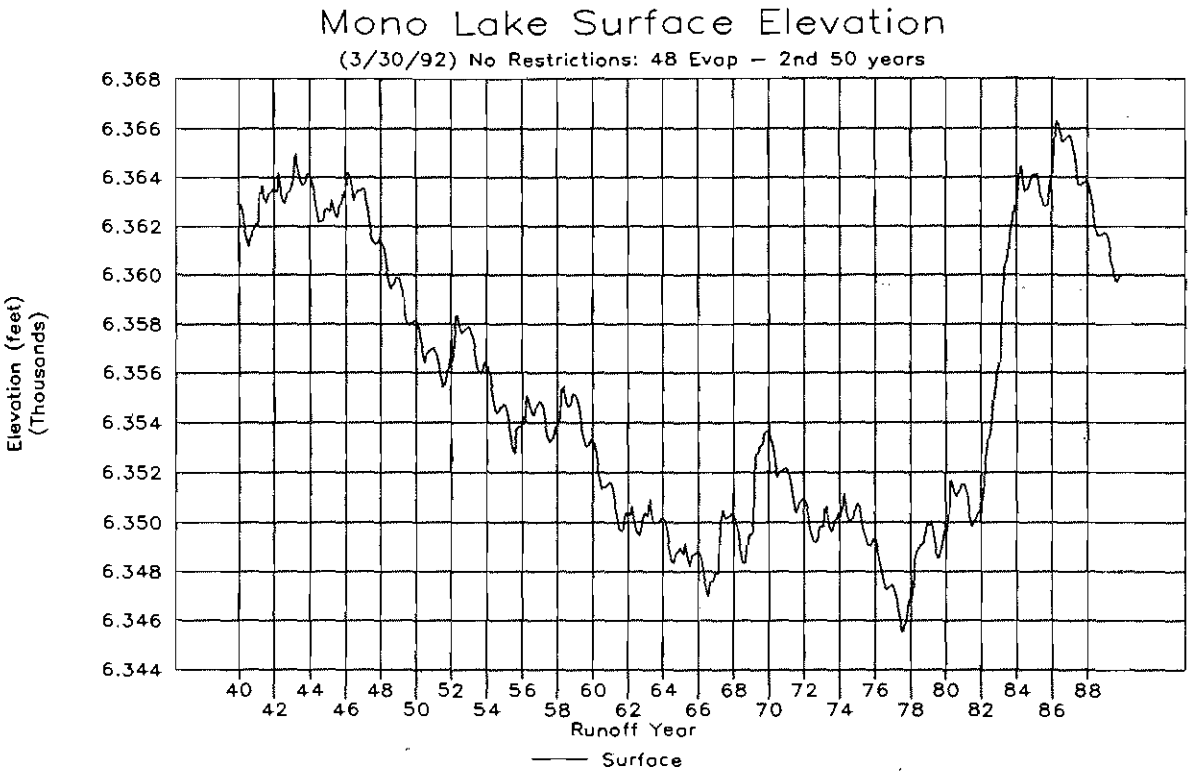
Section 2. No-Restriction Alternative

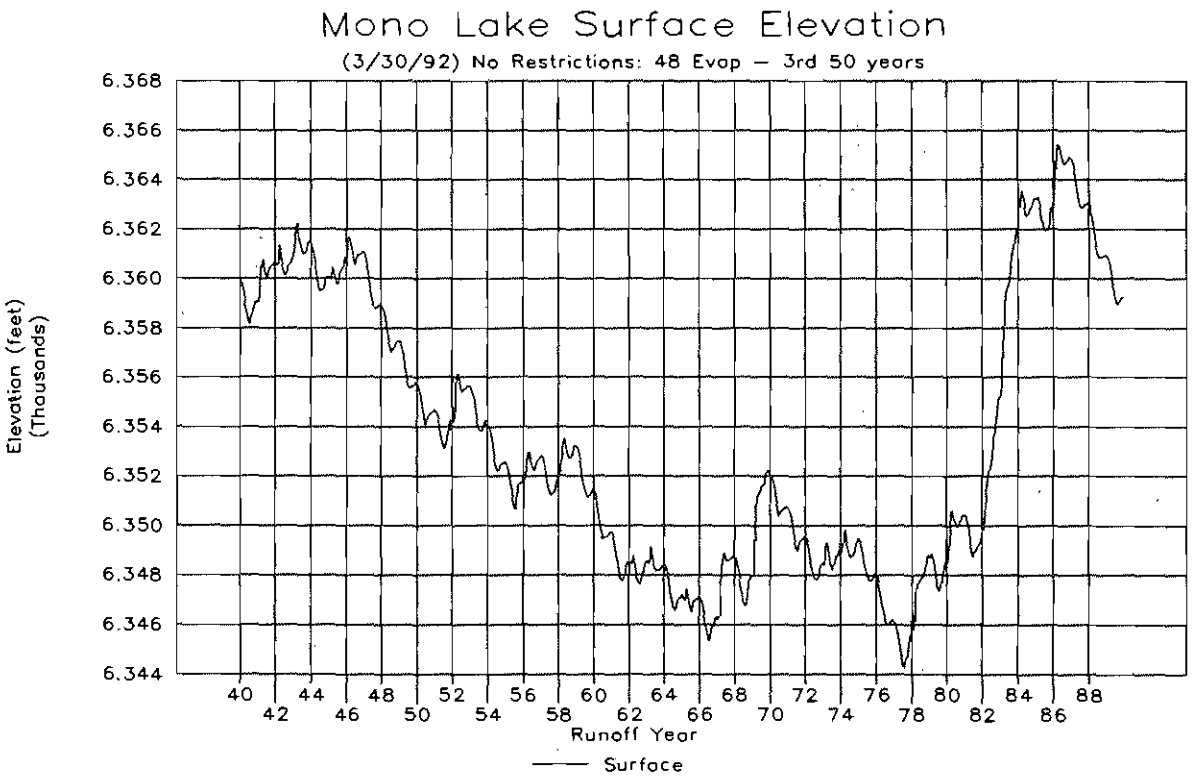
Summary of LAAMP Simulations
03/30/92
Mono EIR Alternatives
Initial Alternatives – 1st 50 Years:
(3/30/92) No Restrictions: 48 Evap – 1st 50 years

	Owens Available Export (AF)	Total Owens Uses (AF)	Haiwee Exports (AF)	Haiwee Target (AF)	Mono Lake Level (feet)	Grant Storage (AF)	Releases to Mono Lake (AF)	West Portal Exports (AF)	Long Valley Storage (AF)	Long Valley Outflow (AF)	Pleasant Valley Outflow (AF)	Tinemaha Inflow= Outflow (AF)	Total Owens Pumping (AF)	Total Owens Spreading (AF)	Aqueduct Spilling (AF)	Tinemaha Storage (AF)	Haiwee Storage (AF)
Starting:					6376.29	20000			127710							8000	8000
Minimum:	540	1645	13277	16520	6350.44	20000	0	0	112336	0	7983	11509	3070	0	0	0	0
Average:	25721	9568	37159	39882	6362.19	29924	2686	7085	142090	20037	25317	34045	9222	848	654	1154	962
Maximum:	162922	22593	49600	49600	6376.29	50000	50954	17825	194330	42346	63391	107794	26264	37820	144747	10000	10000
(TAF/yr):	308.7	114.8	445.9	478.6			32.2	85.0		240.4	303.8	408.5	110.7	10.2	7.8		
71-89 Avg:	346.5	114.5	438.6	474.1			45.4	73.3		237.5	306.0	410.3	97.4	14.3	8.5		
71-89 Historical:			470					77.5					108.7				
Ending:					6363.07	20000			145180							0	0
Monthly:																	
April	21305	8832	46097	48000	6362.56	25209	227	11268	141458	25081	28966	40103	14303	0	6	720	686
May	31278	16255	47256	49600	6362.50	28892	2083	9596	143036	21805	28527	38989	11669	652	2	969	889
June	44964	20965	45822	48000	6362.58	36348	8767	7081	149577	21860	30764	40735	9564	2913	5140	1571	1369
July	38535	21409	44805	49600	6362.65	35340	11425	6607	146300	27729	35692	43547	13218	5123	2545	1976	1679
August	24894	17337	41035	49600	6362.31	33053	4240	7557	140344	25059	30503	37754	15001	1483	137	1983	1719
September	17807	12232	37723	48000	6362.01	29696	1554	8582	137100	21966	26009	33879	15236	0	0	1623	1516
October	18737	4853	30190	31645	6361.77	28320	898	7042	138187	16344	20953	28264	8087	0	1	1353	916
November	21103	3425	30344	30624	6361.72	28788	850	5383	139385	15589	20330	28449	5589	0	3	999	636
December	21098	3062	31282	31645	6361.83	28061	600	6527	140234	17824	20620	29523	5533	0	3	708	467
January	23050	2313	31557	31645	6361.96	28117	575	5394	141873	16200	21152	30263	4458	0	3	548	400
February	22467	1789	28460	28582	6362.12	28591	490	4311	143252	14052	18597	27333	3700	0	2	639	542
March	23413	2346	31339	31645	6362.27	28672	524	5669	144337	16940	21691	29701	4310	0	1	760	720
Cumulative Distribution of Mono Lake Monthly Elevations			Minimum 6350.44	5% 6353.49	10% 6354.33	20% 6355.33	30% 6356.34	40% 6357.74	Median 6361.75	60% 6364.3	70% 6366.28	80% 6368.76	90% 6373.39	95% 6375.01	Maximum 6376.29		
Annual:																	
Minimum:	103331	93981	260797	400180			0	8288		130387	171054	224688	39457	0	0		
Average:	308651	114818	445909	478586			32233	85016		240450	303805	408540	110670	10171	7843		
Maximum:	821136	125059	538500	538500			223412	133555		310790	422711	640193	195688	142963	206155		


Mono Lake Surface Elevation
(3/30/92) No Restrictions: 48 Evap – 1st 50 years
Elevation (feet)
(Thousands)
6.378
6.376
6.374
6.372
6.370
6.368
6.366
6.364
6.362
6.360
6.358
6.356
6.354
6.352
6.350
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Surface

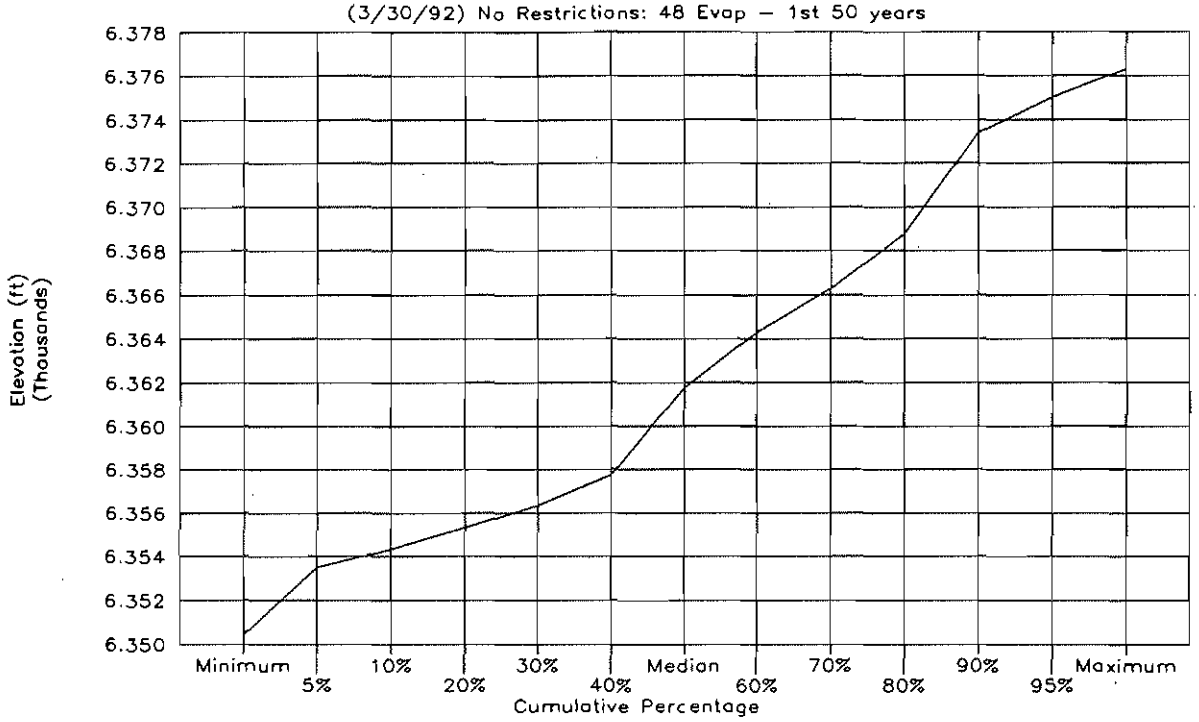

Mono Tributary Streamflows
(3/30/92) No Restrictions: 48 Evap – 1st 50 years
Streamflow (cfs)
500
400
300
200
100
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Lee Vining
Walker
Parker
Rush


Mono Lake Surface Elevation
(3/30/92) No Restrictions: 48 Evap – 2nd 50 years
Elevation (feet)
(Thousands)
6.368
6.366
6.364
6.362
6.360
6.358
6.356
6.354
6.352
6.350
6.348
6.346
6.344
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Surface


Mono Lake Surface Elevation
(3/30/92) No Restrictions: 48 Evap – 3rd 50 years
Elevation (feet)
(Thousands)
6.368
6.366
6.364
6.362
6.360
6.358
6.356
6.354
6.352
6.350
6.348
6.346
6.344
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Surface

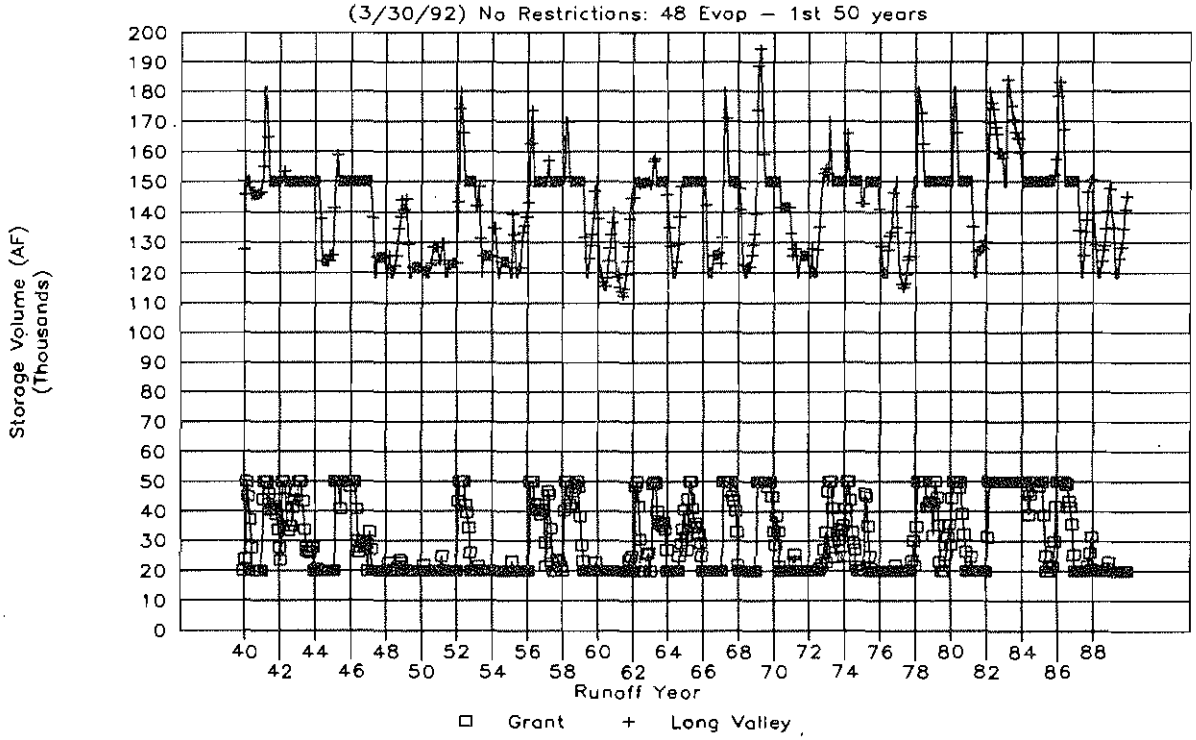
Mono Elevation Cumulative Distribution

(3/30/92) No Restrictions: 48 Evap – 1st 50 years



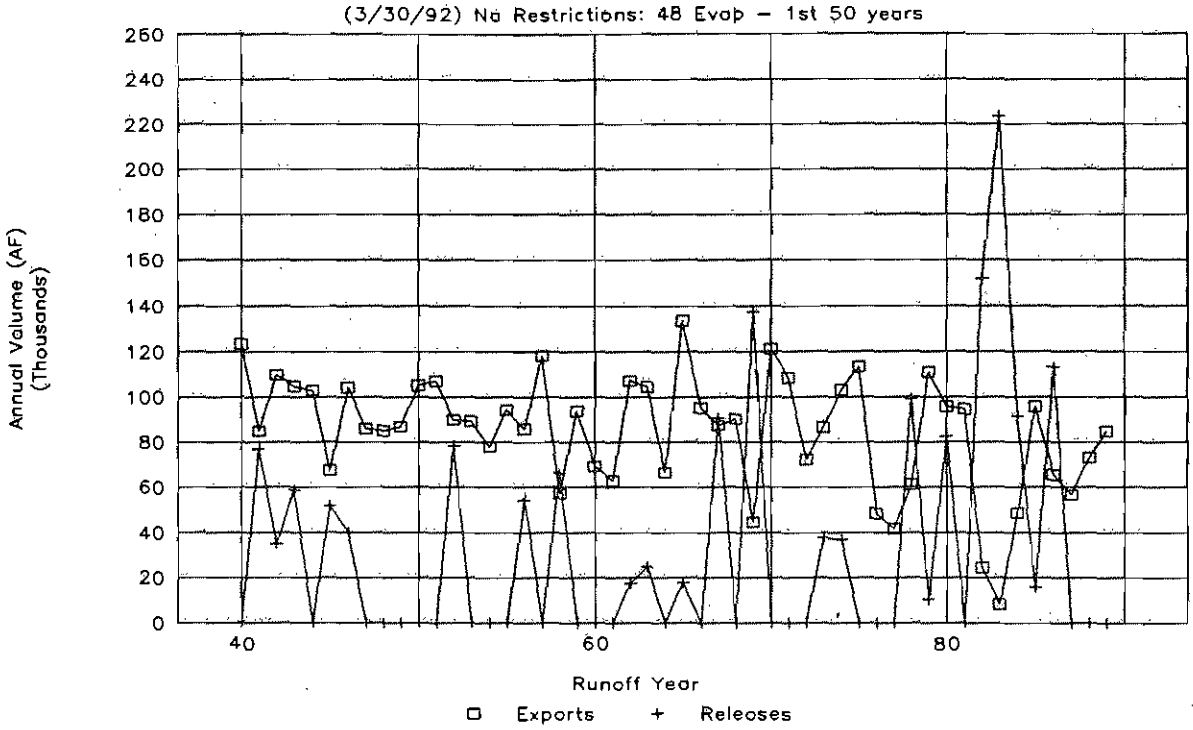
Grant and Long Valley Storage

(3/30/92) No Restrictions: 48 Evap – 1st 50 years



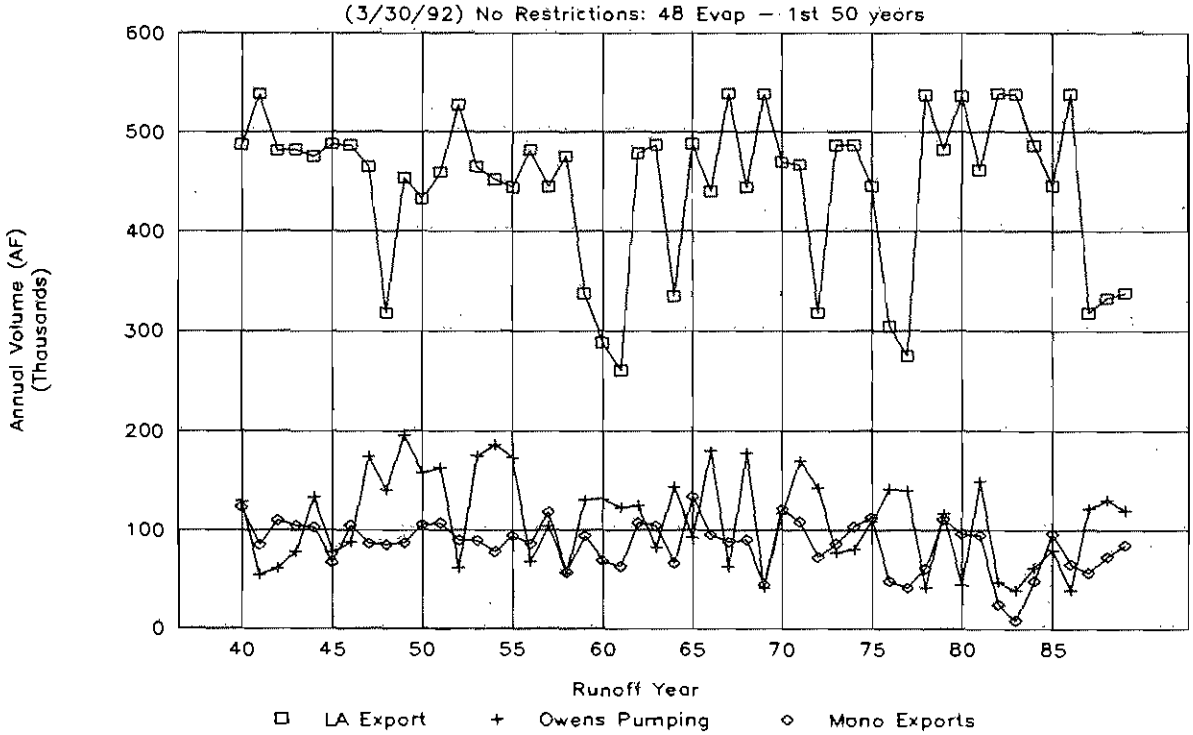
Mono Exports and Lake Releases

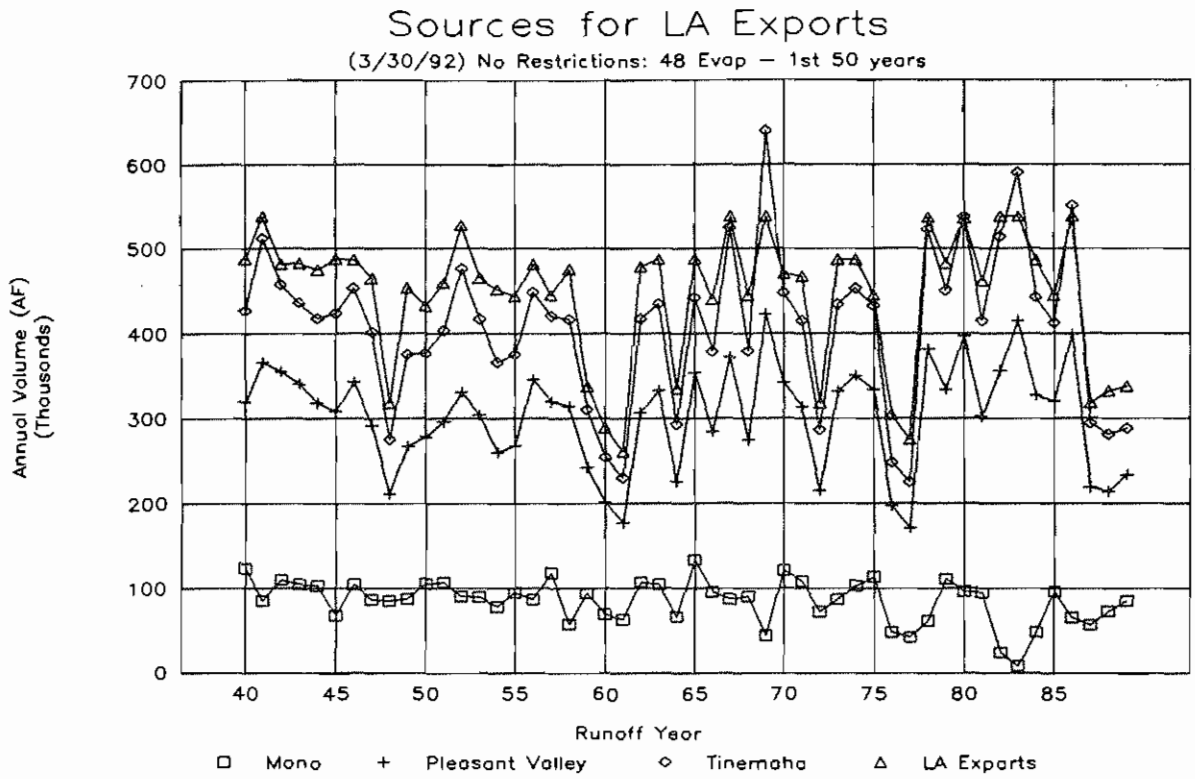
(3/30/92) No Restrictions: 48 Evap – 1st 50 years

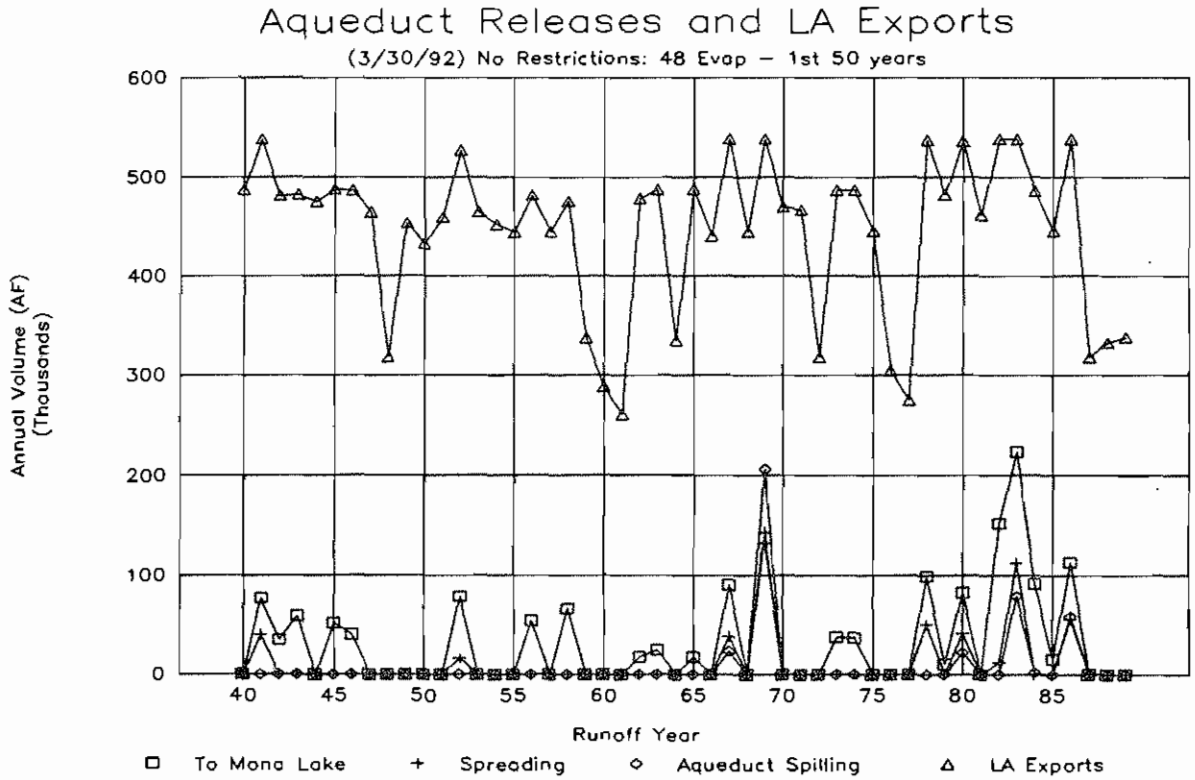


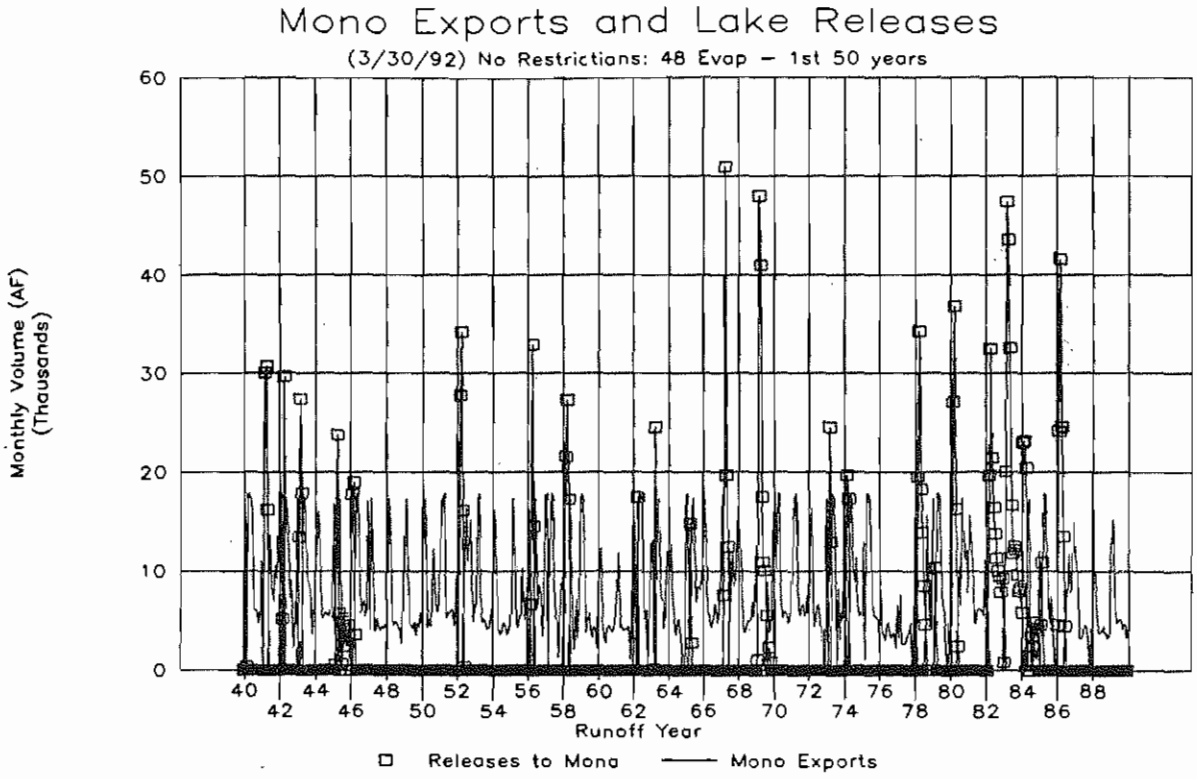
Mono and LA Exports and Owens Pumping

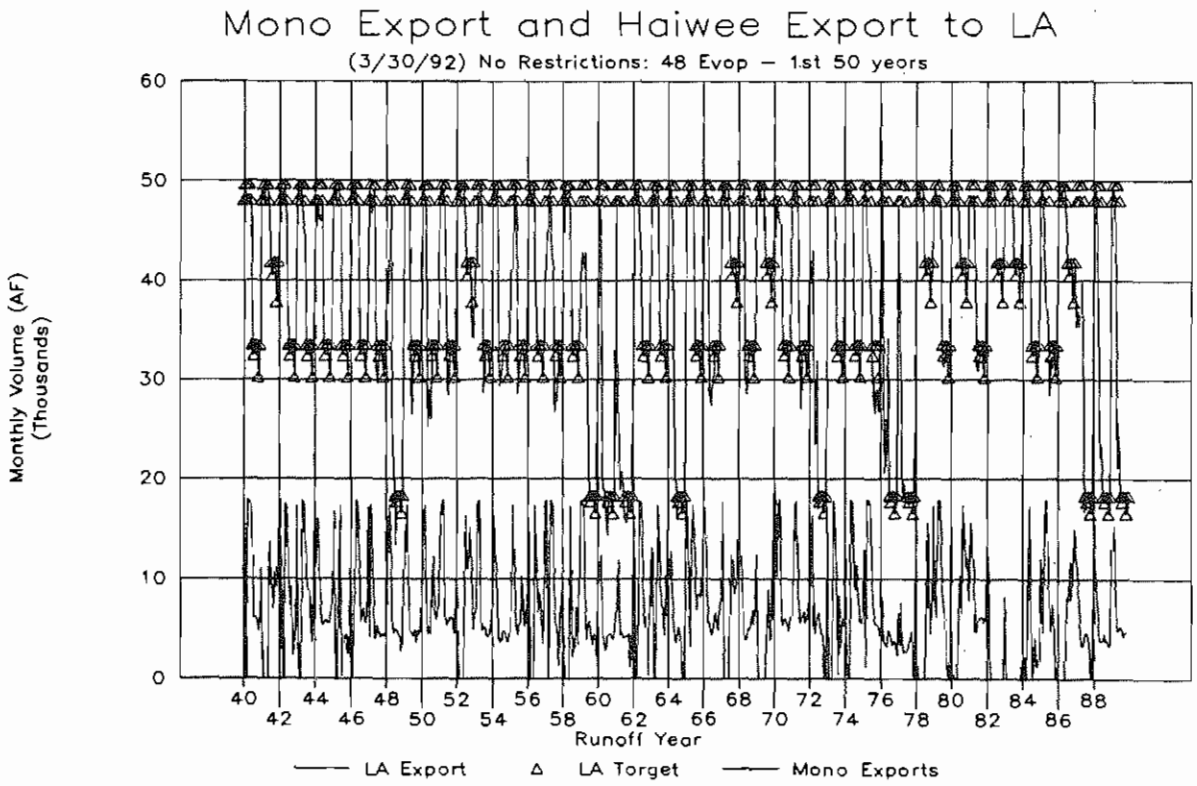
(3/30/92) No Restrictions: 48 Evap – 1st 50 years




Sources for LA Exports
(3/30/92) No Restrictions: 48 Evap – 1st 50 years
Annual Volume (AF)
(Thousands)
700
600
500
400
300
200
100
0
40
45
50
55
60
65
70
75
80
85
Runoff Year
Mono
Pleasant Valley
Tinemaha
LA Exports


Aqueduct Releases and LA Exports
(3/30/92) No Restrictions: 48 Evap – 1st 50 years
Annual Volume (AF)
(Thousands)
600
500
400
300
200
100
0
40
45
50
55
60
65
70
75
80
85
Runoff Year
To Mono Lake
Spreading
Aqueduct Spilling
LA Exports


Mono Exports and Lake Releases
(3/30/92) No Restrictions: 48 Evap – 1st 50 years
Monthly Volume (AF)
(Thousands)
60
50
40
30
20
10
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Releases to Mono
Mono Exports


Mono Export and Haiwee Export to LA
(3/30/92) No Restrictions: 48 Evap – 1st 50 years
Monthly Volume (AF)
(Thousands)
60
50
40
30
20
10
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
LA Export
LA Target
Mono Exports

Mono Lake Tributary Streamflows
03/30/92
Mono EIR Alternatives
Initial Alternatives - 1st 50 Years:
(3/30/92) No Restrictions: 48 Evap - 1st 50 years

	Lee Vining Runoff (AF)	Lee Vining Min Flow (AF)	Lee Vining Lakeflow (AF)	Lee Vining Irrigate (AF)	Lee Vining Conduit (AF)	Lee Vining Spill (AF)	Walker Creek Runoff (AF)	Walker Creek Min Flow (AF)	Walker Creek Irrigate (AF)	Walker Creek Conduit (AF)	Walker Creek Spill (AF)	Parker Creek Runoff (AF)	Parker Creek Min Flow (AF)	Parker Creek Irrigate (AF)	Parker Creek Conduit (AF)	Parker Creek Spill (AF)
Minimum:	645	0	0	0	0	0	22	0	0	0	0	94	0	0	0	0
Average:	4107	0	0	253	2706	1149	450	0	170	280	0	760	0	315	444	1
Maximum:	20828	0	0	918	13580	20089	2722	0	879	2192	0	4369	0	1495	2874	611
Total (TAF/yr):	49.3	0.0	0.0	3.0	32.5	13.8	5.4	0.0	2.0	3.4	0.0	9.1	0.0	3.8	5.3	0.0
Annual Values																
Minimum:	19852	0	0	3032	2736	0	2410	0	1109	1301	0	4690	0	2594	2096	0
Average:	49287	0	0	3032	32473	13782	5401	0	2037	3364	0	9126	0	3782	5330	14
Maximum:	92303	0	0	3032	59522	86535	12132	0	2429	9703	0	16759	0	3946	12202	611

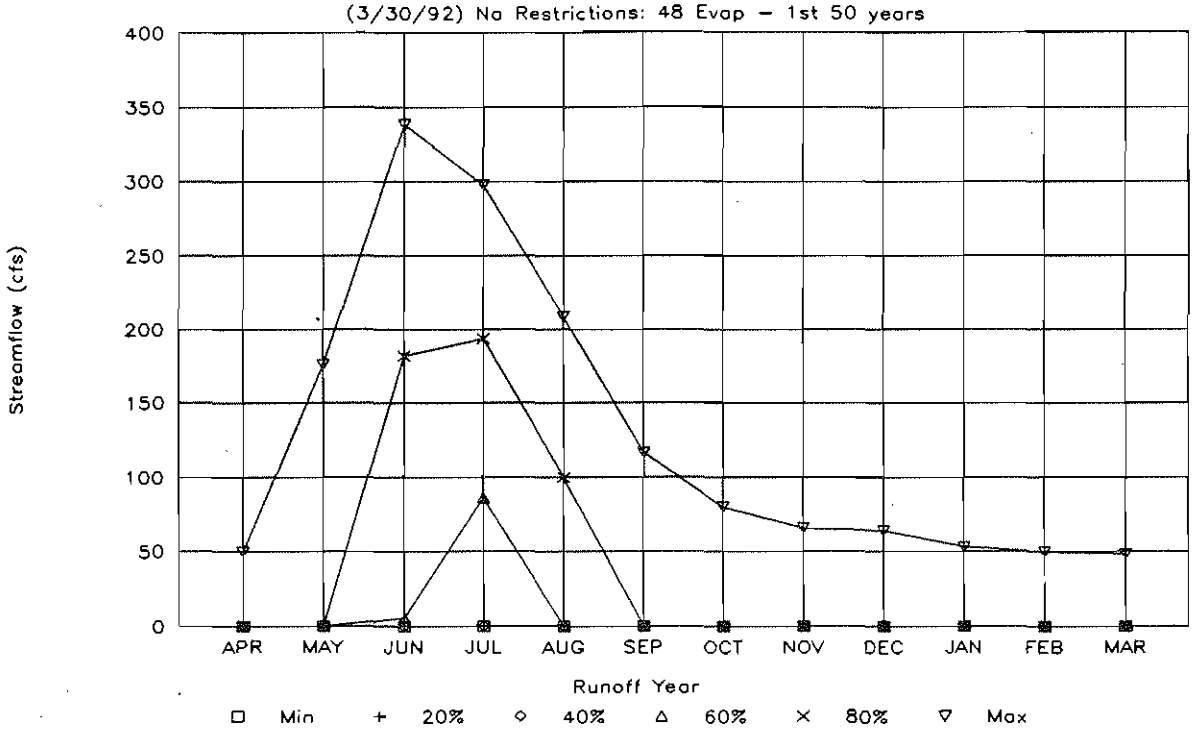
	Rush Creek Runoff (AF)	Conduit Inflow to Grant (AF)	Mono Basin Gains (AF)	Mono Gate #1 Min Flow (AF)	Rush Creek Lakeflow (AF)	Grant Storage Lakeflow (AF)	Rush Creek Storage (AF)	Grant Evap - Rain (AF)	West Portal Export (AF)	Grant Storage Spill (AF)	Lee Vining Flow (cfs)	Walker Flow (cfs)	Parker Flow (cfs)	Rush Flow (cfs)
Minimum:	1264	432	-127	0	0	0	20000	-641	0	0	0.0	0.0	0.0	0.0
Average:	4973	3431	422	0	0	0	29924	205	7085	1536	19.0	0.0	0.0	25.3
Maximum:	29989	16079	868	0	0	0	50000	640	17825	33525	338.2	0.0	10.3	546.0
Total (TAF/yr):	59.7	41.2	5.1	0.0	0.0	0.0		2.5	85.0	18.4				
Annual Values														
Minimum:	24610	20639	5060	0	0	0		1420	8288	0	0.0	0.0	0.0	0.0
Average:	59681	41166	5060	0	0	0		2455	85016	18437	19.1	0.0	0.0	0.0
Maximum:	117750	67160	5060	0	0	0		3453	133555	136267	119.7	0.0	0.8	0.0

Mono Lake Tributary Streamflows Monthly Percentiles
03/30/92
Mono EIR Alternatives
Initial Alternatives – 1st 50 Years:
(3/30/92) No Restrictions: 48 Evap – 1st 50 years

	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
Lee Vining Creek:												
0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60%	0.0	0.0	5.4	85.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70%	0.0	0.0	92.0	166.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80%	0.0	0.0	182.0	193.6	99.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90%	0.0	109.6	240.9	231.3	114.7	59.6	5.5	38.6	0.0	19.0	7.7	0.0
100%	49.5	176.2	338.2	297.6	208.6	116.2	79.7	65.4	63.8	52.6	49.5	48.0
Walker Creek:												
0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Parker Creek:												
0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100%	0.0	0.0	10.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rush Creek:												
0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60%	0.0	0.0	3.6	120.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70%	0.0	0.0	92.0	166.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80%	0.0	0.0	181.6	276.2	136.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90%	0.0	109.6	226.6	349.8	174.5	124.6	5.5	39.2	0.0	19.0	7.7	0.0
100%	49.5	226.6	491.1	546.0	321.8	167.8	144.9	145.6	134.5	106.2	95.2	105.2

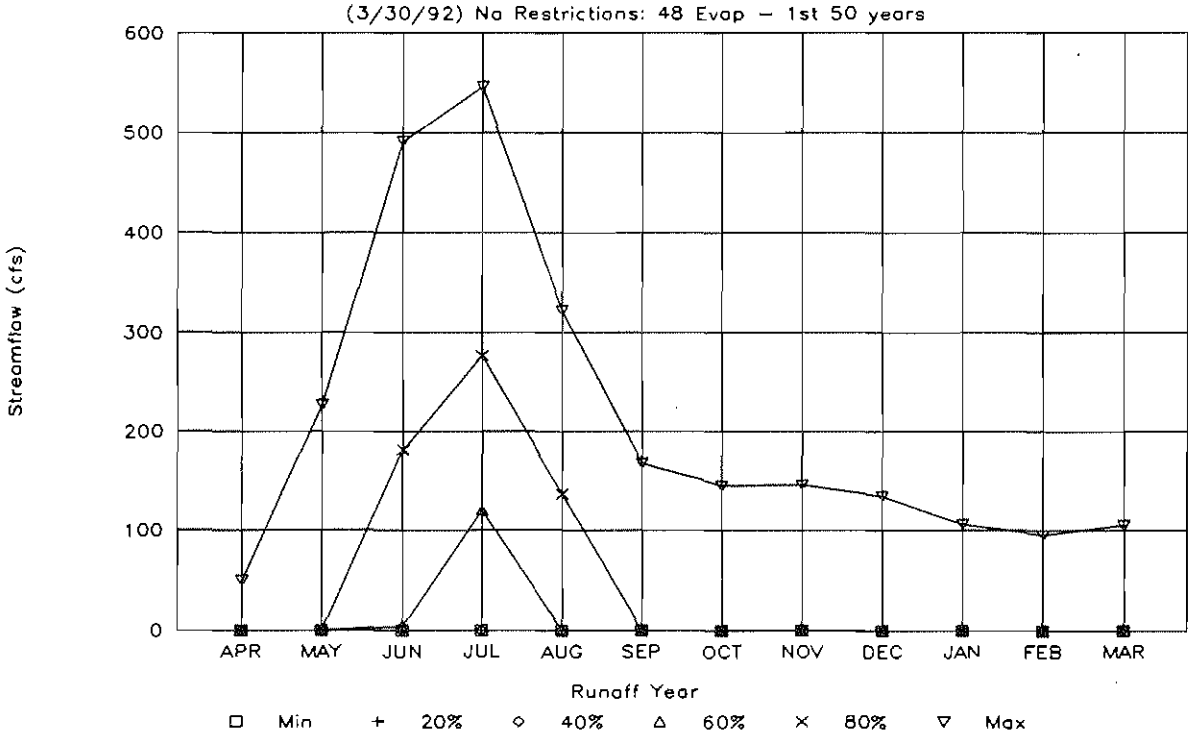
Lee Vining Streamflow Distribution

(3/30/92) No Restrictions: 48 Evap – 1st 50 years



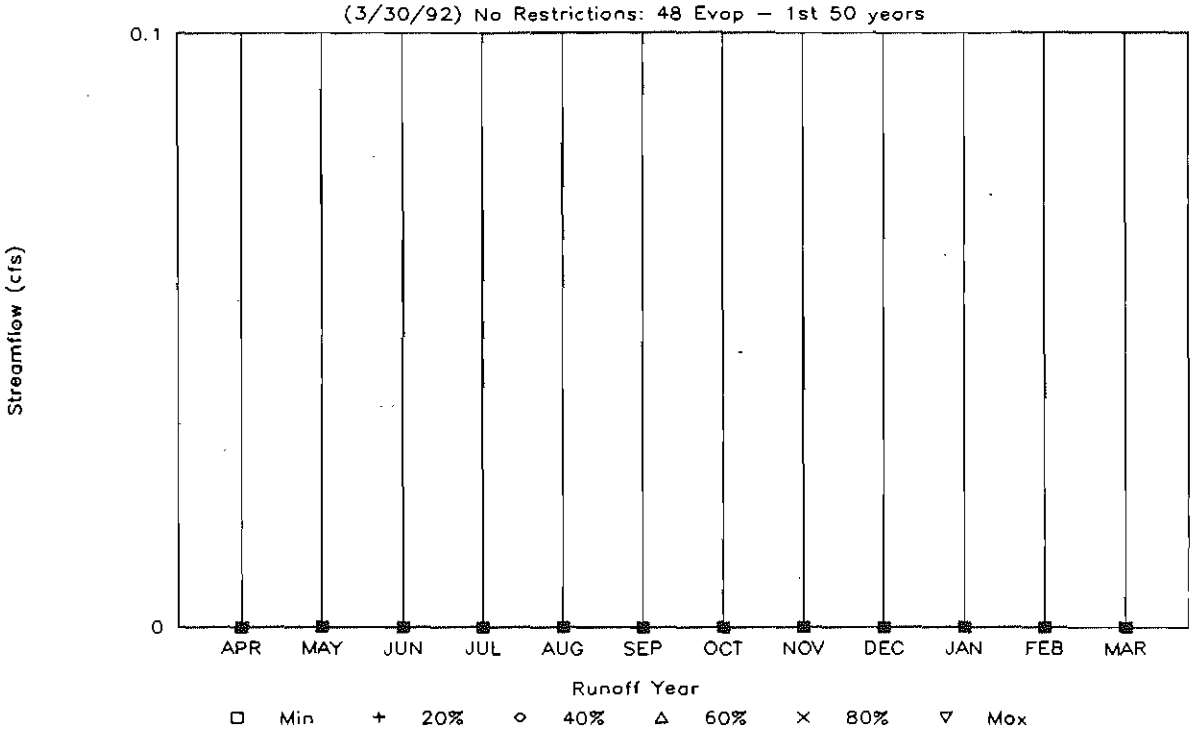
Rush Creek Streamflow Distribution

(3/30/92) No Restrictions: 48 Evap – 1st 50 years



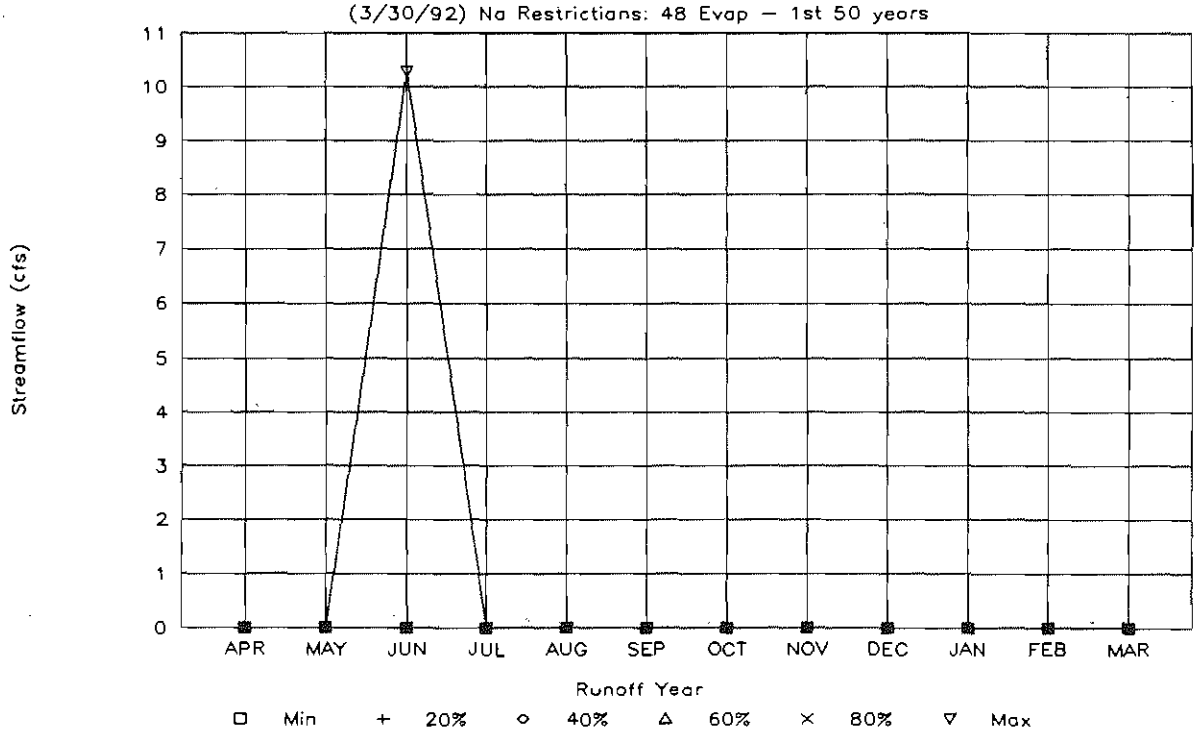
Walker Creek Streamflow Distribution

(3/30/92) No Restrictions: 48 Evap – 1st 50 years



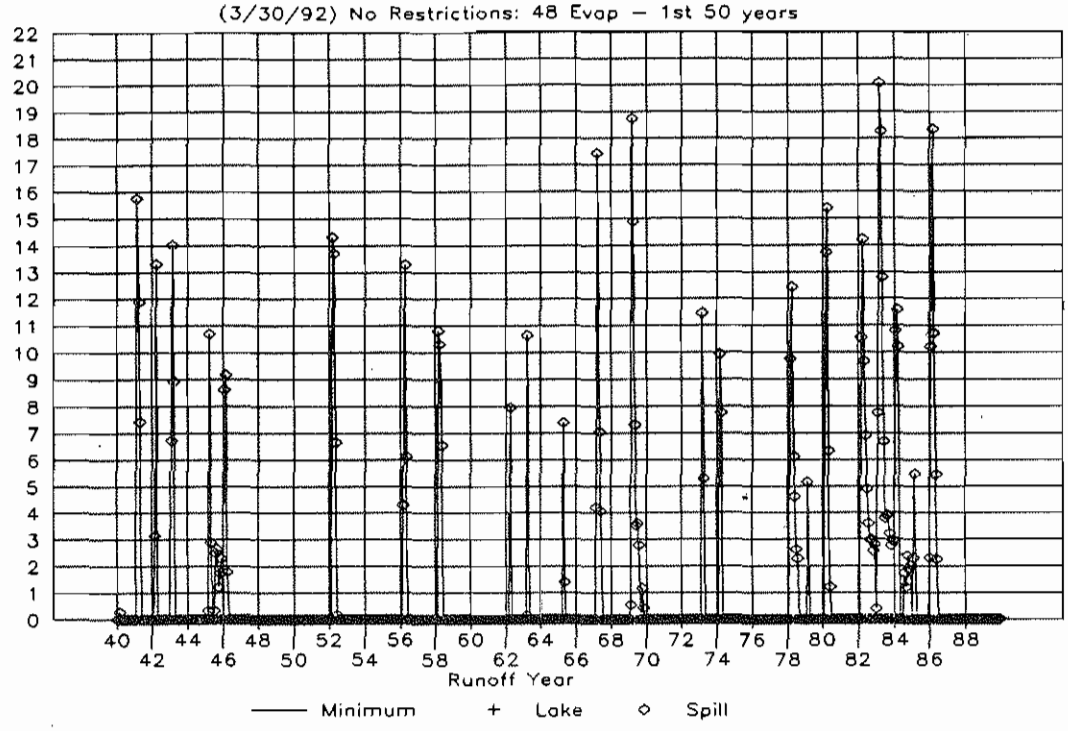
Parker Creek Streamflow Distribution

(3/30/92) No Restrictions: 48 Evap – 1st 50 years



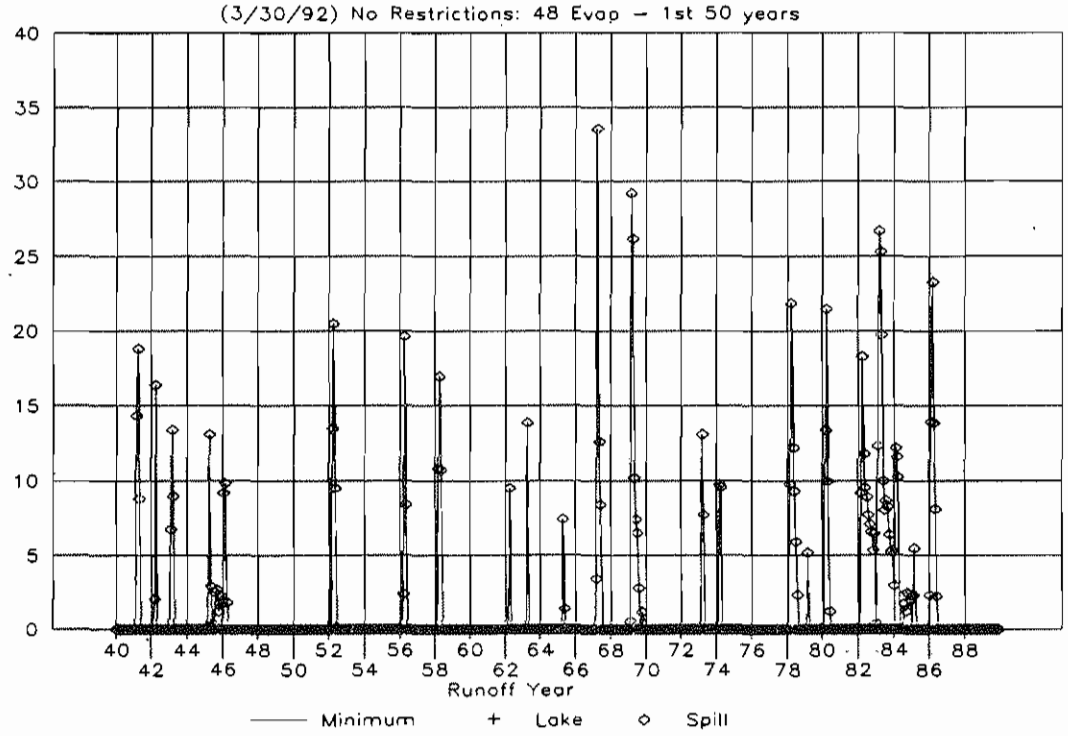
Lee Vining Creek Flows

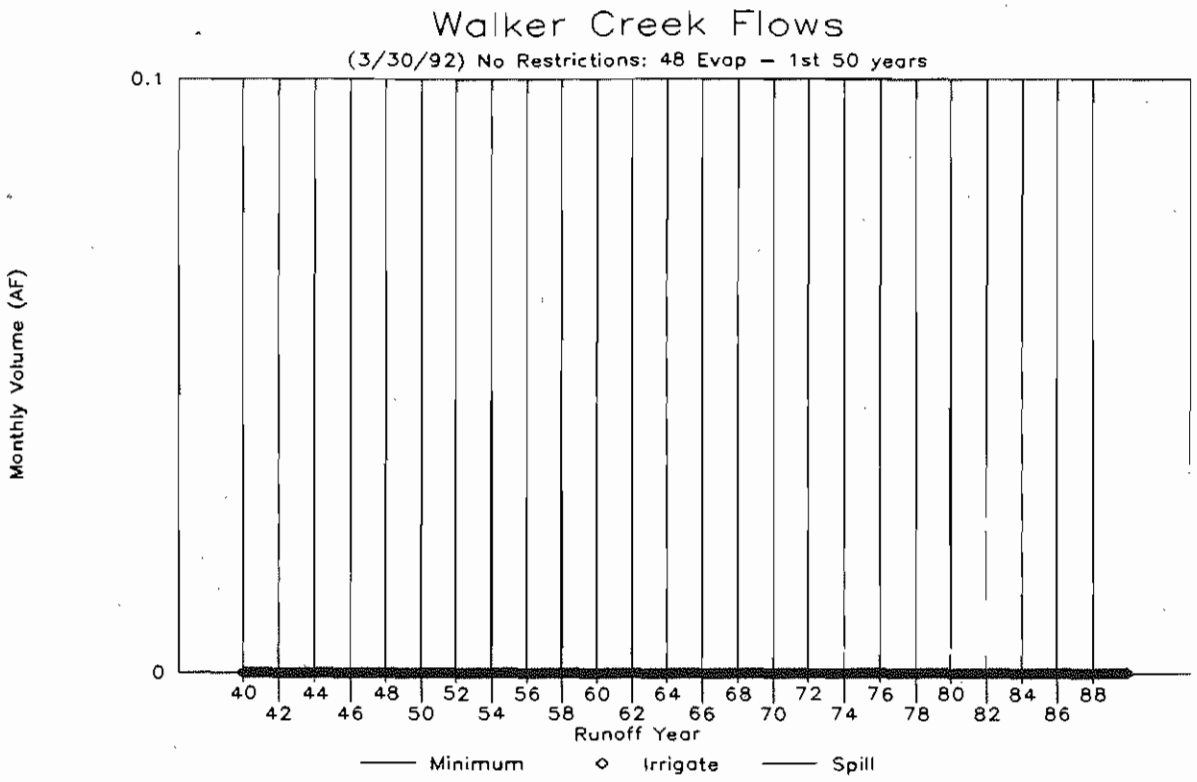
(3/30/92) No Restrictions: 48 Evap – 1st 50 years

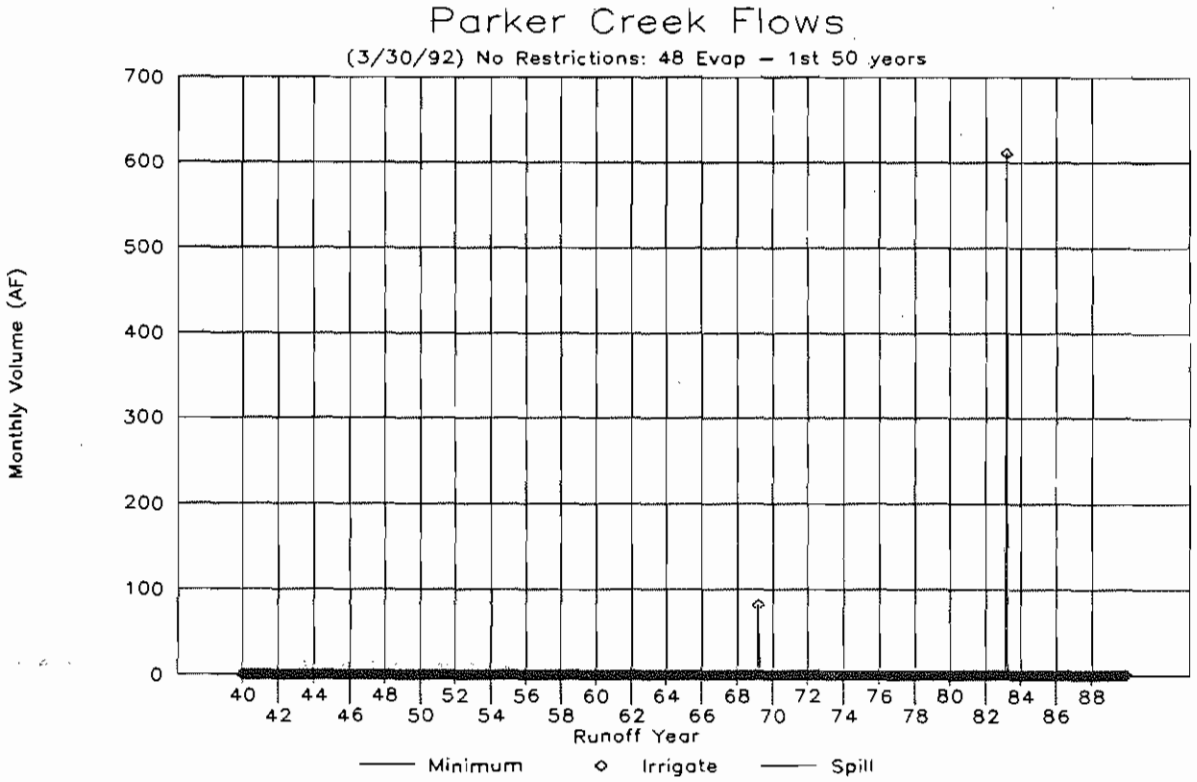


Rush Creek Flows

(3/30/92) No Restrictions: 48 Evap – 1st 50 years

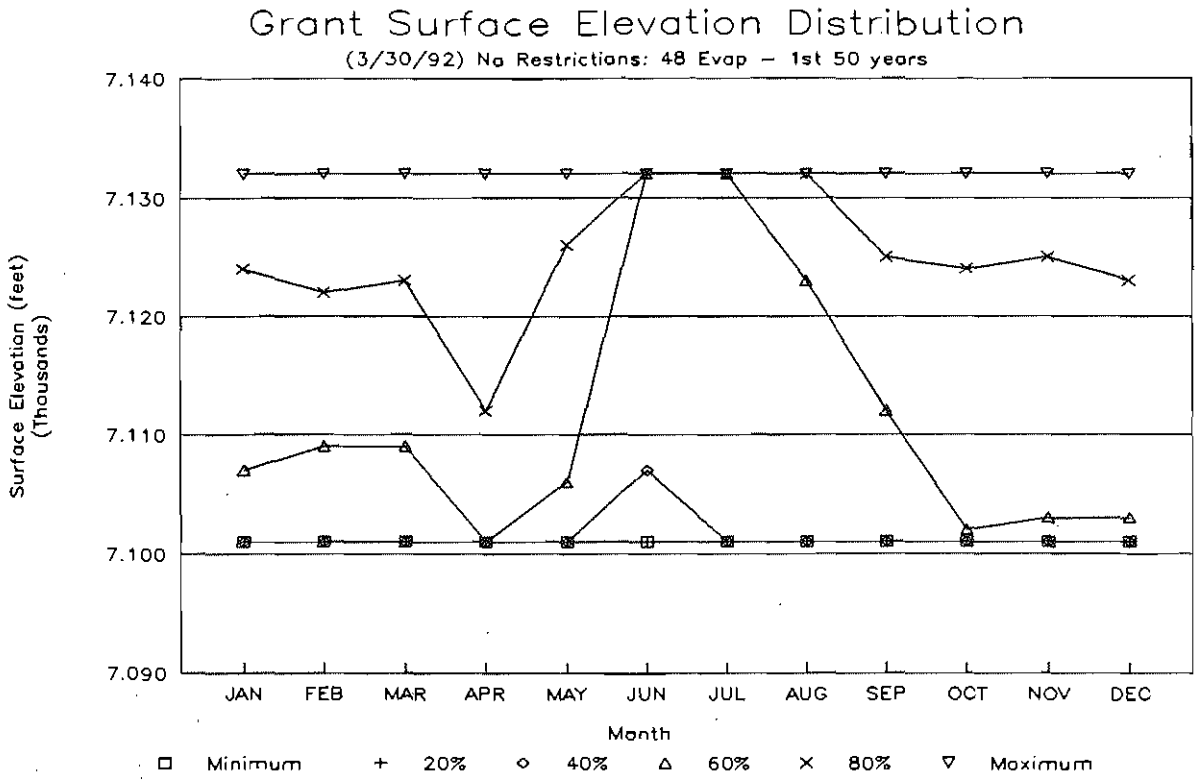


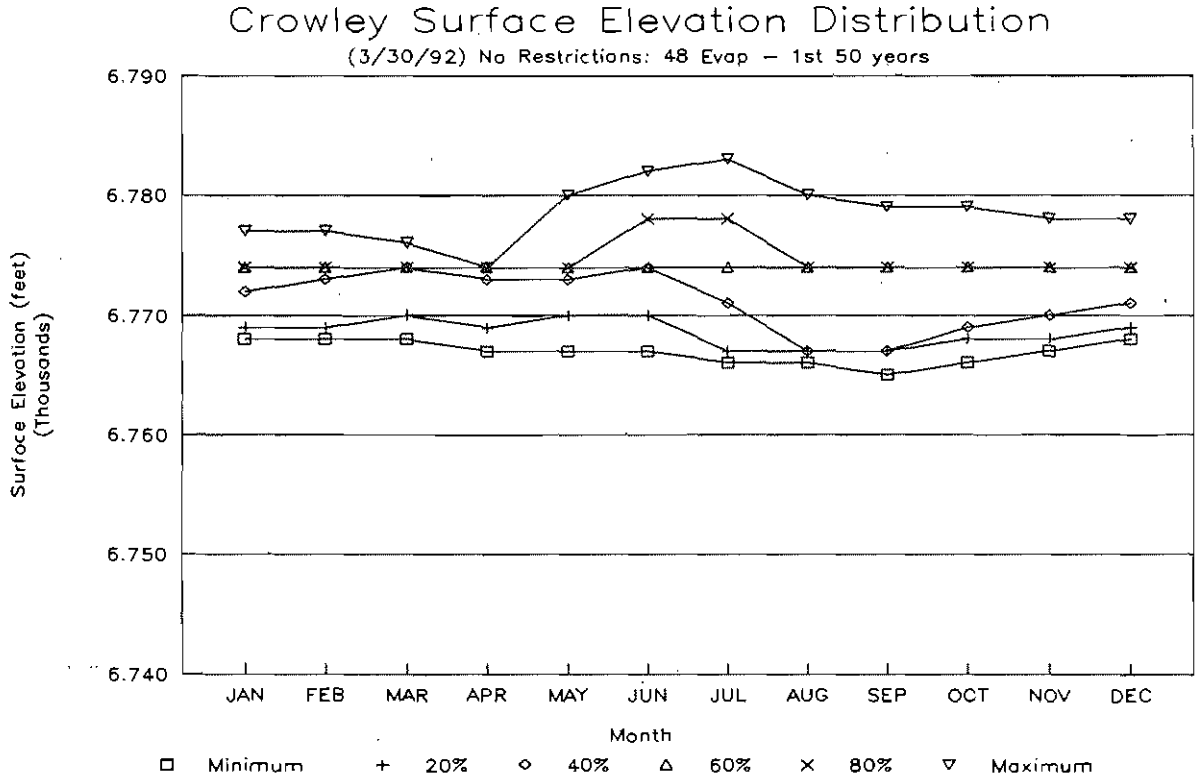

Walker Creek Flows
(3/30/92) No Restrictions: 48 Evap – 1st 50 years
Monthly Volume (AF)
0.1
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Minimum
Irrigate
Spill


Parker Creek Flows
(3/30/92) No Restrictions: 48 Evap – 1st 50 years
Monthly Volume (AF)
700
600
500
400
300
200
100
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Minimum
Irrigate
Spill

Monthly Distribution of Lake Elevations
03/30/92
Mono EIR Alternatives
Initial Alternatives - 1st 50 Years:
(3/30/92) No Restrictions: 48 Evap - 1st 50 years

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Grant Lake:												
Minimum	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101
10%	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101
20%	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101
30%	7101	7101	7101	7101	7101	7102	7101	7101	7101	7101	7101	7101
40%	7101	7101	7101	7101	7101	7107	7101	7101	7101	7101	7101	7101
50%	7102	7105	7105	7101	7101	7127	7122	7107	7101	7101	7101	7101
60%	7107	7109	7109	7101	7106	7132	7132	7123	7112	7102	7103	7103
70%	7115	7114	7116	7104	7116	7132	7132	7129	7121	7116	7118	7117
80%	7124	7122	7123	7112	7126	7132	7132	7132	7125	7124	7125	7123
90%	7130	7132	7129	7124	7132	7132	7132	7132	7132	7131	7132	7130
Maximum	7132	7132	7132	7132	7132	7132	7132	7132	7132	7132	7132	7132
Lake Crowley:												
Minimum	6768	6768	6768	6767	6767	6767	6766	6766	6765	6766	6767	6768
10%	6769	6769	6769	6767	6767	6768	6767	6767	6767	6768	6768	6768
20%	6769	6769	6770	6769	6770	6770	6767	6767	6767	6768	6768	6769
30%	6771	6772	6773	6772	6772	6772	6770	6767	6767	6769	6769	6769
40%	6772	6773	6774	6773	6773	6774	6771	6767	6767	6769	6770	6771
50%	6774	6774	6774	6774	6774	6774	6774	6774	6773	6773	6773	6773
60%	6774	6774	6774	6774	6774	6774	6774	6774	6774	6774	6774	6774
70%	6774	6774	6774	6774	6774	6775	6774	6774	6774	6774	6774	6774
80%	6774	6774	6774	6774	6774	6778	6778	6774	6774	6774	6774	6774
90%	6774	6774	6774	6774	6774	6780	6780	6778	6774	6774	6774	6774
Maximum	6777	6777	6776	6774	6780	6782	6783	6780	6779	6779	6778	6778


Grant Surface Elevation Distribution
(3/30/92) No Restrictions: 48 Evap – 1st 50 years
Surface Elevation (feet)
(Thousands)
7.140
7.130
7.120
7.110
7.100
7.090
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
Month
Minimum
20%
40%
60%
80%
Maximum

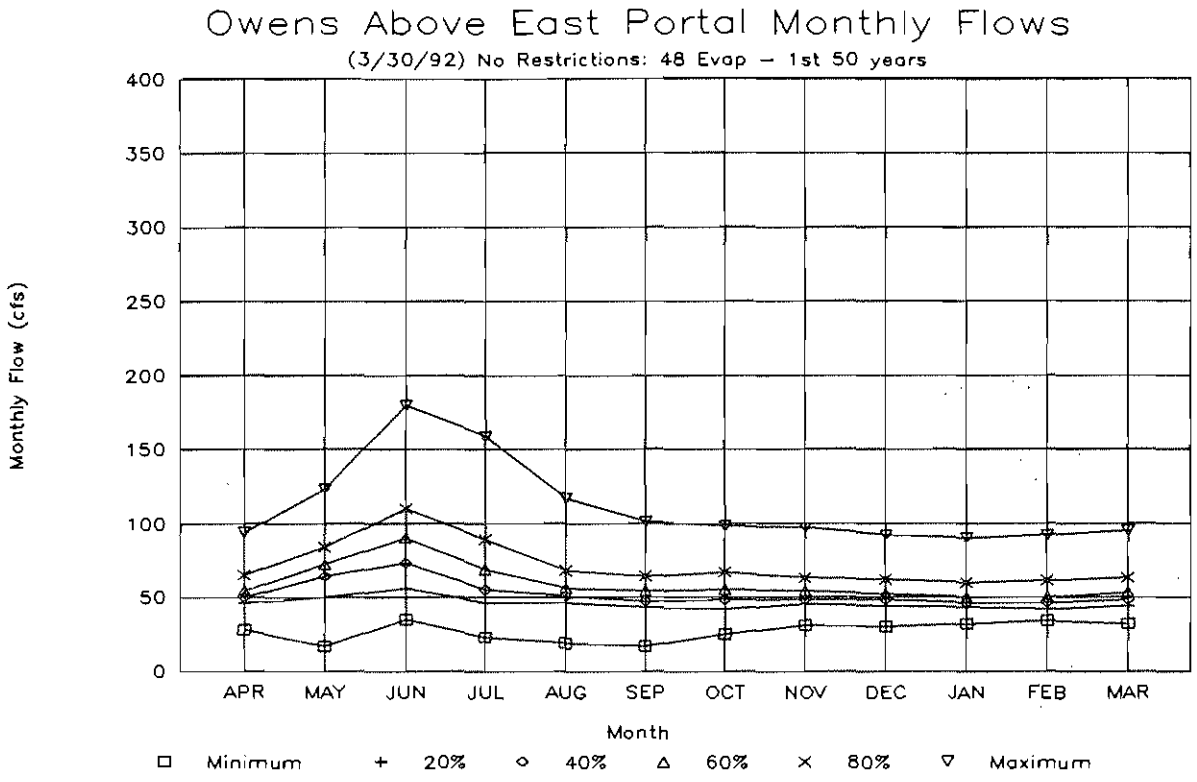

Crowley Surface Elevation Distribution
(3/30/92) No Restrictions: 48 Evap – 1st 50 years
Surface Elevation (feet)
(Thousands)
6.790
6.780
6.770
6.760
6.750
6.740
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
Month
Minimum
20%
40%
60%
80%
Maximum

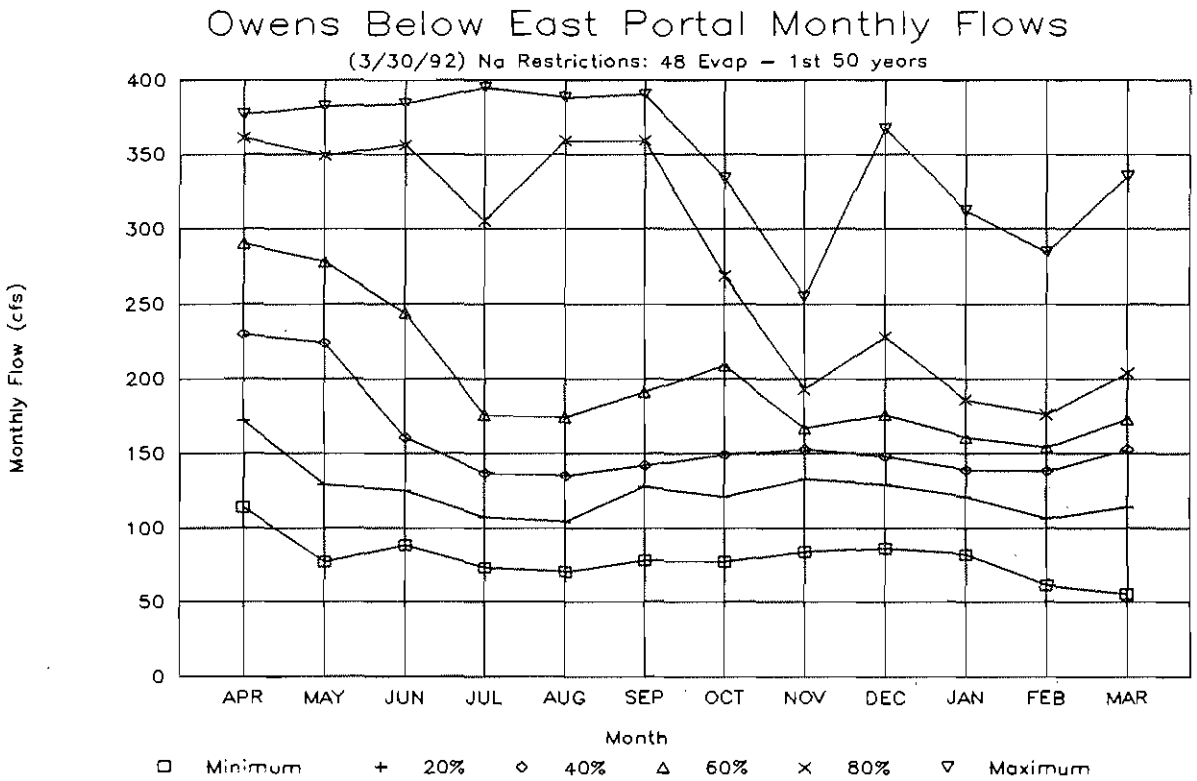
Owens River Streamflows – Monthly Cumulative Percentiles
03/30/92
Mono EIR Alternatives
Initial Alternatives – 1st 50 Years:
(3/30/92) No Restrictions: 48 Evap – 1st 50 years

	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
Owens above East Portal:												
0%	28	17	35	23	19	17	25	31	30	32	34	32
10%	41	47	53	40	40	39	36	39	40	39	40	41
20%	46	50	56	46	46	43	42	45	44	43	42	44
30%	47	56	63	52	49	45	44	47	46	45	44	45
40%	50	64	73	55	51	47	48	48	48	46	46	48
50%	52	66	79	62	54	53	51	51	49	50	49	50
60%	54	72	90	69	56	54	55	54	52	50	50	53
70%	62	79	103	77	60	59	58	56	58	54	54	56
80%	65	84	110	89	68	64	67	63	62	60	61	63
90%	72	98	126	102	79	70	72	73	72	72	72	75
100%	94	123	180	159	117	101	98	97	92	90	92	95
Owens below East Portal:												
0%	114	77	88	73	70	78	77	84	86	82	61	55
10%	152	106	118	104	83	94	115	117	117	113	74	97
20%	172	129	125	107	104	128	121	133	129	121	106	114
30%	205	176	142	121	126	132	130	143	135	134	121	136
40%	230	224	161	137	135	142	149	153	148	139	138	153
50%	271	248	192	155	144	164	157	166	162	152	145	160
60%	290	278	244	176	174	191	209	167	176	161	154	173
70%	323	303	286	245	275	343	251	178	199	176	167	180
80%	361	349	356	305	359	359	269	193	228	186	176	204
90%	366	378	366	365	365	369	292	215	272	215	235	270
100%	377	382	384	395	388	390	334	255	367	312	284	335
Pleasant Valley Outflow:												
0%	299	156	171	172	172	170	169	180	185	153	135	135
10%	390	364	330	375	209	224	192	214	200	198	193	219
20%	414	399	385	480	253	237	203	232	235	214	230	246
30%	439	424	438	529	434	259	211	311	291	324	304	323
40%	456	446	472	555	505	361	250	325	318	340	335	343
50%	504	482	522	592	532	492	332	344	342	358	339	356
60%	522	496	543	603	567	527	421	383	361	368	350	368
70%	534	508	569	618	611	548	448	393	377	381	370	377
80%	560	537	600	666	637	577	463	420	406	402	382	410
90%	565	553	646	762	675	676	491	427	435	440	425	488
100%	602	600	1014	968	859	721	544	442	516	525	496	550
Owens at Horton Creek:												
0%	304	171	195	169	171	171	173	186	194	162	142	142
10%	395	374	334	376	209	225	196	219	207	205	201	225
20%	420	411	399	484	254	239	208	238	242	221	238	253
30%	444	437	458	544	435	262	217	317	299	331	314	331
40%	461	458	493	567	509	366	256	332	325	348	343	352
50%	509	489	529	595	538	495	341	350	350	366	347	363
60%	531	506	551	608	574	529	427	390	370	377	360	374
70%	541	516	578	641	616	552	456	401	385	389	377	384
80%	565	542	608	684	655	582	472	431	416	410	390	421
90%	570	567	661	808	694	683	499	435	443	449	433	496
100%	605	606	1065	1010	891	731	553	451	525	534	505	557

Owens River Streamflows – Monthly Cumulative Percentiles
03/30/92
Mono EIR Alternatives
Initial Alternatives – 1st 50 Years:
(3/30/92) No Restrictions: 48 Evap – 1st 50 years

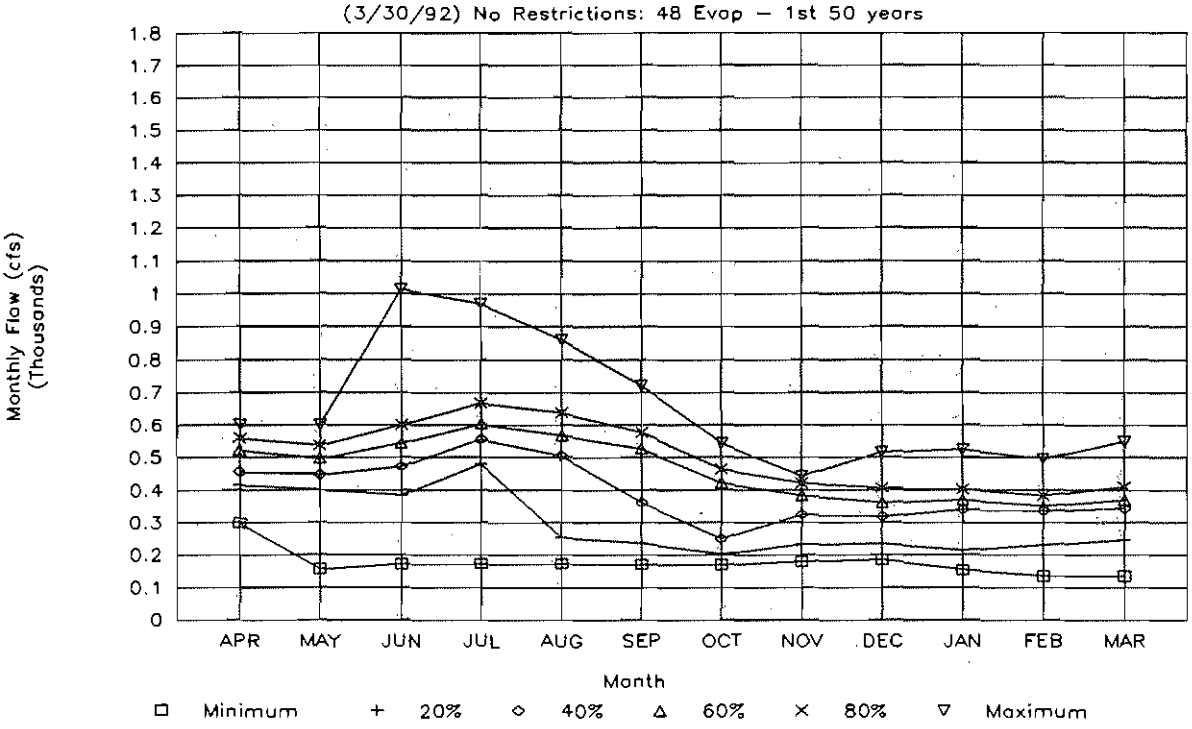
	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
Owens at Bishop Diversion:												
0%	304	102	89	169	171	171	173	186	194	162	142	142
10%	376	311	269	376	209	225	196	219	207	205	201	225
20%	403	372	336	446	254	239	208	238	242	221	238	253
30%	422	413	416	490	435	262	217	310	291	331	310	325
40%	461	430	442	520	470	366	256	327	314	344	339	348
50%	477	450	493	544	485	469	332	350	345	360	346	363
60%	498	466	511	556	535	484	411	379	362	371	355	370
70%	509	495	542	587	553	504	435	390	380	382	373	384
80%	533	522	557	612	569	532	443	408	402	404	384	412
90%	553	545	621	645	611	589	469	421	421	434	423	487
100%	603	569	872	814	698	636	522	428	503	519	495	548
Owens at Laws Diversion:												
0%	304	171	170	169	171	171	173	186	194	162	142	142
10%	394	366	269	376	209	225	196	219	207	205	201	225
20%	420	393	397	480	254	239	208	238	242	221	238	253
30%	433	428	446	532	435	262	217	315	295	331	313	330
40%	461	451	481	556	497	366	256	332	318	344	343	351
50%	504	480	520	573	526	481	333	350	349	364	347	363
60%	521	500	546	595	567	521	420	383	366	375	358	373
70%	541	516	576	612	604	538	444	394	380	386	376	384
80%	559	542	596	658	634	567	457	417	407	407	388	419
90%	564	558	649	697	670	654	484	426	429	442	430	494
100%	603	596	952	899	779	702	538	437	511	527	502	555
Owens at Laws Return:												
0%	368	113	95	207	208	204	206	205	200	168	155	152
10%	444	321	305	418	250	264	232	226	214	211	208	233
20%	473	417	378	463	296	279	249	260	250	231	250	259
30%	490	435	432	502	479	301	271	342	339	352	335	337
40%	508	460	451	522	525	404	310	371	360	371	353	364
50%	517	473	508	562	540	511	358	386	375	380	364	379
60%	535	500	533	602	553	537	416	395	380	386	370	385
70%	552	524	562	614	569	549	436	404	393	402	385	399
80%	560	566	594	631	592	569	446	415	408	411	396	425
90%	580	592	624	657	645	598	473	428	436	449	432	496
100%	647	613	879	818	704	641	529	442	513	530	509	564
Owens at Bishop Return:												
0%	459	281	166	220	213	252	258	265	256	262	238	264
10%	526	434	340	417	279	328	285	305	291	284	267	286
20%	562	477	443	490	313	348	312	317	296	293	332	344
30%	573	519	466	507	504	359	371	451	437	462	444	431
40%	594	541	504	540	526	471	396	479	456	474	460	472
50%	607	562	550	580	564	580	466	488	464	484	468	479
60%	627	579	567	591	578	613	499	496	476	493	477	487
70%	645	609	580	609	599	623	538	516	503	502	484	498
80%	662	622	638	632	616	650	554	522	511	510	493	511
90%	679	648	665	673	637	669	580	565	570	584	572	589
100%	692	673	1138	822	799	726	640	585	619	629	613	638


Owens Above East Portal Monthly Flows
(3/30/92) No Restrictions: 48 Evap – 1st 50 years
Monthly Flow (cfs)
400
350
300
250
200
150
100
50
0
APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR
Month
Minimum
20%
40%
60%
80%
Maximum


Owens Below East Portal Monthly Flows
(3/30/92) No Restrictions: 48 Evap – 1st 50 years
Monthly Flow (cfs)
400
350
300
250
200
150
100
50
0
APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR
Month
Minimum
20%
40%
60%
80%
Maximum

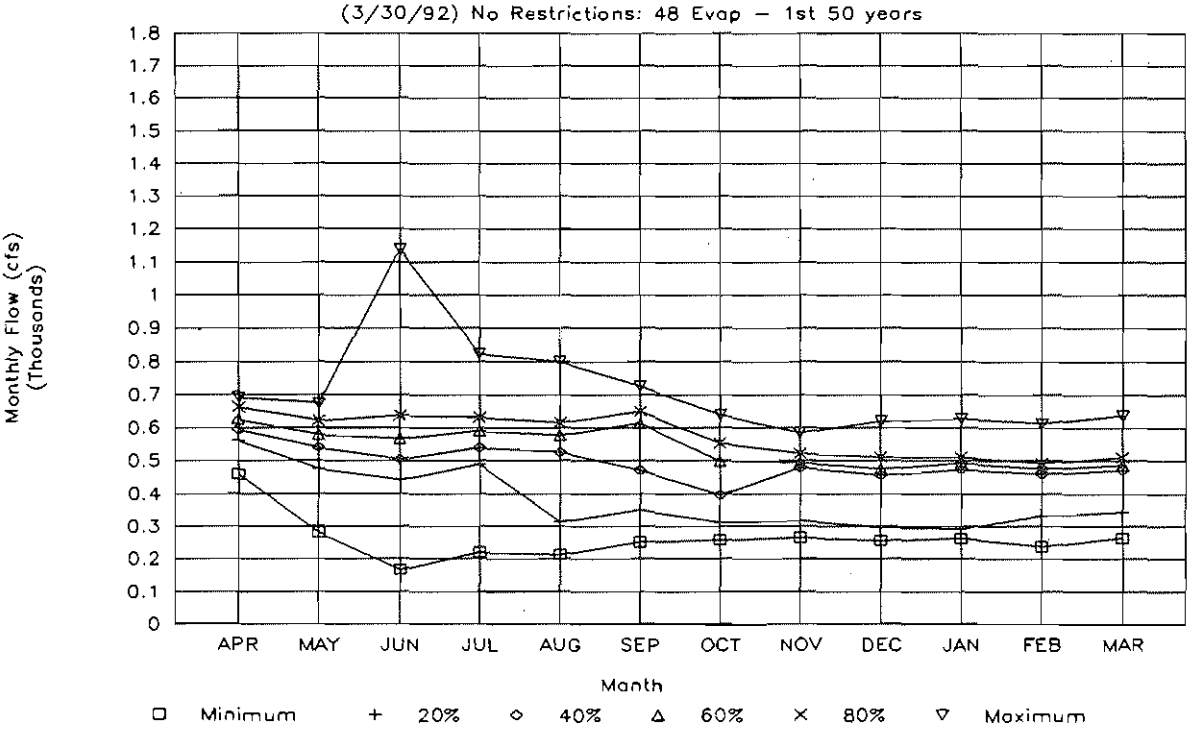
Owens @ Pleasant Valley Monthly Flows

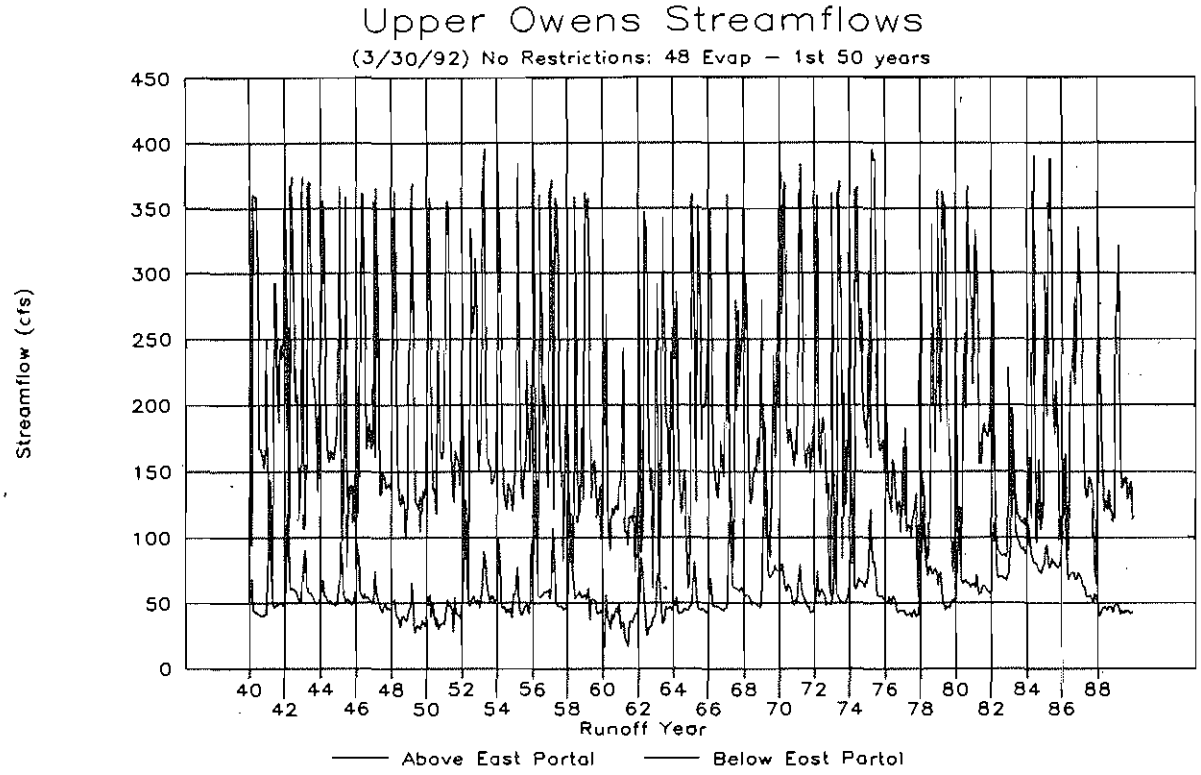
(3/30/92) No Restrictions: 48 Evap – 1st 50 years

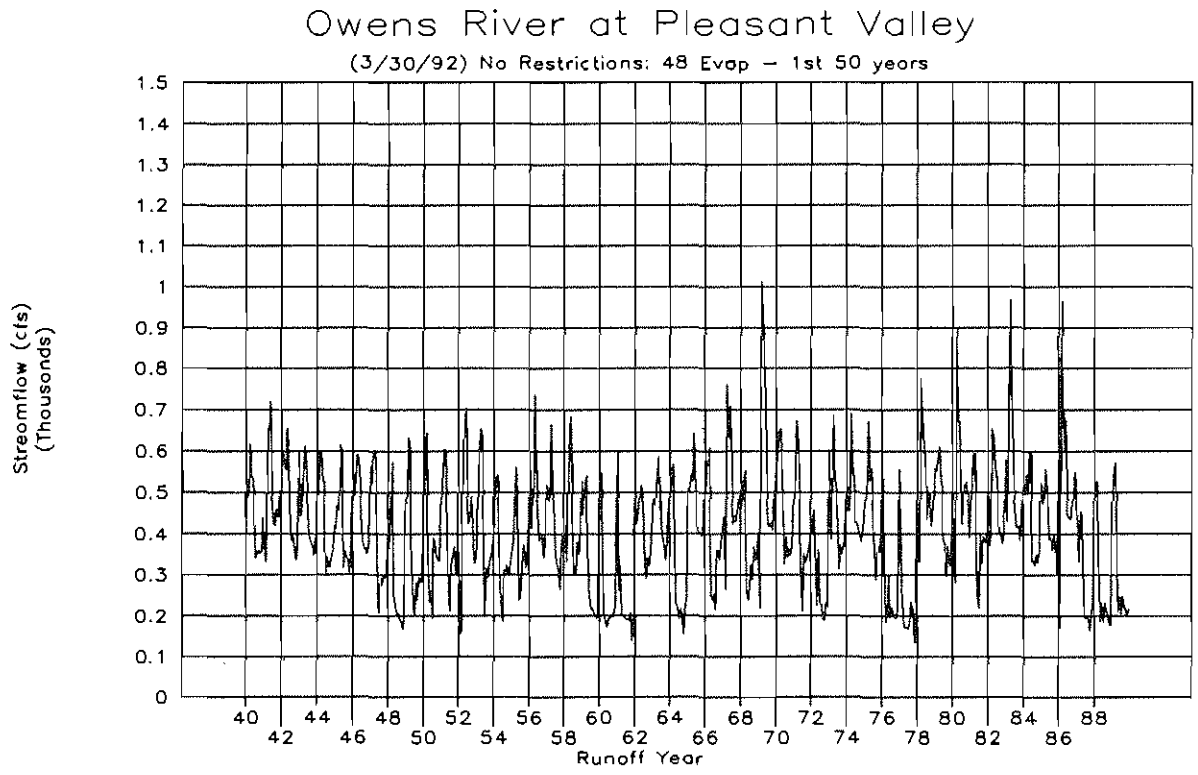


Owens @ Big Pine Canal Monthly Flows

(3/30/92) No Restrictions: 48 Evap – 1st 50 years




Upper Owens Streamflows
(3/30/92) No Restrictions: 48 Evap – 1st 50 years
Streamflow (cfs)
450
400
350
300
250
200
150
100
50
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Above East Portal
Below East Portal

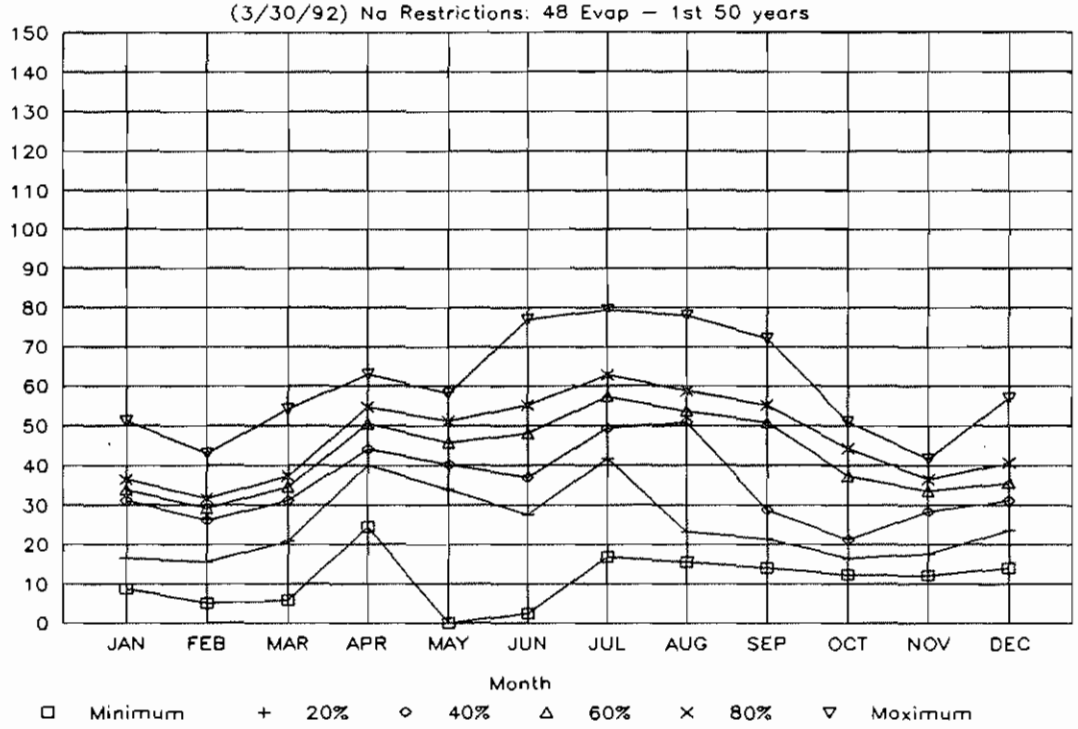

Owens River at Pleasant Valley
(3/30/92) No Restrictions: 48 Evap – 1st 50 years
Streamflow (cfs)
(Thousands)
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year

Cumulative Monthly Distribution of LADWP Aqueduct Power Generation
03/30/92
Mono EIR Alternatives
Initial Alternatives - 1st 50 Years:
(3/30/92) No Restrictions: 48 Evap - 1st 50 years Annual Average: 1058.9 GWH/yr

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Gorge Power Plants:												
0%	8.7	5.0	5.8	24.4	0.0	2.4	16.8	15.6	14.1	12.4	12.2	14.1
10%	14.6	12.4	17.1	37.0	26.1	15.7	33.9	18.4	20.0	15.1	15.5	18.3
20%	16.6	15.5	20.8	39.9	33.9	27.4	41.6	23.2	21.4	16.5	17.6	23.7
30%	28.8	24.8	29.0	42.6	36.1	33.6	46.4	40.3	23.4	17.8	26.3	27.6
40%	31.1	26.1	31.0	44.0	40.2	36.9	49.4	50.9	28.7	21.3	28.3	31.1
50%	32.0	28.4	33.4	47.1	41.7	40.6	54.0	52.6	47.6	27.8	30.7	34.6
60%	33.7	29.1	34.5	50.6	45.7	48.1	57.4	53.7	50.7	37.2	33.5	35.5
70%	35.2	30.5	35.1	52.8	48.2	52.1	59.5	56.4	52.6	43.2	35.8	38.5
80%	36.3	31.6	37.2	54.7	51.1	55.3	62.8	58.8	55.2	44.3	36.4	40.6
90%	40.3	34.1	43.4	55.7	54.2	56.3	65.8	64.4	66.5	47.4	37.6	45.3
100%	51.1	43.0	54.3	63.0	58.1	76.8	79.4	77.9	72.0	51.1	41.6	57.1
Los Angeles Power Plants:												
0%	22.6	20.7	23.5	43.3	33.4	33.3	22.4	23.6	22.4	16.2	19.0	20.1
10%	22.6	20.7	23.5	49.6	47.9	43.3	39.2	27.7	28.8	20.6	21.8	22.9
20%	22.6	20.7	23.5	52.8	54.4	55.6	47.7	34.1	34.6	22.3	21.8	22.9
30%	40.9	37.7	41.7	56.0	58.2	56.6	54.6	44.7	36.7	35.4	38.6	40.0
40%	40.9	37.7	41.7	56.4	58.7	57.0	57.4	51.1	41.6	38.1	39.7	41.2
50%	40.9	37.7	41.7	56.7	58.8	57.0	58.0	54.7	49.8	39.9	39.7	41.2
60%	40.9	37.7	41.7	57.0	58.8	57.0	58.6	57.5	53.3	41.0	39.7	41.2
70%	40.9	37.7	41.7	57.2	58.8	57.0	58.6	58.6	56.1	41.0	39.7	41.2
80%	40.9	37.7	41.7	57.2	58.8	57.0	58.6	58.6	57.3	41.0	39.7	41.2
90%	50.1	46.1	50.9	57.2	58.8	57.0	58.6	58.6	57.3	50.2	48.7	50.4
100%	50.1	46.1	50.9	57.2	58.8	57.0	58.6	58.6	57.3	50.2	48.7	50.4
Owens Valley Power Plants:												
0%	3.1	2.8	3.2	4.7	5.0	5.7	4.6	4.6	3.8	2.8	2.9	3.1
10%	3.2	3.0	3.4	5.2	6.2	6.4	6.3	5.2	4.6	3.3	3.3	3.2
20%	3.4	3.2	3.6	5.5	6.4	6.6	6.8	5.9	5.1	3.7	3.6	3.5
30%	4.9	4.7	4.9	5.6	6.6	6.8	7.0	6.3	5.6	4.5	4.8	4.8
40%	5.0	4.8	5.1	5.7	6.9	7.0	7.2	6.8	5.9	4.9	5.0	4.9
50%	5.1	4.9	5.2	5.8	7.0	7.1	7.2	7.0	6.1	5.3	5.1	5.1
60%	5.3	5.0	5.3	6.1	7.0	7.2	7.3	7.1	6.4	5.5	5.2	5.2
70%	5.3	5.0	5.4	6.1	7.2	7.3	7.5	7.3	6.8	5.8	5.4	5.4
80%	5.4	5.1	5.5	6.3	7.2	7.4	7.6	7.5	7.0	6.0	5.5	5.5
90%	5.6	5.3	5.7	6.4	7.3	7.4	7.7	7.7	7.3	6.5	5.7	5.8
100%	6.3	5.8	6.2	6.9	7.8	7.8	8.0	7.8	7.7	7.1	6.7	6.6
Total Aqueduct Power Plants:												
0%	34.9	28.8	33.1	86.0	64.5	65.9	44.6	44.5	40.3	36.9	36.4	39.1
10%	40.3	36.1	44.0	93.0	87.5	73.6	83.8	50.7	53.8	39.0	41.1	44.6
20%	42.3	39.2	48.0	99.7	92.5	81.1	100.2	61.7	61.6	43.3	43.4	51.3
30%	74.3	67.6	75.1	104.3	99.3	92.3	107.9	88.5	65.8	58.2	70.5	73.5
40%	76.7	69.1	77.7	106.5	101.4	99.2	112.7	110.1	76.4	65.1	73.0	75.9
50%	78.3	71.0	80.3	108.4	106.4	104.0	116.7	113.6	105.7	74.6	75.1	81.1
60%	80.1	71.9	81.6	112.4	109.7	109.8	122.6	119.0	112.4	84.0	77.8	81.6
70%	81.6	73.2	82.3	114.1	113.2	116.3	124.4	121.3	114.3	90.6	81.2	85.0
80%	84.3	75.1	86.9	115.9	116.7	119.6	126.9	125.1	116.2	92.6	82.9	86.6
90%	96.0	85.4	100.0	118.3	119.9	120.9	131.7	130.1	131.0	101.9	90.9	100.7
100%	106.8	94.3	110.5	125.9	121.9	141.2	145.5	143.9	135.7	107.8	95.8	113.4

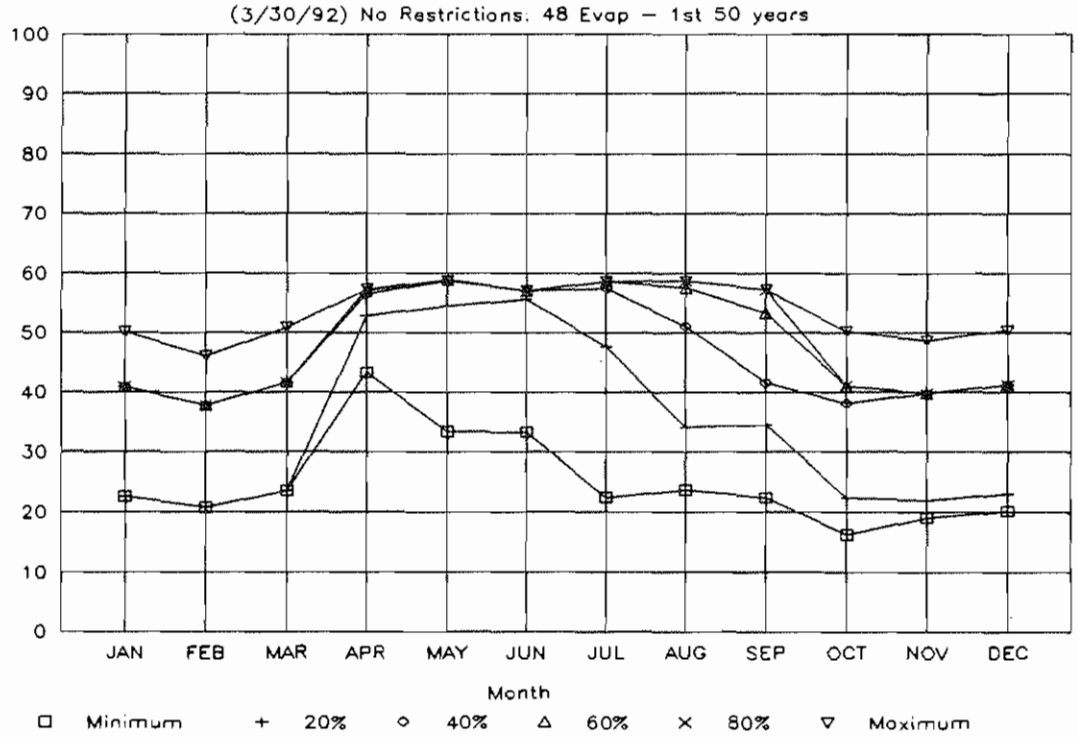
Owens Gorge Power Distribution

(3/30/92) No Restrictions: 48 Evap – 1st 50 years



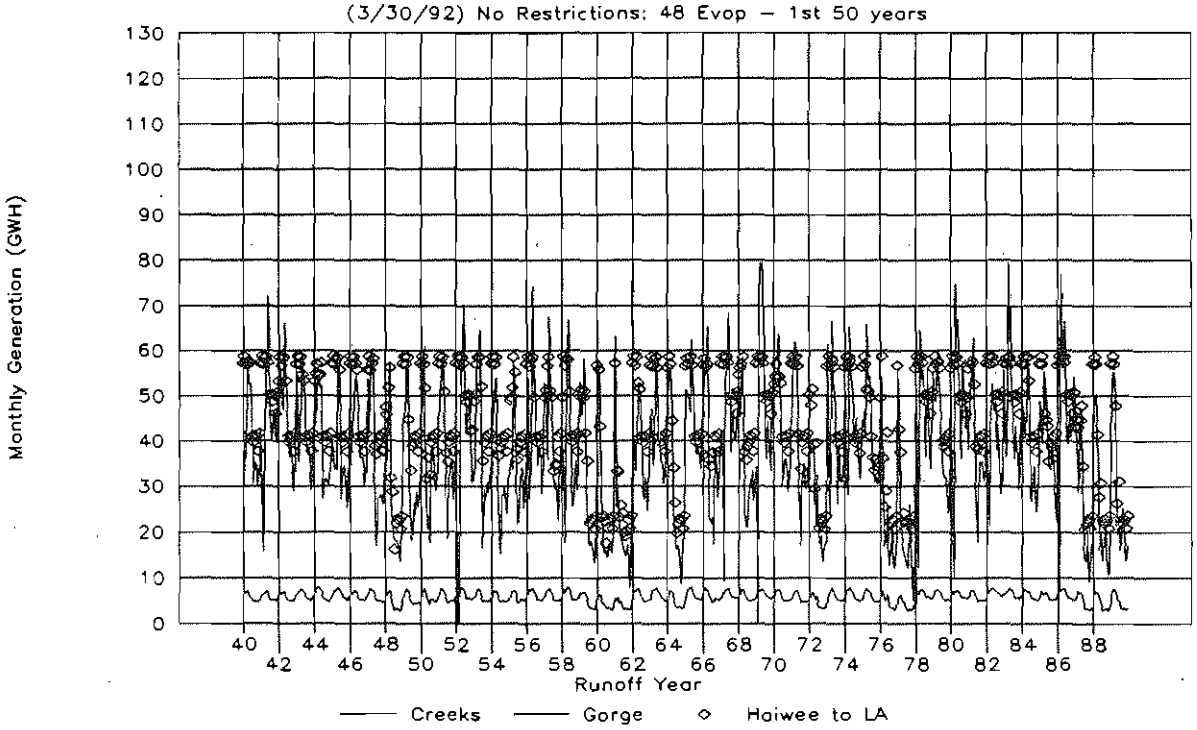
Haiwee to LA Power Distribution

(3/30/92) No Restrictions: 48 Evap – 1st 50 years



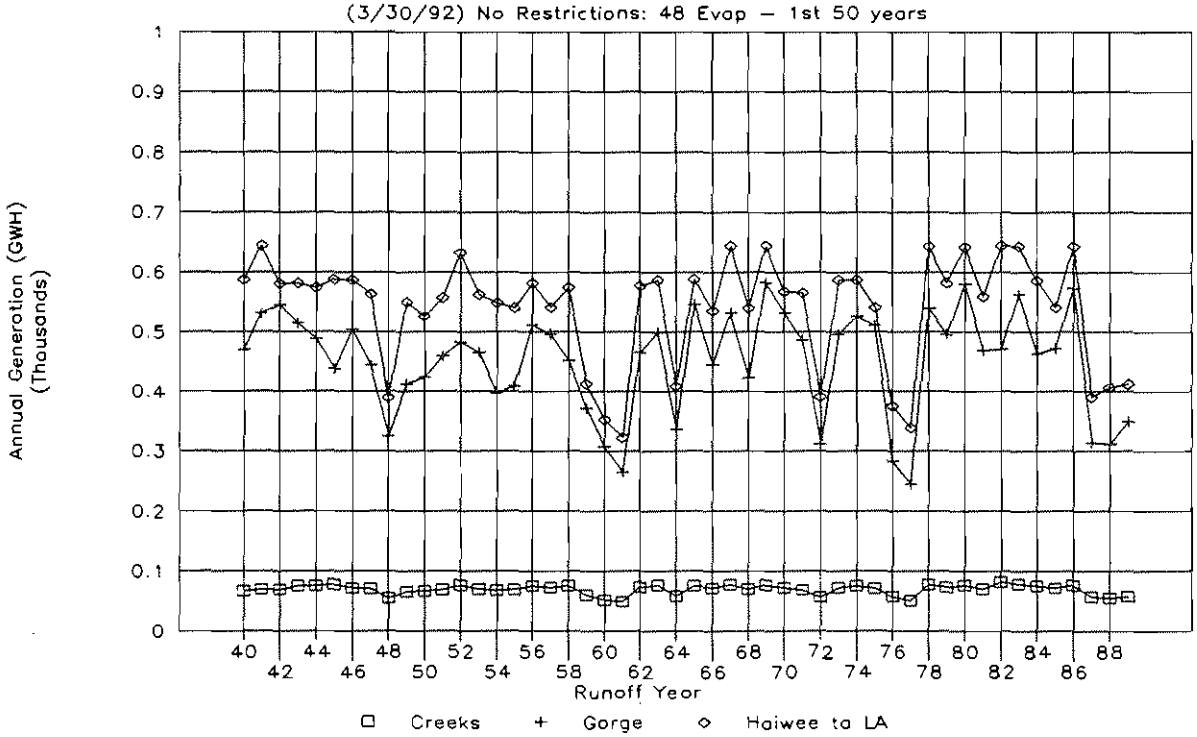
POWER GENERATION FROM LADWP AQUEDUCT

(3/30/92) No Restrictions: 48 Evap – 1st 50 years



POWER GENERATION FROM LADWP AQUEDUCT

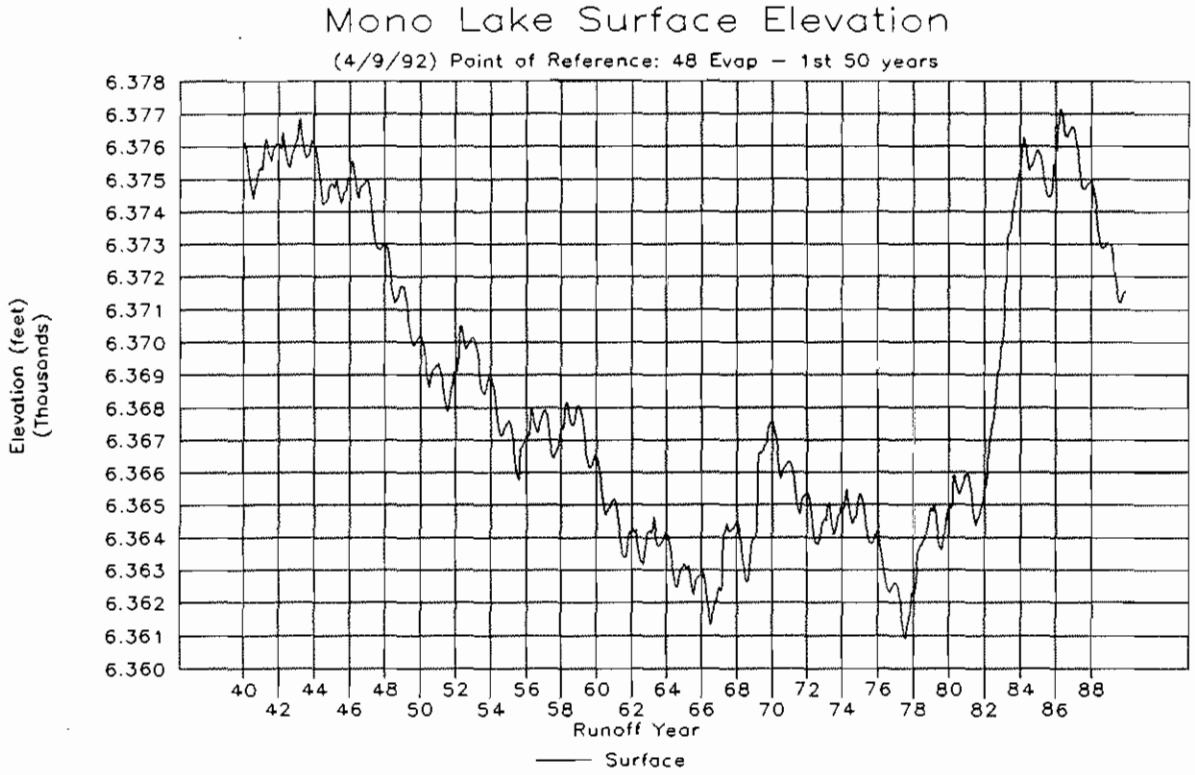
(3/30/92) No Restrictions: 48 Evap – 1st 50 years

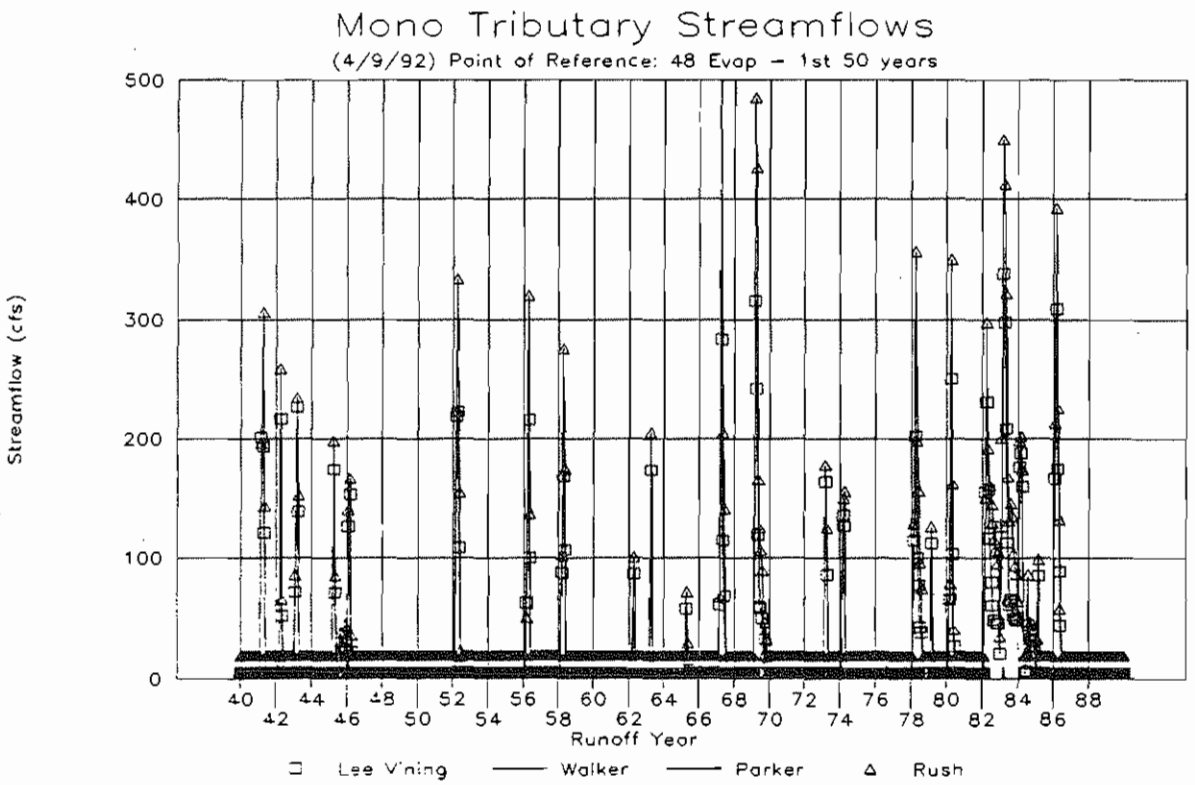


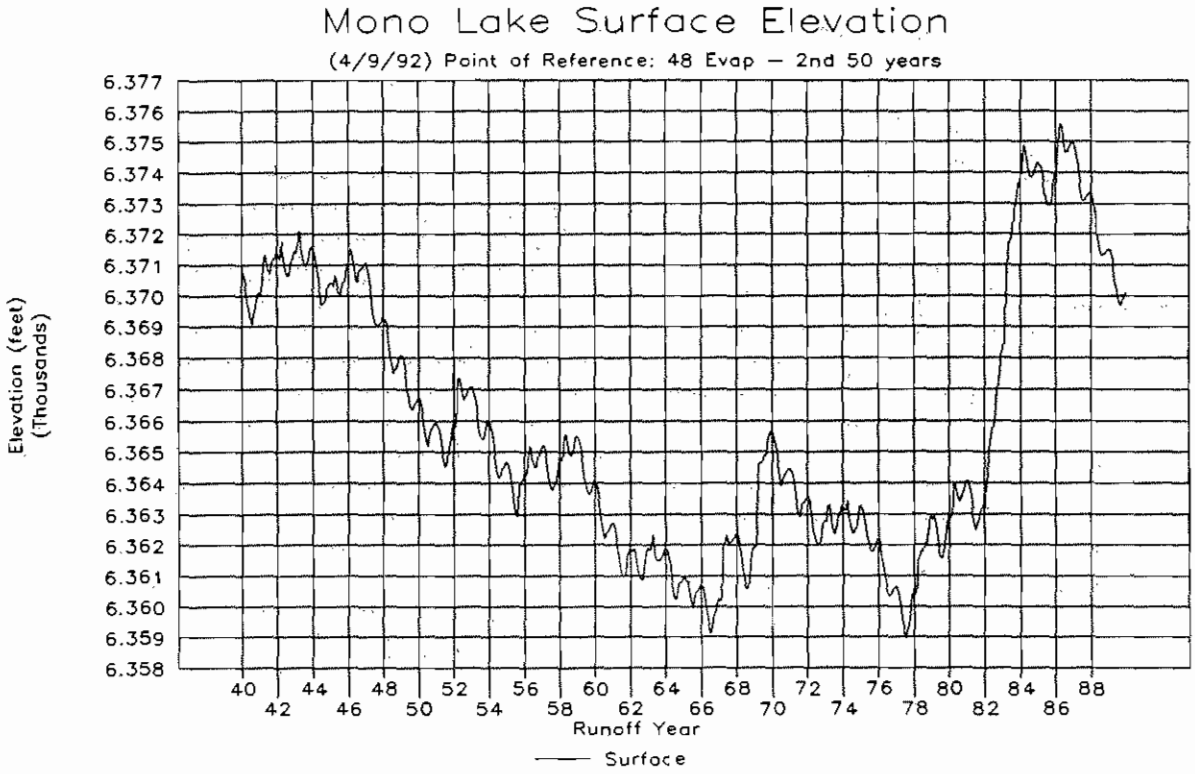
Section 3. Point of Reference

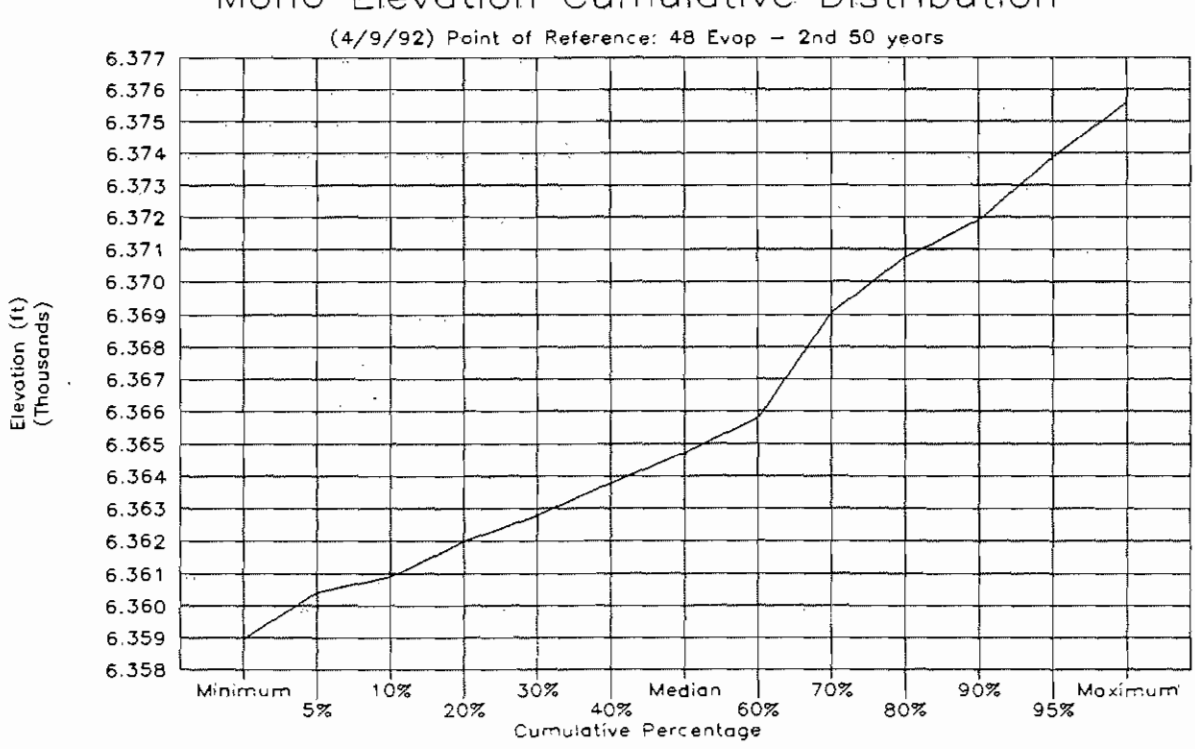
Summary of LAAMP Simulations
04/09/92
Mono EIR Alternatives
Initial Alternatives – 1st 50 Years:
(4/9/92) Point of Reference: 48 Evap – 1st 50 years

	Owens Available Export (AF)	Total Owens Uses (AF)	Haiwee Exports (AF)	Haiwee Target (AF)	Mono Lake Level (feet)	Grant Storage (AF)	Releases to Mono Lake (AF)	West Portal Exports (AF)	Long Valley Storage (AF)	Long Valley Outflow (AF)	Pleasant Valley Outflow (AF)	Tinemaha Inflow= Outflow (AF)	Total Owens Pumping (AF)	Total Owens Spreading (AF)	Aqueduct Spilling (AF)	Tinemaha Storage (AF)	Haiwee Storage (AF)
Starting:					6376.32	20000			126282							8000	8000
Minimum:	8357	1645	11801	16520	6360.39	20000	1345	0	112336	0	7750	9620	3070	0	0	0	0
Average:	28971	9142	36486	39882	6368.20	28260	3719	6056	139263	19033	24312	33108	9223	867	718	1051	908
Maximum:	162922	21682	49600	49600	6376.52	50000	50954	17825	192093	42346	63391	107794	26264	37820	148645	10000	10000
(TAF/yr):	347.7	109.7	437.8	478.6			44.6	72.7		228.4	291.7	397.3	110.7	10.4	8.6		
71-89 Avg:	372.5	110.0	431.1	474.1			55.5	63.3		227.1	295.6	400.4	97.4	14.8	9.7		
71-89 Historical:			470					77.5					108.7				
Ending:					6370.78	20000			138002							0	0
Monthly:																	
April	28886	8513	45349	48000	6368.56	23529	1574	8396	135964	23950	27835	38987	14303	0	0	593	497
May	33898	15581	46563	49600	6368.51	26843	2904	9154	138534	20406	27129	37684	11669	714	0	814	656
June	46060	19671	45493	48000	6368.53	35188	8271	6700	146509	20085	28989	39277	9564	2943	5462	1274	1034
July	42853	19418	43169	49600	6368.57	34638	11880	5702	144466	25622	33585	41772	13219	5270	2974	1759	1455
August	33287	16829	38995	49600	6368.25	32194	5408	6550	139903	22678	28122	35435	15001	1483	177	1856	1535
September	27148	12136	36586	48000	6367.97	28851	2775	7349	136528	20867	24910	32780	15236	0	0	1588	1375
October	22443	4835	29976	31645	6367.75	27358	2243	5818	136596	16142	20751	28061	8087	0	0	1308	1175
November	22349	3369	30415	30624	6367.73	27512	2092	4455	136925	15532	20273	28392	5589	0	0	931	849
December	22382	2978	31186	31645	6367.87	26313	1938	5661	137010	17721	20517	29420	5533	0	0	720	680
January	23103	2267	31358	31645	6368.03	25737	1927	4673	138226	15900	20853	29964	4458	0	0	560	560
February	21833	1775	27771	28582	6368.21	25502	1741	3770	140075	13038	17583	26313	3700	0	0	547	497
March	23413	2329	30968	31645	6368.39	25457	1882	4441	140425	16451	21201	29207	4310	0	0	667	576
Cumulative Distribution of			Minimum	5%	10%	20%	30%	40%	Median	60%	70%	80%	90%	95%	Maximum		
Mono Lake Monthly Elevations			6360.39	6362.12	6362.97	6363.84	6364.4	6365.65	6367.15	6368.7	6371.24	6374.11	6375.28	6375.77	6376.52		
Annual:																	
Minimum:	158630	88466	248305	400180			17389	5754		110733	151400	204472	39457	0	0		
Average:	347656	109702	437829	478586			44633	72668		228392	291747	397292	110670	10410	8613		
Maximum:	828234	121300	538500	538500			225947	128971		306706	414310	627062	195688	144513	213374		


Mono Lake Surface Elevation
(4/9/92) Point of Reference: 48 Evap – 1st 50 years
Elevation (feet)
(Thousands)
6.378
6.377
6.376
6.375
6.374
6.373
6.372
6.371
6.370
6.369
6.368
6.367
6.366
6.365
6.364
6.363
6.362
6.361
6.360
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Surface

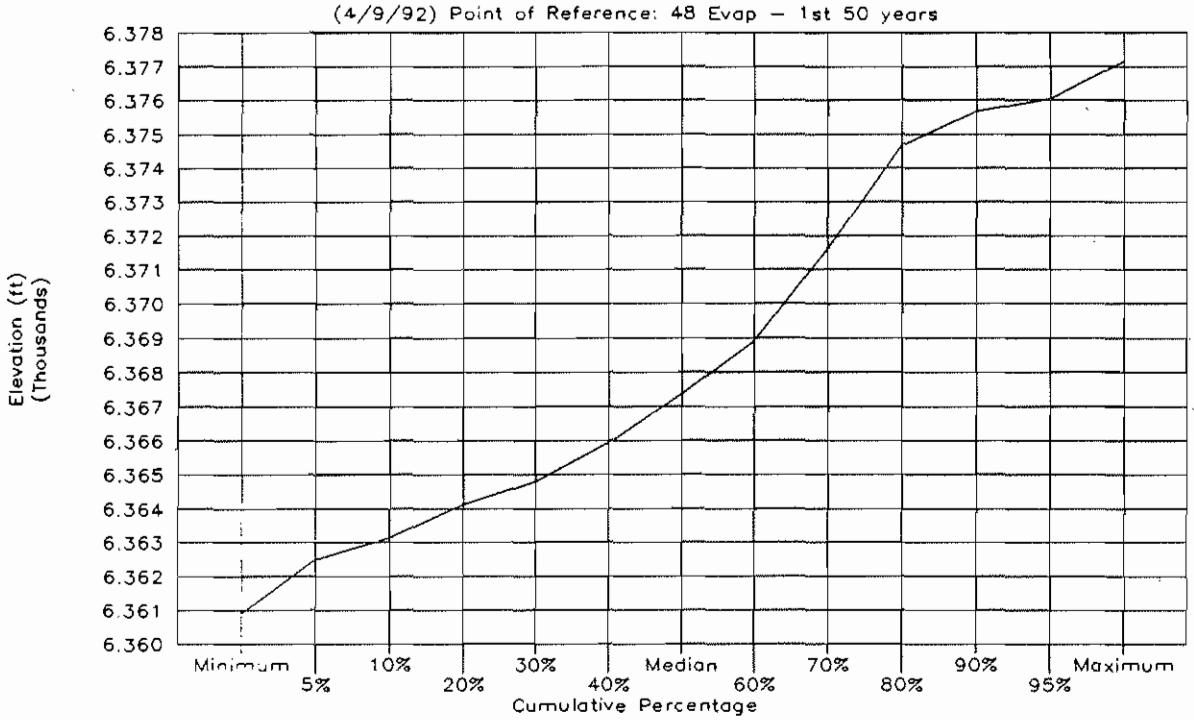

Mono Tributary Streamflows
(4/9/92) Point of Reference: 48 Evap – 1st 50 years
Streamflow (cfs)
500
400
300
200
100
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Lee Vining
Walker
Parker
Rush


Mono Lake Surface Elevation
(4/9/92) Point of Reference: 48 Evap – 2nd 50 years
Elevation (feet) (Thousands)
6.377
6.376
6.375
6.374
6.373
6.372
6.371
6.370
6.369
6.368
6.367
6.366
6.365
6.364
6.363
6.362
6.361
6.360
6.359
6.358
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Surface


Mono Elevation Cumulative Distribution
(4/9/92) Point of Reference: 48 Evap – 2nd 50 years
Elevation (ft) (Thousands)
6.377
6.376
6.375
6.374
6.373
6.372
6.371
6.370
6.369
6.368
6.367
6.366
6.365
6.364
6.363
6.362
6.361
6.360
6.359
6.358
Minimum 5% 10% 20% 30% 40% Median 60% 70% 80% 90% 95% Maximum
Cumulative Percentage

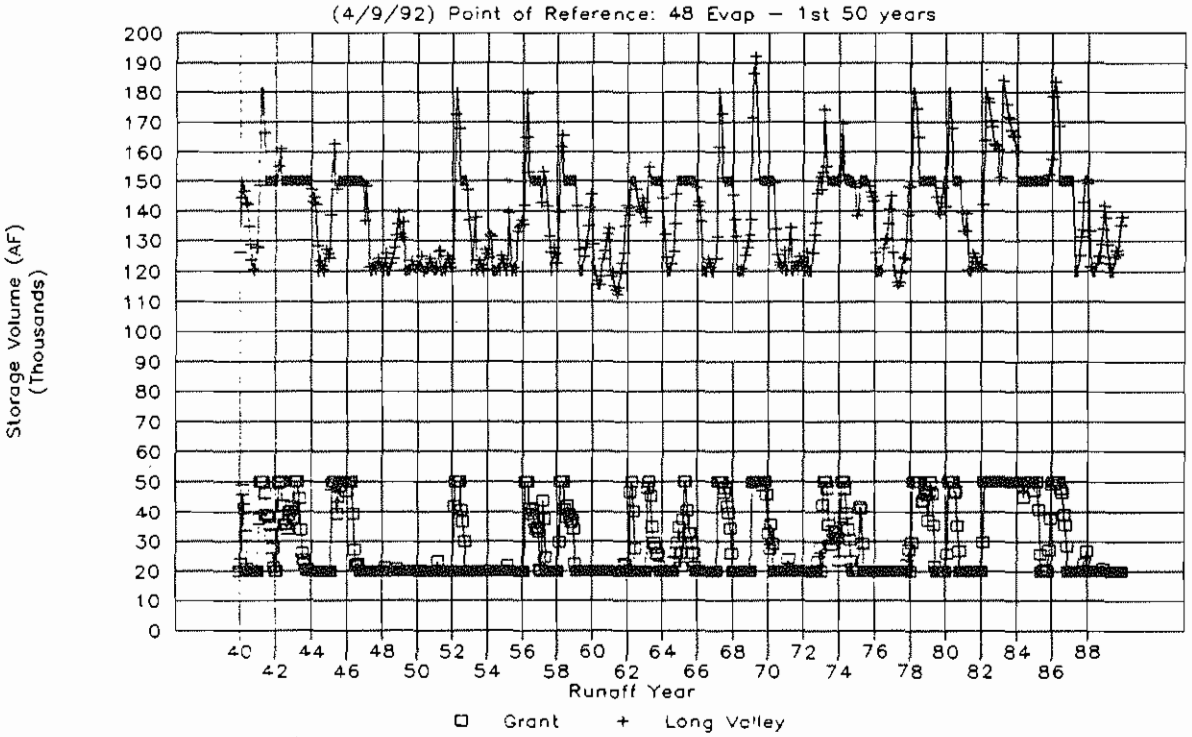
Mono Elevation Cumulative Distribution

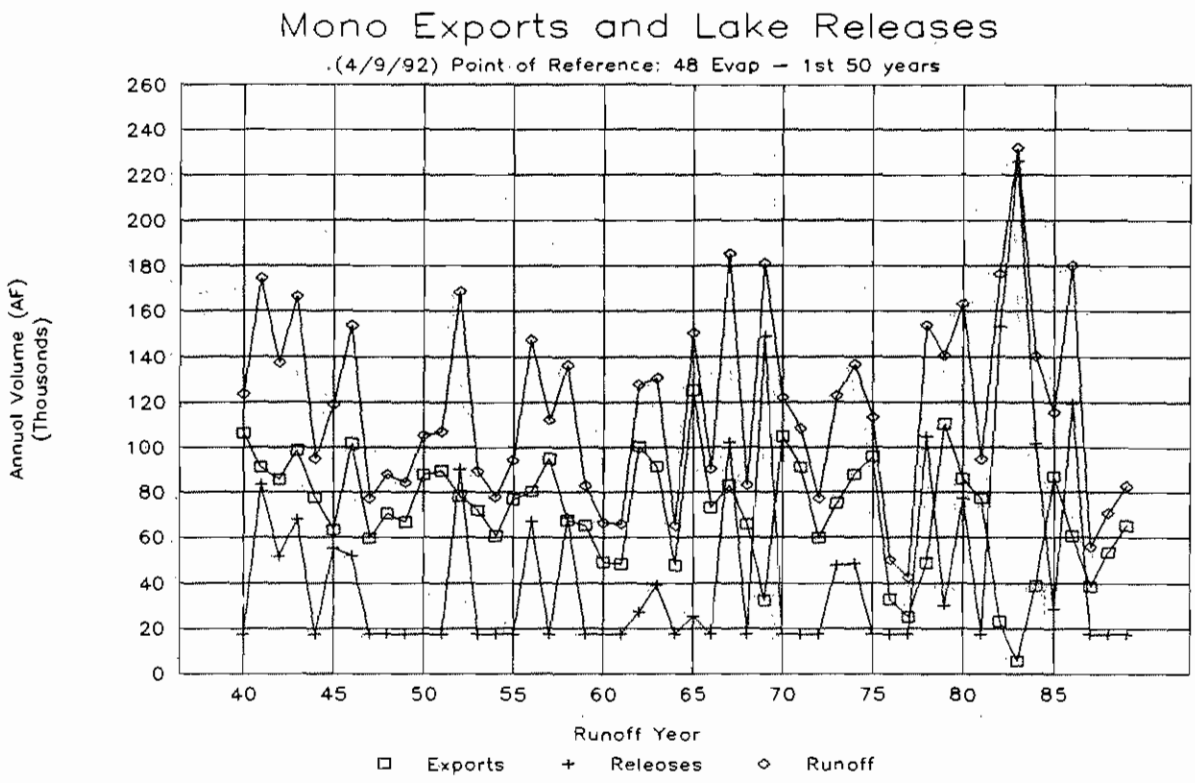
(4/9/92) Point of Reference: 48 Evap – 1st 50 years

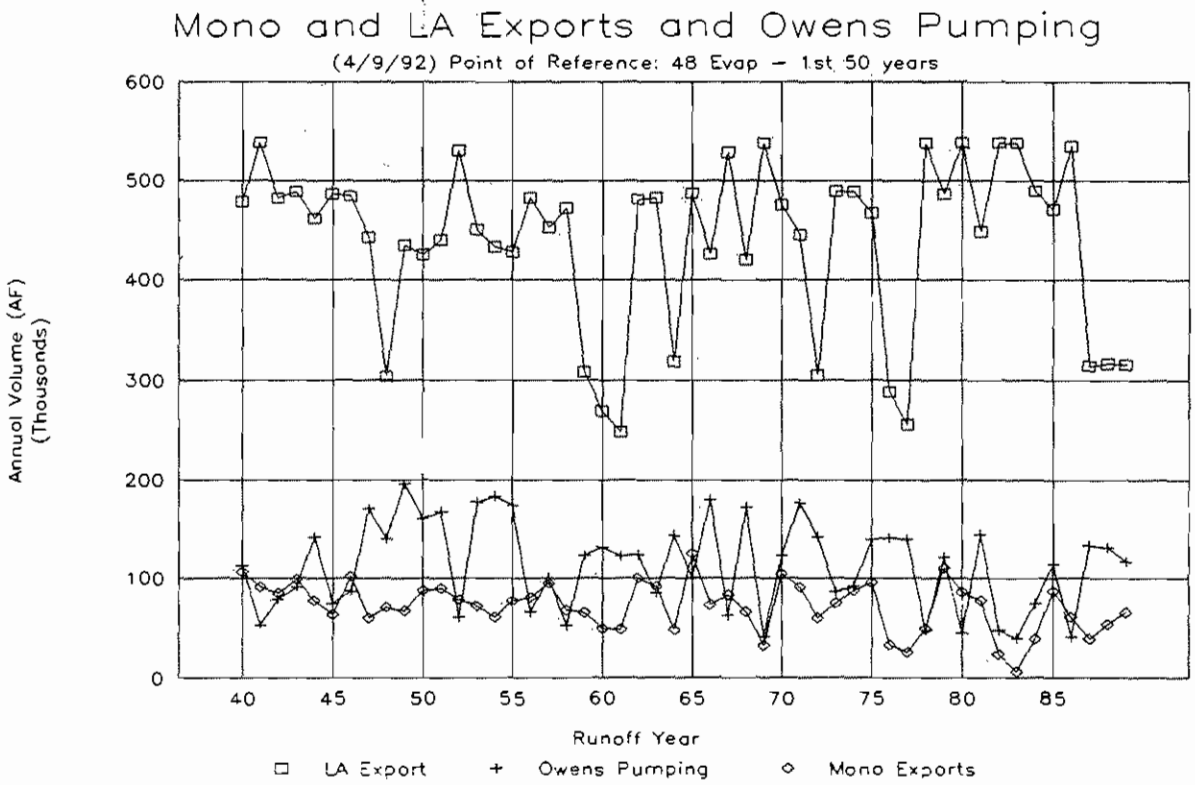


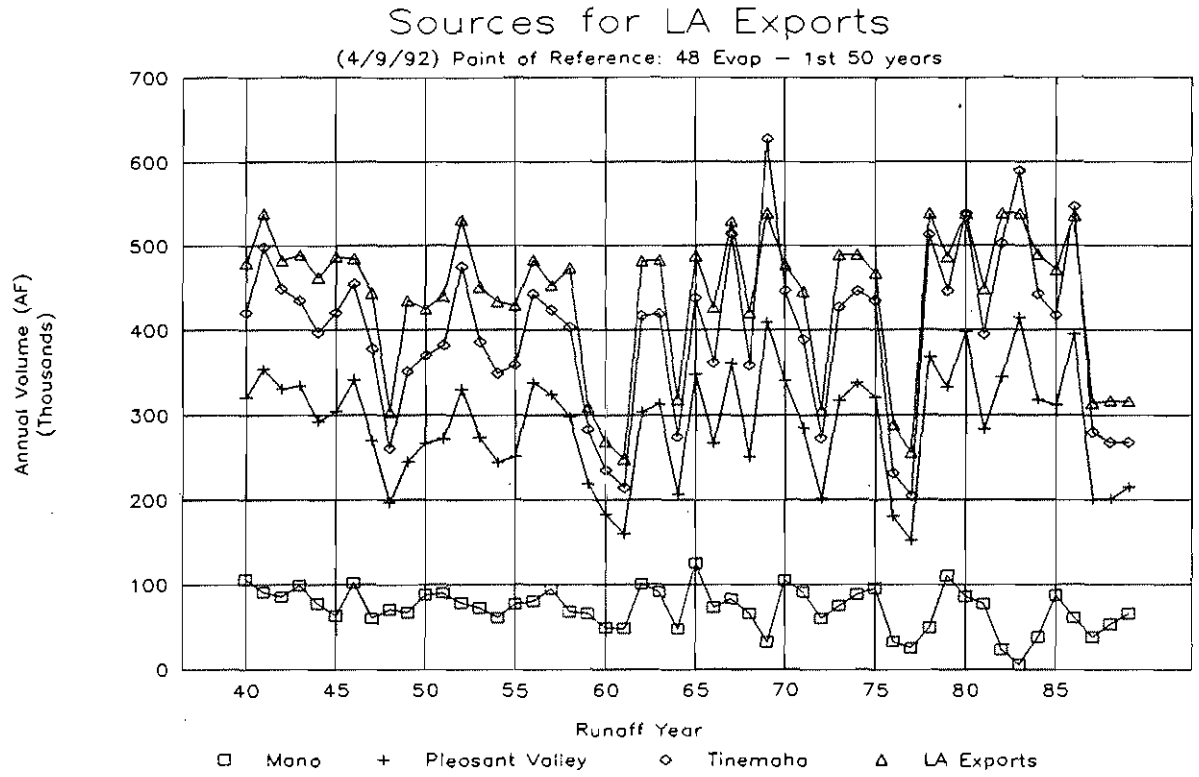
Grant and Long Valley Storage

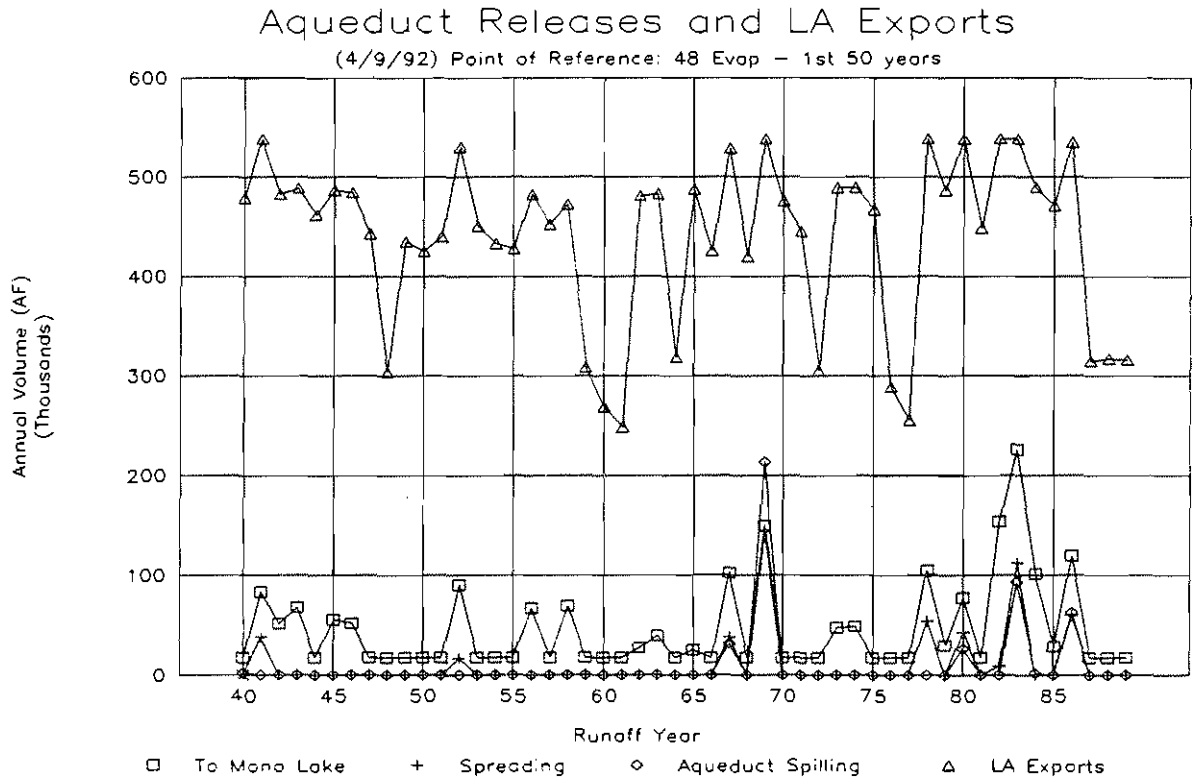
(4/9/92) Point of Reference: 48 Evap – 1st 50 years

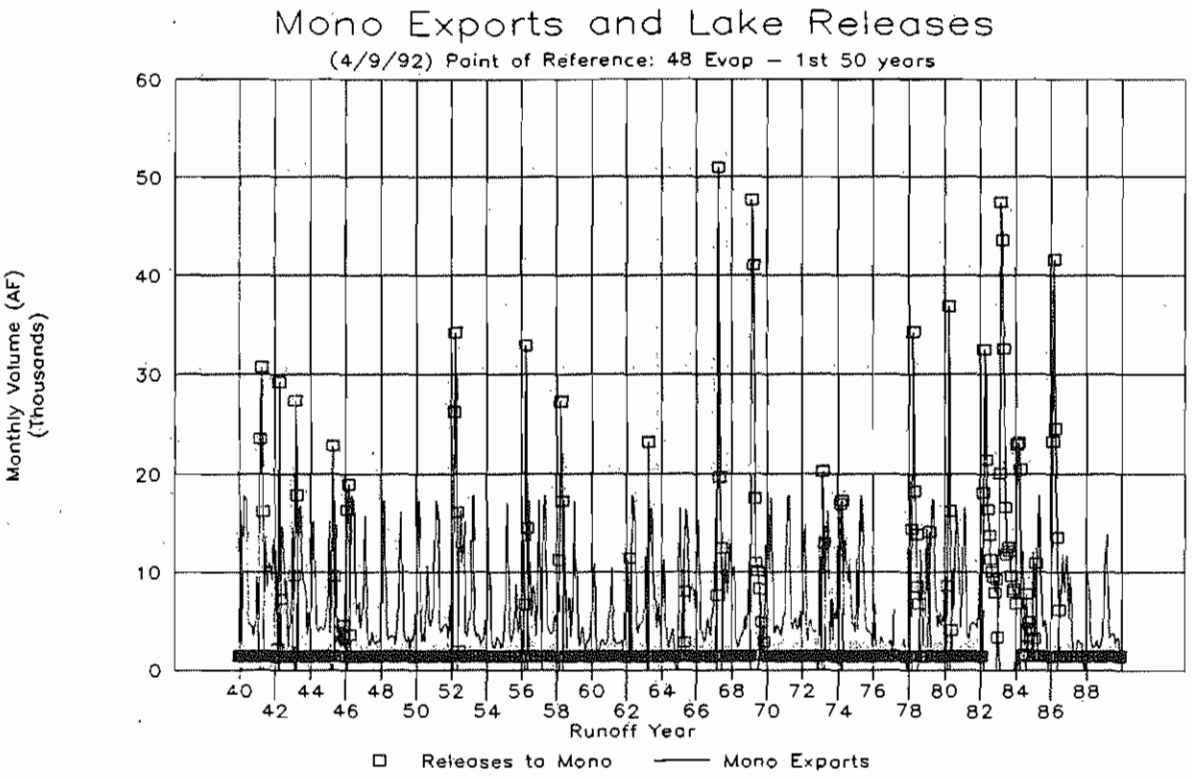


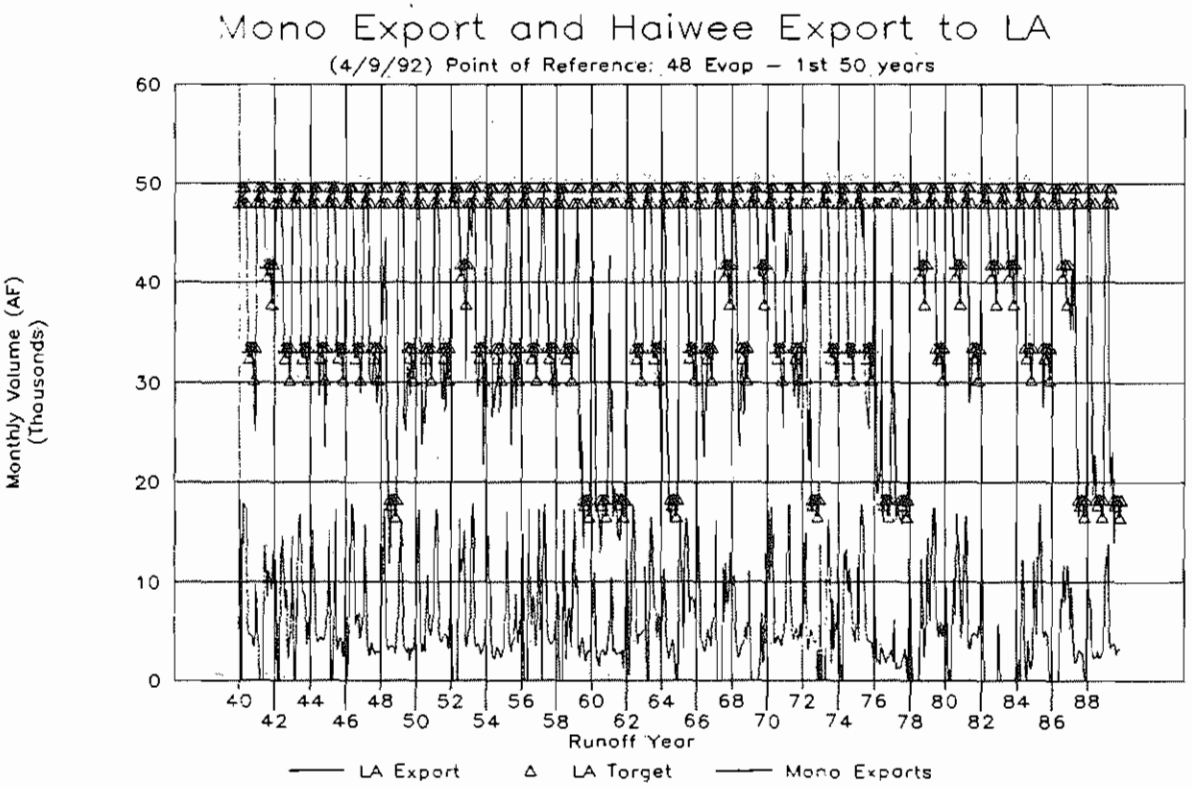

Mono Exports and Lake Releases
(4/9/92) Point of Reference: 48 Evap – 1st 50 years
Annual Volume (AF)
(Thousands)
260
240
220
200
180
160
140
120
100
80
60
40
20
0
40
45
50
55
60
65
70
75
80
85
Runoff Year
Exports
Releases
Runoff


Mono and LA Exports and Owens Pumping
(4/9/92) Point of Reference: 48 Evap – 1st 50 years
Annual Volume (AF)
(Thousands)
600
500
400
300
200
100
0
40
45
50
55
60
65
70
75
80
85
Runoff Year
LA Export
Owens Pumping
Mono Exports


Sources for LA Exports
(4/9/92) Point of Reference: 48 Evap – 1st 50 years
Annual Volume (AF)
(Thousands)
700
600
500
400
300
200
100
0
40
45
50
55
60
65
70
75
80
85
Runoff Year
Mono
Pleasant Valley
Tinemaha
LA Exports


Aqueduct Releases and LA Exports
(4/9/92) Point of Reference: 48 Evap – 1st 50 years
Annual Volume (AF)
(Thousands)
600
500
400
300
200
100
0
40
45
50
55
60
65
70
75
80
85
Runoff Year
To Mono Lake
Spreading
Aqueduct Spilling
LA Exports


Mono Exports and Lake Releases
(4/9/92) Point of Reference: 48 Evap – 1st 50 years
Monthly Volume (AF)
(Thousands)
60
50
40
30
20
10
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Releases to Mono
Mono Exports


Mono Export and Haiwee Export to LA
(4/9/92) Point of Reference: 48 Evap – 1st 50 years
Monthly Volume (AF)
(Thousands)
60
50
40
30
20
10
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
LA Export
LA Target
Mono Exports

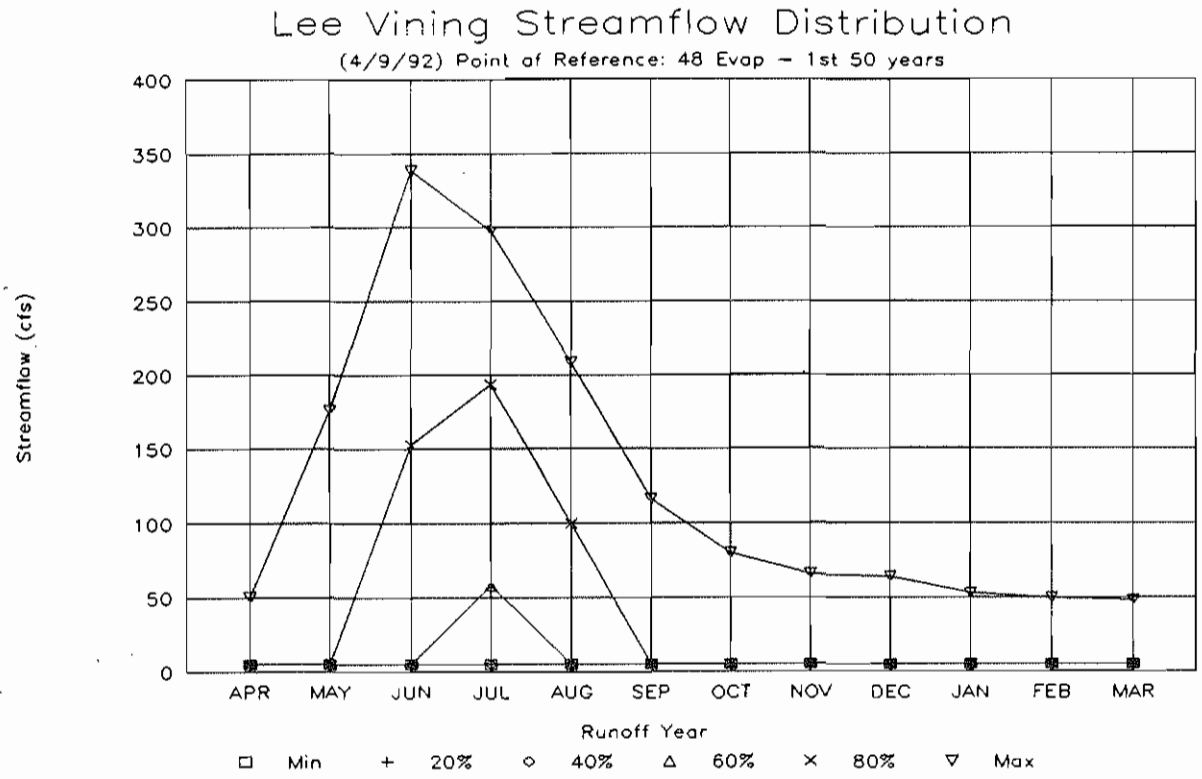
Mono Lake Tributary Streamflows
04/09/92
Mono EIR Alternatives
Initial Alternatives - 1st 50 Years:
(4/9/92) Point of Reference: 48 Evap - 1st 50 years

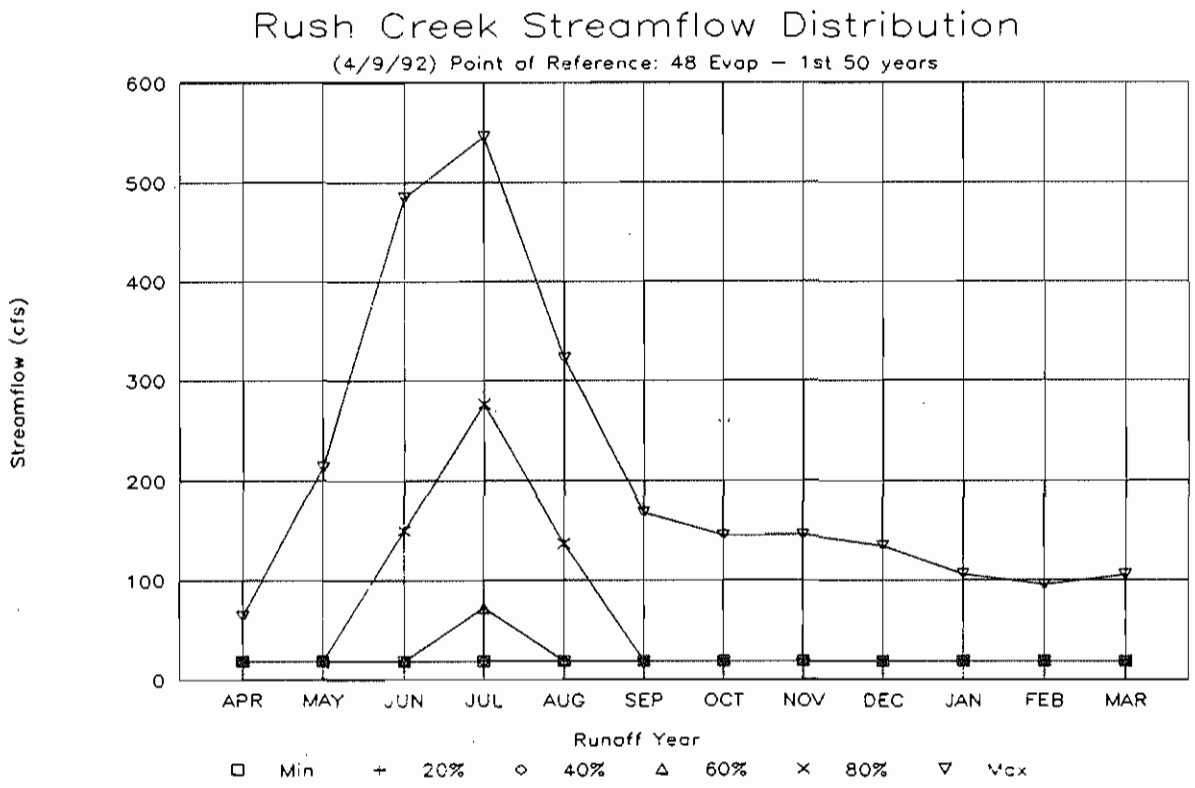
	Lee Vining Runoff (AF)	Lee Vining Min Flow (AF)	Lee Vining Lakeflow (AF)	Lee Vining Irrigate (AF)	Lee Vining Conduit (AF)	Lee Vining Spill (AF)	Walker Creek Runoff (AF)	Walker Creek Min Flow (AF)	Walker Creek Irrigate (AF)	Walker Creek Conduit (AF)	Walker Creek Spill (AF)	Parker Creek Runoff (AF)	Parker Creek Min Flow (AF)	Parker Creek Irrigate (AF)	Parker Creek Conduit (AF)	Parker Creek Spill (AF)
Minimum:	645	0	0	0	0	0	22	0	0	0	0	94	0	0	0	0
Average:	4107	292	0	253	2570	992	450	0	170	280	0	760	0	315	444	1
Maximum:	20828	307	0	918	14539	20089	2722	0	879	2192	0	4369	0	1495	2874	611
Total (TAF/yr):	49.3	3.5	0.0	3.0	30.8	11.9	5.4	0.0	2.0	3.4	0.0	9.1	0.0	3.8	5.3	0.0
Annual Values																
Minimum:	19852	3016	0	3032	1885	0	2410	0	1109	1301	0	4690	0	2594	2096	0
Average:	49287	3506	0	3032	30845	11904	5401	0	2037	3364	0	9126	0	3782	5330	14
Maximum:	92303	3621	0	3032	56182	84370	12132	0	2429	9703	0	16759	0	3946	12202	611

	Rush Creek Runoff (AF)	Conduit Inflow to Grant (AF)	Mono Basin Gains (AF)	Mono Gate #1 Min Flow (AF)	Rush Creek Lakeflow (AF)	Grant Storage Lakeflow (AF)	Rush Creek Storage (AF)	Grant Evap - Rain (AF)	West Portal Export (AF)	Grant Storage Spill (AF)	Lee Vining Flow (cfs)	Walker Flow (cfs)	Parker Flow (cfs)	Rush Flow (cfs)
Minimum:	1264	333	-127	1065	0	0	20000	-641	0	0	5.0	0.0	0.0	19.0
Average:	4973	3295	422	1147	0	0	28260	200	6056	1287	21.2	0.0	0.0	40.2
Maximum:	29989	16644	868	1168	0	0	50000	640	17825	32356	338.2	0.0	10.3	546.0
Total (TAF/yr):	59.7	39.5	5.1	13.8	0.0	0.0		2.4	72.7	15.4				
Annual Values														
Minimum:	24610	17018	5060	13765	0	0		1409	5754	0	78.2	0.0	0.0	43.1
Average:	59681	39539	5060	13765	0	0		2404	72668	15442	192.1	0.0	0.0	59.4
Maximum:	117750	66189	5060	13765	0	0		3387	128971	124183	451.4	0.0	0.8	158.9

Mono Lake Tributary Streamflows Monthly Percentiles
04/09/92
Mono EIR Alternatives
Initial Alternatives – 1st 50 Years:
(4/9/92) Point of Reference: 48 Evap – 1st 50 years

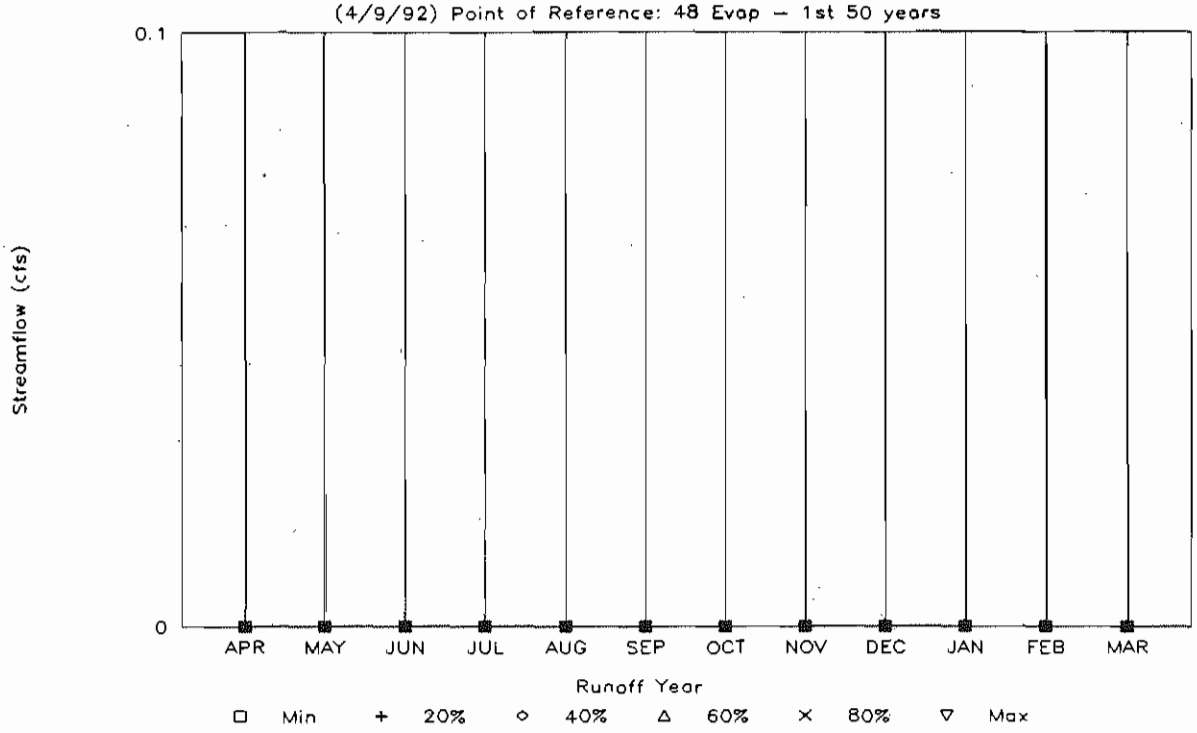
	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
Lee Vining Creek:												
0%	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
10%	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
20%	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
30%	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
40%	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
50%	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
60%	5.0	5.0	5.0	27.8	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
70%	5.0	5.0	76.3	159.6	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
80%	5.0	5.0	152.7	193.6	99.6	5.0	5.0	5.0	5.0	5.0	5.0	5.0
90%	5.0	19.0	219.0	231.3	114.7	59.6	5.0	5.4	5.0	12.8	18.6	5.0
100%	50.2	176.2	338.2	297.6	208.6	116.2	79.7	65.4	63.8	52.6	49.5	48.0
Walker Creek:												
0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Parker Creek:												
0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100%	0.0	0.0	10.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rush Creek:												
0%	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.1	19.0
10%	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.1	19.0
20%	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.1	19.0
30%	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.1	19.0
40%	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.1	19.0
50%	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.1	19.0
60%	19.0	19.0	19.0	41.8	19.0	19.0	19.0	19.0	19.0	19.0	19.1	19.0
70%	19.0	19.0	90.4	173.6	19.0	19.0	19.0	19.0	19.0	19.0	19.1	19.0
80%	19.0	19.0	150.1	276.2	136.8	19.0	19.0	19.0	19.0	19.0	19.1	19.0
90%	19.0	33.1	223.8	349.8	174.5	124.6	19.0	19.4	19.0	26.8	32.6	19.0
100%	64.2	200.7	484.9	546.0	321.8	167.8	144.9	145.6	134.5	106.2	95.2	105.2


Lee Vining Streamflow Distribution
(4/9/92) Point of Reference: 48 Evap – 1st 50 years
Streamflow (cfs)
400
350
300
250
200
150
100
50
0
APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR
Runoff Year
Min 20% 40% 60% 80% Max


Rush Creek Streamflow Distribution
(4/9/92) Point of Reference: 48 Evap – 1st 50 years
Streamflow (cfs)
600
500
400
300
200
100
0
APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR
Runoff Year
Min 20% 40% 60% 80% Max

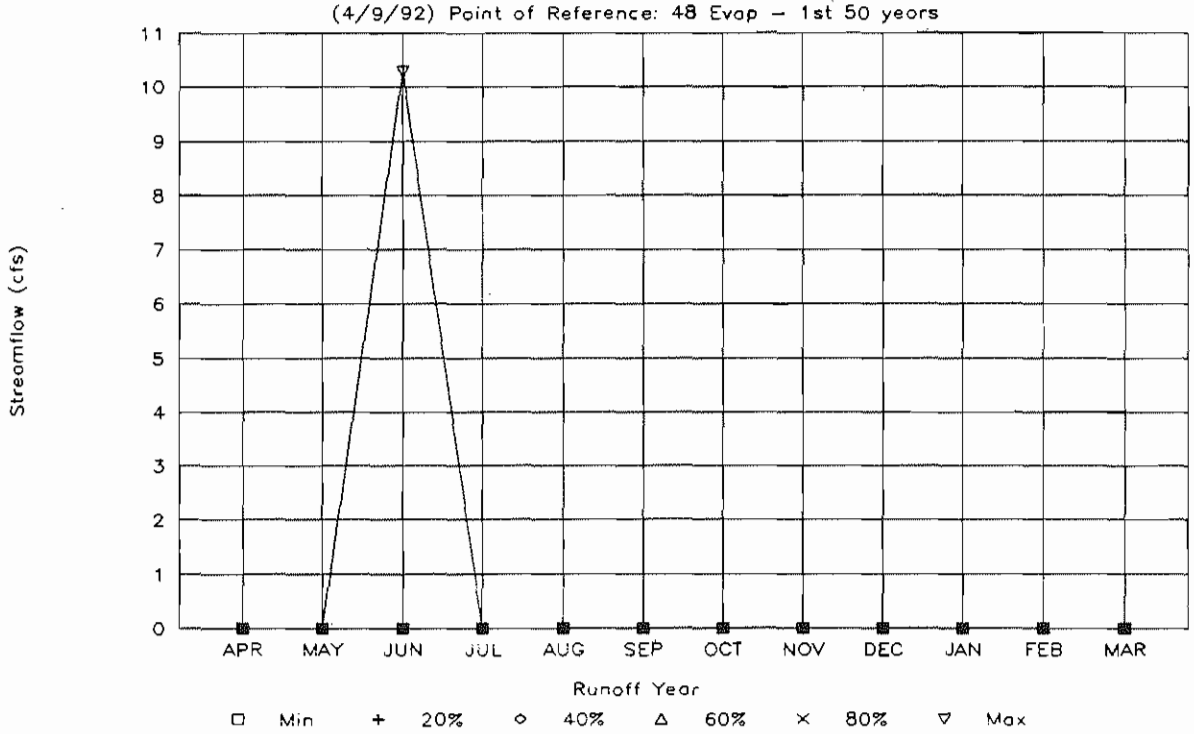
Walker Creek Streamflow Distribution

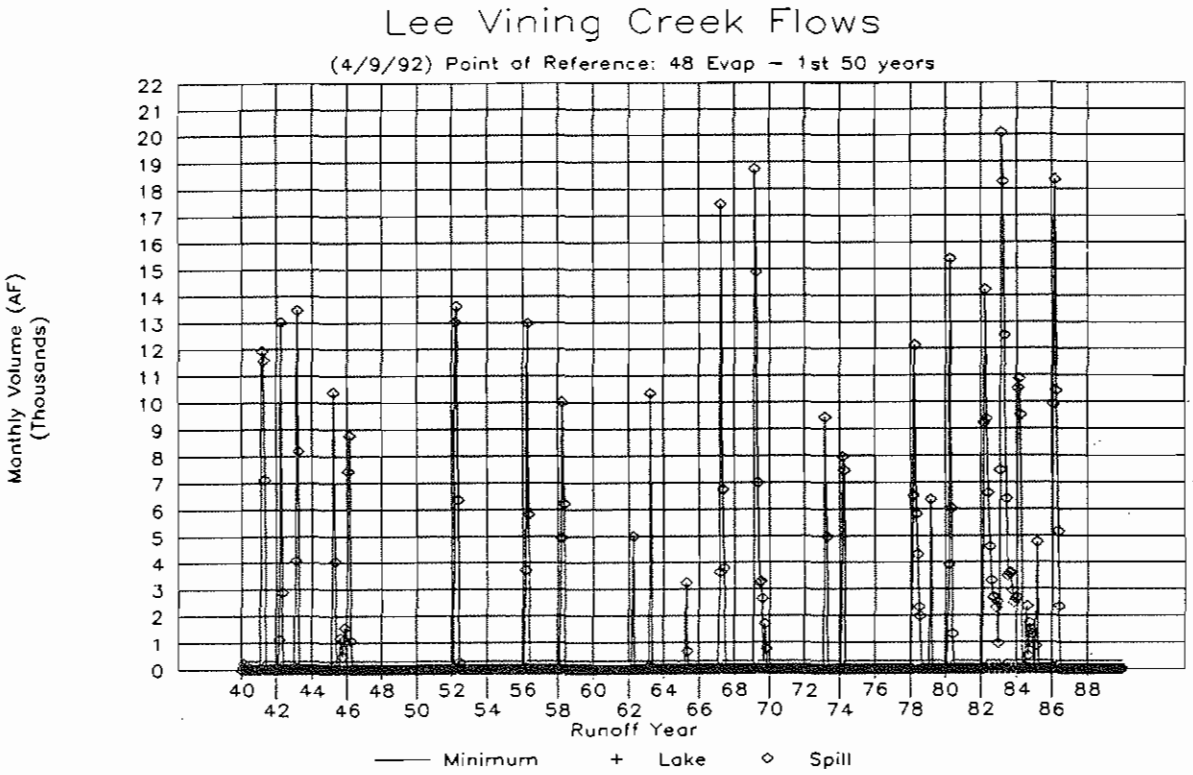
(4/9/92) Point of Reference: 48 Evap – 1st 50 years

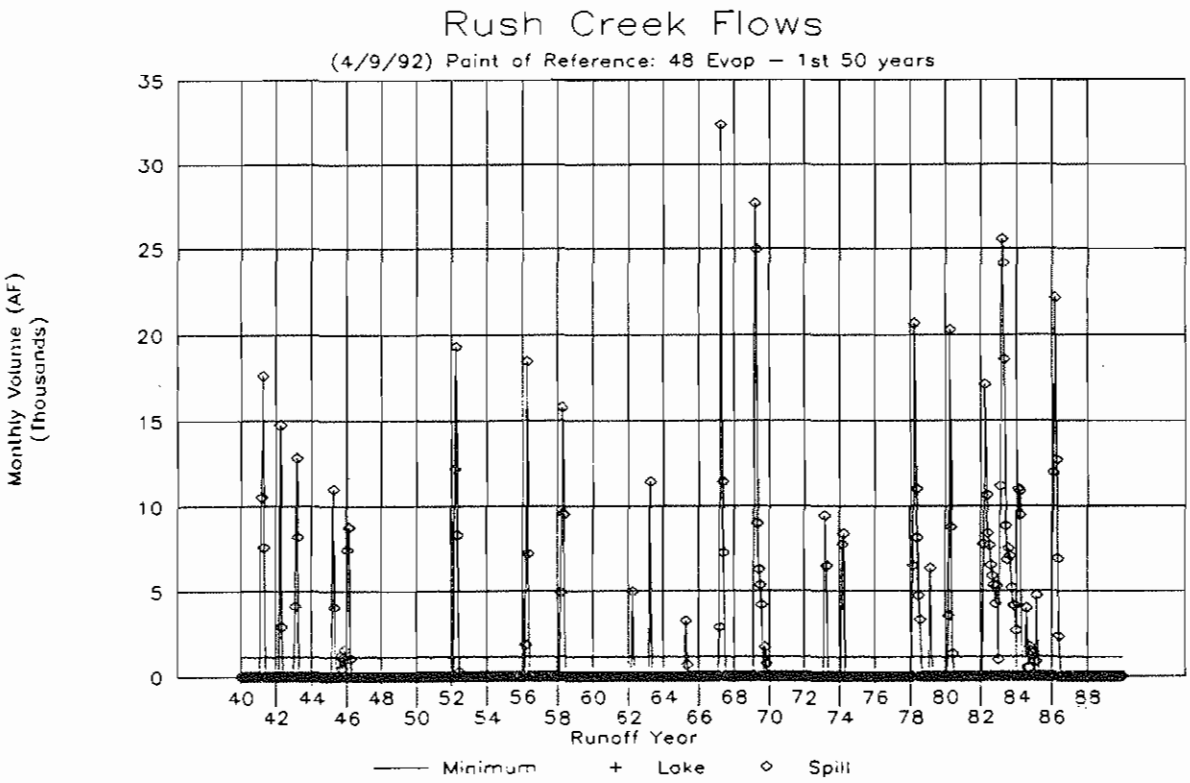


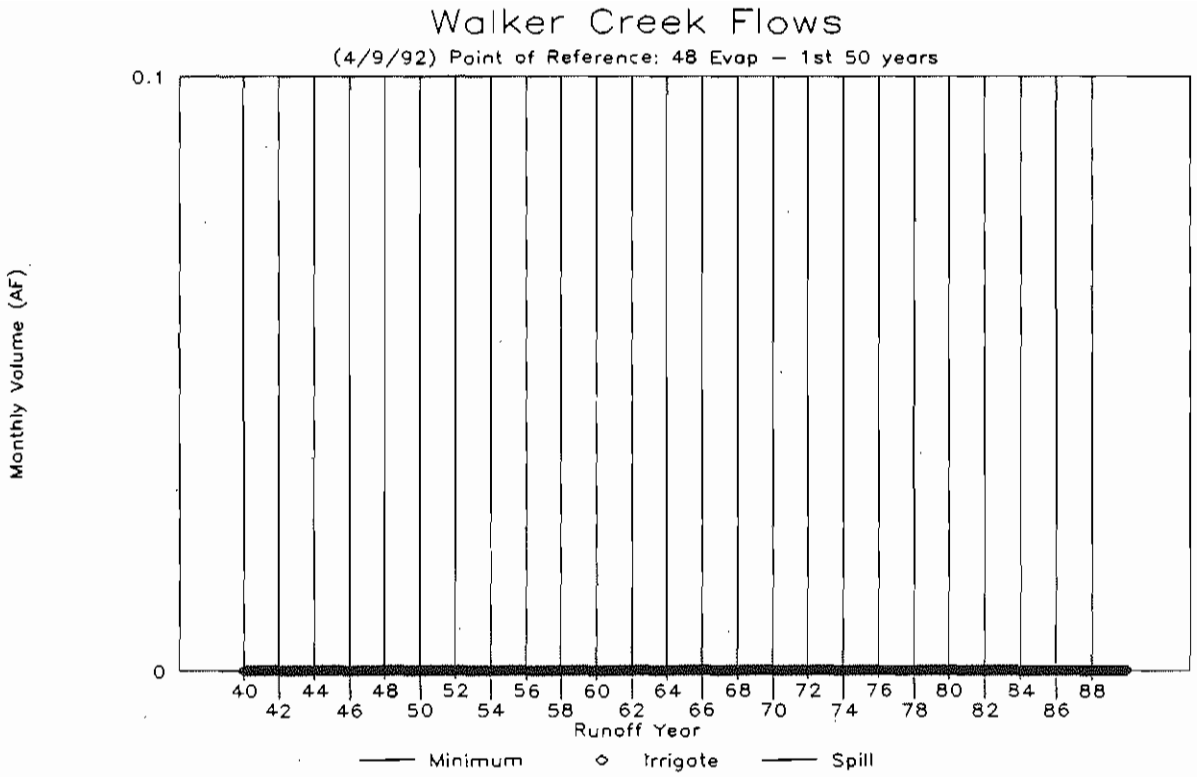
Parker Creek Streamflow Distribution

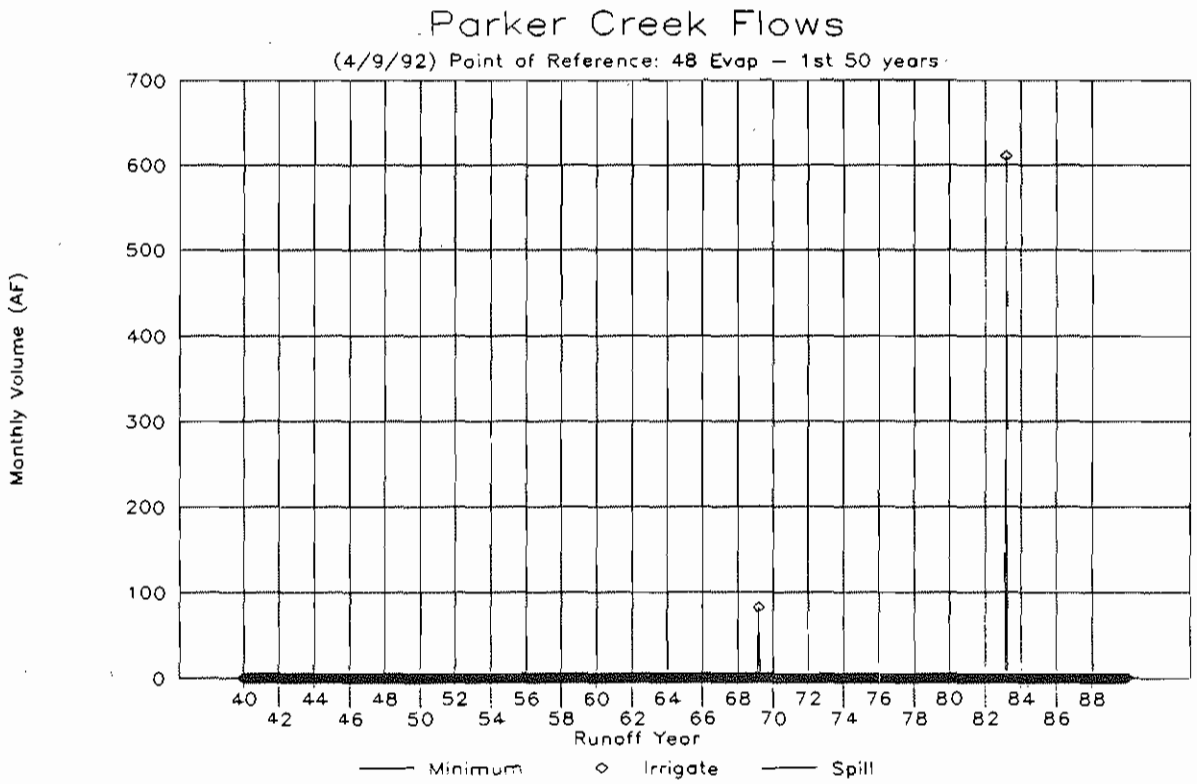
(4/9/92) Point of Reference: 48 Evap – 1st 50 yeors




Lee Vining Creek Flows
(4/9/92) Point of Reference: 48 Evap - 1st 50 years
Monthly Volume (AF)
(Thousands)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Minimum
Lake
Spill

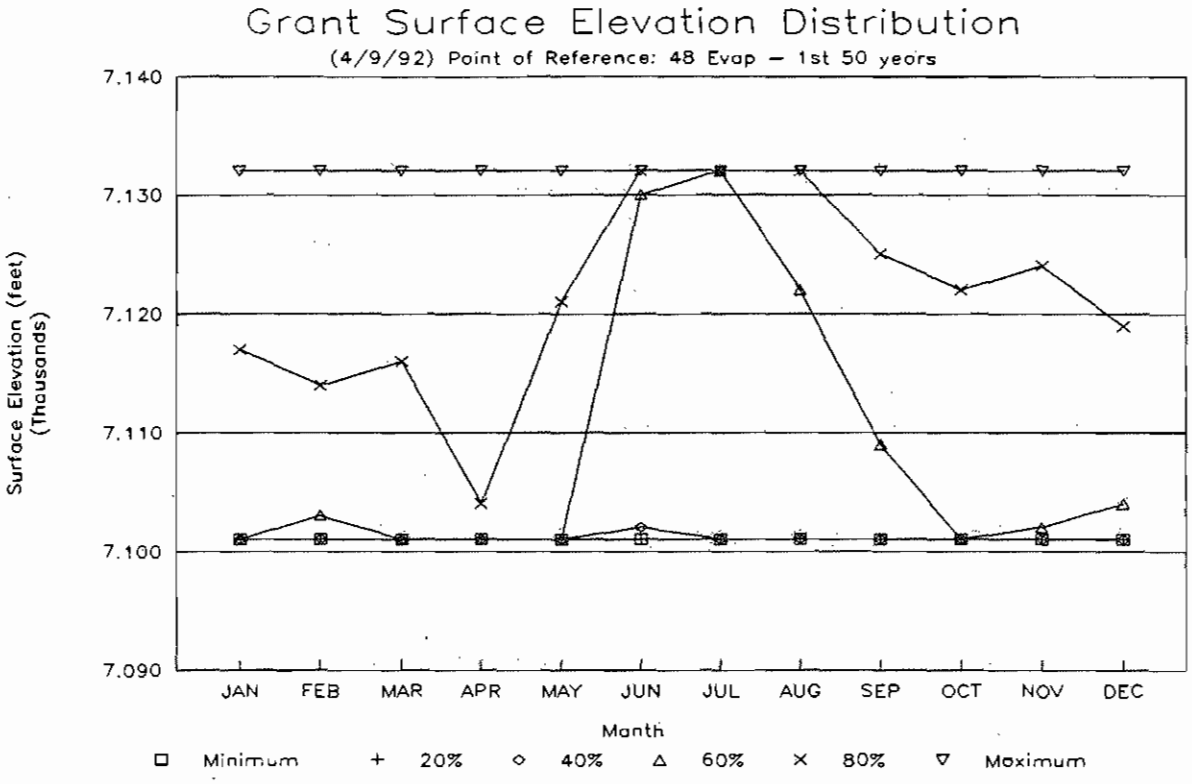

Rush Creek Flows
(4/9/92) Point of Reference: 48 Evap - 1st 50 years
Monthly Volume (AF)
(Thousands)
0 5 10 15 20 25 30 35
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Minimum
Lake
Spill

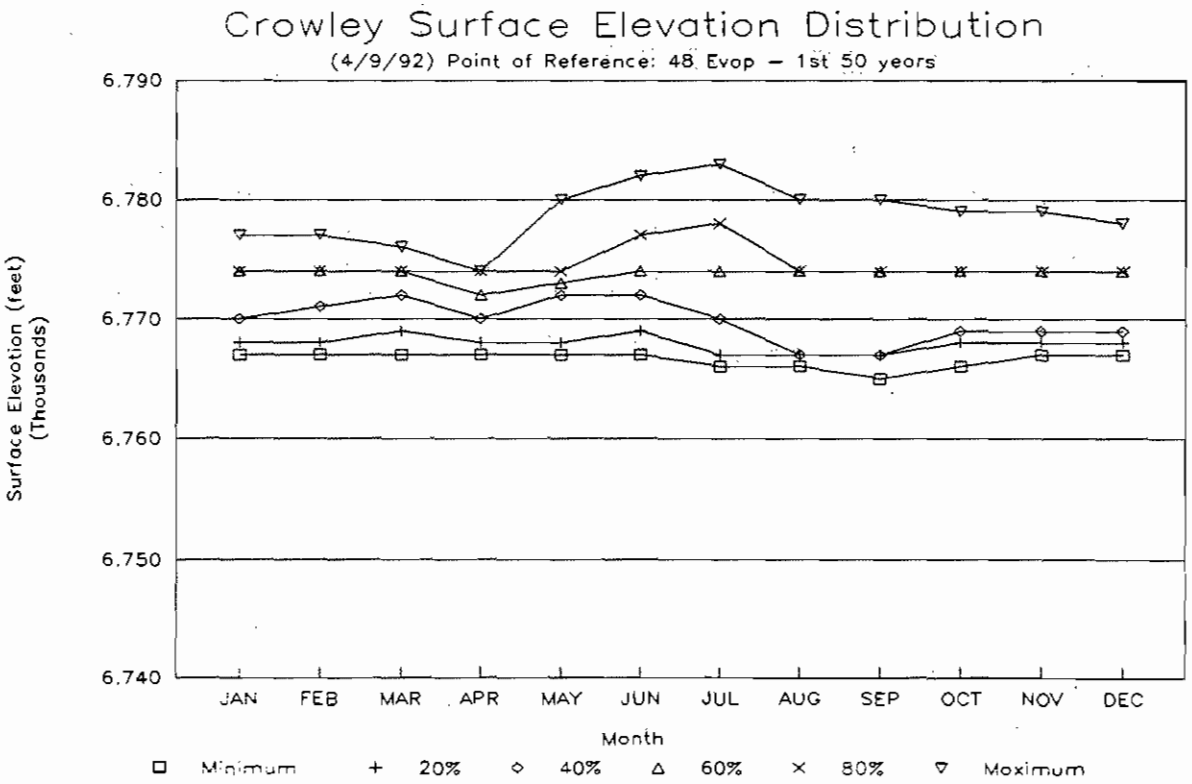

Walker Creek Flows
(4/9/92) Point of Reference: 48 Evap – 1st 50 years
Monthly Volume (AF)
0.1
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Yeor
Minimum
Irrigate
Spill


Parker Creek Flows
(4/9/92) Point of Reference: 48 Evap – 1st 50 years
Monthly Volume (AF)
700
600
500
400
300
200
100
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Yeor
Minimum
Irrigate
Spill

Monthly Distribution of Lake Elevations
04/09/92
Mono EIR Alternatives
Initial Alternatives - 1st 50 Years:
(4/9/92) Point of Reference: 48 Evap - 1st 50 years

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Grant Lake:												
Minimum	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101
10%	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101
20%	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101
30%	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101
40%	7101	7101	7101	7101	7101	7102	7101	7101	7101	7101	7101	7101
50%	7101	7101	7101	7101	7101	7118	7117	7104	7101	7101	7101	7101
60%	7101	7102	7101	7101	7101	7130	7132	7122	7109	7101	7101	7101
70%	7107	7104	7104	7101	7107	7132	7132	7128	7118	7111	7110	7108
80%	7115	7112	7113	7102	7124	7132	7132	7132	7124	7122	7124	7119
90%	7125	7128	7127	7116	7132	7132	7132	7132	7132	7129	7130	7125
Maximum	7132	7132	7132	7132	7132	7132	7132	7132	7132	7132	7132	7132
Lake Crowley:												
Minimum	6767	6767	6767	6767	6767	6767	6766	6766	6765	6766	6767	6767
10%	6767	6768	6767	6767	6767	6767	6767	6767	6767	6768	6767	6768
20%	6768	6769	6769	6768	6767	6769	6767	6767	6767	6768	6768	6768
30%	6769	6770	6770	6769	6770	6770	6767	6767	6767	6768	6768	6769
40%	6770	6771	6772	6770	6771	6772	6770	6767	6767	6769	6769	6769
50%	6771	6773	6773	6772	6772	6774	6774	6774	6773	6771	6770	6771
60%	6773	6774	6774	6772	6772	6774	6774	6774	6774	6773	6773	6773
70%	6774	6774	6774	6773	6774	6774	6775	6774	6774	6774	6774	6774
80%	6774	6774	6774	6774	6774	6777	6778	6775	6774	6774	6774	6774
90%	6774	6774	6774	6774	6774	6780	6780	6778	6774	6774	6774	6774
Maximum	6777	6777	6776	6774	6780	6782	6783	6780	6780	6779	6779	6778


Grant Surface Elevation Distribution
(4/9/92) Point of Reference: 48 Evap – 1st 50 yeors
Surface Elevation (feet)
(Thousands)
7.140
7.130
7.120
7.110
7.100
7.090
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
Month
Minimum
20%
40%
60%
80%
Maximum


Crowley Surface Elevation Distribution
(4/9/92) Point of Reference: 48 Evop – 1st 50 yeors
Surface Elevation (feet)
(Thousands)
6.790
6.780
6.770
6.760
6.750
6.740
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
Month
Minimum
20%
40%
60%
80%
Maximum

Owens River Streamflows – Monthly Cumulative Percentiles
04/09/92
Mono EIR Alternatives
Initial Alternatives – 1st 50 Years:
(4/9/92) Point of Reference: 48 Evap – 1st 50 years

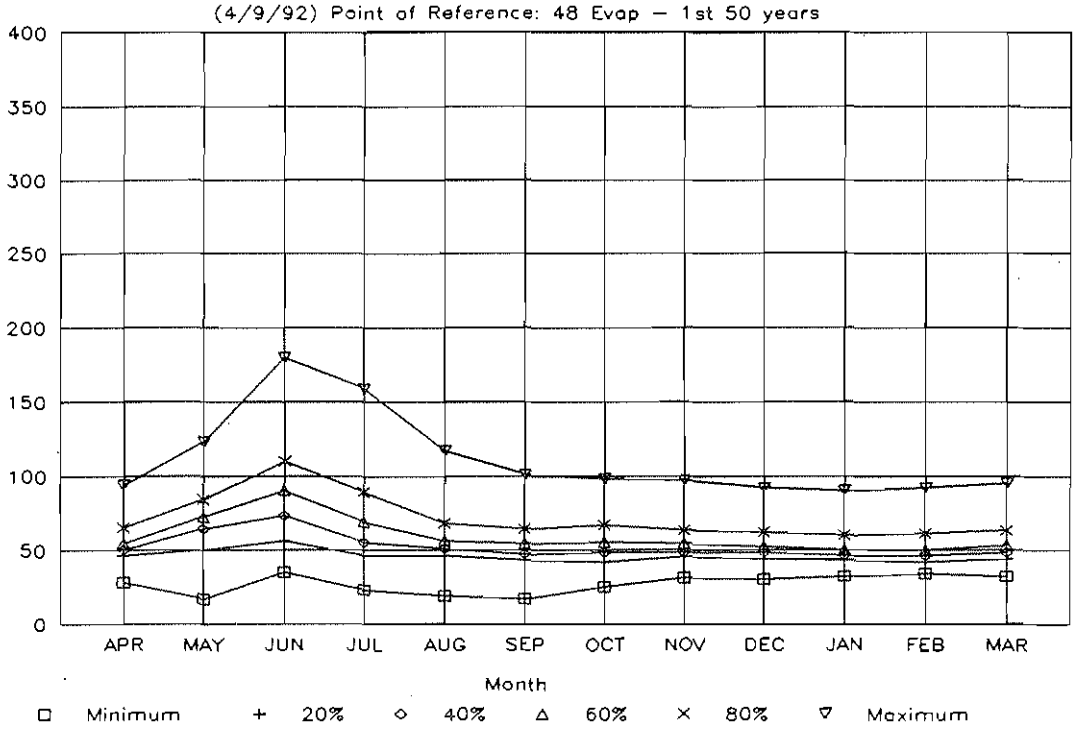
	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
Owens above East Portal:												
0%	28	17	35	23	19	17	25	31	30	32	34	32
10%	41	47	53	40	40	39	36	39	40	39	40	41
20%	46	50	56	46	46	43	42	45	44	43	42	44
30%	47	56	63	52	49	45	44	47	46	45	44	45
40%	50	64	73	55	51	47	48	48	48	46	46	48
50%	52	66	79	62	54	53	51	51	49	50	49	50
60%	54	72	90	69	56	54	55	54	52	50	50	53
70%	62	79	103	77	60	59	58	56	58	54	54	56
80%	65	84	110	89	68	64	67	63	62	60	61	63
90%	72	98	126	102	79	70	72	73	72	72	72	75
100%	94	123	180	159	117	101	98	97	92	90	92	95
Owens below East Portal:												
0%	111	77	94	73	70	66	77	86	80	87	61	55
10%	128	115	113	97	81	90	94	107	98	102	85	90
20%	139	152	123	107	91	105	99	111	111	111	104	113
30%	165	206	143	113	102	109	116	121	116	114	115	118
40%	178	222	161	122	111	119	125	127	133	125	122	133
50%	192	246	192	137	120	138	133	136	143	135	130	142
60%	219	250	245	148	140	192	153	143	159	139	135	150
70%	255	285	269	177	280	254	219	162	199	153	144	158
80%	298	309	336	281	342	352	259	181	215	180	153	168
90%	361	350	358	365	362	361	269	215	271	204	227	188
100%	375	382	384	395	388	390	336	255	367	312	278	298
Pleasant Valley Outflow:												
0%	258	156	149	148	148	146	145	156	178	153	135	119
10%	322	276	270	191	179	200	169	214	192	198	175	218
20%	376	346	332	395	209	213	186	232	228	214	208	235
30%	408	392	392	476	229	235	211	309	275	304	279	306
40%	444	414	430	526	490	276	229	325	319	338	315	339
50%	480	444	475	559	521	482	332	352	342	352	335	355
60%	512	484	524	593	546	521	427	384	365	368	340	367
70%	532	504	546	618	607	546	448	394	386	390	351	377
80%	558	537	585	673	628	599	467	406	405	402	377	410
90%	586	562	645	778	649	676	491	427	444	445	394	457
100%	677	603	1014	968	859	722	583	442	516	525	494	519
Owens at Horton Creek:												
0%	260	171	164	145	147	147	149	162	186	162	142	126
10%	324	293	297	192	181	201	175	220	199	205	183	225
20%	381	361	361	406	211	215	191	238	234	221	214	242
30%	412	402	416	497	230	238	216	315	285	311	286	314
40%	448	424	450	531	495	281	234	332	326	347	324	346
50%	483	458	484	567	524	484	341	359	350	360	343	363
60%	518	499	530	608	549	525	433	394	374	377	349	374
70%	539	515	559	632	616	552	457	401	395	398	359	384
80%	565	542	599	688	642	604	474	415	414	410	387	421
90%	592	570	652	808	663	683	499	435	453	454	403	466
100%	682	609	1065	1010	891	733	592	451	525	534	503	526

Owens River Streamflows – Monthly Cumulative Percentiles
04/09/92
Mono EIR Alternatives
Initial Alternatives – 1st 50 Years:
(4/9/92) Point of Reference: 48 Evap – 1st 50 years

	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
Owens at Bishop Diversion:												
0%	260	102	68	145	147	147	149	162	186	162	142	126
10%	324	238	167	192	181	201	175	220	199	205	183	225
20%	380	328	301	368	211	215	191	238	234	221	214	242
30%	403	371	375	443	230	238	216	315	285	311	286	312
40%	422	419	416	490	454	281	234	329	323	340	320	346
50%	476	444	472	520	486	437	332	359	348	360	339	359
60%	489	464	498	561	524	478	418	382	364	373	345	371
70%	505	503	530	579	537	503	440	390	393	391	356	384
80%	533	522	576	615	560	550	463	408	402	404	380	412
90%	559	546	609	639	603	589	469	421	430	439	398	457
100%	682	568	872	814	741	638	560	438	503	519	493	517
Owens at Laws Diversion:												
0%	260	171	148	145	147	147	149	162	186	162	142	126
10%	324	276	245	192	181	201	175	220	199	205	183	225
20%	381	361	333	406	211	215	191	238	234	221	214	242
30%	412	391	409	486	230	238	216	315	285	311	286	313
40%	447	424	438	526	486	281	234	329	326	344	323	346
50%	483	451	480	561	519	470	333	359	349	360	343	362
60%	512	489	530	583	549	517	426	387	368	377	347	373
70%	533	513	551	614	604	536	450	398	395	398	357	384
80%	559	542	597	655	619	583	470	409	406	407	385	419
90%	585	560	644	722	644	654	484	426	439	448	401	464
100%	682	599	952	899	781	704	577	438	511	527	500	524
Owens at Laws Return:												
0%	319	113	74	183	184	180	182	181	200	168	155	136
10%	384	277	208	231	220	240	210	226	214	211	194	233
20%	422	343	317	383	251	255	227	260	250	231	229	252
30%	483	419	383	461	272	277	265	346	338	341	295	323
40%	495	438	431	502	521	319	287	371	360	367	333	360
50%	512	470	502	522	537	491	364	386	374	381	348	374
60%	530	497	533	602	544	528	421	395	377	389	363	385
70%	541	521	557	617	559	544	443	407	399	402	373	399
80%	563	557	594	629	580	585	463	414	411	411	390	425
90%	593	584	616	675	606	602	473	428	440	451	405	475
100%	703	613	879	818	741	642	568	445	513	530	509	532
Owens at Bishop Return:												
0%	361	260	122	187	189	228	234	241	255	262	238	255
10%	460	332	313	236	243	304	276	305	291	284	267	286
20%	502	453	398	385	274	324	300	317	296	293	311	336
30%	568	485	443	482	292	335	358	467	437	458	390	406
40%	594	526	476	494	517	387	396	483	456	474	444	470
50%	607	560	537	550	540	534	471	493	472	483	465	474
60%	624	575	561	586	567	610	512	498	489	493	468	486
70%	640	601	580	600	581	628	544	520	505	503	481	490
80%	657	622	627	620	604	655	560	531	513	516	491	510
90%	681	652	665	665	641	668	580	561	570	585	572	593
100%	774	673	1138	822	763	725	679	585	619	629	613	625

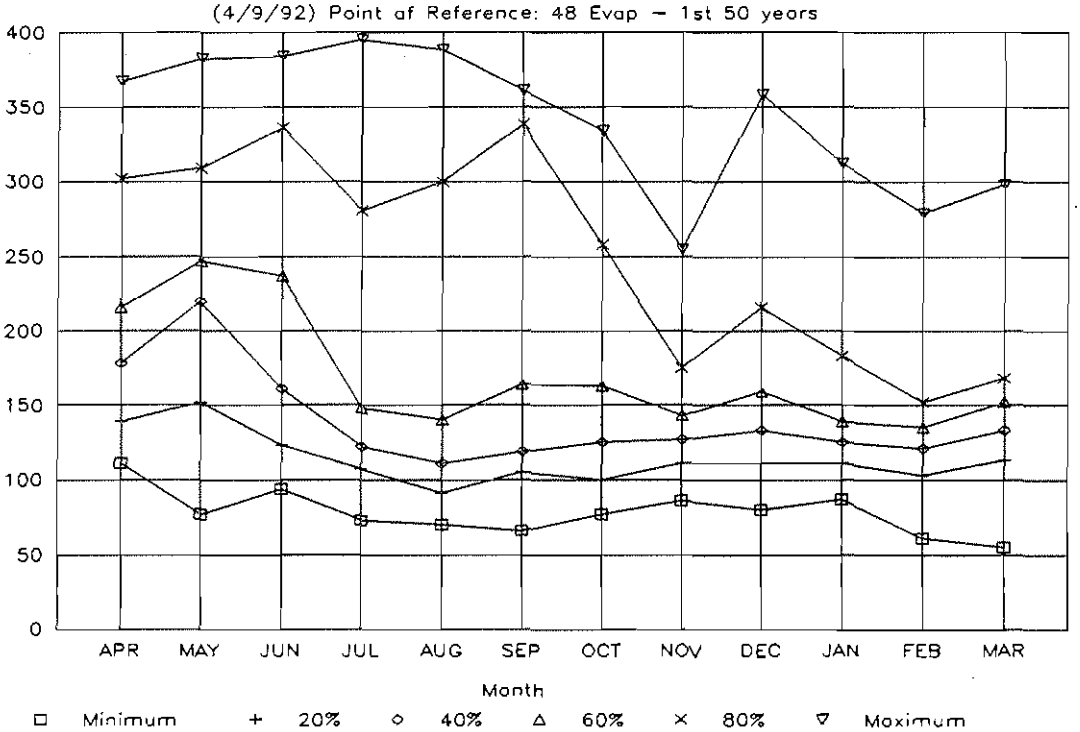
Owens Above East Portal Monthly Flows

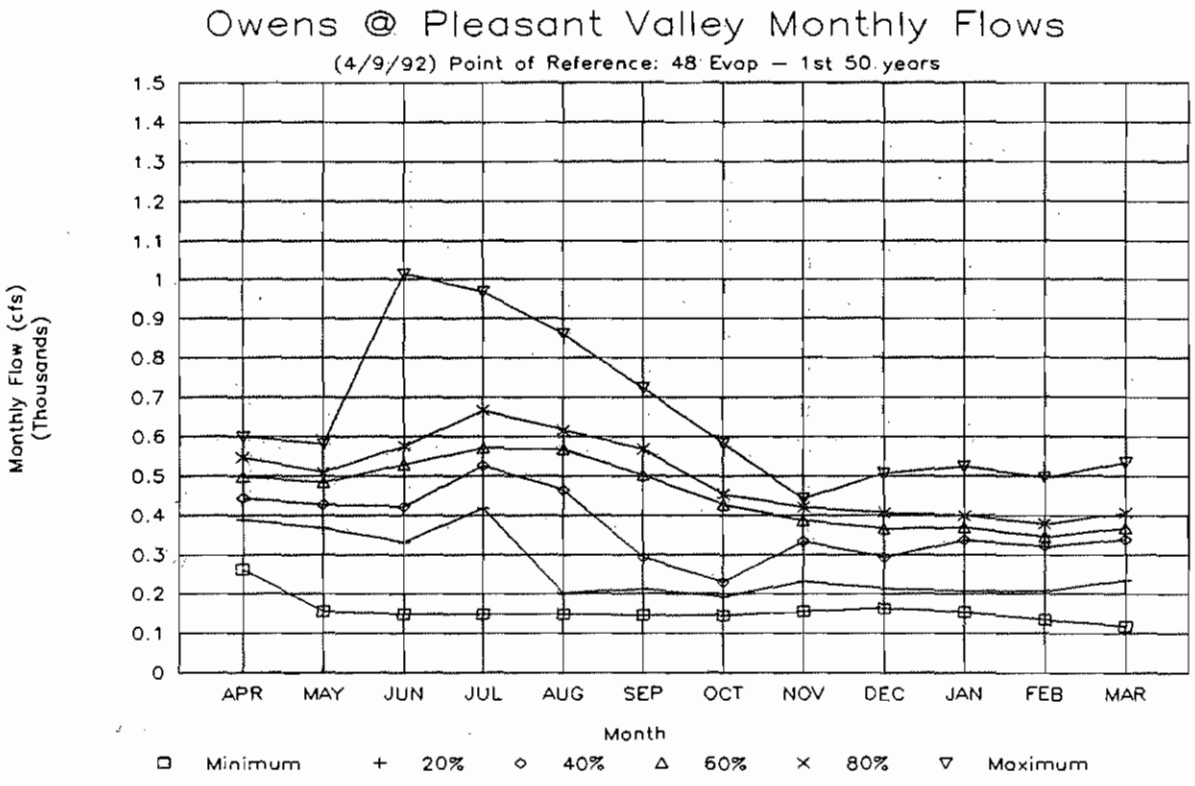
(4/9/92) Point of Reference: 48 Evap – 1st 50 years

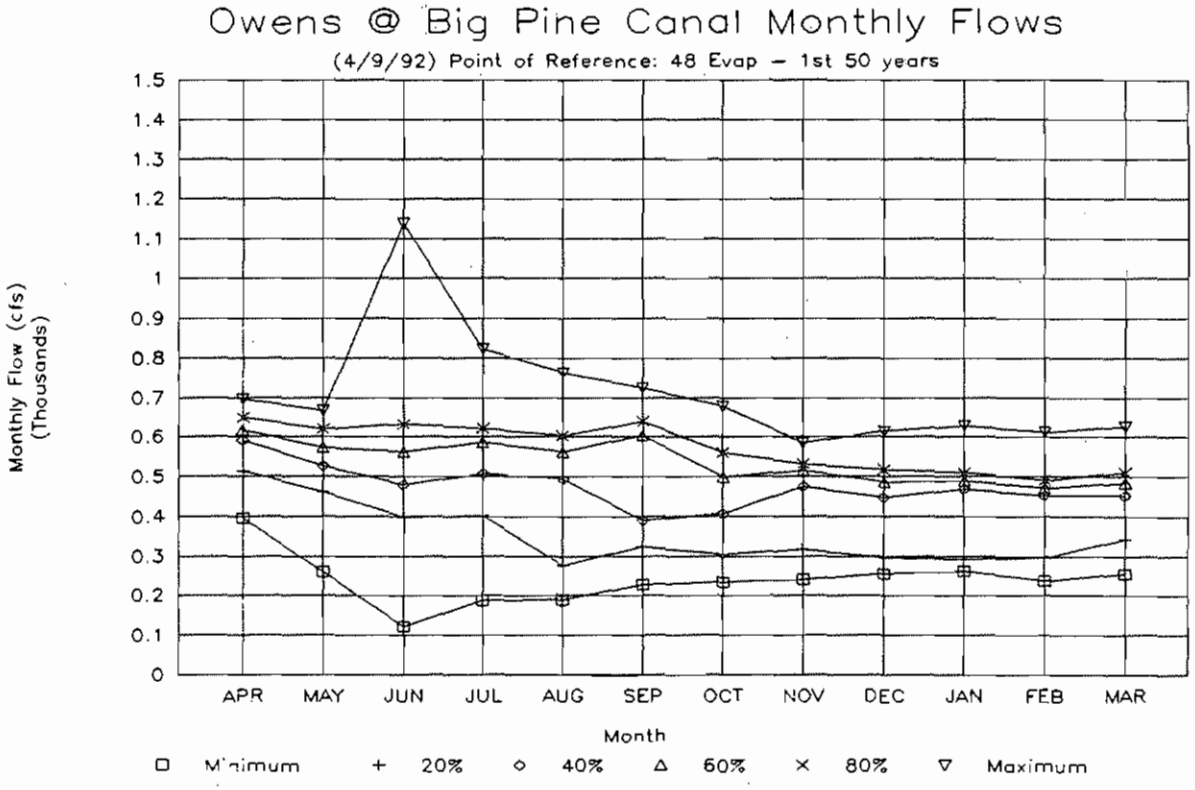


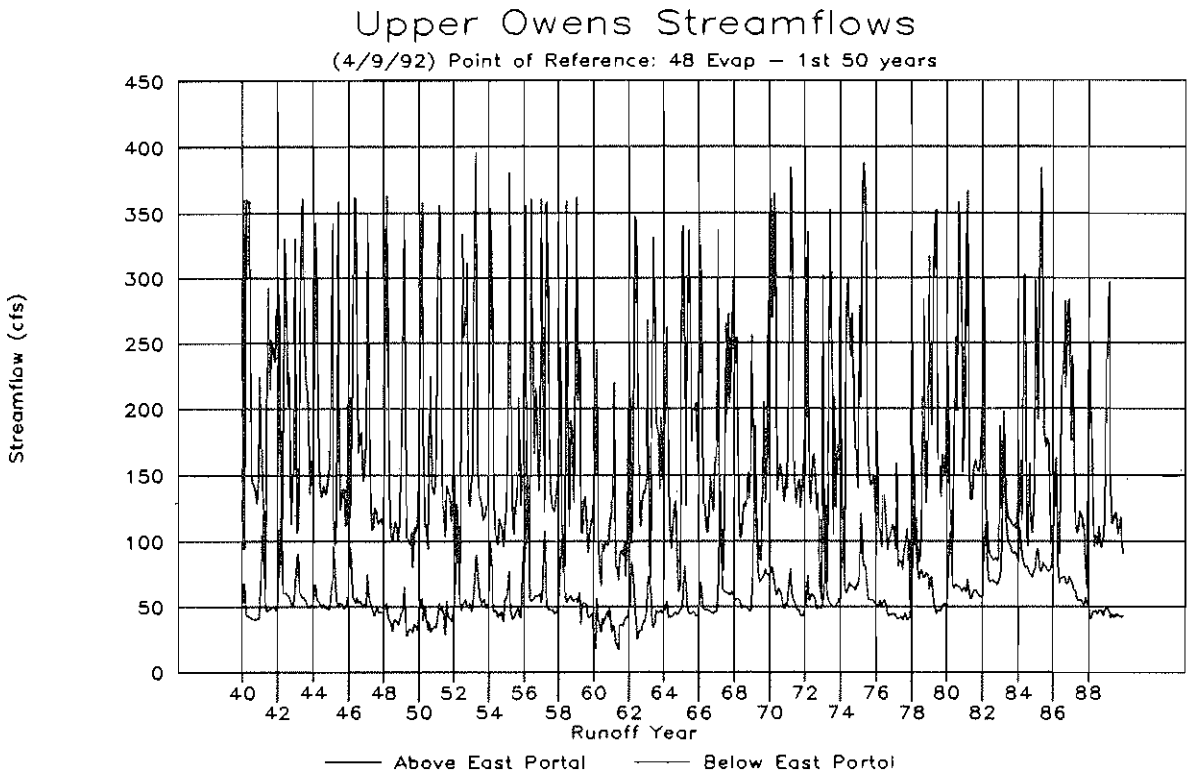
Owens Below East Portal Monthly Flows

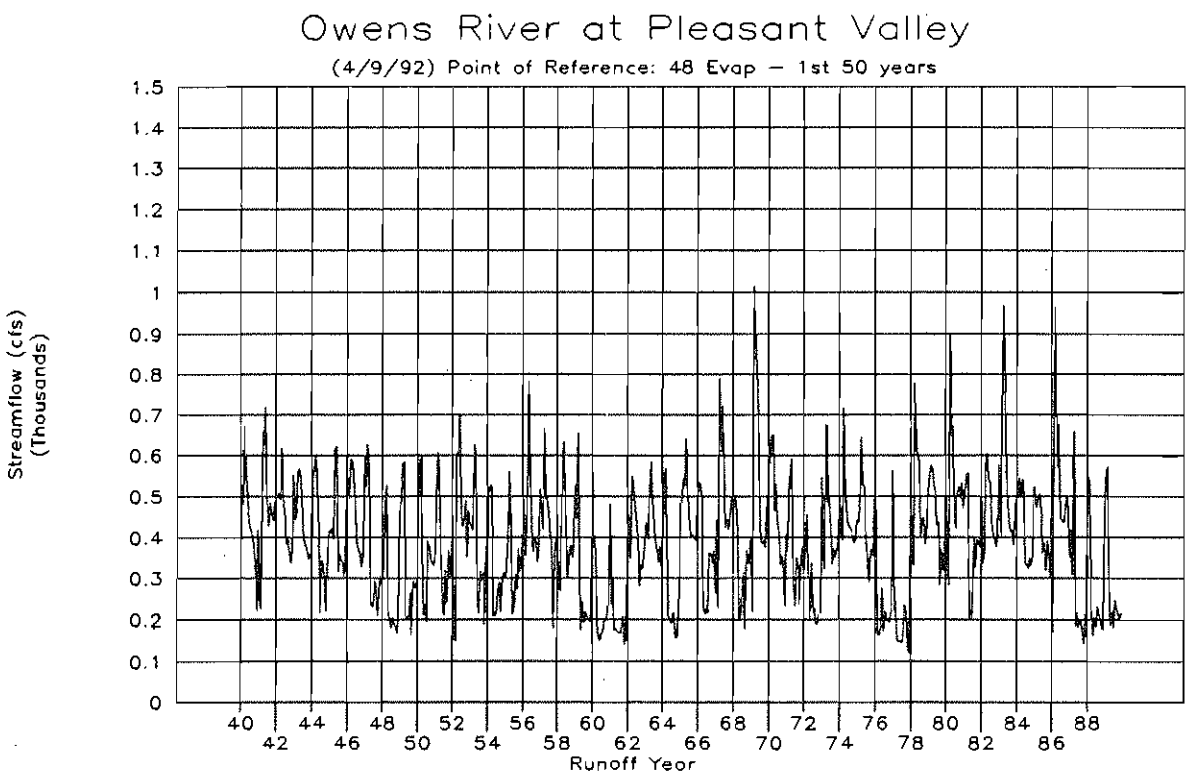
(4/9/92) Point of Reference: 48 Evap – 1st 50 years




Owens @ Pleasant Valley Monthly Flows
(4/9/92) Point of Reference: 48 Evap – 1st 50 years
Monthly Flow (cfs)
(Thousands)
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR
Month
Minimum
20%
40%
60%
80%
Maximum


Owens @ Big Pine Canal Monthly Flows
(4/9/92) Point of Reference: 48 Evap – 1st 50 years
Monthly Flow (cfs)
(Thousands)
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR
Month
Minimum
20%
40%
60%
80%
Maximum


Upper Owens Streamflows
(4/9/92) Point of Reference: 48 Evap – 1st 50 years
Streamflow (cfs)
450
400
350
300
250
200
150
100
50
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Above East Portal
Below East Portol

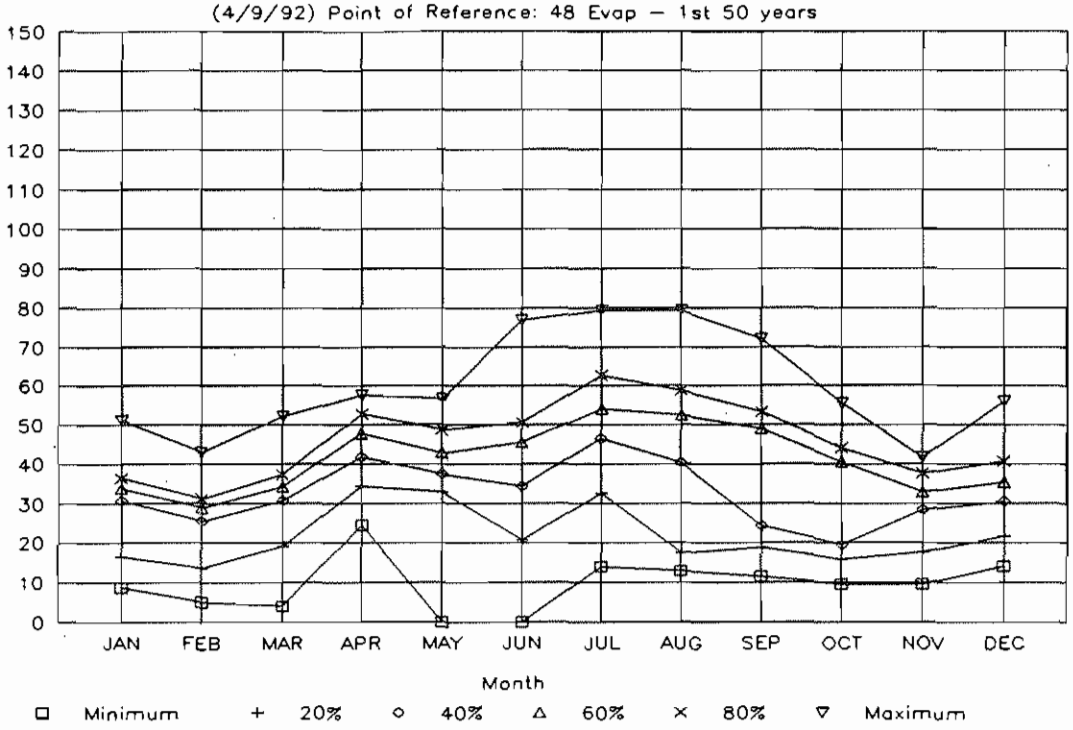

Owens River at Pleasant Valley
(4/9/92) Point of Reference: 48 Evap – 1st 50 years
Streamflow (cfs)
(Thousands)
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Yeor

Cumulative Monthly Distribution of LADWP Aqueduct Power Generation
04/09/92
Mono EIR Alternatives
Initial Alternatives - 1st 50 Years:
(4/9/92) Point of Reference: 48 Evap - 1st 50 years Annual Average: 1026.2 GWH/yr

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Gorge Power Plants:												
0%	8.7	5.0	4.0	23.4	0.0	0.0	14.0	12.9	11.4	9.6	9.5	14.1
10%	14.6	10.8	16.9	29.2	16.7	10.7	18.0	15.4	17.3	13.2	15.5	18.2
20%	16.6	13.7	18.7	34.8	29.0	20.7	32.5	17.0	18.7	14.8	17.6	23.0
30%	27.2	17.9	27.9	37.9	33.9	27.7	39.5	20.4	20.7	17.0	26.8	26.0
40%	30.7	24.8	30.5	41.8	36.4	33.7	46.4	47.8	23.6	20.2	28.3	31.6
50%	32.1	27.1	33.4	44.0	41.3	40.0	50.4	50.6	44.3	27.8	31.3	34.6
60%	33.6	28.5	34.3	50.0	42.0	43.3	55.4	52.7	49.4	40.4	32.8	36.5
70%	34.8	29.3	35.1	51.5	46.6	48.7	58.1	54.4	51.7	43.4	35.8	39.0
80%	36.3	30.3	37.2	55.2	50.0	52.1	60.7	58.7	55.9	44.6	36.9	42.3
90%	39.1	32.4	43.7	56.4	52.9	58.1	65.8	60.8	66.5	47.4	38.0	46.5
100%	51.1	43.0	50.7	67.9	58.1	76.8	79.4	79.4	72.0	55.5	41.6	57.1
Los Angeles Power Plants:												
0%	22.6	20.7	23.5	39.2	31.0	23.6	19.7	21.7	20.5	14.2	17.2	20.1
10%	22.6	20.7	23.5	47.2	45.3	43.3	26.6	25.7	26.9	19.7	21.8	22.9
20%	22.6	20.7	23.5	50.2	49.3	51.8	39.3	30.0	33.0	20.6	21.8	22.9
30%	39.9	30.1	39.1	52.5	57.7	57.0	52.0	33.2	35.1	35.4	39.6	40.3
40%	40.9	37.7	41.6	55.7	58.8	57.0	58.1	50.5	38.0	37.2	39.7	41.2
50%	40.9	37.7	41.7	57.0	58.8	57.0	58.6	52.6	47.8	41.0	39.7	41.2
60%	40.9	37.7	41.7	57.2	58.8	57.0	58.6	57.4	52.8	41.0	39.7	41.2
70%	40.9	37.7	41.7	57.2	58.8	57.0	58.6	58.6	55.6	41.0	39.7	41.2
80%	40.9	37.7	41.7	57.2	58.8	57.0	58.6	58.6	57.3	41.0	39.7	41.2
90%	50.1	46.1	50.9	57.2	58.8	57.0	58.6	58.6	57.3	50.2	48.7	50.4
100%	50.1	46.1	50.9	57.2	58.8	57.0	58.6	58.6	57.3	50.2	48.7	50.4
Owens Valley Power Plants:												
0%	3.1	2.8	3.2	4.7	4.8	5.0	4.3	4.4	3.6	2.6	2.7	3.1
10%	3.2	3.0	3.4	5.0	5.9	6.3	5.2	5.0	4.4	3.1	3.2	3.2
20%	3.4	3.1	3.6	5.3	6.4	6.5	6.4	5.4	4.9	3.5	3.6	3.5
30%	4.9	3.9	4.8	5.6	6.6	6.7	6.9	5.9	5.4	4.5	4.7	4.8
40%	4.9	4.8	5.1	5.7	6.8	6.9	7.1	6.7	5.8	4.9	5.0	4.9
50%	5.1	4.9	5.2	5.8	6.9	7.0	7.2	6.9	6.2	5.3	5.1	5.1
60%	5.2	4.9	5.3	6.1	7.0	7.1	7.3	7.0	6.4	5.6	5.2	5.3
70%	5.3	5.0	5.4	6.1	7.1	7.2	7.4	7.3	6.7	5.8	5.3	5.4
80%	5.4	5.1	5.5	6.3	7.2	7.3	7.6	7.5	7.1	6.0	5.5	5.5
90%	5.6	5.2	5.7	6.4	7.4	7.4	7.7	7.7	7.3	6.5	5.7	5.8
100%	6.3	5.8	6.2	6.8	7.8	7.7	8.0	7.8	7.7	7.1	6.7	6.6
Total Aqueduct Power Plants:												
0%	34.9	28.8	31.3	67.4	57.5	43.3	38.9	39.6	35.6	32.0	31.6	39.0
10%	40.3	34.3	44.0	83.8	65.3	69.2	47.1	45.8	49.0	34.0	41.1	44.6
20%	42.3	37.8	48.0	90.6	87.7	76.6	80.7	53.0	57.1	39.2	43.4	51.3
30%	72.5	51.6	69.8	100.7	93.3	85.5	102.1	58.9	61.3	55.4	71.2	68.4
40%	76.5	67.6	76.8	103.5	100.0	93.3	107.9	102.2	69.9	61.2	73.0	77.9
50%	78.3	69.4	80.2	106.4	105.5	102.8	115.3	111.7	98.3	74.9	76.2	81.1
60%	79.5	71.4	81.2	109.0	107.5	105.6	120.6	116.5	111.9	87.1	79.1	82.5
70%	81.1	72.0	82.1	113.8	111.7	112.5	122.9	120.2	114.9	90.7	81.4	85.7
80%	84.3	74.9	84.2	115.8	115.0	116.3	125.6	123.9	117.8	92.7	83.6	89.0
90%	94.8	81.0	100.3	119.8	119.0	122.4	132.0	127.1	131.0	102.3	90.6	102.5
100%	106.8	94.3	105.7	131.0	122.5	141.2	145.5	145.7	135.7	112.4	95.8	113.4

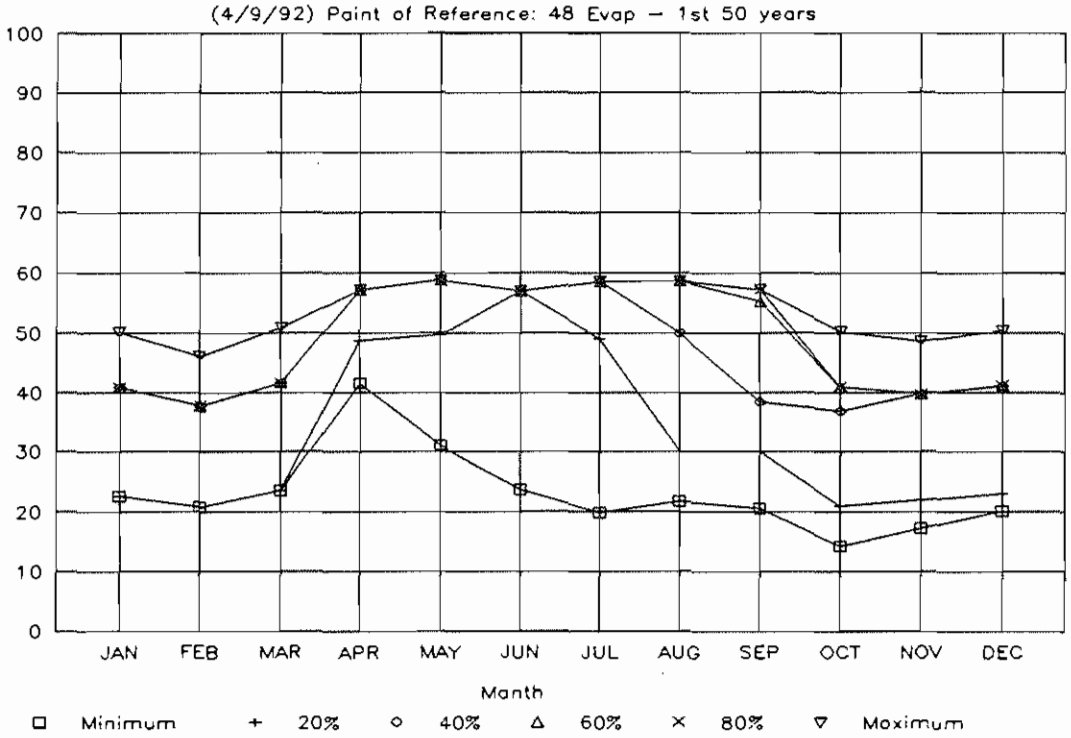
Owens Gorge Power Distribution

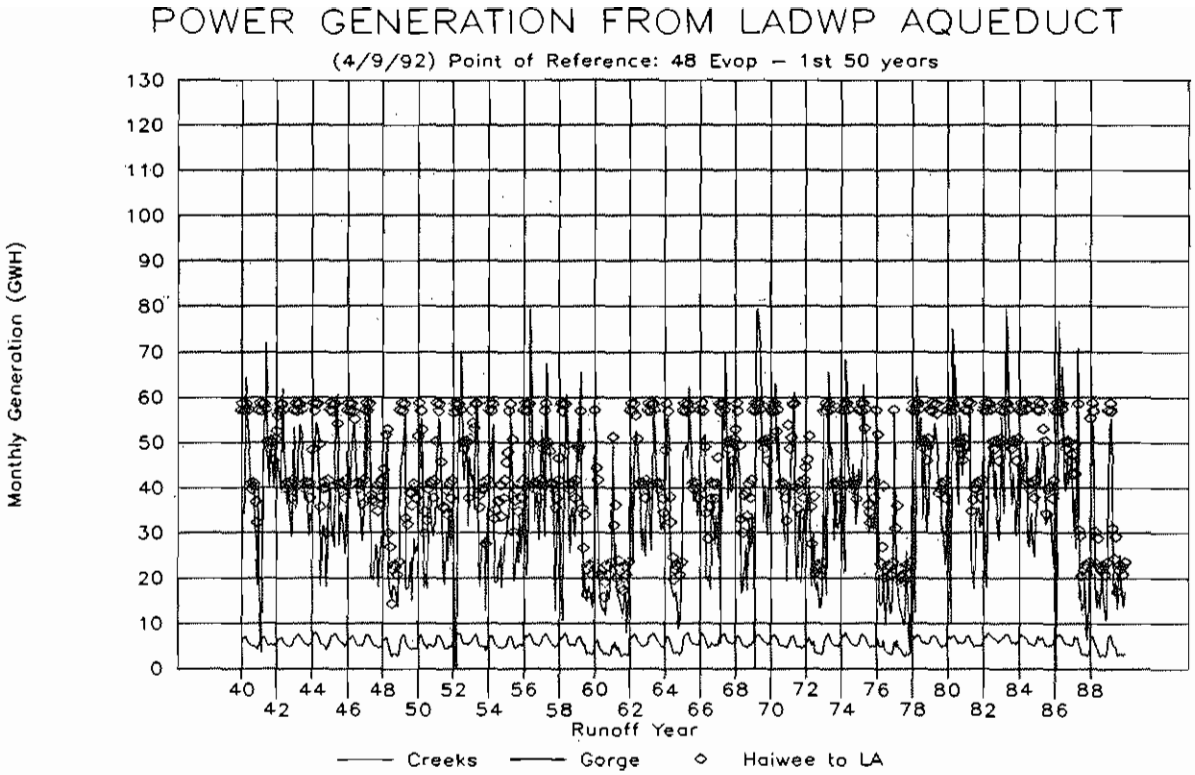
(4/9/92) Point of Reference: 48 Evap – 1st 50 years

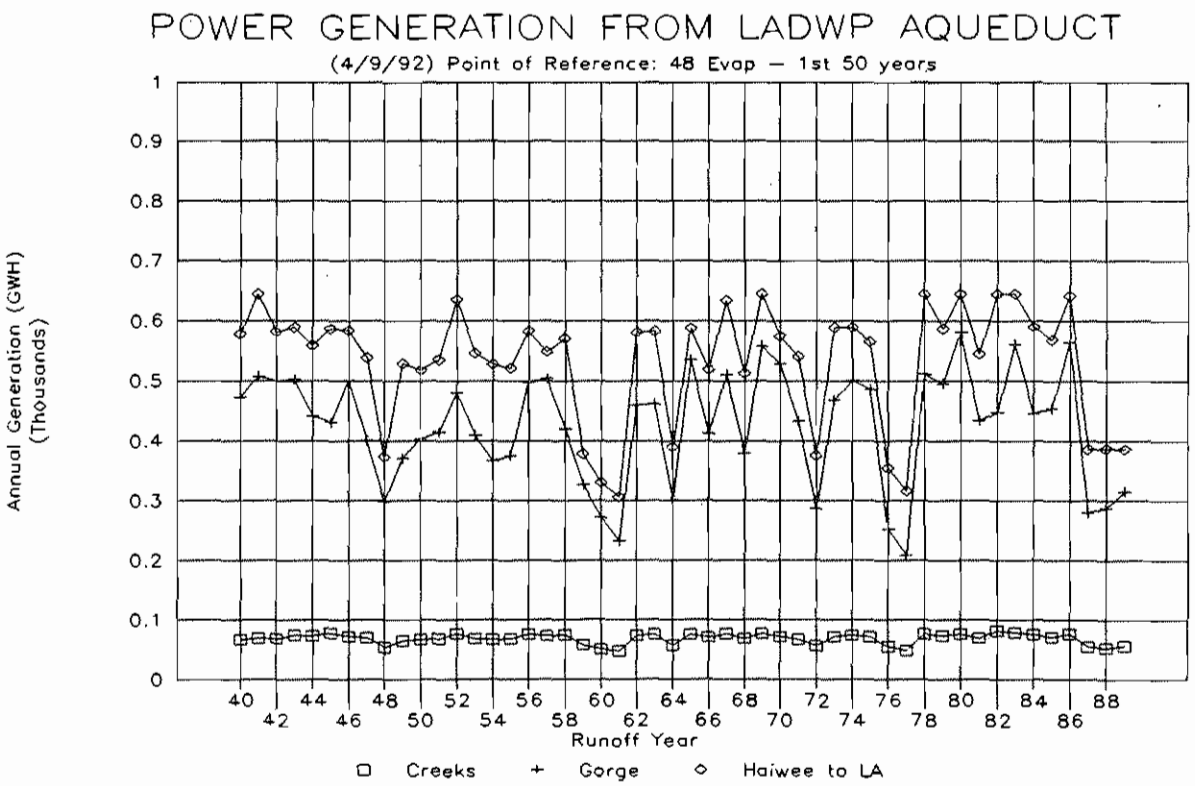


Haiwee to LA Power Distribution

(4/9/92) Point of Reference: 48 Evap – 1st 50 years



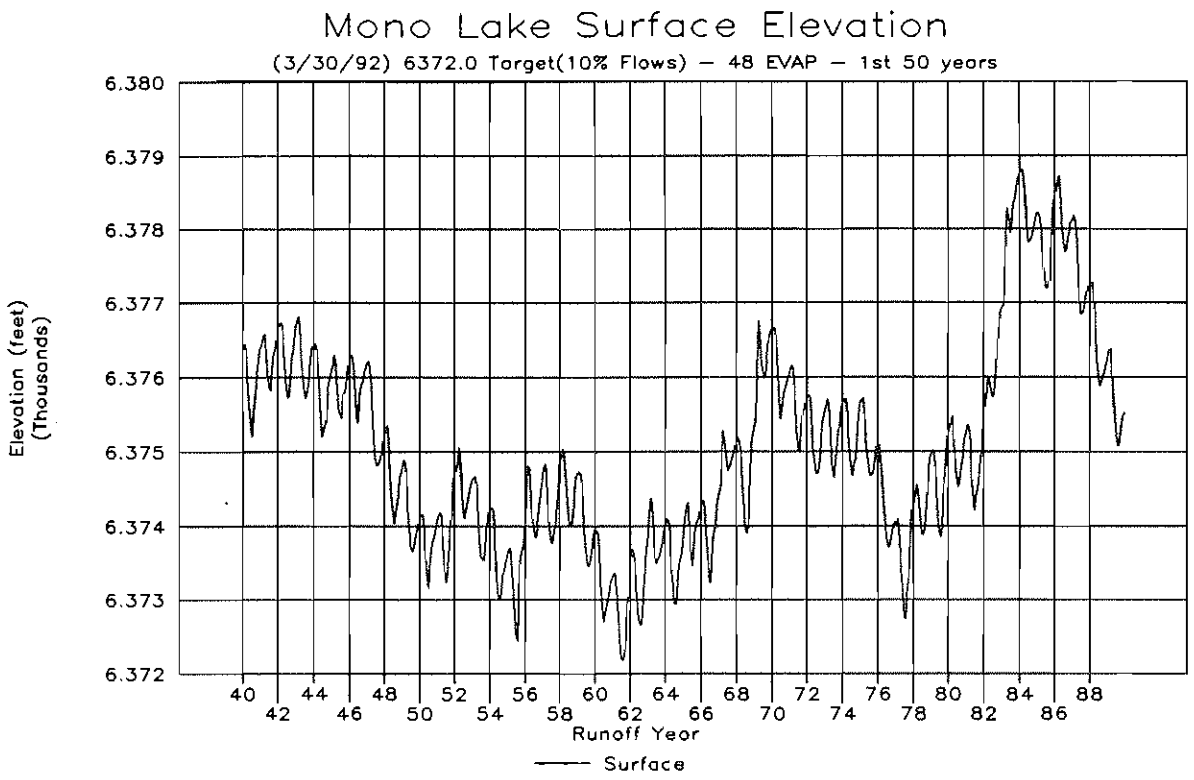

POWER GENERATION FROM LADWP AQUEDUCT
(4/9/92) Point of Reference: 48 Evap – 1st 50 years
Monthly Generation (GWH)
130
120
110
100
90
80
70
60
50
40
30
20
10
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Creeks
Gorge
Haiwee to LA

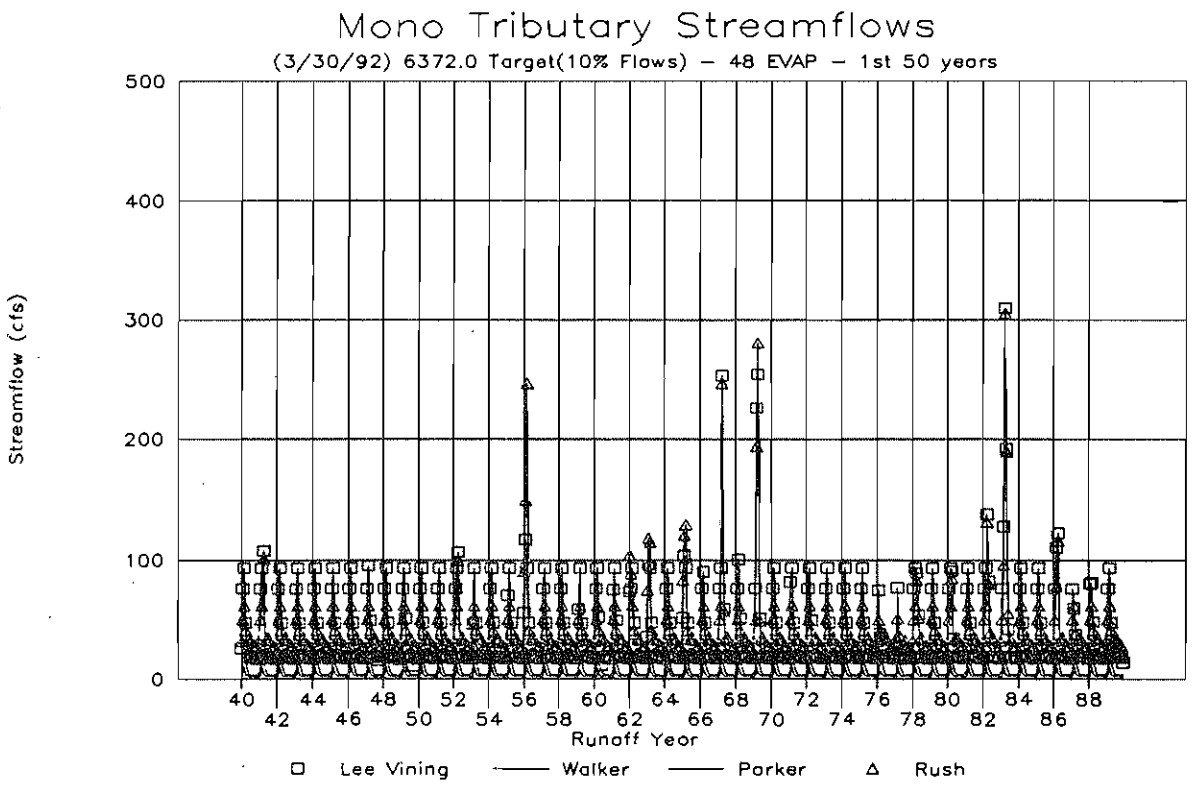

POWER GENERATION FROM LADWP AQUEDUCT
(4/9/92) Point of Reference: 48 Evap – 1st 50 years
Annual Generation (GWH)
(Thousands)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Creeks
Gorge
Haiwee to LA

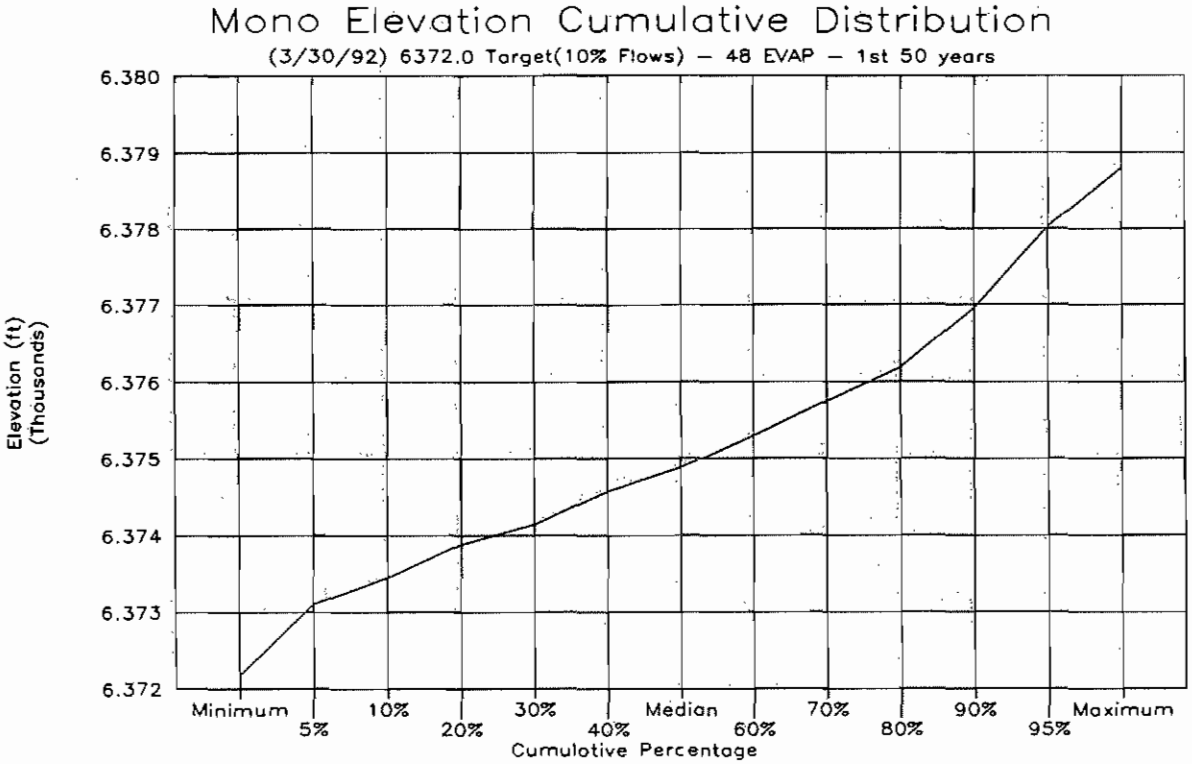
Section 4. 6,372-Ft Alternative

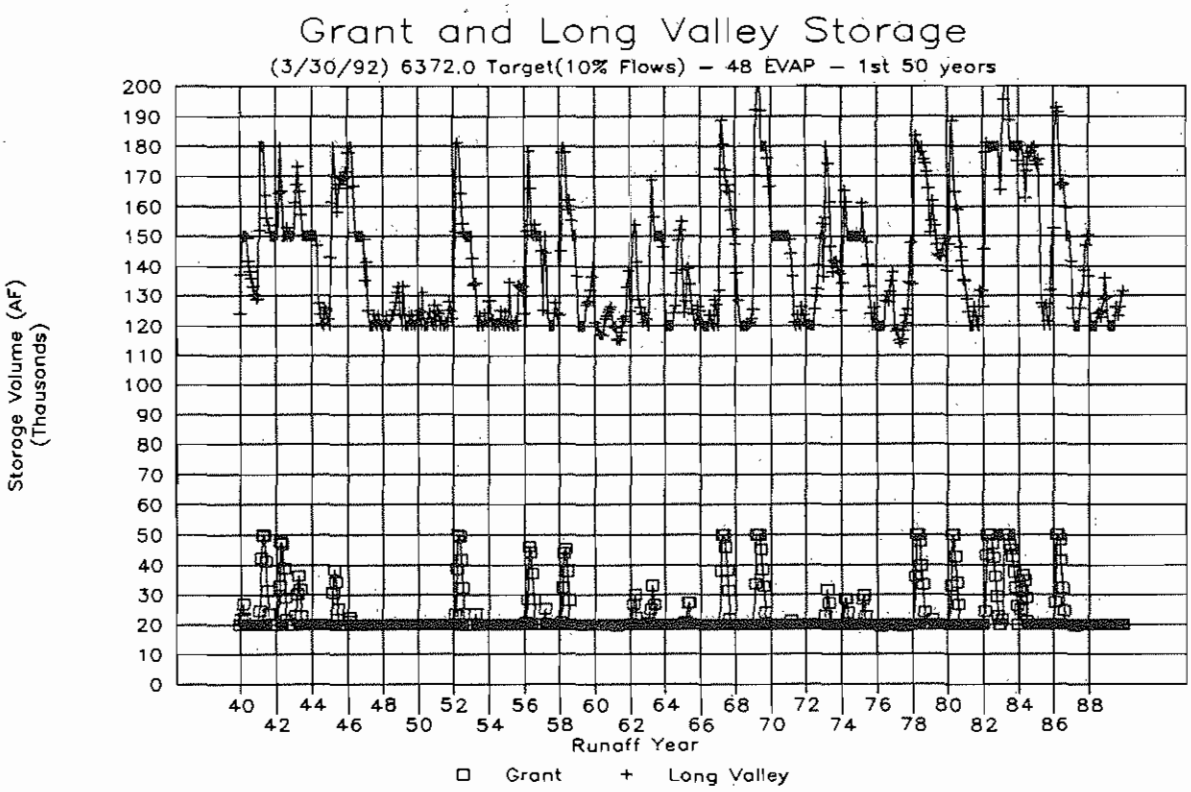
Summary of LAAMP Simulations
03/30/92
Mono EIR Alternatives
Initial Alternatives – 1st 50 years:
(3/30/92) 6372.0 Target(10% Flows) – 48 EVAP – 1st 50 years

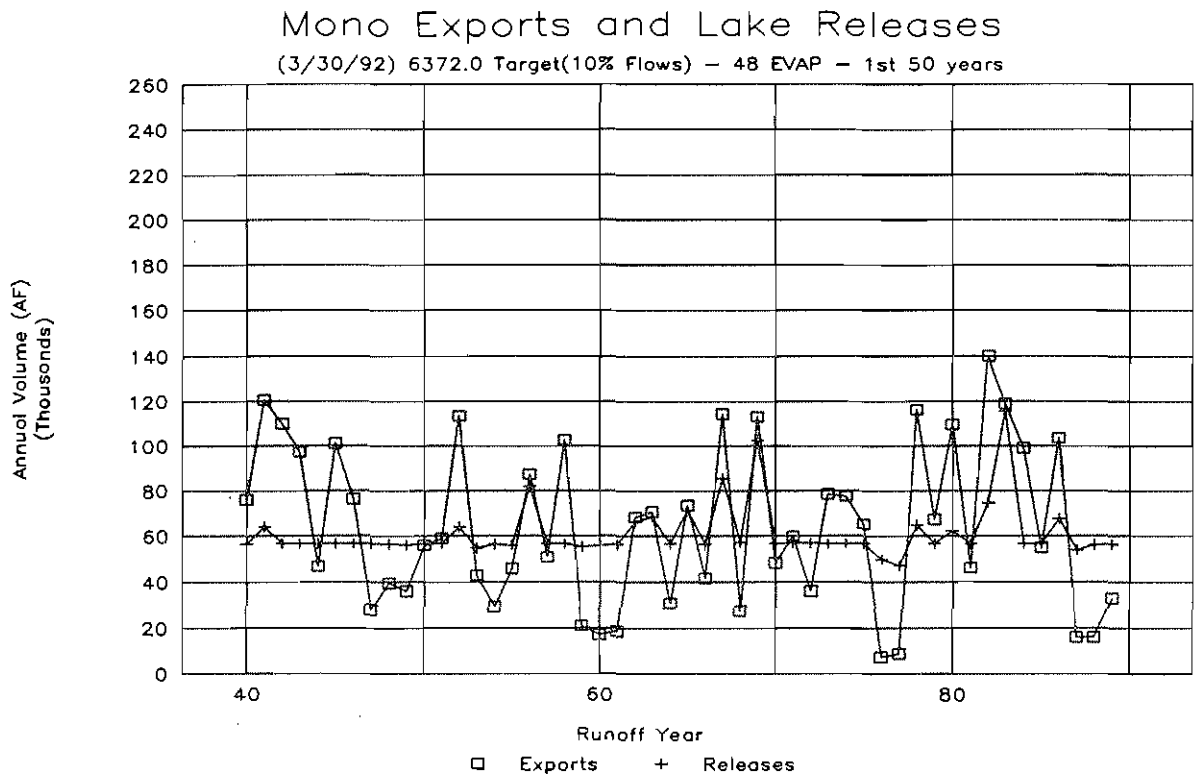
	Owens Available Export (AF)	Total Owens Uses (AF)	Haiwee Exports (AF)	Haiwee Target (AF)	Mono Lake Level (feet)	Grant Storage (AF)	Releases to Mono Lake (AF)	West Portal Exports (AF)	Long Valley Storage (AF)	Long Valley Outflow (AF)	Pleasant Valley Outflow (AF)	Tinemaha Inflow= Outflow (AF)	Total Owens Pumping (AF)	Total Owens Spreading (AF)	Aqueduct Spilling (AF)	Tinemaha Storage (AF)	Haiwee Storage (AF)
Starting:					6376.38	20000			124182							8000	8000
Minimum:	8357	1645	8357	16520	6372.18	19324	2475	0	114017	0	7500	8437	3070	0	0	0	0
Average:	33873	9169	35081	40062	6375.07	23220	5103	5362	141371	18337	23617	32445	9223	1381	1054	2710	2162
Maximum:	162922	21682	49600	49600	6378.80	50000	39177	15031	209407	42346	63525	107794	26264	37820	148645	10000	10000
(TAF/yr):	406.5	110.0	421.0	480.7			61.2	64.3		220.0	283.4	389.3	110.7	16.6	12.7		
71–89 Avg:	438.5	110.3	422.9	478.9			61.1	66.0		231.3	299.7	405.0	97.4	25.2	17.0		
71–89 Historical:			470					77.5					108.7				
Ending:					6375.52	20000			131849							0	0
Monthly:																	
April	33003	8519	43319	48000	6375.40	20009	4123	4263	135252	21617	25501	36699	14303	0	0	1984	1712
May	38507	15736	43404	49600	6375.46	21053	8633	6929	138694	17316	24038	34776	11669	1134	0	1871	1752
June	51075	19804	43130	48000	6375.52	26520	11669	8045	148737	19361	28265	38644	9564	3955	6182	2409	2208
July	48637	19517	40108	49600	6375.44	29184	9377	7860	149573	24878	32841	41049	13219	7085	3768	2845	2560
August	38778	16897	37907	49600	6375.08	28157	5019	7261	144888	23463	28908	36221	15001	2660	435	3209	2873
September	33052	12085	35461	48000	6374.79	25931	3684	5624	139764	20855	24897	32787	15236	686	0	3222	2349
October	28735	4764	28666	32073	6374.59	23731	3654	5148	139459	15828	20437	27773	8087	404	429	3314	2330
November	27988	3369	30228	31092	6374.58	22110	3324	5000	139524	16334	21075	29194	5589	309	508	3182	2278
December	27569	2984	30700	31971	6374.73	20984	3100	4426	138701	17394	20191	29102	5533	9	367	2951	2196
January	27234	2258	30232	31996	6374.91	20539	3204	3260	139540	14863	19815	28926	4458	152	351	2711	2102
February	24996	1769	27201	28861	6375.10	20301	2819	2697	140924	12424	16970	25699	3700	164	314	2497	1796
March	26898	2325	30612	31945	6375.28	20127	2628	3828	141396	15715	20466	28470	4310	10	301	2323	1783
Cumulative Distribution of			Minimum	5%	10%	20%	30%	40%	Median	60%	70%	80%	90%	95%	Maximum		
Mono Lake Monthly Elevations			6372.18	6373.1	6373.45	6373.88	6374.14	6374.57	6374.88	6375.3	6375.75	6376.18	6376.96	6378.02	6378.8		
Annual:																	
Minimum:	158630	88466	213906	400180			47121	7265		87801	125404	179871	39457	0	0		
Average:	406471	110026	420968	480740			61234	64340		220049	283403	389337	110670	16567	12654		
Maximum:	929483	121300	581248	581248			115645	140047		410942	525986	700960	195688	158604	237302		

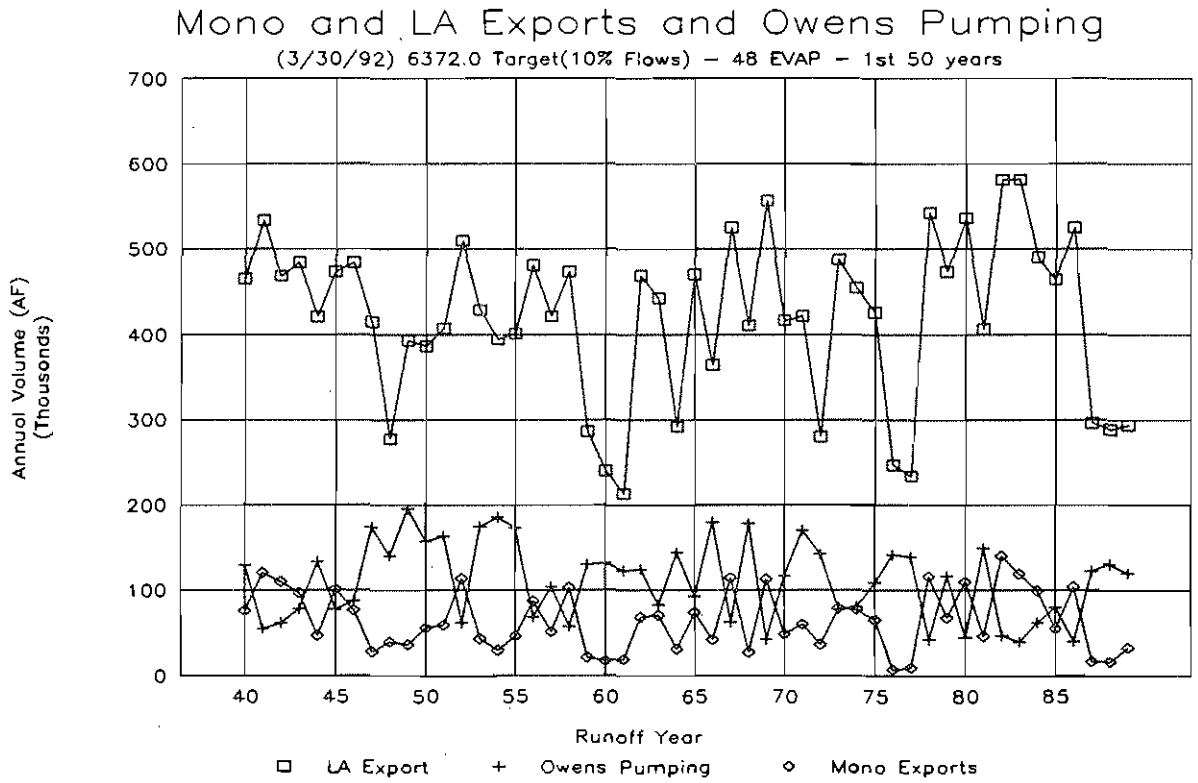

Mono Lake Surface Elevation
(3/30/92) 6372.0 Target(10% Flows) – 48 EVAP – 1st 50 years
Elevation (feet)
(Thousands)
6.380
6.379
6.378
6.377
6.376
6.375
6.374
6.373
6.372
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Yeor
Surface

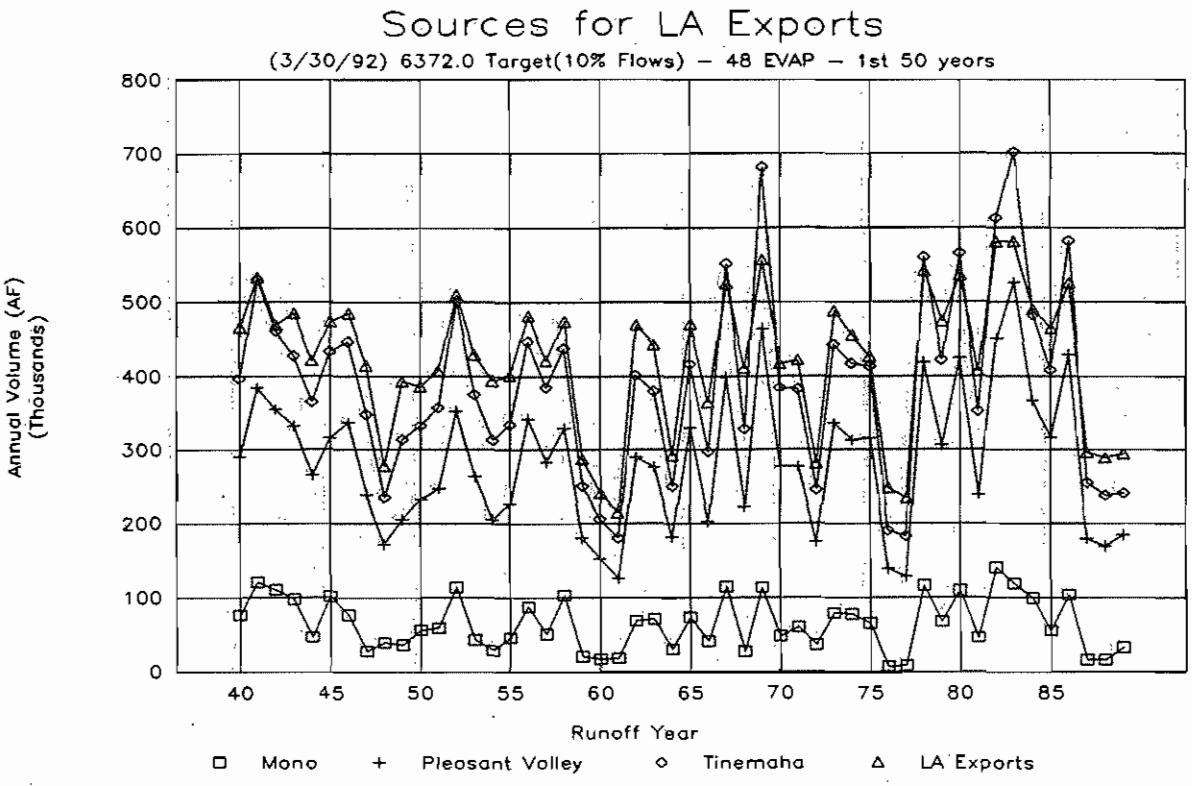

Mono Tributary Streamflows
(3/30/92) 6372.0 Target(10% Flows) – 48 EVAP – 1st 50 years
Streamflow (cfs)
500
400
300
200
100
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Yeor
Lee Vining
Walker
Parker
Rush

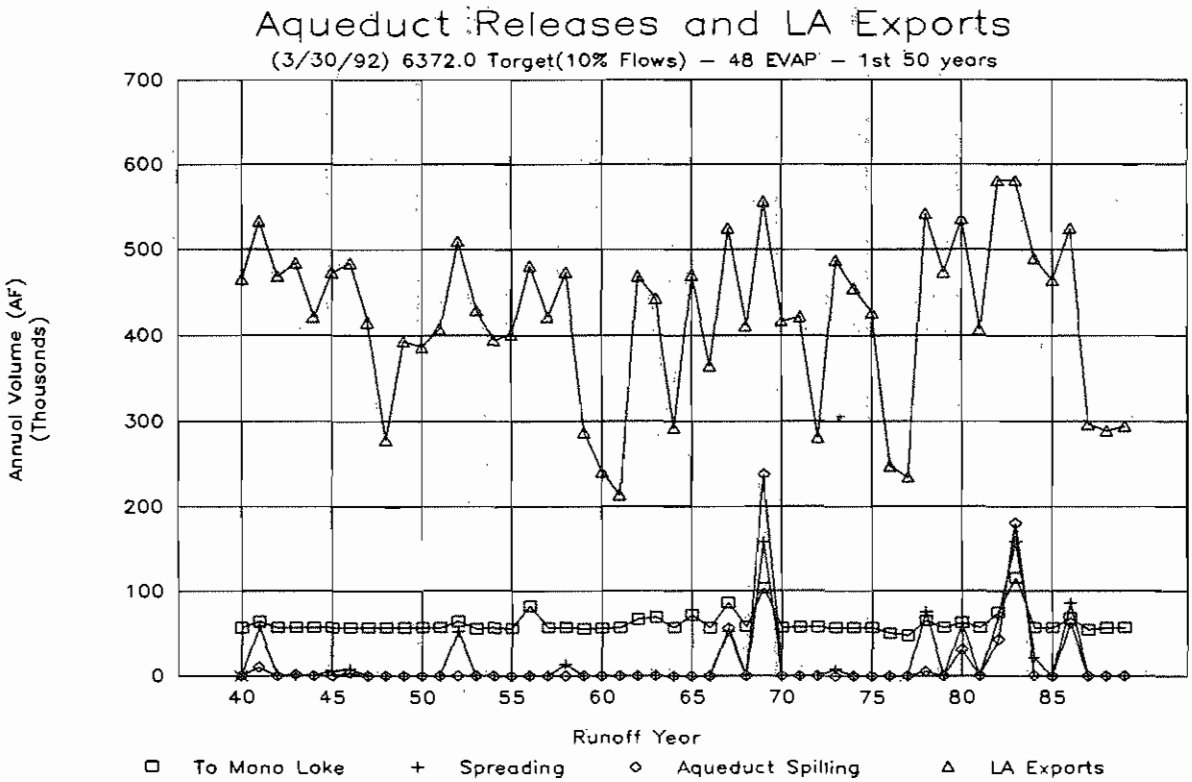

Mono Elevation Cumulative Distribution
(3/30/92) 6372.0 Target(10% Flows) – 48 EVAP – 1st 50 years
Elevation (ft)
(Thousands)
6.380
6.379
6.378
6.377
6.376
6.375
6.374
6.373
6.372
Minimum
5%
10%
20%
30%
40%
Median
60%
70%
80%
90%
95%
Maximum
Cumulotive Percentage

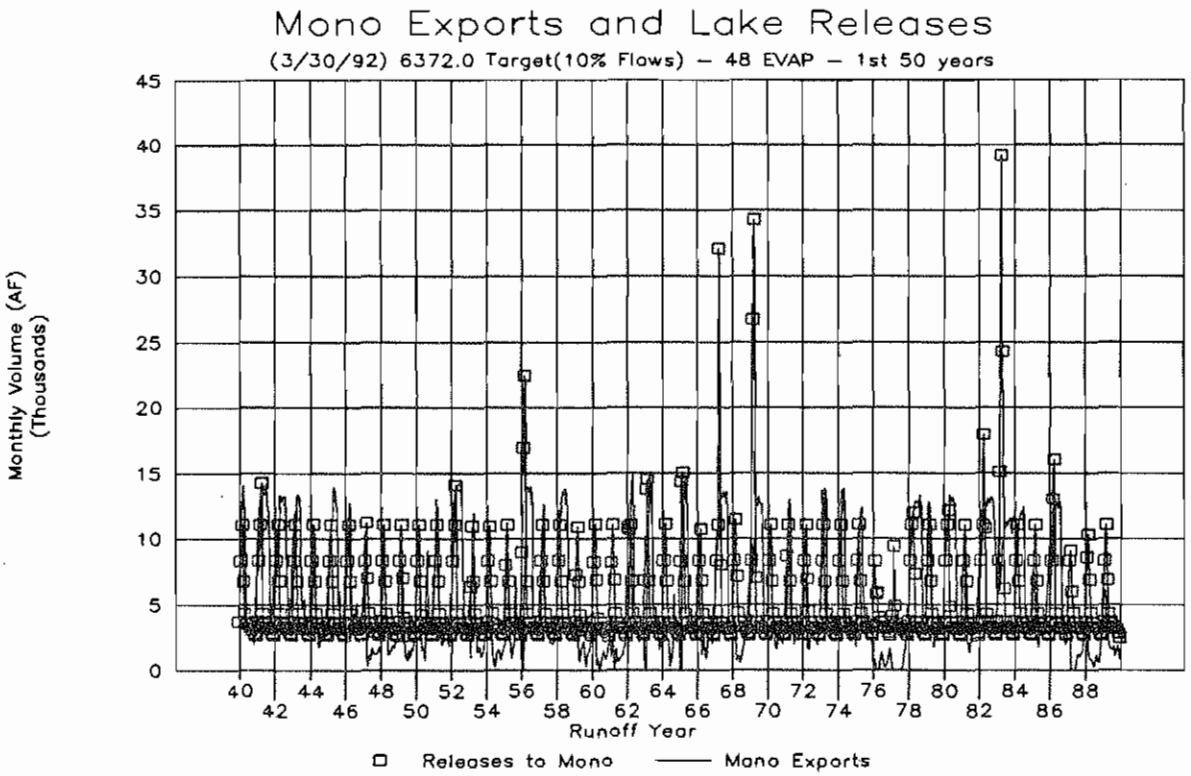

Grant and Long Valley Storage
(3/30/92) 6372.0 Target(10% Flows) – 48 EVAP – 1st 50 yeors
Storage Volume (AF)
(Thousands)
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
40
42
44
46
48
50
52
54
56
58
60
62
64
66
68
70
72
74
76
78
80
82
84
86
88
Runoff Year
Grant
Long Valley

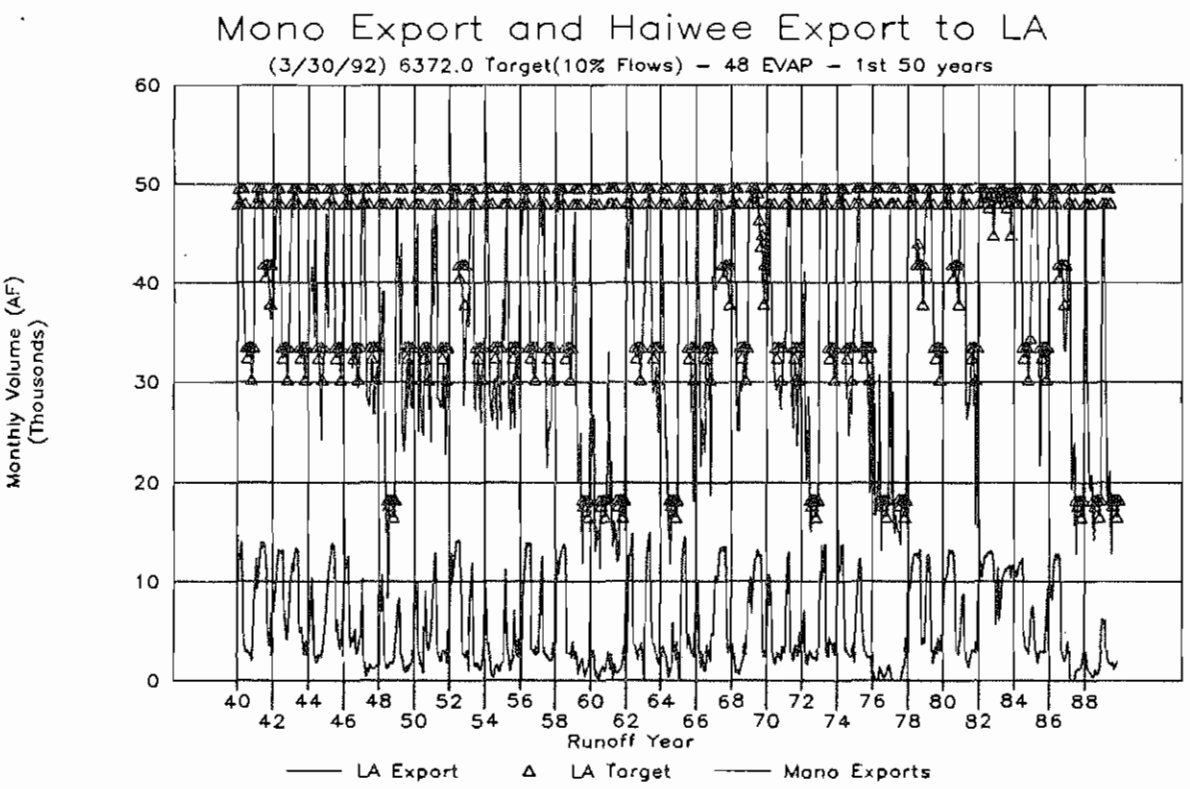

Mono Exports and Lake Releases
(3/30/92) 6372.0 Target(10% Flows) – 48 EVAP – 1st 50 years
Annual Volume (AF)
(Thousands)
260
240
220
200
180
160
140
120
100
80
60
40
20
0
40
60
80
Runoff Year
Exports
Releases


Mono and LA Exports and Owens Pumping
(3/30/92) 6372.0 Target(10% Flows) – 48 EVAP – 1st 50 years
Annual Volume (AF)
(Thousands)
700
600
500
400
300
200
100
0
40
45
50
55
60
65
70
75
80
85
Runoff Year
LA Export
Owens Pumping
Mono Exports


Sources for LA Exports
(3/30/92) 6372.0 Target(10% Flows) – 48 EVAP – 1st 50 yeors
Annual Volume (AF)
(Thousands)
800
700
600
500
400
300
200
100
0
40
45
50
55
60
65
70
75
80
85
Runoff Year
Mono
Pleasant Valley
Tinemaha
LA Exports


Aqueduct Releases and LA Exports
(3/30/92) 6372.0 Target(10% Flows) – 48 EVAP – 1st 50 years
Annual Volume (AF)
(Thousands)
700
600
500
400
300
200
100
0
40
45
50
55
60
65
70
75
80
85
Runoff Yeor
To Mono Loke
Spreading
Aqueduct Spilling
LA Exports


Mono Exports and Lake Releases
(3/30/92) 6372.0 Target(10% Flows) – 48 EVAP – 1st 50 years
Monthly Volume (AF)
(Thousands)
45
40
35
30
25
20
15
10
5
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Releases to Mono
Mono Exports


Mono Export and Haiwee Export to LA
(3/30/92) 6372.0 Target(10% Flows) – 48 EVAP – 1st 50 years
Monthly Volume (AF)
(Thousands)
60
50
40
30
20
10
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
LA Export
LA Target
Mono Exports

Mono Lake Tributary Streamflows
03/30/92
Mono EIR Alternatives
Initial Alternatives - 1st 50 years:
(3/30/92) 6372.0 Target(10% Flows) - 48 EVAP - 1st 50 years

	Lee Vining Runoff (AF)	Lee Vining Min Flow (AF)	Lee Vining Lakeflow (AF)	Lee Vining Irrigate (AF)	Lee Vining Conduit (AF)	Lee Vining Spill (AF)	Walker Creek Runoff (AF)	Walker Creek Min Flow (AF)	Walker Creek Irrigate (AF)	Walker Creek Conduit (AF)	Walker Creek Spill (AF)	Parker Creek Runoff (AF)	Parker Creek Min Flow (AF)	Parker Creek Irrigate (AF)	Parker Creek Conduit (AF)	Parker Creek Spill (AF)
Minimum:	645	390	0	0	0	0	22	22	0	0	0	94	94	0	0	0
Average:	4107	1944	20	62	1881	200	450	187	0	263	0	760	436	0	324	0
Maximum:	20828	5956	2824	180	13063	18622	2722	624	0	2127	0	4369	1345	0	3244	0
Total (TAF/yr):	49.3	23.3	0.2	0.7	22.6	2.4	5.4	2.2	0.0	3.2	0.0	9.1	5.2	0.0	3.9	0.0
Annual Values																
Minimum:	19852	18048	0	748	1056	0	2410	1987	0	423	0	4690	4585	0	98	0
Average:	49287	23329	243	748	22570	2397	5401	2240	0	3162	0	9126	5234	0	3892	0
Maximum:	92303	24869	4308	748	50467	35268	12132	2292	0	9864	0	16759	5422	0	11493	0

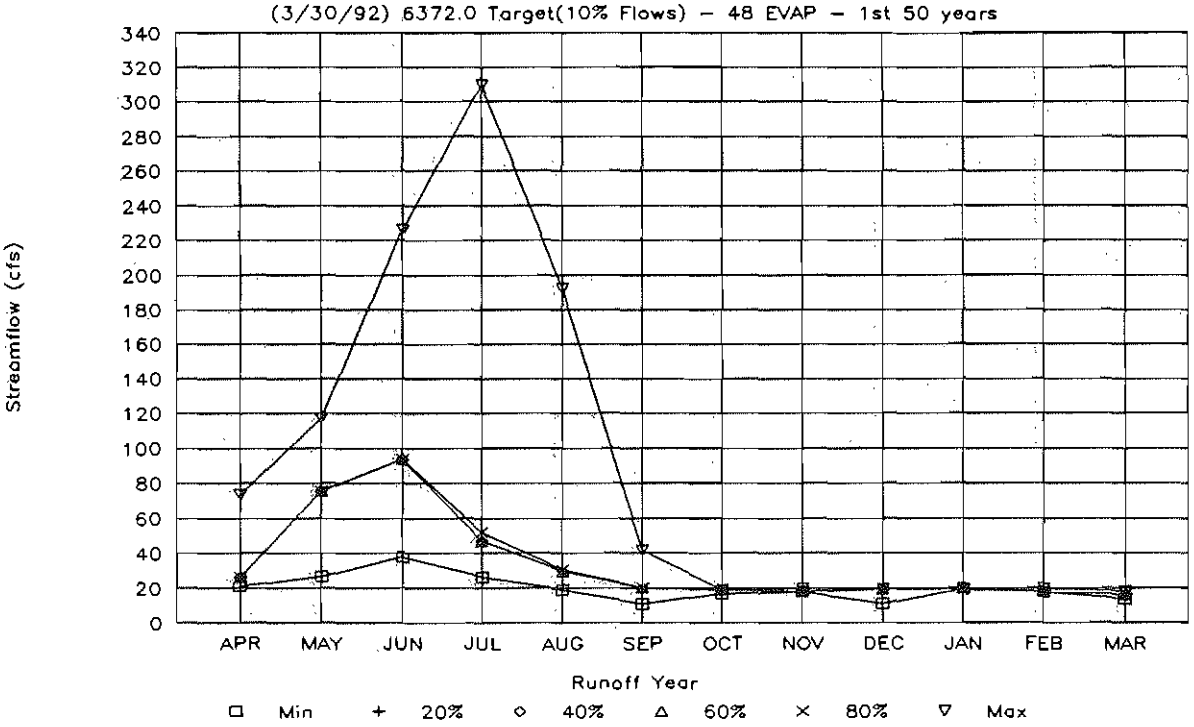
	Rush Creek Runoff (AF)	Conduit Inflow to Grant (AF)	Mono Basin Gains (AF)	Mono Gate #1 Min Flow (AF)	Rush Creek Lakeflow (AF)	Grant Storage Lakeflow (AF)	Rush Creek Storage (AF)	Grant Evap - Rain (AF)	West Portal Export (AF)	Grant Storage Spill (AF)	Lee Vining Flow (cfs)	Walker Flow (cfs)	Parker Flow (cfs)	Rush Flow (cfs)
Minimum:	1264	0	-127	1304	0	0	19324	-641	0	0	10.5	0.4	1.7	21.2
Average:	4973	2469	422	2071	81	1	23220	186	5362	162	35.8	3.1	7.2	38.4
Maximum:	29989	17036	868	3654	11010	453	50000	640	15031	16248	309.6	10.5	22.6	305.3
Total (TAF/yr):	59.7	29.6	5.1	24.9	1.0	0.0		2.2	64.3	1.9				
Annual Values														
Minimum:	24610	1927	5060	22376	0	0		1403	7265	0	25.0	2.7	6.3	30.9
Average:	59681	29623	5060	24857	973	16		2233	64340	1944	35.9	3.1	7.2	35.7
Maximum:	117750	65525	5060	24942	20600	453		3063	140047	29565	74.1	3.2	7.5	63.0

Mono Lake Tributary Streamflows Monthly Percentiles
03/30/92
Mono EIR Alternatives
Initial Alternatives - 1st 50 years:
(3/30/92) 6372.0 Target(10% Flows) - 48 EVAP - 1st 50 years

	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
Lee Vining Creek:												
0%	20.8	26.5	37.9	26.0	18.6	10.9	16.4	17.6	10.5	19.2	17.7	13.6
10%	25.9	74.9	93.7	47.2	29.0	19.9	18.8	17.7	19.0	19.2	17.7	16.2
20%	25.9	75.7	93.7	47.2	29.1	19.9	18.8	17.7	19.0	19.2	17.7	16.2
30%	25.9	75.7	93.7	47.2	29.1	19.9	18.8	17.7	19.0	19.2	17.7	16.2
40%	25.9	75.7	93.7	47.2	29.1	19.9	18.8	17.7	19.0	19.2	17.7	16.2
50%	25.9	75.7	93.7	47.2	29.1	19.9	18.8	17.7	19.0	19.2	17.7	16.2
60%	25.9	75.7	93.7	47.2	29.1	19.9	18.8	17.7	19.0	19.2	17.7	16.2
70%	25.9	75.7	93.7	49.1	29.1	19.9	18.8	17.7	19.0	19.2	17.7	16.2
80%	25.9	75.7	93.7	51.9	30.0	19.9	18.8	17.7	19.0	19.2	17.7	16.2
90%	27.3	79.7	95.4	122.4	51.2	19.9	18.8	17.7	19.0	19.2	17.7	16.2
100%	73.5	117.3	226.2	309.6	192.1	41.5	18.8	19.5	19.0	19.4	19.5	17.8
Walker Creek:												
0%	0.4	1.1	6.6	3.9	2.2	1.8	2.0	0.6	2.1	2.0	1.6	0.6
10%	1.1	2.5	10.0	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.2	2.1
20%	1.1	2.5	10.0	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.2	2.1
30%	1.1	2.5	10.0	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.2	2.1
40%	1.1	2.5	10.0	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.2	2.1
50%	1.1	2.5	10.0	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.2	2.1
60%	1.1	2.5	10.0	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.2	2.1
70%	1.1	2.5	10.0	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.2	2.1
80%	1.1	2.5	10.0	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.2	2.1
90%	1.1	2.5	10.0	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.3	2.1
100%	1.2	2.6	10.5	5.0	3.4	2.4	2.6	2.7	2.7	2.4	2.4	2.2
Parker Creek:												
0%	3.6	4.7	13.7	12.9	9.6	3.9	2.9	2.7	2.8	2.7	1.7	2.6
10%	4.2	7.4	20.7	18.3	11.0	5.7	3.8	3.1	3.3	3.2	3.0	3.3
20%	4.2	7.4	20.7	18.3	11.0	5.7	3.8	3.1	3.3	3.2	3.0	3.3
30%	4.2	7.4	20.7	18.3	11.0	5.7	3.8	3.1	3.3	3.2	3.0	3.3
40%	4.2	7.4	20.7	18.3	11.0	5.7	3.8	3.1	3.3	3.2	3.0	3.3
50%	4.2	7.4	20.7	18.3	11.0	5.7	3.8	3.1	3.3	3.2	3.0	3.3
60%	4.2	7.4	20.7	18.3	11.0	5.7	3.8	3.1	3.3	3.2	3.0	3.3
70%	4.2	7.4	20.7	18.3	11.0	5.7	3.8	3.1	3.3	3.2	3.0	3.3
80%	4.2	7.4	20.7	18.3	11.0	5.7	3.8	3.1	3.3	3.2	3.0	3.3
90%	4.2	7.4	21.3	18.3	11.0	5.7	3.9	3.1	3.4	3.3	3.0	3.4
100%	4.5	7.6	22.6	19.7	12.2	6.2	4.2	3.3	3.5	3.5	3.3	3.6
Rush Creek:												
0%	31.6	34.7	39.4	36.2	26.9	27.5	29.5	32.0	25.9	27.5	27.5	21.2
10%	31.6	50.0	61.5	40.7	26.9	33.5	34.9	32.7	25.9	27.5	27.5	21.2
20%	31.6	50.0	61.5	40.7	26.9	33.5	34.9	32.7	25.9	27.5	27.5	21.2
30%	31.6	50.0	61.5	40.7	26.9	33.5	34.9	32.7	25.9	27.5	27.5	21.2
40%	31.6	50.0	61.5	40.7	26.9	33.5	34.9	32.7	25.9	27.5	27.5	21.2
50%	31.6	50.0	61.5	40.7	26.9	33.5	34.9	32.7	25.9	27.5	27.5	21.2
60%	31.6	50.0	61.5	40.7	26.9	33.5	34.9	32.7	25.9	27.5	27.5	21.2
70%	31.6	50.0	61.5	40.7	26.9	33.5	34.9	32.7	25.9	27.5	27.5	21.2
80%	31.6	50.0	61.5	40.7	26.9	33.5	34.9	32.7	25.9	27.5	27.5	21.2
90%	31.6	50.0	95.7	115.9	49.0	33.5	34.9	32.7	25.9	27.5	27.5	21.2
100%	104.0	149.3	246.9	305.3	189.9	55.0	34.9	32.7	26.0	28.0	28.1	21.9

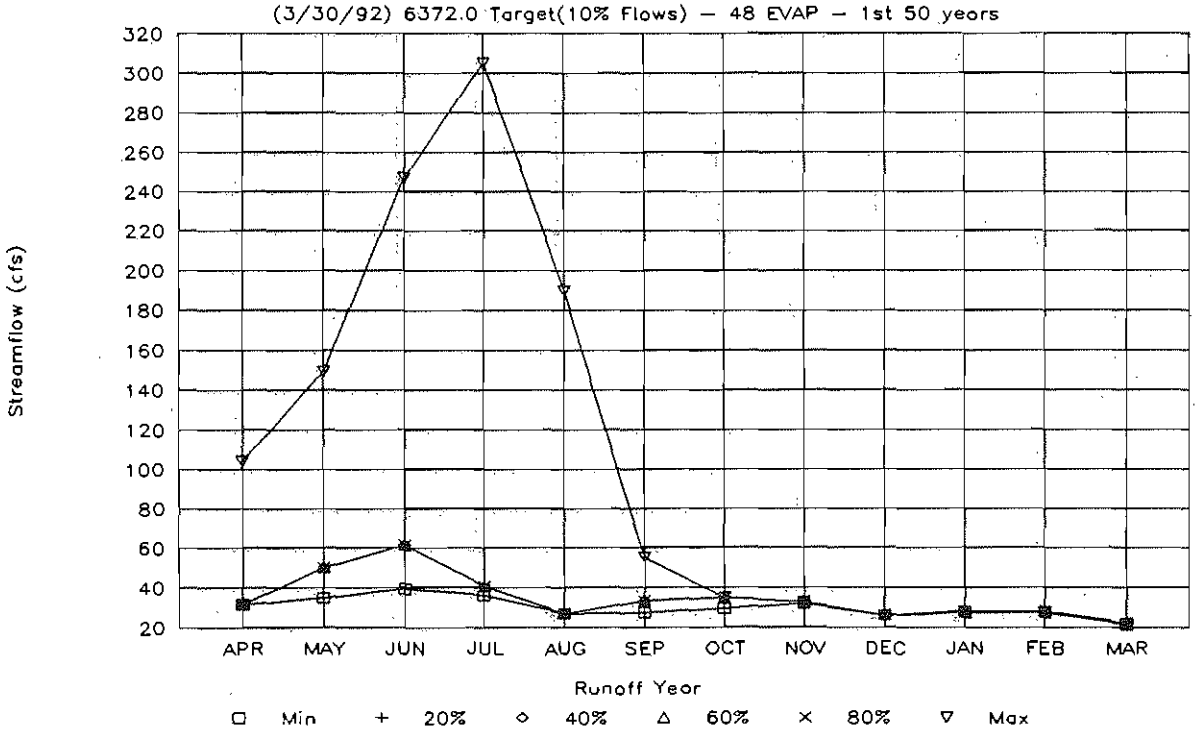
Lee Vining Streamflow Distribution

(3/30/92) 6372.0 Target(10% Flows) – 48 EVAP – 1st 50 years



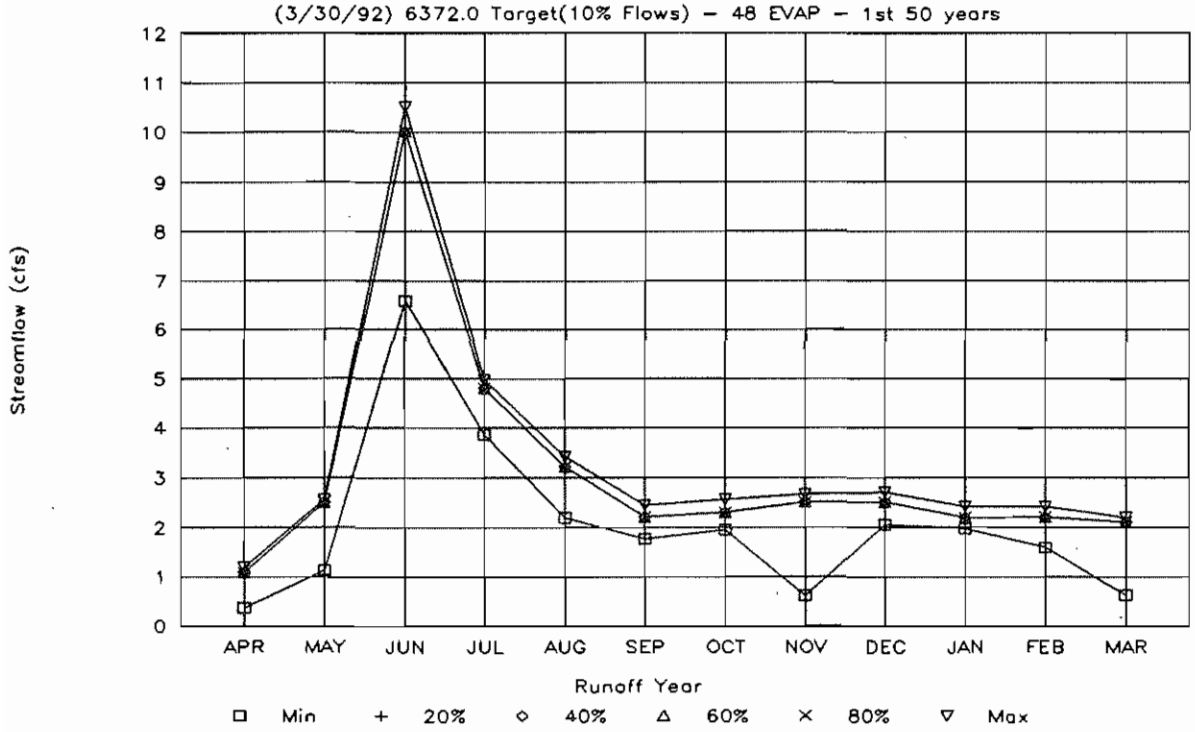
Rush Creek Streamflow Distribution

(3/30/92) 6372.0 Target(10% Flows) – 48 EVAP – 1st 50 years



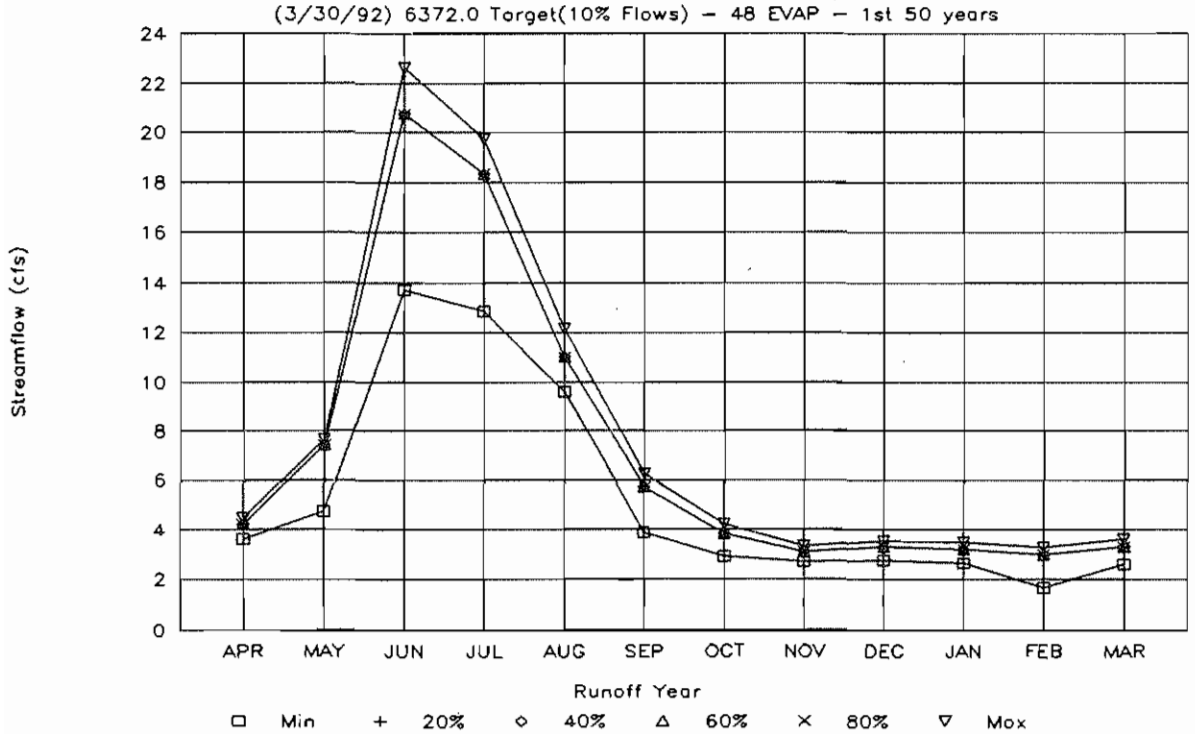
Walker Creek Streamflow Distribution

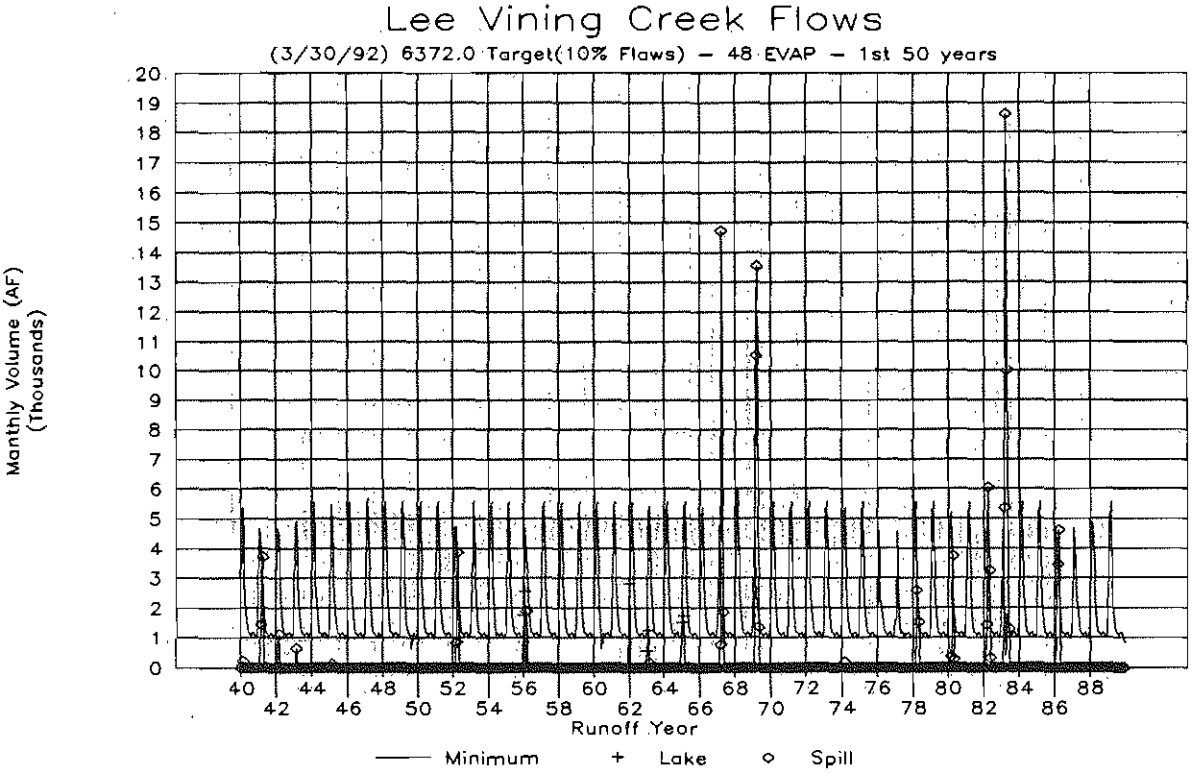
(3/30/92) 6372.0 Target(10% Flows) – 48 EVAP – 1st 50 years

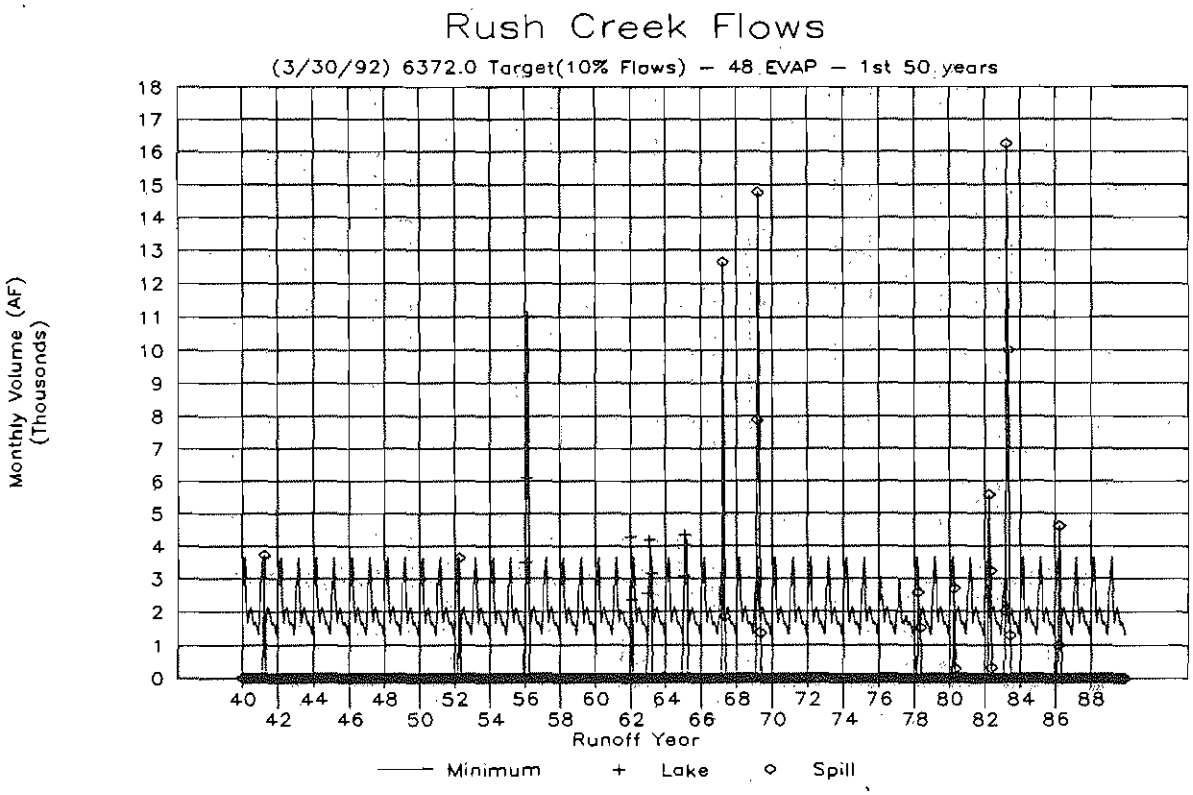


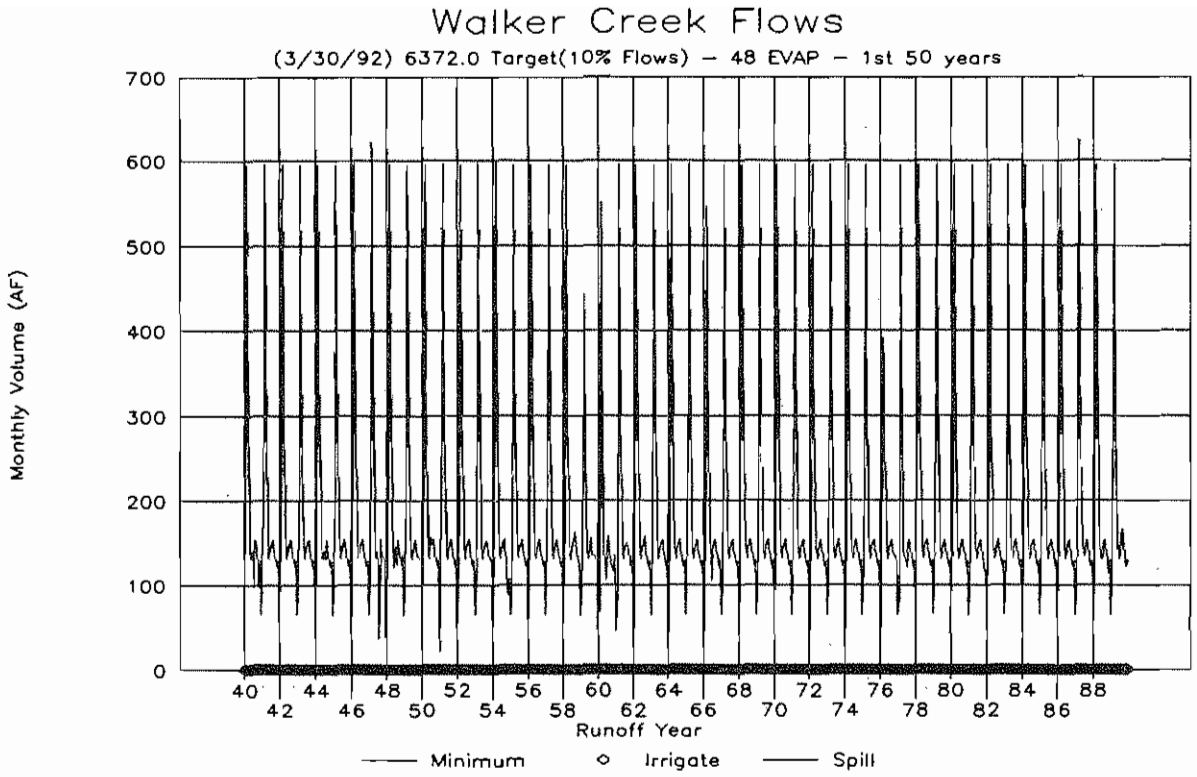
Parker Creek Streamflow Distribution

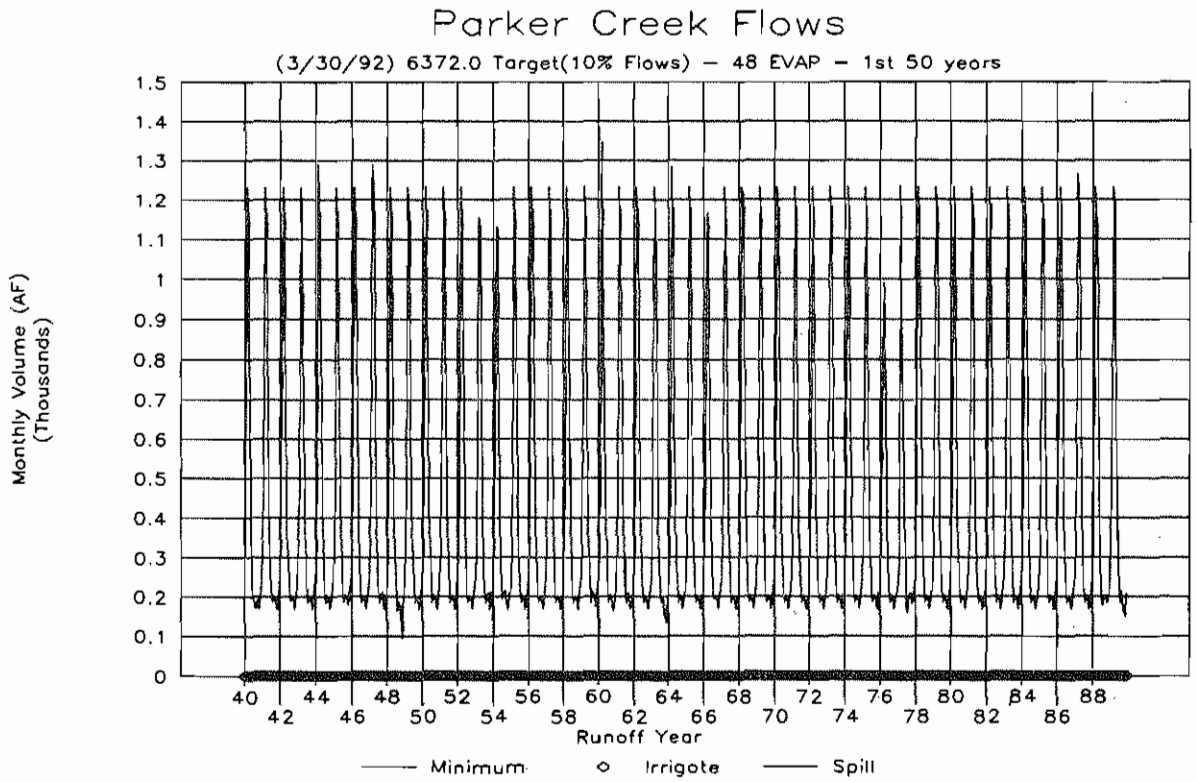
(3/30/92) 6372.0 Target(10% Flows) – 48 EVAP – 1st 50 years




Lee Vining Creek Flows
(3/30/92) 6372.0 Target(10% Flows) – 48 EVAP – 1st 50 years
Monthly Volume (AF)
(Thousands)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Yeor
Minimum
Lake
Spill

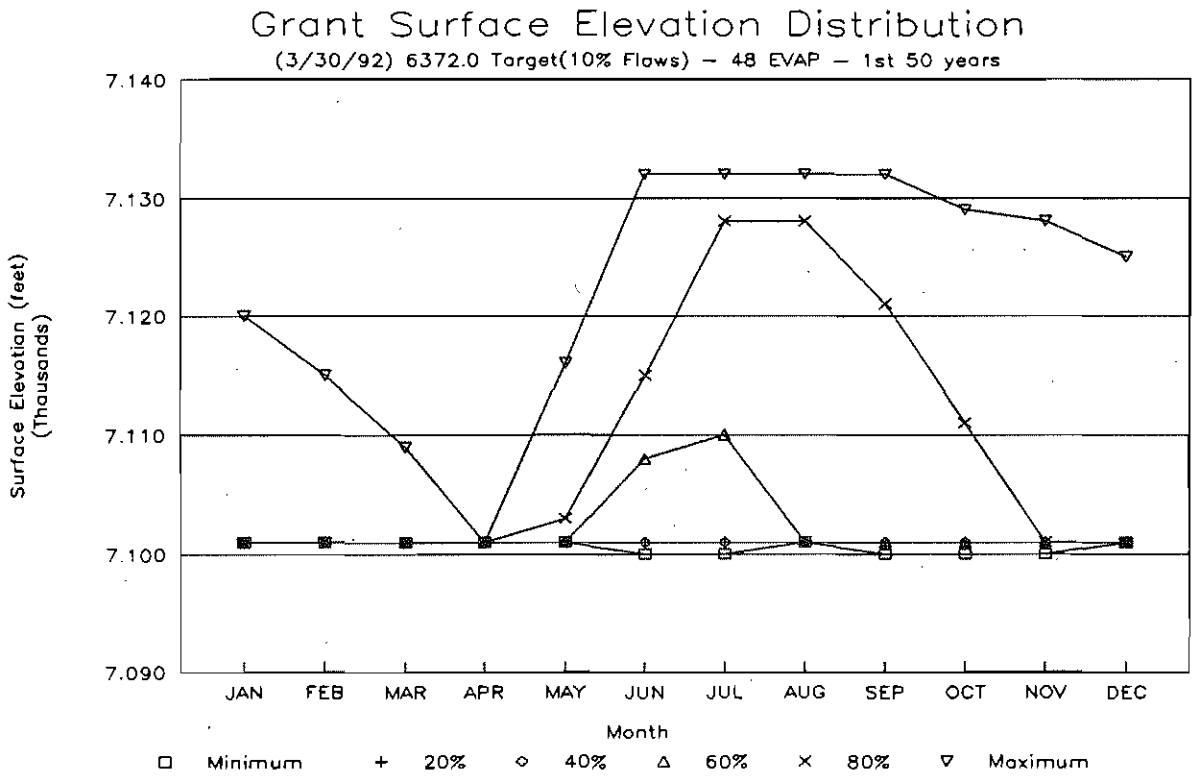

Rush Creek Flows
(3/30/92) 6372.0 Target(10% Flows) – 48 EVAP – 1st 50 years
Monthly Volume (AF)
(Thousands)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Yeor
Minimum
Lake
Spill

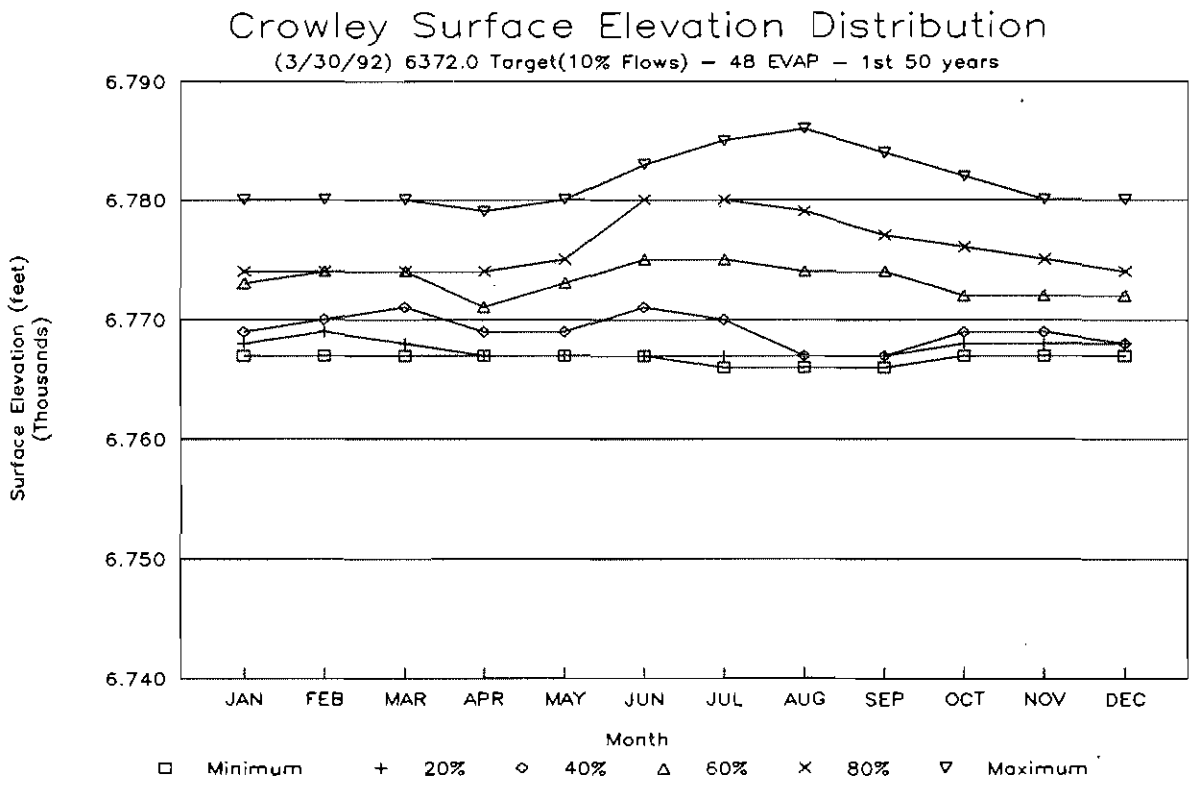

Walker Creek Flows
(3/30/92) 6372.0 Target(10% Flows) – 48 EVAP – 1st 50 years
Monthly Volume (AF)
700
600
500
400
300
200
100
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Minimum
Irrigate
Spill


Parker Creek Flows
(3/30/92) 6372.0 Target(10% Flows) – 48 EVAP – 1st 50 years
Monthly Volume (AF)
(Thousands)
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Minimum
Irrigate
Spill

Monthly Distribution of Lake Elevations
03/30/92
Mono EIR Alternatives
Initial Alternatives - 1st 50 years:
(3/30/92) 6372.0 Target(10% Flows) - 48 EVAP - 1st 50 years

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Grant Lake:												
Minimum	7101	7101	7101	7101	7101	7100	7100	7101	7100	7100	7100	7101
10%	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101
20%	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101
30%	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101
40%	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101
50%	7101	7101	7101	7101	7101	7102	7101	7101	7101	7101	7101	7101
60%	7101	7101	7101	7101	7101	7108	7110	7101	7101	7101	7101	7101
70%	7101	7101	7101	7101	7101	7111	7116	7110	7101	7101	7101	7101
80%	7101	7101	7101	7101	7103	7115	7128	7128	7121	7111	7101	7101
90%	7101	7101	7101	7101	7105	7121	7132	7132	7125	7117	7109	7101
Maximum	7120	7115	7109	7101	7116	7132	7132	7132	7132	7129	7128	7125
Lake Crowley:												
Minimum	6767	6767	6767	6767	6767	6767	6766	6766	6766	6767	6767	6767
10%	6767	6768	6767	6767	6767	6767	6767	6767	6767	6767	6767	6767
20%	6768	6769	6768	6767	6767	6767	6767	6767	6767	6768	6768	6768
30%	6769	6769	6769	6768	6767	6768	6767	6767	6767	6768	6768	6768
40%	6769	6770	6771	6769	6769	6771	6770	6767	6767	6769	6769	6768
50%	6771	6771	6772	6770	6771	6774	6774	6772	6769	6769	6770	6770
60%	6773	6774	6774	6771	6773	6775	6775	6774	6774	6772	6772	6772
70%	6774	6774	6774	6772	6774	6777	6779	6777	6774	6774	6774	6774
80%	6774	6774	6774	6774	6775	6780	6780	6779	6777	6776	6775	6774
90%	6778	6778	6778	6775	6779	6780	6781	6780	6778	6778	6778	6778
Maximum	6780	6780	6780	6779	6780	6783	6785	6786	6784	6782	6780	6780


Grant Surface Elevation Distribution
(3/30/92) 6372.0 Target(10% Flows) – 48 EVAP – 1st 50 years
Surface Elevation (feet)
(Thousands)
7.140
7.130
7.120
7.110
7.100
7.090
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
Month
Minimum
20%
40%
60%
80%
Maximum

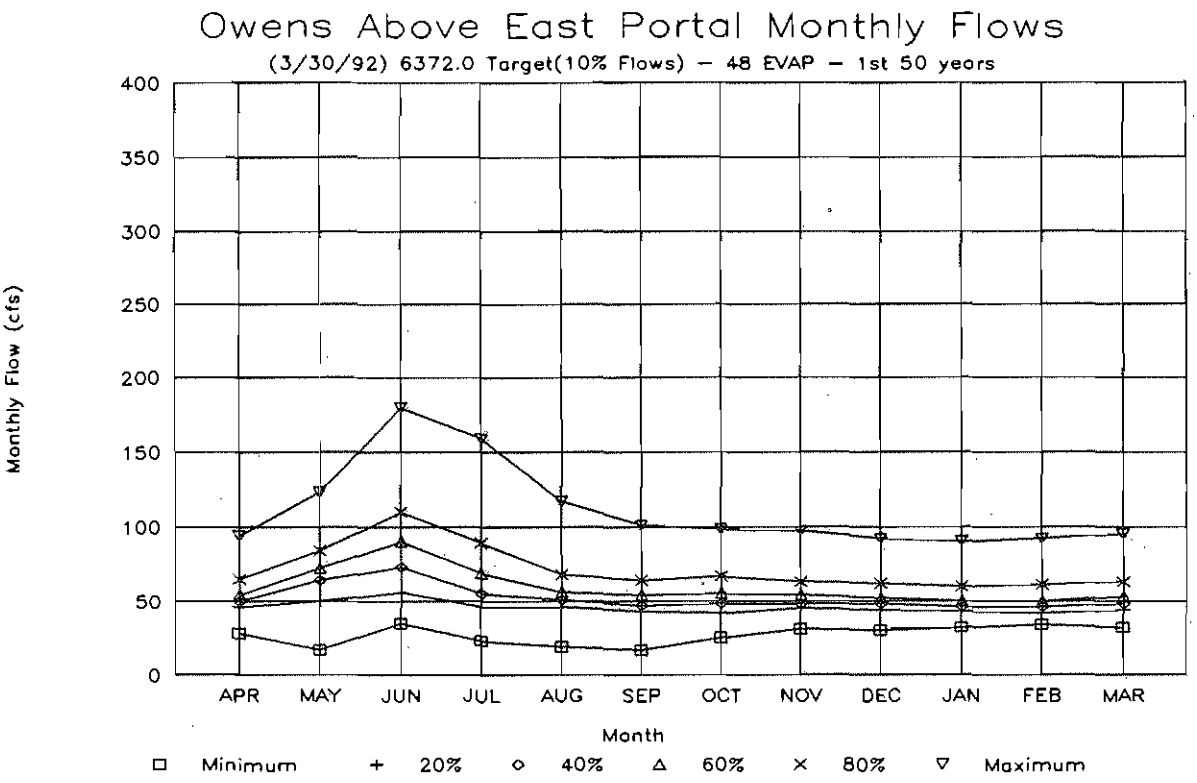

Crowley Surface Elevation Distribution
(3/30/92) 6372.0 Target(10% Flows) – 48 EVAP – 1st 50 years
Surface Elevation (feet)
(Thousands)
6.790
6.780
6.770
6.760
6.750
6.740
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
Month
Minimum
20%
40%
60%
80%
Maximum

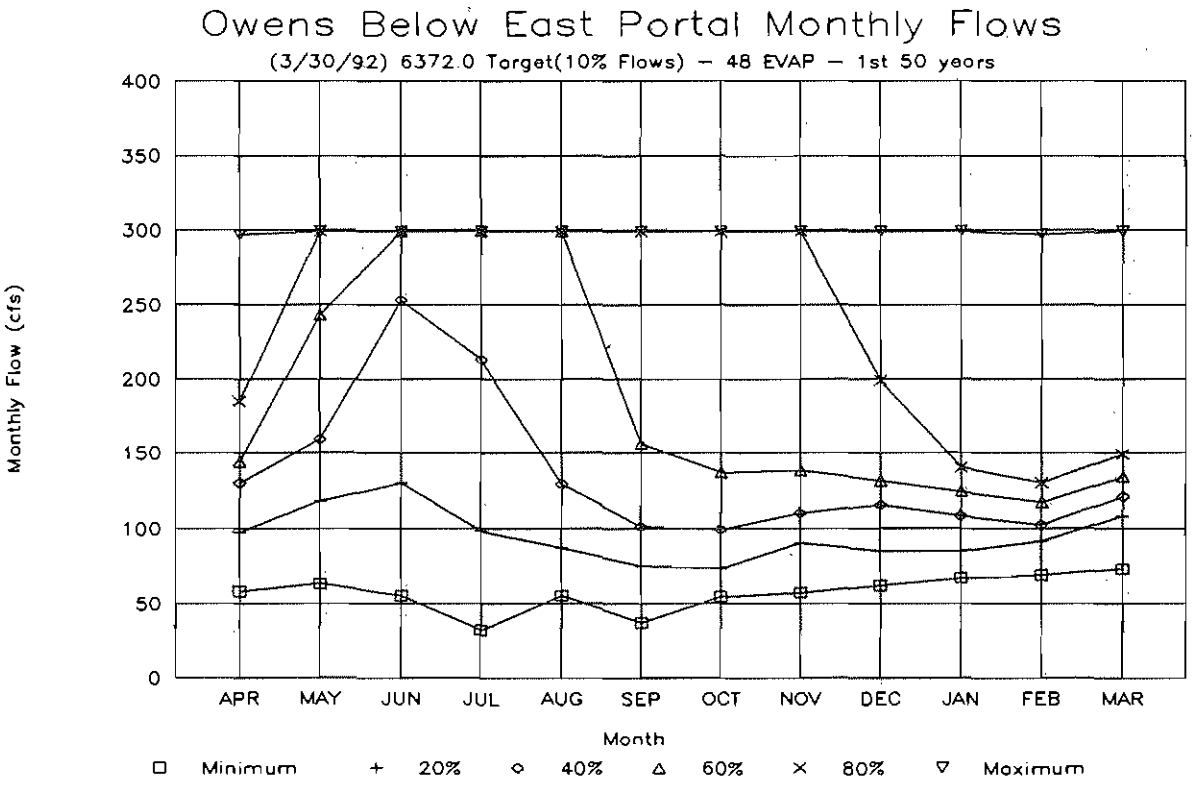
Owens River Streamflows – Monthly Cumulative Percentiles
03/30/92
Mono EIR Alternatives
Initial Alternatives – 1st 50 years:
(3/30/92) 6372.0 Target(10% Flows) – 48 EVAP – 1st 50 years

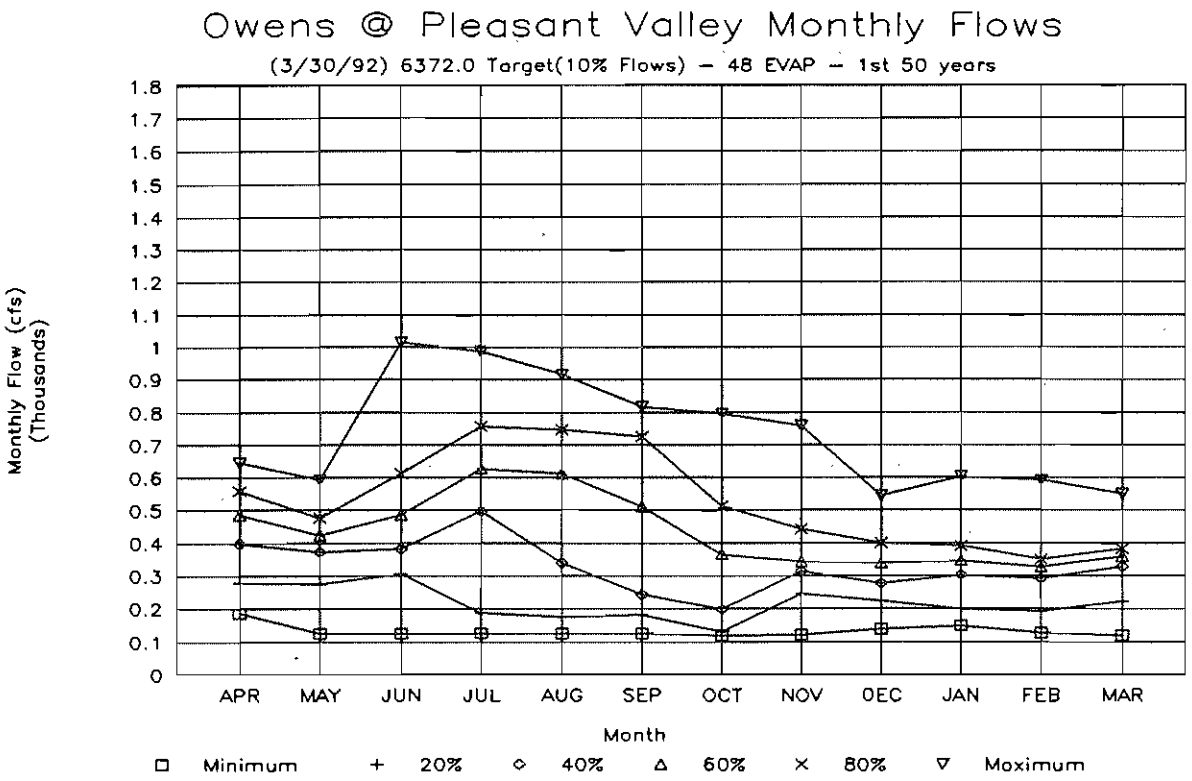
	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
Owens above East Portal:												
0%	28	17	35	23	19	17	25	31	30	32	34	32
10%	41	47	53	40	40	39	36	39	40	39	40	41
20%	46	50	56	46	46	43	42	45	44	43	42	44
30%	47	56	63	52	49	45	44	47	46	45	44	45
40%	50	64	73	55	51	47	48	48	48	46	46	48
50%	52	66	79	62	54	53	51	51	49	50	49	50
60%	54	72	90	69	56	54	55	54	52	50	50	53
70%	62	79	103	77	60	59	58	56	58	54	54	56
80%	65	84	110	89	68	64	67	63	62	60	61	63
90%	72	98	126	102	79	70	72	73	72	72	72	75
100%	94	123	180	159	117	101	98	97	92	90	92	95
Owens below East Portal:												
0%	58	63	55	32	55	37	54	57	62	67	69	73
10%	85	85	112	75	76	71	63	78	71	80	86	95
20%	97	118	130	98	87	75	73	90	85	85	91	108
30%	112	129	217	124	105	85	90	97	98	100	99	113
40%	130	159	253	213	129	101	99	110	115	108	102	121
50%	138	197	299	286	173	122	113	126	122	114	109	130
60%	144	243	299	299	299	156	137	138	131	124	117	134
70%	171	264	299	299	299	299	180	150	157	127	124	142
80%	185	299	299	299	299	299	299	299	199	140	130	149
90%	220	299	299	299	299	299	299	299	299	171	146	160
100%	297	299	299	299	299	299	299	299	299	299	297	299
Pleasant Valley Outflow:												
0%	188	125	124	126	124	125	118	120	138	149	127	119
10%	256	218	237	142	154	167	121	216	192	183	158	201
20%	279	276	306	187	176	181	130	245	223	198	193	221
30%	341	330	335	314	208	203	172	279	239	213	235	274
40%	397	372	382	497	339	243	198	313	278	303	292	328
50%	444	392	424	529	534	304	294	331	306	323	308	342
60%	486	423	485	627	612	511	365	343	340	346	327	359
70%	517	459	563	676	669	607	453	395	374	368	338	370
80%	558	477	612	757	746	725	513	442	400	391	350	383
90%	586	540	677	918	793	763	626	537	517	505	444	452
100%	645	592	1014	987	915	817	795	758	544	602	592	550
Owens at Horton Creek:												
0%	194	126	126	126	126	126	126	126	145	156	135	126
10%	259	231	257	144	155	169	126	223	199	190	167	207
20%	284	284	317	189	178	183	136	252	229	205	201	227
30%	346	338	357	317	209	206	177	285	249	221	242	280
40%	403	380	405	521	341	247	204	320	285	311	299	335
50%	448	408	444	544	539	310	299	340	314	331	316	349
60%	491	432	510	639	617	514	373	350	348	354	335	366
70%	528	468	587	688	675	611	459	403	382	376	346	378
80%	566	491	618	767	756	733	522	450	408	401	358	390
90%	592	552	694	967	815	770	635	546	527	514	454	459
100%	651	610	1065	1033	946	833	806	769	553	613	604	560

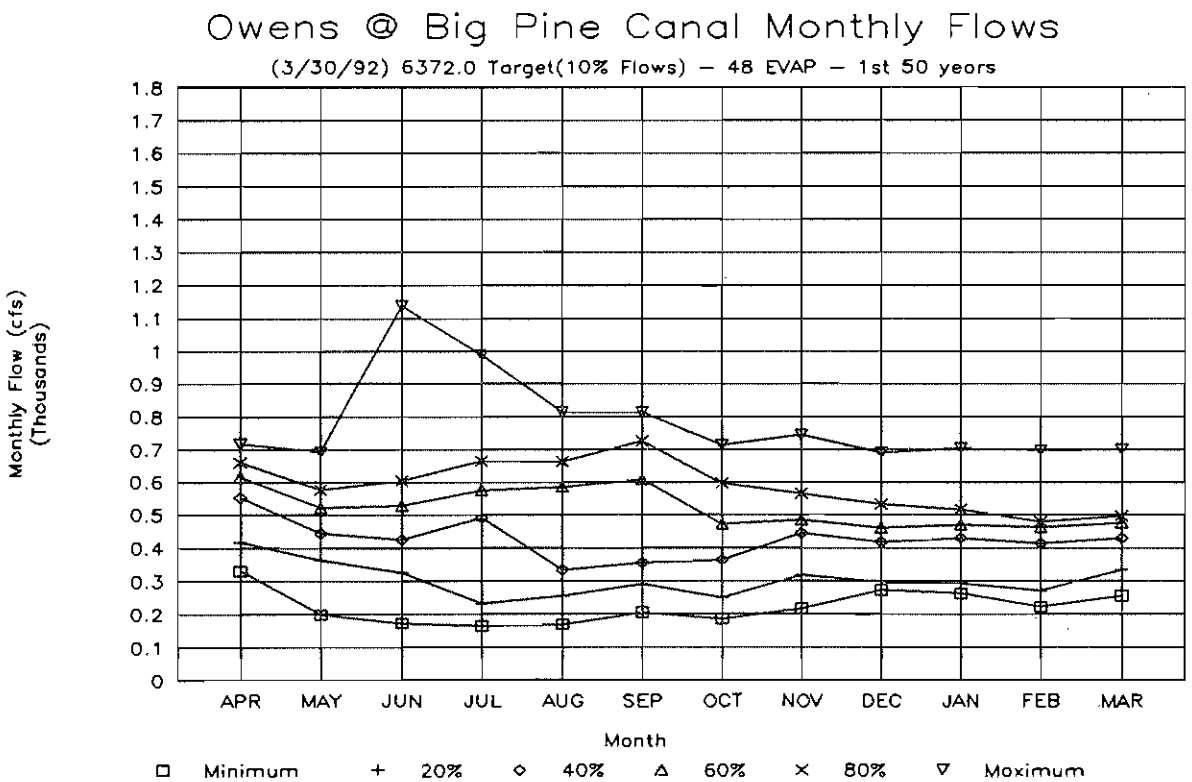
Owens River Streamflows – Monthly Cumulative Percentiles
03/30/92
Mono EIR Alternatives
Initial Alternatives – 1st 50 years:
(3/30/92) 6372.0 Target(10% Flows) – 48 EVAP – 1st 50 years

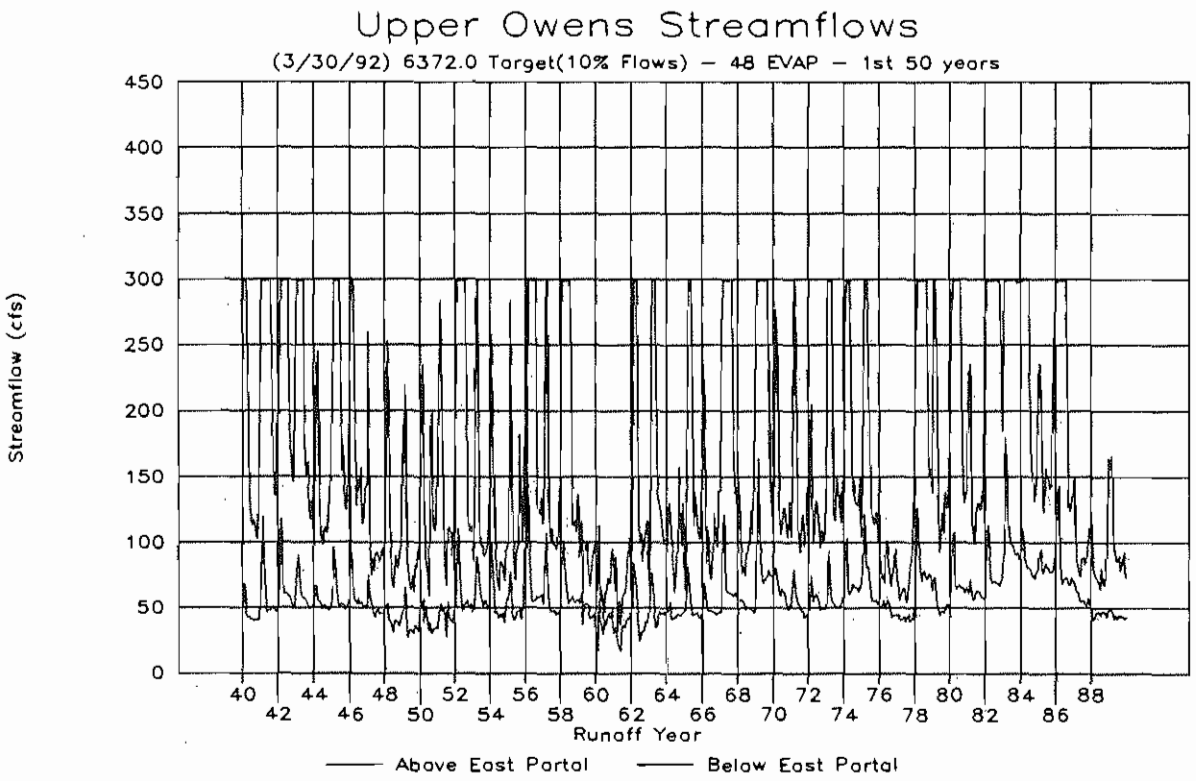
	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
Owens at Bishop Diversion:												
0%	194	106	126	126	126	126	126	126	145	156	135	126
10%	239	186	205	144	155	169	126	223	199	190	167	207
20%	284	258	251	189	178	183	136	252	229	205	201	227
30%	324	280	312	317	209	201	177	285	247	221	242	280
40%	403	321	330	461	289	239	204	320	285	304	298	331
50%	441	363	410	515	486	309	296	328	302	328	316	346
60%	462	423	457	567	565	467	357	350	341	352	330	362
70%	512	446	535	615	599	517	443	403	373	373	342	373
80%	530	468	565	690	627	643	501	438	402	393	356	384
90%	559	507	618	771	694	676	603	523	504	499	444	450
100%	584	591	872	837	753	722	686	658	530	531	507	550
Owens at Laws Diversion:												
0%	194	126	126	126	126	126	126	126	145	156	135	126
10%	255	198	243	144	155	169	126	223	199	190	167	207
20%	284	277	293	189	178	183	136	252	229	205	201	227
30%	346	307	330	317	209	206	177	285	247	221	242	280
40%	403	362	367	495	330	247	204	320	285	308	299	334
50%	448	393	413	538	527	310	299	333	307	328	316	348
60%	491	432	497	597	605	500	366	350	345	354	333	365
70%	518	465	559	658	643	583	452	403	382	376	346	377
80%	560	482	605	755	695	704	509	443	402	398	357	388
90%	585	543	657	856	747	738	620	532	513	507	451	457
100%	639	591	952	922	835	755	703	667	539	539	514	557
Owens at Laws Return:												
0%	284	133	158	159	159	155	128	158	200	164	143	136
10%	305	198	217	183	197	207	153	226	215	206	179	229
20%	357	283	273	230	223	221	185	260	244	219	208	238
30%	377	316	327	363	251	245	239	326	282	257	251	289
40%	448	344	369	468	346	285	253	341	316	318	315	346
50%	481	388	436	553	542	382	300	359	338	338	335	356
60%	512	438	472	582	603	524	362	365	365	366	343	372
70%	539	473	538	619	625	574	446	414	383	383	357	385
80%	568	506	581	695	651	647	502	445	411	404	366	399
90%	589	529	624	774	697	688	607	532	515	514	453	467
100%	608	614	879	839	759	743	694	670	540	545	520	564
Owens at Bishop Return:												
0%	331	198	172	164	168	204	186	216	273	262	221	255
10%	392	307	277	172	223	272	214	305	291	284	260	286
20%	416	362	326	233	256	291	250	317	296	293	271	334
30%	459	395	361	341	280	304	316	425	372	359	346	370
40%	553	445	426	491	333	354	363	445	417	430	413	430
50%	573	488	473	535	533	437	419	457	442	439	444	470
60%	616	521	529	576	586	608	471	485	460	470	462	476
70%	630	558	562	622	628	654	550	521	485	487	469	487
80%	661	578	604	665	662	724	596	565	532	517	480	497
90%	688	604	664	768	713	753	706	676	628	617	589	555
100%	717	692	1138	988	812	812	714	745	690	703	697	700

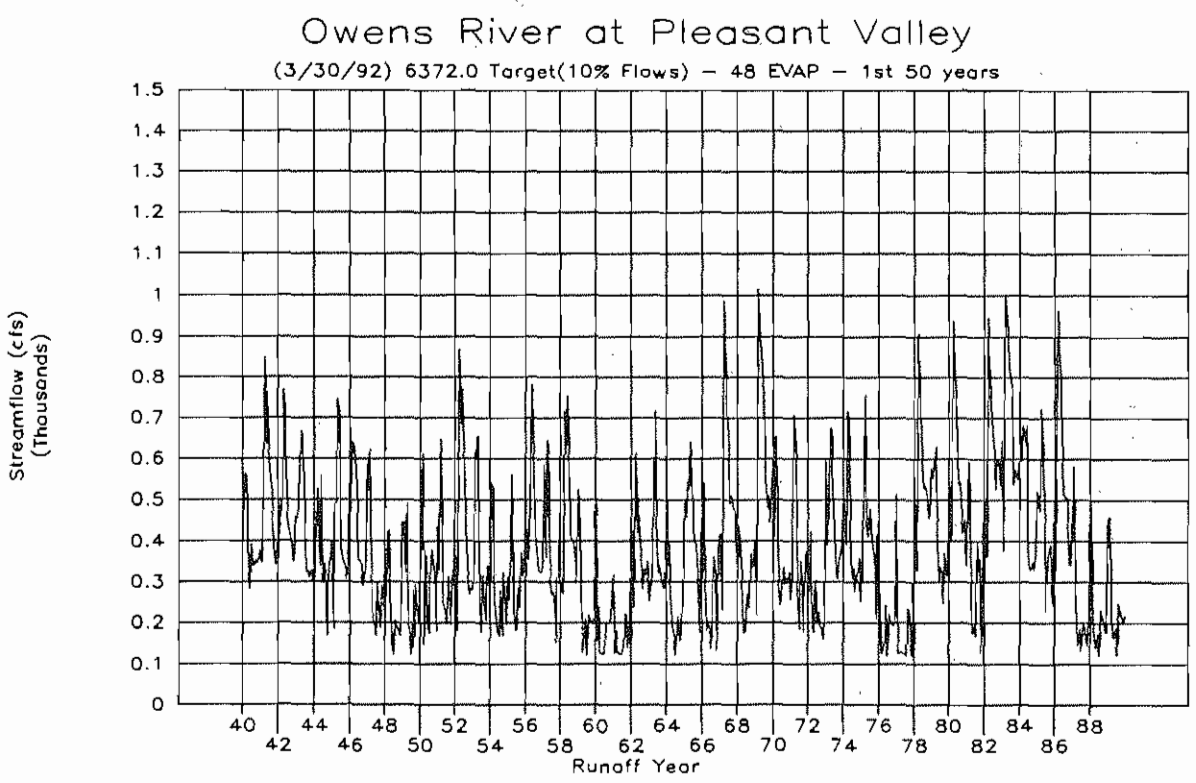

Owens Above East Portal Monthly Flows
(3/30/92) 6372.0 Target(10% Flows) – 48 EVAP – 1st 50 yeors
Monthly Flow (cfs)
400
350
300
250
200
150
100
50
0
APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR
Month
Minimum
20%
40%
60%
80%
Maximum


Owens Below East Portal Monthly Flows
(3/30/92) 6372.0 Target(10% Flows) – 48 EVAP – 1st 50 yeors
Monthly Flow (cfs)
400
350
300
250
200
150
100
50
0
APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR
Month
Minimum
20%
40%
60%
80%
Maximum


Owens @ Pleasant Valley Monthly Flows
(3/30/92) 6372.0 Target(10% Flows) – 48 EVAP – 1st 50 years
Monthly Flow (cfs)
(Thousands)
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR
Month
Minimum
20%
40%
60%
80%
Maximum

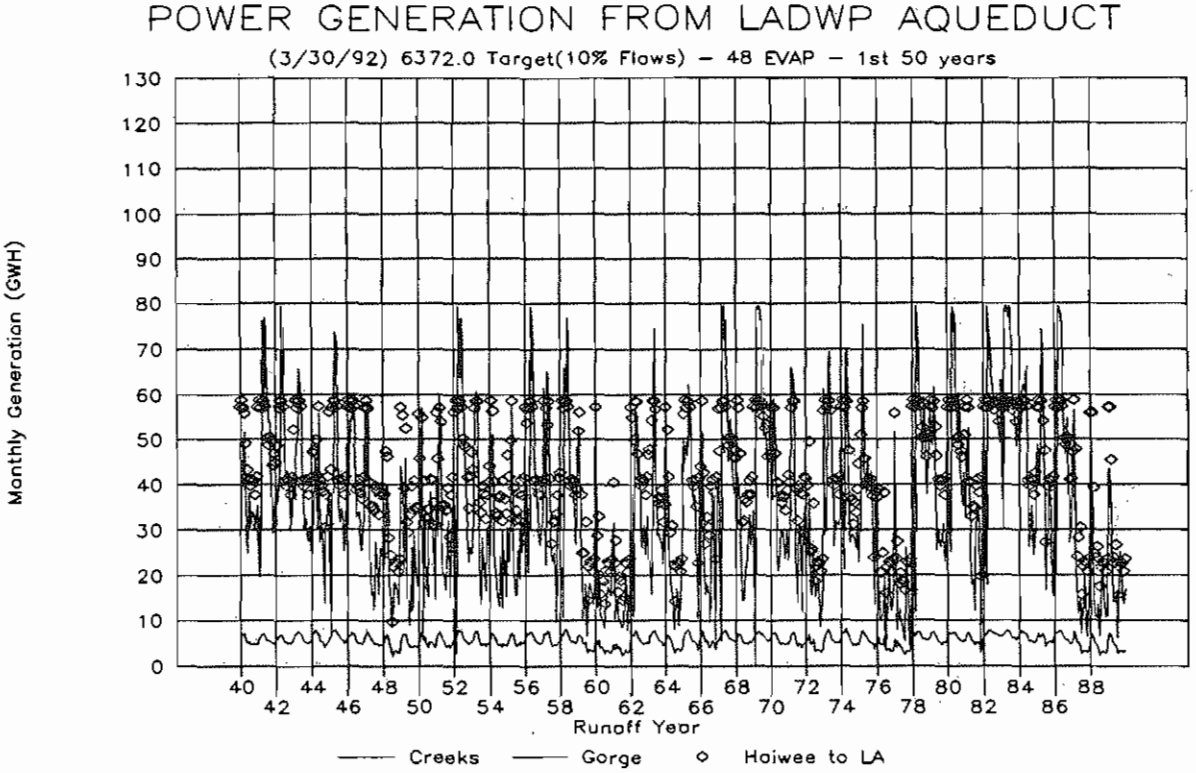

Owens @ Big Pine Canal Monthly Flows
(3/30/92) 6372.0 Target(10% Flows) – 48 EVAP – 1st 50 years
Monthly Flow (cfs)
(Thousands)
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR
Month
Minimum
20%
40%
60%
80%
Maximum

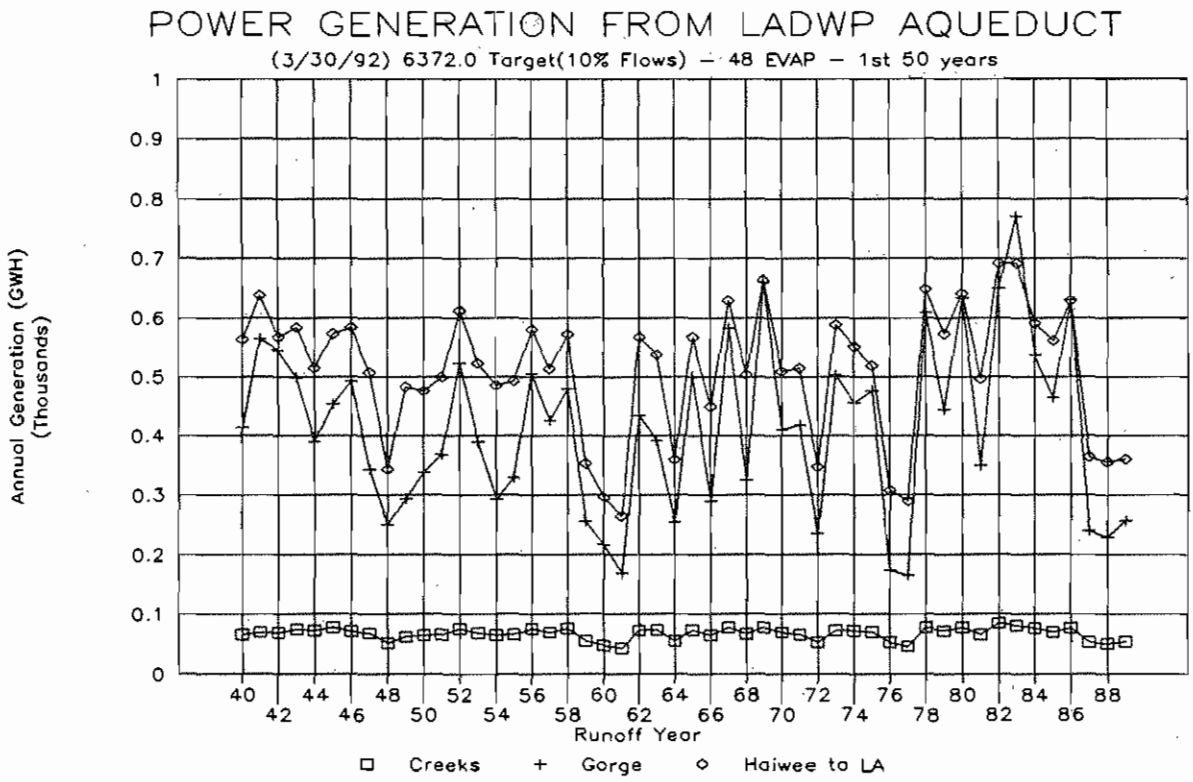

Upper Owens Streamflows
(3/30/92) 6372.0 Target(10% Flows) – 48 EVAP – 1st 50 years
Streamflow (cfs)
450
400
350
300
250
200
150
100
50
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Above East Portal
Below East Portal

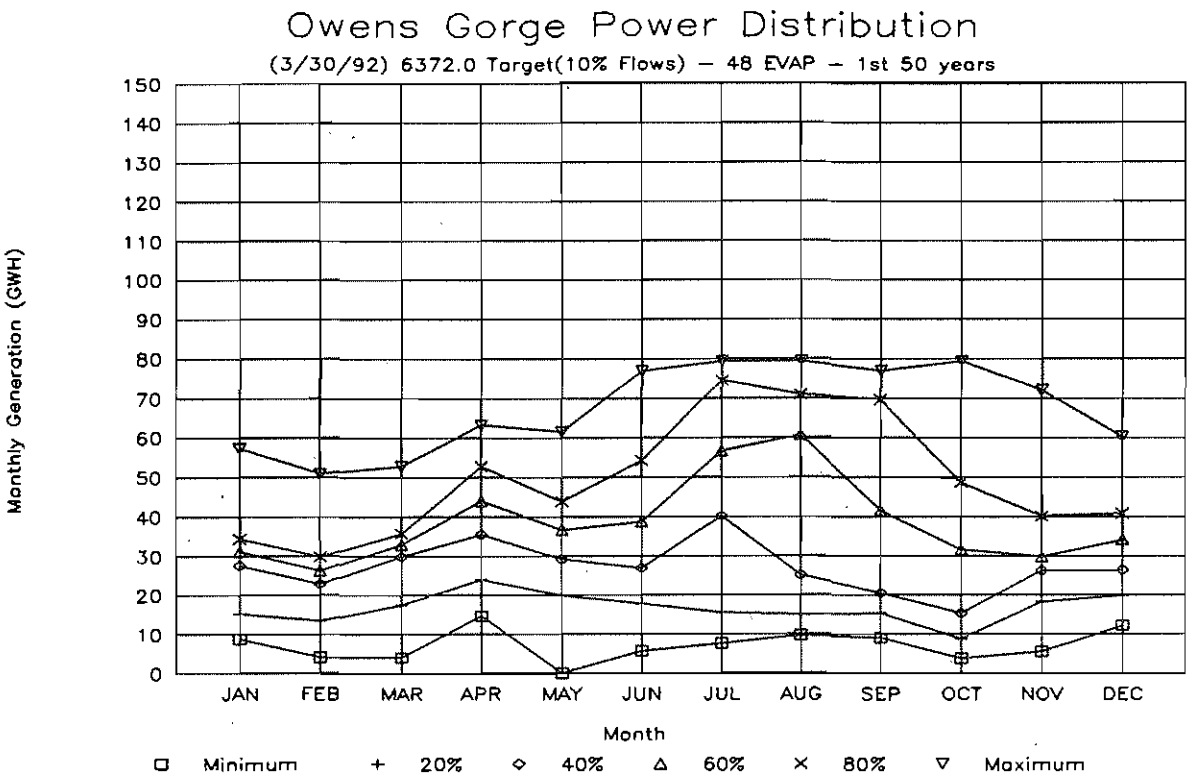

Owens River at Pleasant Valley
(3/30/92) 6372.0 Target(10% Flows) – 48 EVAP – 1st 50 years
Streamflow (cfs)
(Thousands)
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year

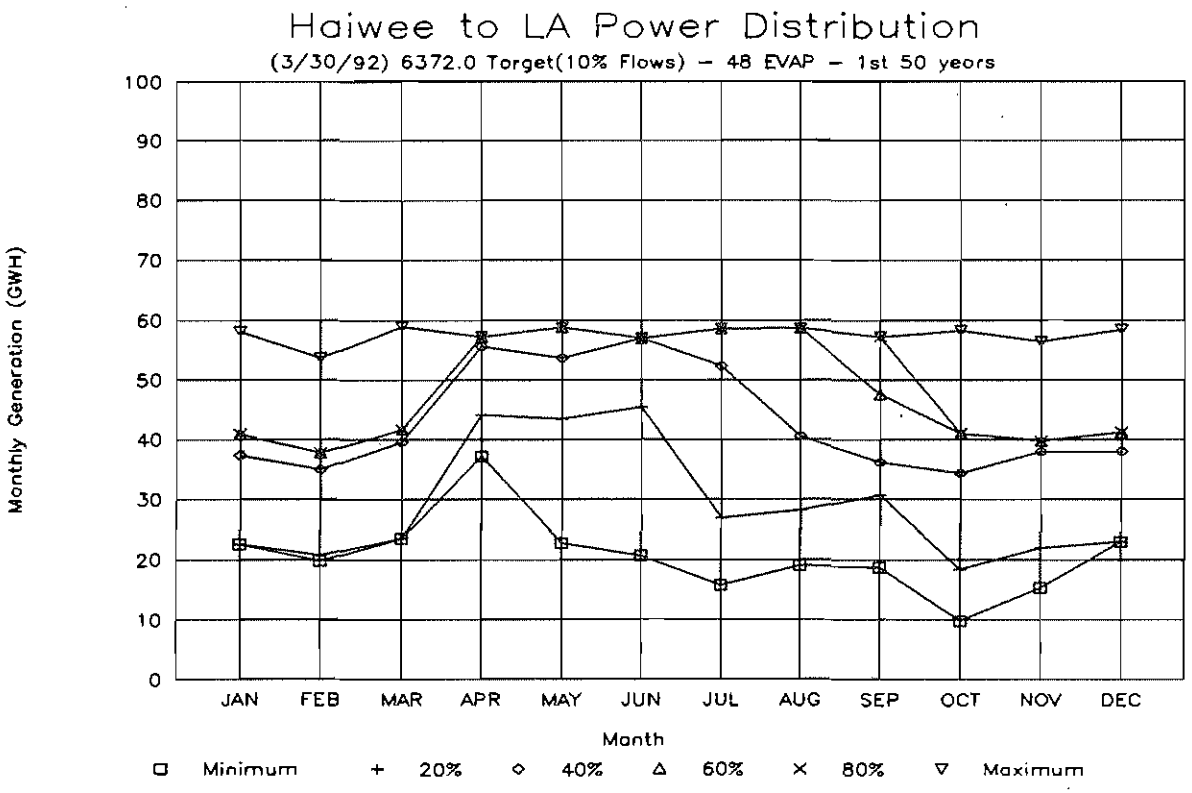
Cumulative Monthly Distribution of LADWP Aqueduct Power Generation
03/30/92
Mono EIR Alternatives
Initial Alternatives - 1st 50 years:
(3/30/92) 6372.0 Target(10% Flows) - 48 EVAP - 1st 5 Annual Average: 990.0 GWH/yr

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Gorge Power Plants:												
0%	8.7	4.1	4.0	14.7	0.0	5.6	7.6	9.7	9.1	3.7	5.5	12.2
10%	13.3	7.8	15.3	23.3	11.0	10.9	11.6	11.7	13.7	7.0	15.5	18.2
20%	15.2	13.4	17.5	24.0	19.9	17.9	15.6	15.0	15.4	8.8	18.3	19.9
30%	16.5	15.5	22.3	31.5	25.5	22.3	27.9	18.0	17.2	12.9	23.4	23.8
40%	27.6	22.9	29.7	35.4	29.1	27.0	40.1	25.1	20.5	15.4	26.3	26.3
50%	28.8	25.2	31.0	41.7	33.3	31.4	46.9	43.5	26.2	23.3	28.5	30.2
60%	31.1	26.2	32.8	44.0	36.6	38.7	56.6	60.8	41.6	31.6	29.9	34.1
70%	33.3	27.4	34.1	49.6	40.0	49.0	65.1	63.6	55.8	41.6	33.2	37.7
80%	34.3	29.7	35.7	52.8	43.8	54.2	74.4	70.8	69.6	48.6	40.1	40.8
90%	46.6	35.3	40.4	57.1	49.4	59.7	79.4	78.5	76.8	61.5	49.0	54.4
100%	57.3	50.9	52.8	63.2	61.5	76.8	79.4	79.4	76.8	79.4	72.0	60.3
Los Angeles Power Plants:												
0%	22.6	19.7	23.5	37.2	22.7	20.6	15.7	19.0	18.7	9.7	15.2	22.9
10%	22.6	20.7	23.5	41.4	39.0	37.7	23.9	23.8	24.4	14.4	21.8	22.9
20%	22.6	20.7	23.5	44.1	43.4	45.5	27.0	28.3	30.7	18.4	21.8	22.9
30%	32.4	23.9	35.5	46.6	47.5	49.8	40.7	32.9	33.1	31.2	35.9	32.2
40%	37.4	35.0	39.5	55.6	53.7	57.0	52.4	40.6	36.1	34.4	38.0	38.0
50%	38.3	37.7	41.6	56.0	57.1	57.0	58.6	52.8	41.4	37.2	39.7	41.2
60%	40.9	37.7	41.7	57.2	58.8	57.0	58.6	58.6	47.5	41.0	39.7	41.2
70%	40.9	37.7	41.7	57.2	58.8	57.0	58.6	58.6	57.3	41.0	39.7	41.2
80%	40.9	37.7	41.7	57.2	58.8	57.0	58.6	58.6	57.3	41.0	39.7	41.2
90%	50.1	46.1	47.4	57.2	58.8	57.0	58.6	58.6	57.3	50.2	48.7	50.4
100%	58.1	53.7	58.9	57.2	58.8	57.0	58.6	58.6	57.3	58.3	56.4	58.4
Owens Valley Power Plants:												
0%	3.1	2.8	3.2	4.7	3.8	4.7	3.9	4.1	3.3	2.1	2.4	3.2
10%	3.2	3.0	3.4	4.8	5.8	6.1	4.9	4.8	4.2	2.7	3.2	3.3
20%	3.4	3.1	3.7	5.0	6.1	6.5	5.3	5.2	4.6	3.3	3.6	3.5
30%	4.3	3.6	4.7	5.4	6.5	6.7	6.4	5.7	5.1	4.2	4.7	4.6
40%	4.9	4.6	5.1	5.6	6.6	6.8	6.9	6.2	5.7	4.5	4.9	4.8
50%	5.0	4.8	5.1	5.7	6.7	6.9	7.2	6.8	6.0	4.9	5.0	4.9
60%	5.1	4.9	5.2	5.9	6.9	7.0	7.3	7.1	6.2	5.5	5.2	5.1
70%	5.2	4.9	5.3	6.1	7.0	7.2	7.5	7.3	6.6	5.8	5.4	5.3
80%	5.3	5.0	5.4	6.2	7.1	7.3	7.6	7.5	7.1	6.1	5.5	5.5
90%	5.6	5.3	5.6	6.4	7.3	7.4	7.8	7.7	7.4	6.6	6.0	6.0
100%	6.8	6.4	6.6	6.9	7.7	7.7	7.9	7.8	7.7	7.2	7.2	6.9
Total Aqueduct Power Plants:												
0%	34.9	26.8	31.3	62.0	36.9	35.7	32.0	33.6	31.4	20.7	24.5	40.7
10%	40.3	32.3	44.0	70.4	63.6	60.3	40.0	41.4	42.6	24.9	41.1	45.5
20%	42.3	37.1	48.3	74.9	71.3	74.5	46.7	51.6	50.9	28.2	43.4	49.2
30%	48.4	40.8	62.6	82.1	80.8	81.0	74.7	56.6	55.2	50.3	65.5	61.8
40%	69.8	62.6	73.6	95.9	85.7	86.3	102.1	72.1	63.9	54.0	70.5	70.3
50%	74.2	67.1	76.8	100.7	94.2	92.9	111.6	96.2	75.4	65.6	71.5	72.7
60%	76.0	68.4	79.9	106.7	100.1	102.8	122.9	124.1	94.8	77.0	74.8	80.3
70%	78.3	70.5	80.7	111.2	102.3	113.6	128.3	129.5	120.1	88.3	78.0	84.4
80%	80.5	73.1	83.1	115.6	108.2	118.0	139.7	136.7	134.6	97.0	85.4	89.0
90%	102.5	86.7	88.6	120.5	115.3	124.2	145.3	144.4	141.0	119.1	105.3	110.7
100%	122.2	111.0	117.6	126.8	127.4	141.2	145.8	145.7	141.7	144.7	134.6	122.8


POWER GENERATION FROM LADWP AQUEDUCT
(3/30/92) 6372.0 Target(10% Flows) – 48 EVAP – 1st 50 years
Monthly Generation (GWH)
130
120
110
100
90
80
70
60
50
40
30
20
10
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Creeks
Gorge
Haiwee to LA


POWER GENERATION FROM LADWP AQUEDUCT
(3/30/92) 6372.0 Target(10% Flows) – 48 EVAP – 1st 50 years
Annual Generation (GWH)
(Thousands)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Creeks
Gorge
Haiwee to LA

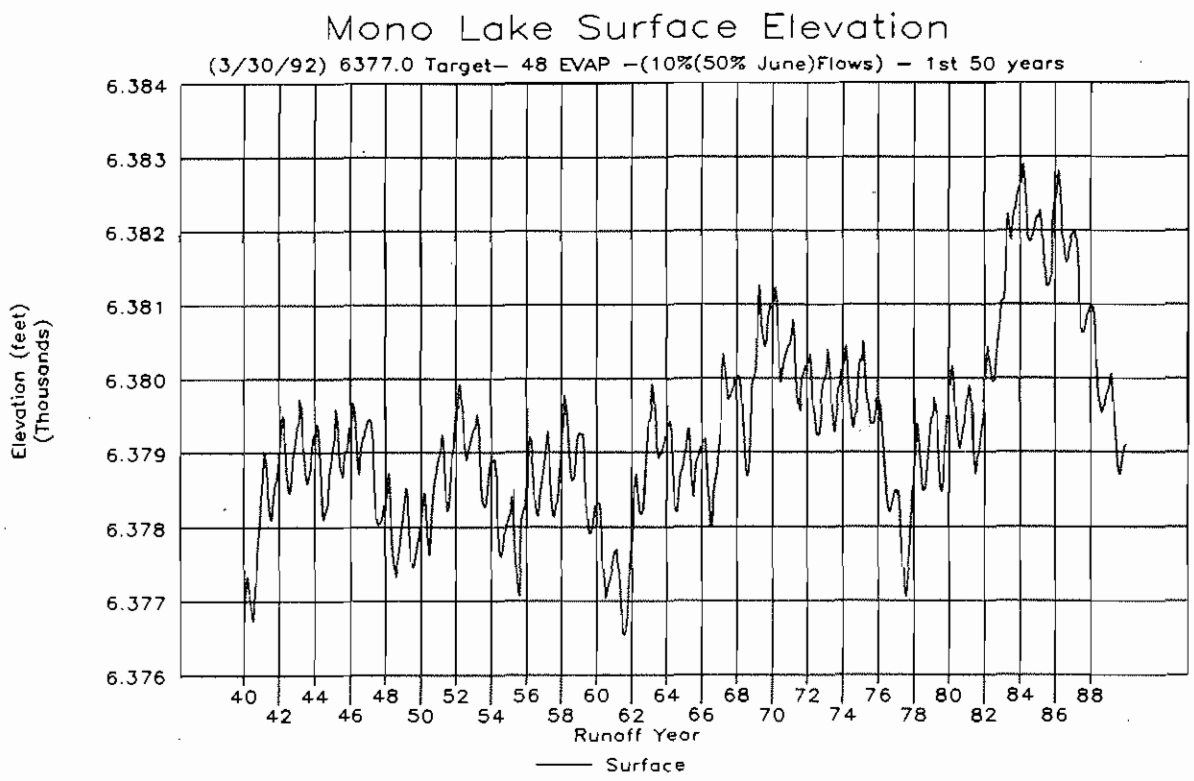

Owens Gorge Power Distribution
(3/30/92) 6372.0 Target(10% Flows) – 48 EVAP – 1st 50 years
Monthly Generation (GWH)
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
Month
Minimum
20%
40%
60%
80%
Maximum

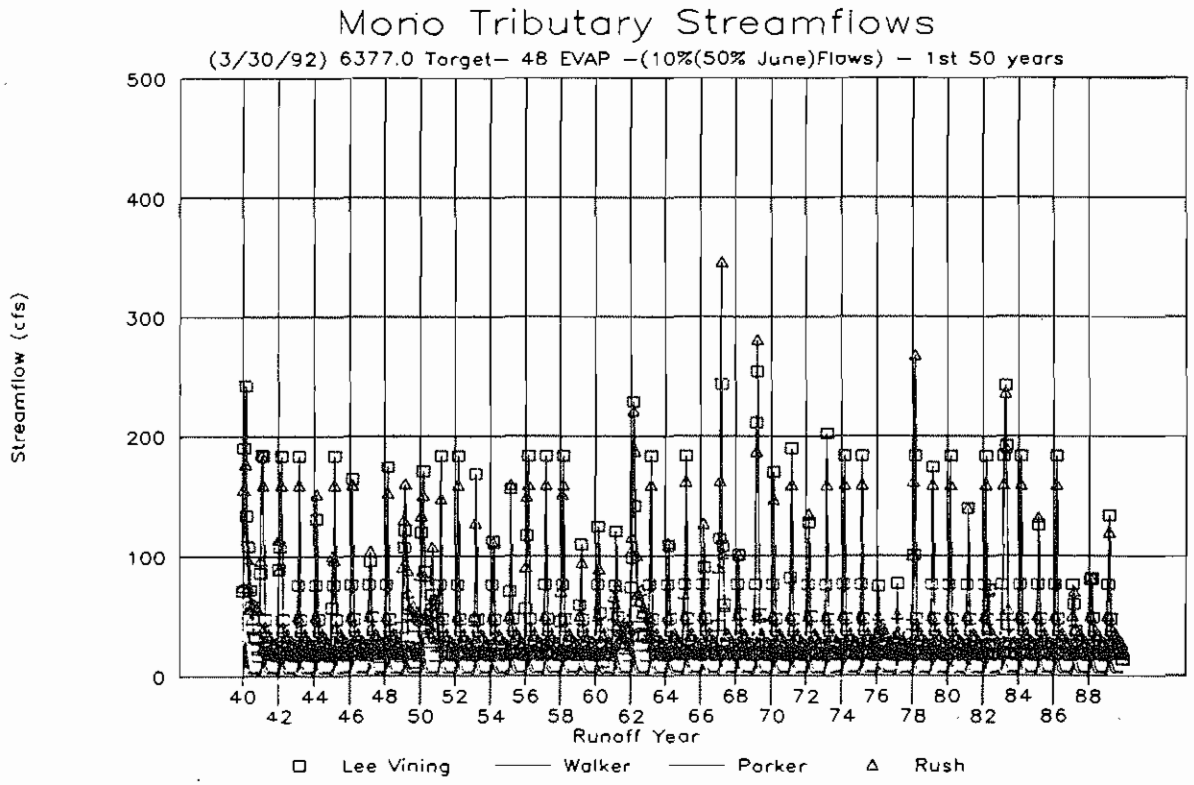

Haiwee to LA Power Distribution
(3/30/92) 6372.0 Target(10% Flows) – 48 EVAP – 1st 50 years
Monthly Generation (GWH)
100
90
80
70
60
50
40
30
20
10
0
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
Month
Minimum
20%
40%
60%
80%
Maximum

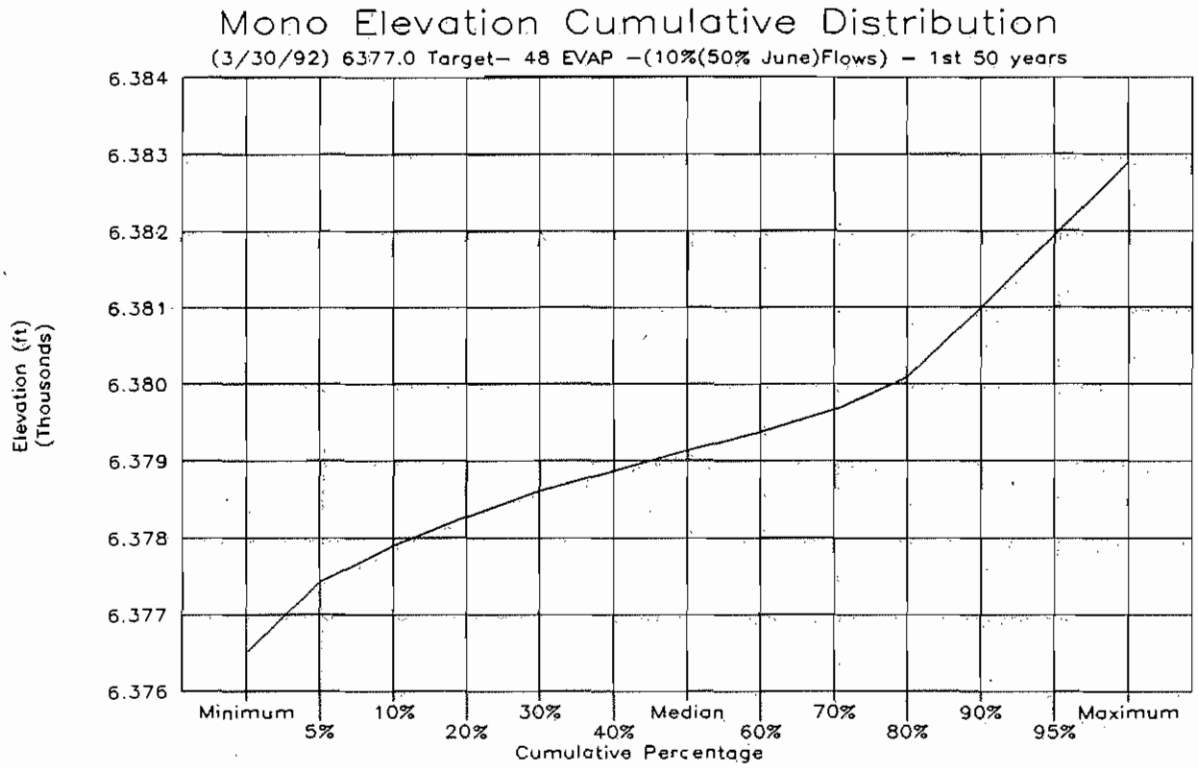
Section 5. 6,377-Ft Alternative

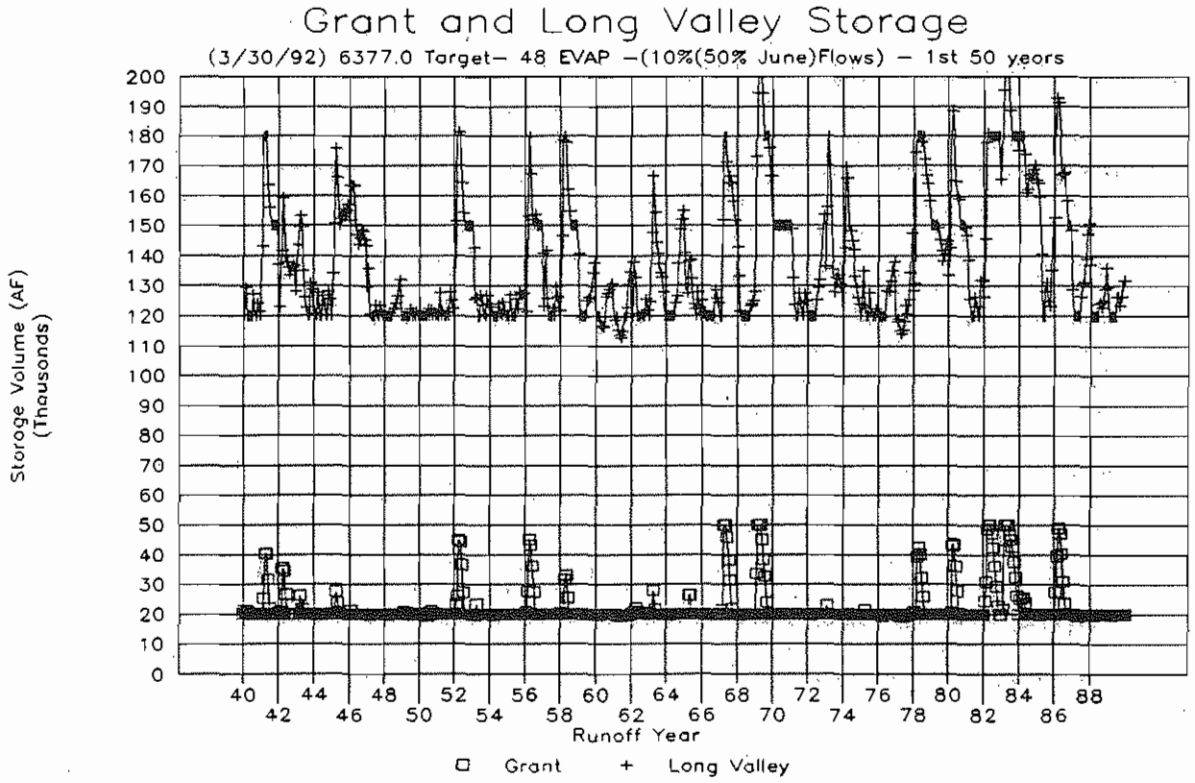
Summary of LAAMP Simulations
03/30/92
Mono EIR Alternatives
Initial Alternatives - 1st 50 years:
(3/30/92) 6377.0 Target- 48 EVAP -(10%(50% June)Flows) - 1st 50 years

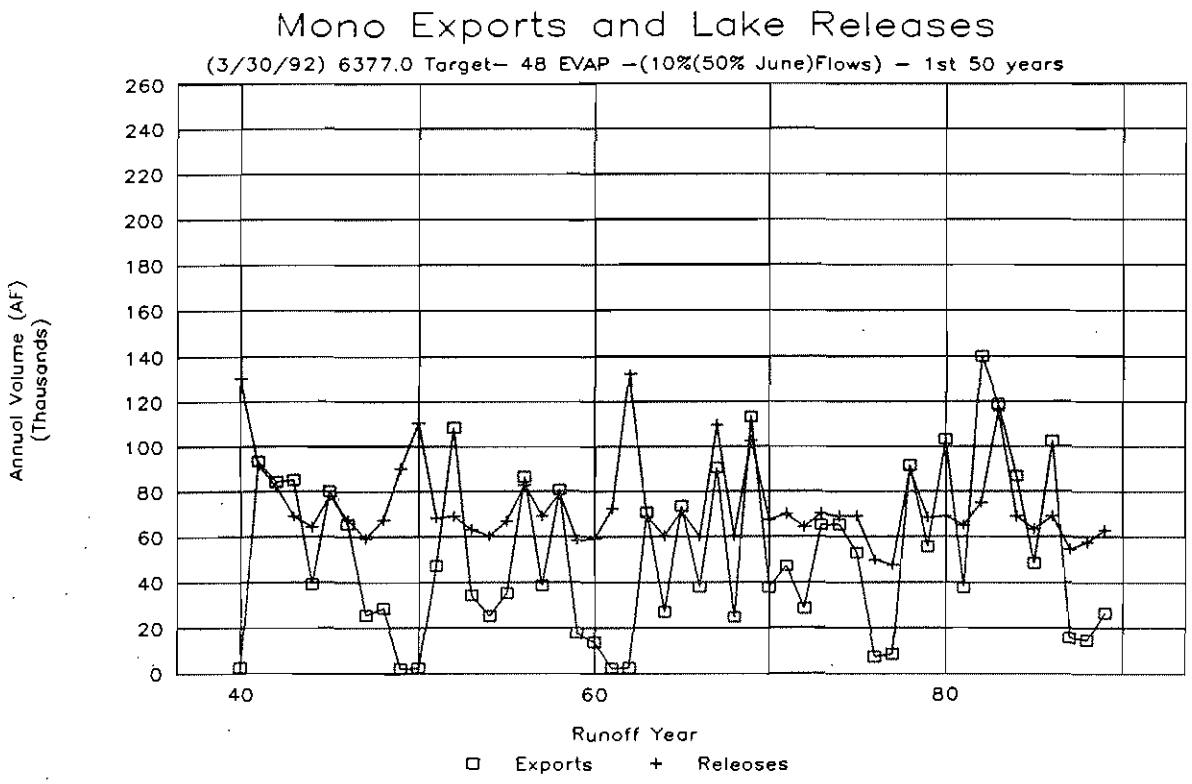
	Owens Available Export (AF)	Total Owens Uses (AF)	Haiwee Exports (AF)	Haiwee Target (AF)	Mono Lake Level (feet)	Grant Storage (AF)	Releases to Mono Lake (AF)	West Portal Exports (AF)	Long Valley Storage (AF)	Long Valley Outflow (AF)	Pleasant Valley Outflow (AF)	Tinemaha Inflow= Outflow (AF)	Total Owens Pumping (AF)	Total Owens Spreading (AF)	Aqueduct Spilling (AF)	Tinemaha Storage (AF)	Haiwee Storage (AF)
Starting:					6376.50	20095			120000							8000	8000
Minimum:	8357	1645	9484	16520	6376.5	19090	2475	0	112557	0	7500	8437	3070	0	0	0	0
Average:	31595	9025	34354	40060	6379.25	22190	6154	4316	137935	17310	22590	31414	9223	1305	1005	2218	1851
Maximum:	162922	21682	49600	49600	6382.89	50000	39250	15031	210142	42346	63391	107794	26264	37820	148645	10000	10000
(TAF/yr):	379.1	108.3	412.2	480.7			73.8	51.8		207.7	271.1	377.0	110.7	15.7	12.1		
71-89 Avg:	417.7	108.9	418.3	478.8			68.4	58.7		224.1	292.6	397.9	97.4	24.4	16.9		
71-89 Historical:			470					77.5					108.7				
Ending:					6379.10	20000			131849							0	0
Monthly:																	
April	31778	8454	43352	48000	6379.49	20036	5017	3343	131465	21674	25559	36774	14303	0	5	1631	1535
May	36273	15323	42514	49600	6379.56	20984	10000	5657	134906	16071	22794	33516	11669	1134	5	1580	1575
June	46321	19536	41310	48000	6379.79	21936	20841	3389	143451	16239	25143	35531	9564	3371	6182	1920	1948
July	44843	19397	39321	49600	6379.67	26528	8580	6764	144764	23360	31322	39516	13219	6876	3258	2360	2388
August	36728	16508	36852	49600	6379.29	26115	5383	6297	141008	21616	27060	34373	15001	2497	435	2622	2562
September	30891	11879	34166	48000	6379.00	24448	3924	4834	136759	19215	23258	31128	15236	686	0	2636	1939
October	26872	4697	27524	32073	6378.79	22730	3828	4496	136916	14727	19336	26666	8087	455	429	2756	2059
November	26010	3314	29830	31093	6378.77	21612	3581	4242	136714	15849	20590	28709	5589	309	469	2676	2044
December	25387	2913	30762	31971	6378.92	20909	3415	3687	135401	17146	19942	28854	5533	9	327	2400	1752
January	25310	2221	29468	31996	6379.08	20540	3458	2930	136783	13985	18937	28048	4458	152	351	2140	1400
February	23453	1749	26511	28861	6379.27	20311	3048	2459	138475	11878	16424	25145	3700	164	316	1987	1440
March	25277	2307	30639	31928	6379.43	20127	2768	3699	138574	15962	20712	28712	4310	10	283	1911	1565
Cumulative Distribution of			Minimum	5%	10%	20%	30%	40%	Median	60%	70%	80%	90%	95%	Maximum		
Mono Lake Monthly Elevations			6376.5	6377.42	6377.9	6378.27	6378.6	6378.87	6379.13	6379.38	6379.66	6380.08	6380.99	6381.94	6382.89		
Annual:																	
Minimum:	158630	88407	206170	400180			47405	1945		81795	117564	172067	39457	0	0		
Average:	379141	108298	412249	480723			73843	51795		207721	271076	376972	110670	15662	12059		
Maximum:	932222	121300	581248	581248			132278	140047		410942	525986	700960	195688	160301	237353		

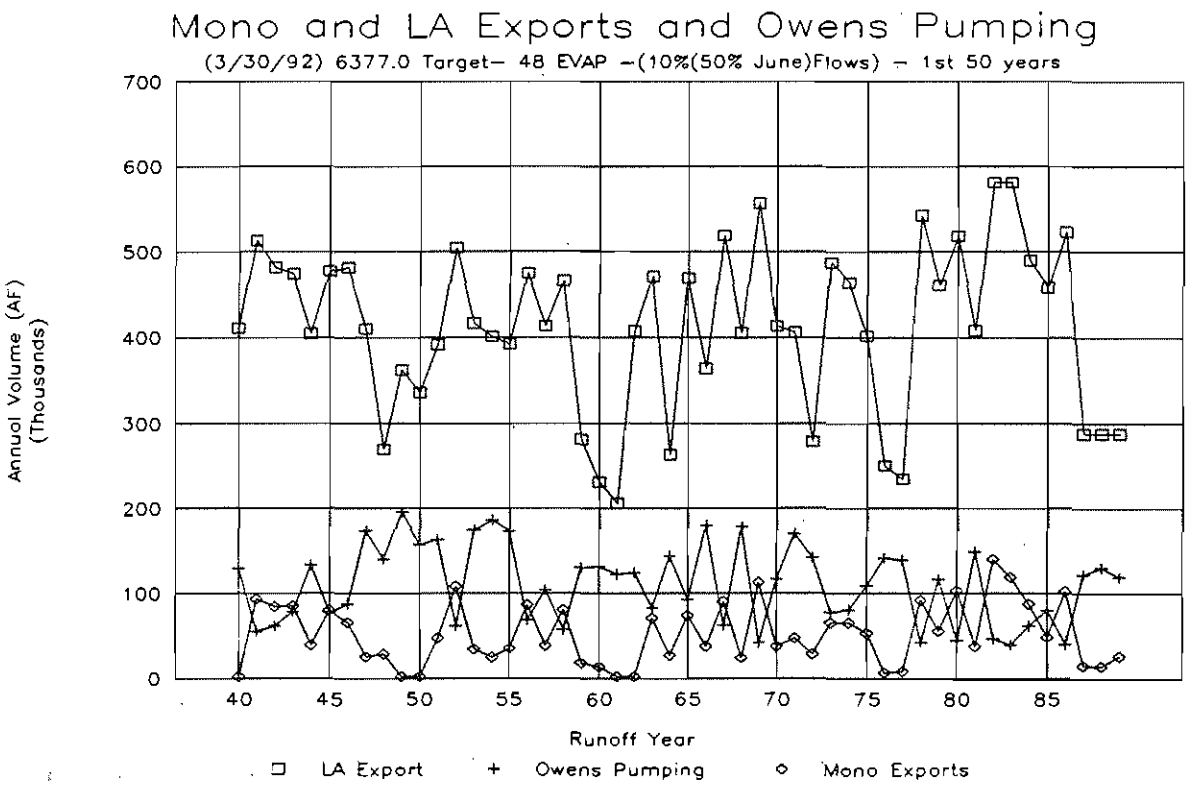

Mono Lake Surface Elevation
(3/30/92) 6377.0 Target– 48 EVAP –(10%(50% June)Flows) – 1st 50 years
Elevation (feet)
(Thousands)
6.384
6.383
6.382
6.381
6.380
6.379
6.378
6.377
6.376
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Surface

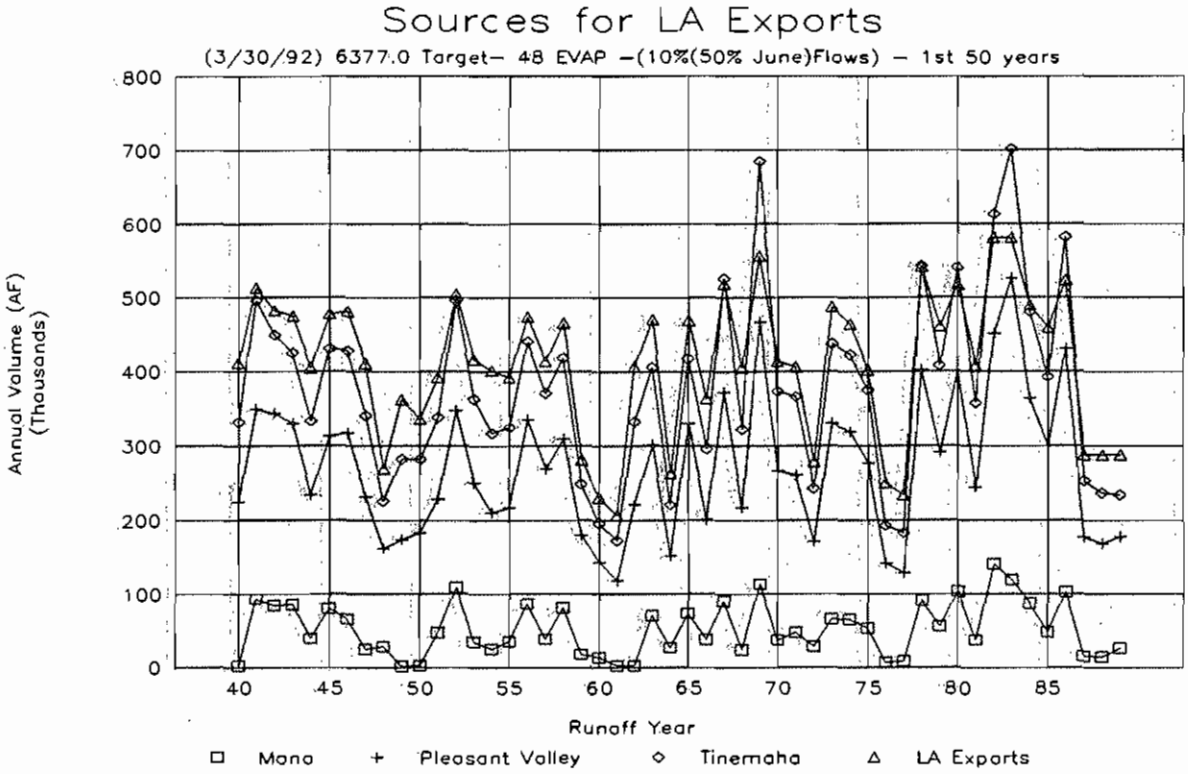

Mono Tributary Streamflows
(3/30/92) 6377.0 Target– 48 EVAP –(10%(50% June)Flows) – 1st 50 years
Streamflow (cfs)
500
400
300
200
100
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Lee Vining
Walker
Parker
Rush

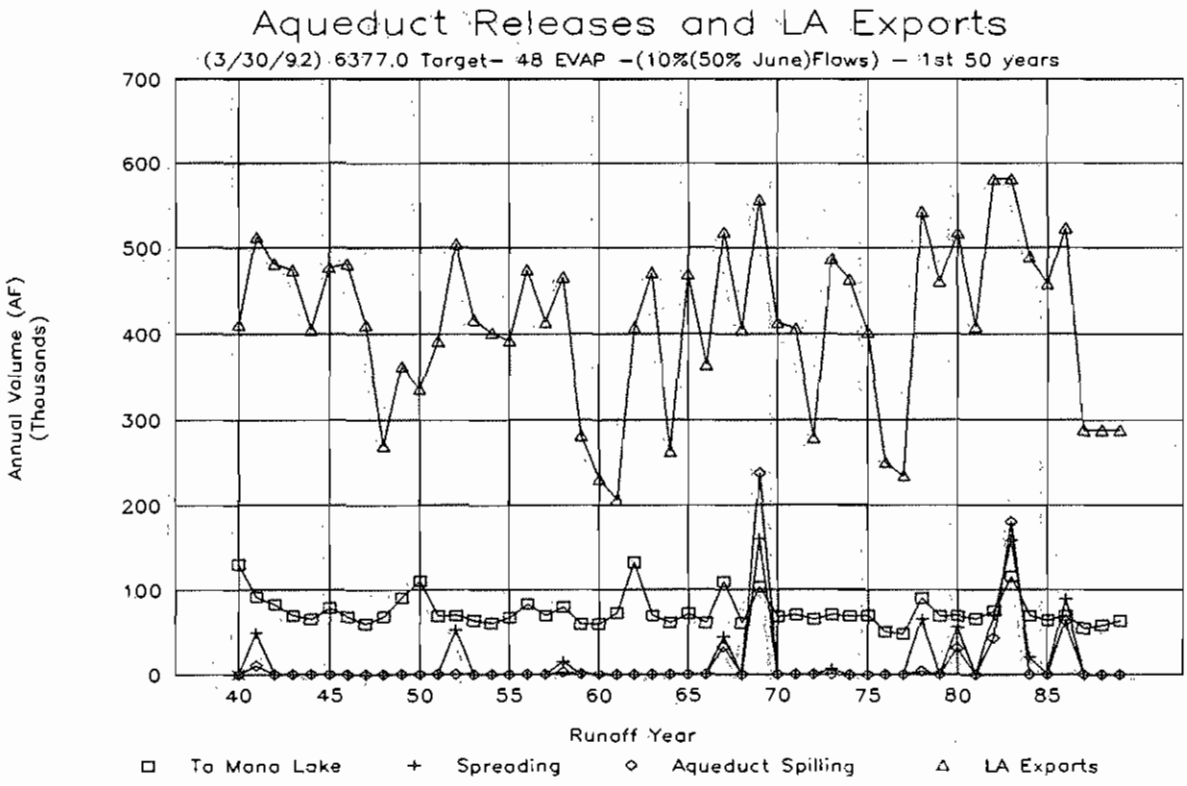

Mono Elevation Cumulative Distribution
(3/30/92) 6377.0 Target– 48 EVAP –(10%(50% June)Flows) – 1st 50 years
Elevation (ft)
(Thousands)
6.384
6.383
6.382
6.381
6.380
6.379
6.378
6.377
6.376
Minimum
5%
10%
20%
30%
40%
Median
60%
70%
80%
90%
95%
Maximum
Cumulative Percentage

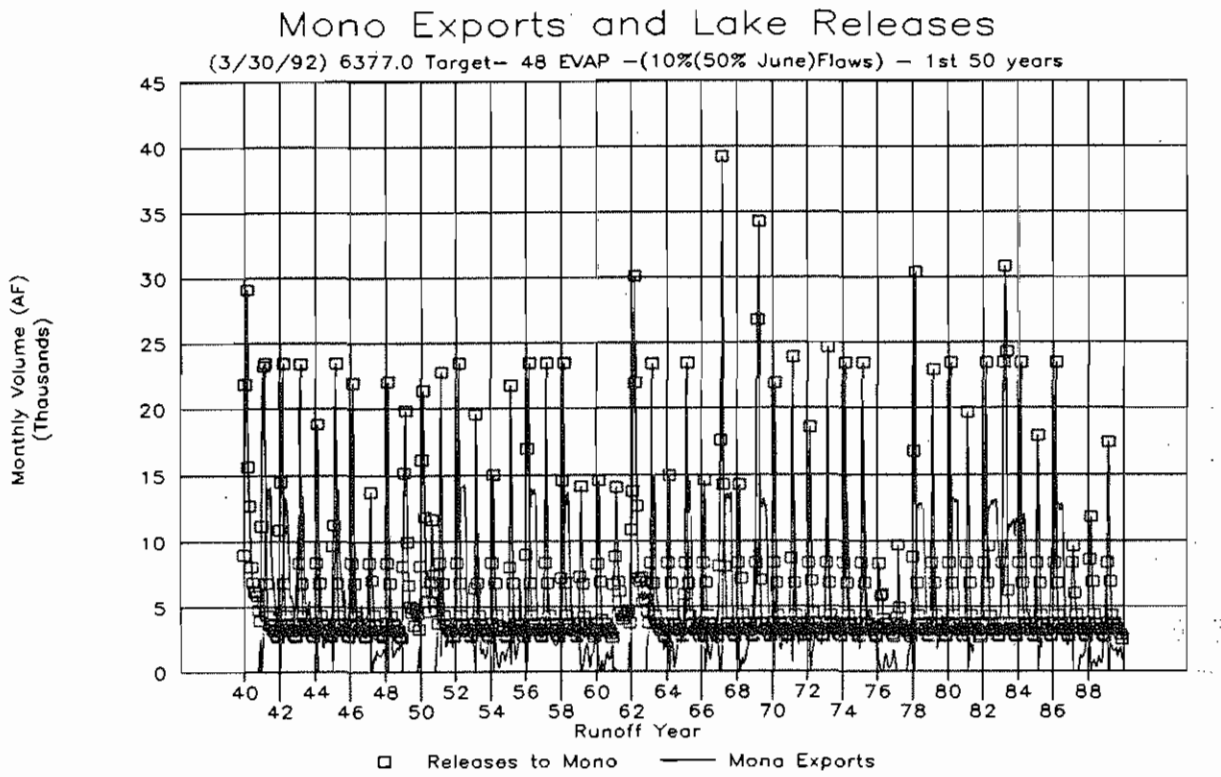

Grant and Long Valley Storage
(3/30/92) 6377.0 Target– 48 EVAP –(10%(50% June)Flows) – 1st 50 years
Storage Volume (AF)
(Thousands)
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
40
42
44
46
48
50
52
54
56
58
60
62
64
66
68
70
72
74
76
78
80
82
84
86
88
Runoff Year
Grant
Long Valley

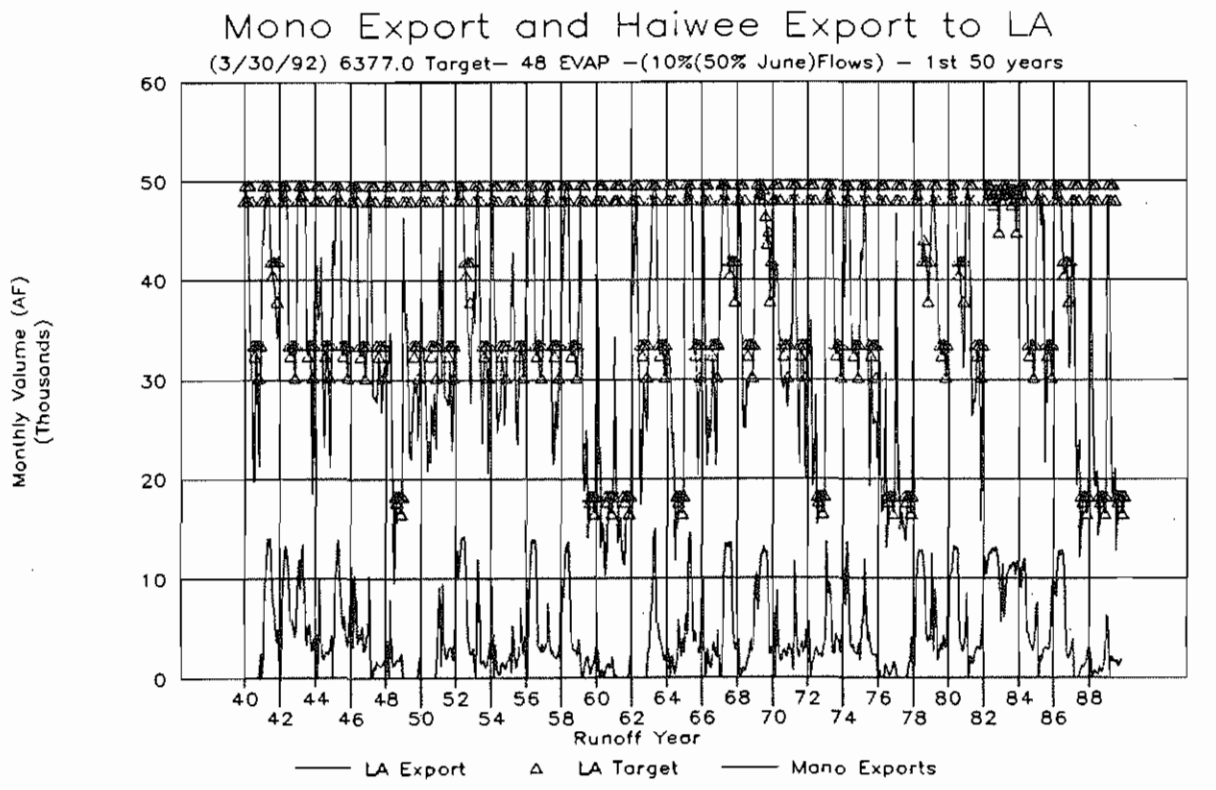

Mono Exports and Lake Releases
(3/30/92) 6377.0 Target- 48 EVAP -(10%(50% June)Flows) - 1st 50 years
Annual Volume (AF)
(Thousands)
260
240
220
200
180
160
140
120
100
80
60
40
20
0
40
60
80
Runoff Year
Exports
Releoses


Mono and LA Exports and Owens Pumping
(3/30/92) 6377.0 Target- 48 EVAP -(10%(50% June)Flows) - 1st 50 years
Annual Volume (AF)
(Thousands)
700
600
500
400
300
200
100
0
40
45
50
55
60
65
70
75
80
85
Runoff Year
LA Export
Owens Pumping
Mono Exports


Sources for LA Exports
(3/30/92) 6377.0 Target- 48 EVAP -(10%(50% June)Flows) - 1st 50 years
Annual Volume (AF)
(Thousands)
800
700
600
500
400
300
200
100
0
40
45
50
55
60
65
70
75
80
85
Runoff Year
Mono
Pleasant Valley
Tinemaha
LA Exports


Aqueduct Releases and LA Exports
(3/30/92) 6377.0 Target- 48 EVAP -(10%(50% June)Flows) - 1st 50 years
Annual Volume (AF)
(Thousands)
700
600
500
400
300
200
100
0
40
45
50
55
60
65
70
75
80
85
Runoff Year
To Mono Lake
Spreading
Aqueduct Spilling
LA Exports


Mono Exports and Lake Releases
(3/30/92) 6377.0 Target– 48 EVAP –(10%(50% June)Flows) – 1st 50 years
Monthly Volume (AF)
(Thousands)
45
40
35
30
25
20
15
10
5
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Releases to Mono
Mono Exports


Mono Export and Haiwee Export to LA
(3/30/92) 6377.0 Target– 48 EVAP –(10%(50% June)Flows) – 1st 50 years
Monthly Volume (AF)
(Thousands)
60
50
40
30
20
10
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
LA Export
LA Target
Mono Exports

Mono Lake Tributary Streamflows
03/30/92
Mono EIR Alternatives
Initial Alternatives - 1st 50 years:
(3/30/92) 6377.0 Target- 48 EVAP -(10%(50% June)Flows) - 1st 50 years

	Lee Vining Runoff (AF)	Lee Vining Min Flow (AF)	Lee Vining Lakeflow (AF)	Lee Vining Irrigate (AF)	Lee Vining Conduit (AF)	Lee Vining Spill (AF)	Walker Creek Runoff (AF)	Walker Creek Min Flow (AF)	Walker Creek Irrigate (AF)	Walker Creek Conduit (AF)	Walker Creek Spill (AF)	Parker Creek Runoff (AF)	Parker Creek Min Flow (AF)	Parker Creek Irrigate (AF)	Parker Creek Conduit (AF)	Parker Creek Spill (AF)
Minimum:	645	390	0	0	0	0	22	22	0	0	0	94	94	0	0	0
Average:	4107	2252	179	62	1493	121	450	223	0	227	0	760	475	0	285	0
Maximum:	20828	12025	7026	180	13223	14518	2722	1350	0	1969	0	4369	1967	0	3244	0
Total (TAF/yr):	49.3	27.0	2.2	0.7	17.9	1.4	5.4	2.7	0.0	2.7	0.0	9.1	5.7	0.0	3.4	0.0
Annual Values																
Minimum:	19852	18048	0	748	550	0	2410	1987	0	423	0	4690	4585	0	98	0
Average:	49287	27027	2151	748	17914	1447	5401	2681	0	2720	0	9126	5705	0	3421	0
Maximum:	92303	30630	31969	748	50704	29134	12132	2967	0	9227	0	16759	5991	0	10833	0

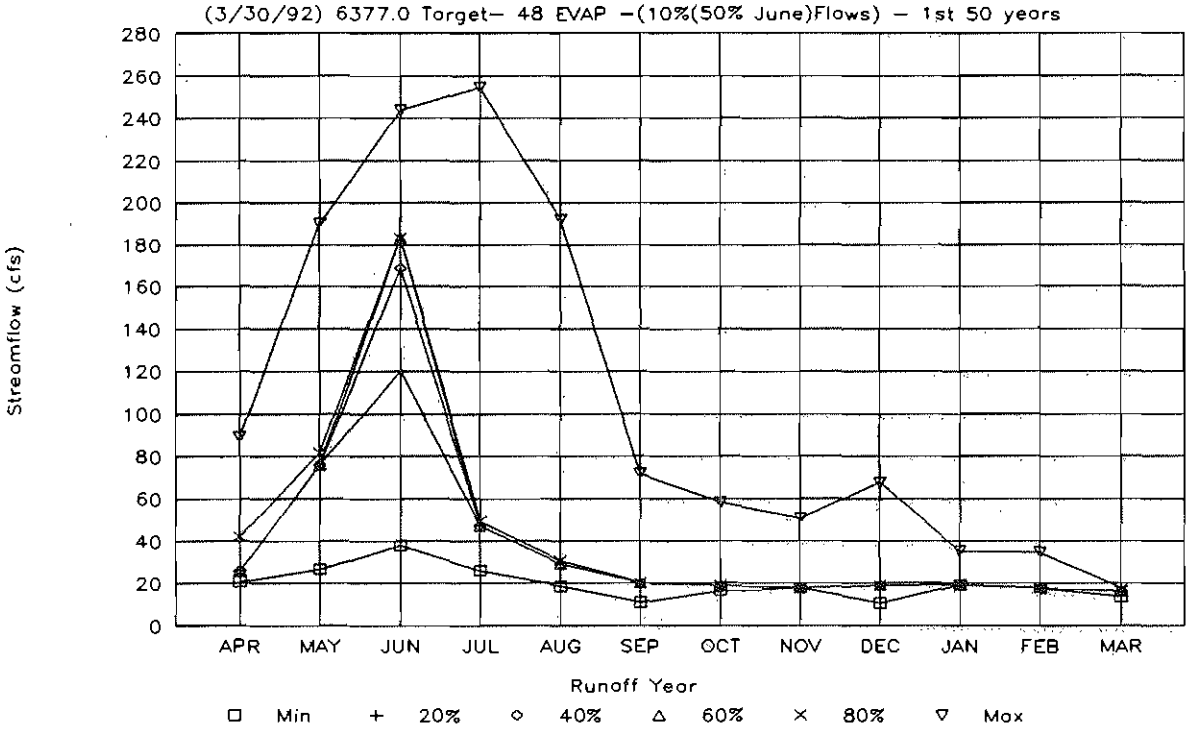
	Rush Creek Runoff (AF)	Conduit Inflow to Grant (AF)	Mono Basin Gains (AF)	Mono Gate #1 Min Flow (AF)	Rush Creek Lakeflow (AF)	Grant Storage Lakeflow (AF)	Rush Creek Storage (AF)	Grant Evap - Rain (AF)	West Portal Export (AF)	Grant Storage Spill (AF)	Lee Vining Flow (cfs)	Walker Flow (cfs)	Parker Flow (cfs)	Rush Flow (cfs)
Minimum:	1264	0	-127	1304	0	0	19090	-641	0	0	10.5	0.4	1.7	21.2
Average:	4973	2005	422	2455	345	19	22190	181	4316	83	42.3	3.7	7.9	47.9
Maximum:	29989	17546	868	9467	11072	1783	50000	631	15031	14755	254.5	22.7	33.1	345.8
Total (TAF/yr):	59.7	24.1	5.1	29.5	4.1	0.2		2.2	51.8	1.0				
Annual Values														
Minimum:	24610	1643	5060	22376	0	0		1396	1945	0	25.0	2.7	6.3	30.9
Average:	59681	24055	5060	29459	4145	234		2169	51795	992	42.4	3.7	7.9	46.5
Maximum:	117750	65085	5060	30755	37785	5357		3003	140047	23299	85.0	4.1	8.3	94.8

Mono Lake Tributary Streamflows Monthly Percentiles
03/30/92
Mono EIR Alternatives
Initial Alternatives - 1st 50 years:
(3/30/92) 6377.0 Target- 48 EVAP -(10%(50% June)Flows) - 1st 50 years

	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
Lee Vining Creek:												
0%	20.8	26.5	37.9	26.0	18.6	10.9	16.4	17.6	10.5	19.2	17.7	13.6
10%	25.9	74.9	95.4	47.2	29.0	19.9	18.8	17.7	19.0	19.2	17.7	16.2
20%	25.9	75.7	120.4	47.2	29.1	19.9	18.8	17.7	19.0	19.2	17.7	16.2
30%	25.9	75.7	131.0	47.2	29.1	19.9	18.8	17.7	19.0	19.2	17.7	16.2
40%	25.9	75.7	168.6	47.2	29.1	19.9	18.8	17.7	19.0	19.2	17.7	16.2
50%	25.9	75.7	183.3	47.2	29.1	19.9	18.8	17.7	19.0	19.2	17.7	16.2
60%	25.9	75.7	183.3	47.2	29.1	19.9	18.8	17.7	19.0	19.2	17.7	16.2
70%	25.9	75.7	183.3	47.2	29.1	19.9	18.8	17.7	19.0	19.2	17.7	16.2
80%	42.2	81.4	183.3	49.3	30.7	19.9	18.8	17.7	19.0	19.2	17.7	16.2
90%	56.8	114.1	202.4	107.9	59.4	30.8	18.8	19.5	19.0	23.1	21.3	16.2
100%	89.1	190.1	243.7	254.5	192.1	71.6	58.2	50.6	67.5	35.2	34.7	17.8
Walker Creek:												
0%	0.4	1.1	6.6	3.9	2.2	1.8	2.0	0.6	2.1	2.0	1.6	0.6
10%	1.1	2.5	10.5	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.2	2.1
20%	1.1	2.5	13.7	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.2	2.1
30%	1.1	2.5	14.4	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.2	2.1
40%	1.1	2.5	17.6	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.2	2.1
50%	1.1	2.5	20.7	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.2	2.1
60%	1.1	2.5	20.7	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.2	2.1
70%	1.1	2.5	20.7	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.2	2.1
80%	1.1	2.5	20.7	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.2	2.1
90%	1.1	2.5	20.7	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.3	2.1
100%	1.2	2.6	22.7	5.0	3.4	2.4	2.6	2.7	2.7	2.4	2.4	2.2
Parker Creek:												
0%	3.6	4.7	13.7	12.9	9.6	3.9	2.9	2.7	2.8	2.7	1.7	2.6
10%	4.2	7.4	21.3	18.3	11.0	5.7	3.8	3.1	3.3	3.2	3.0	3.3
20%	4.2	7.4	24.1	18.3	11.0	5.7	3.8	3.1	3.3	3.2	3.0	3.3
30%	4.2	7.4	27.1	18.3	11.0	5.7	3.8	3.1	3.3	3.2	3.0	3.3
40%	4.2	7.4	30.7	18.3	11.0	5.7	3.8	3.1	3.3	3.2	3.0	3.3
50%	4.2	7.4	31.9	18.3	11.0	5.7	3.8	3.1	3.3	3.2	3.0	3.3
60%	4.2	7.4	31.9	18.3	11.0	5.7	3.8	3.1	3.3	3.2	3.0	3.3
70%	4.2	7.4	31.9	18.3	11.0	5.7	3.8	3.1	3.3	3.2	3.0	3.3
80%	4.2	7.4	31.9	18.3	11.0	5.7	3.8	3.1	3.3	3.2	3.0	3.3
90%	4.2	7.4	31.9	18.3	11.0	5.7	3.9	3.1	3.4	3.3	3.0	3.4
100%	4.5	7.6	33.1	19.7	12.2	6.2	4.2	3.3	3.5	3.5	3.3	3.6
Rush Creek:												
0%	31.6	34.7	39.4	36.2	26.9	27.5	29.5	32.0	25.9	27.5	27.5	21.2
10%	31.6	50.0	89.1	40.7	26.9	33.5	34.9	32.7	25.9	27.5	27.5	21.2
20%	31.6	50.0	111.2	40.7	26.9	33.5	34.9	32.7	25.9	27.5	27.5	21.2
30%	31.6	50.0	134.8	40.7	26.9	33.5	34.9	32.7	25.9	27.5	27.5	21.2
40%	31.6	50.0	151.6	40.7	26.9	33.5	34.9	32.7	25.9	27.5	27.5	21.2
50%	31.6	50.0	159.4	40.7	26.9	33.5	34.9	32.7	25.9	27.5	27.5	21.2
60%	31.6	50.0	159.4	40.7	26.9	33.5	34.9	32.7	25.9	27.5	27.5	21.2
70%	31.6	50.0	159.4	40.7	26.9	33.5	34.9	32.7	25.9	27.5	27.5	21.2
80%	74.5	114.3	159.4	40.7	26.9	33.5	34.9	32.7	25.9	27.5	27.5	21.2
90%	90.7	151.5	176.9	98.1	69.4	52.5	34.9	39.3	40.8	40.4	46.9	31.0
100%	104.0	184.3	345.8	281.0	189.9	67.9	62.3	71.2	107.6	64.2	64.1	53.0

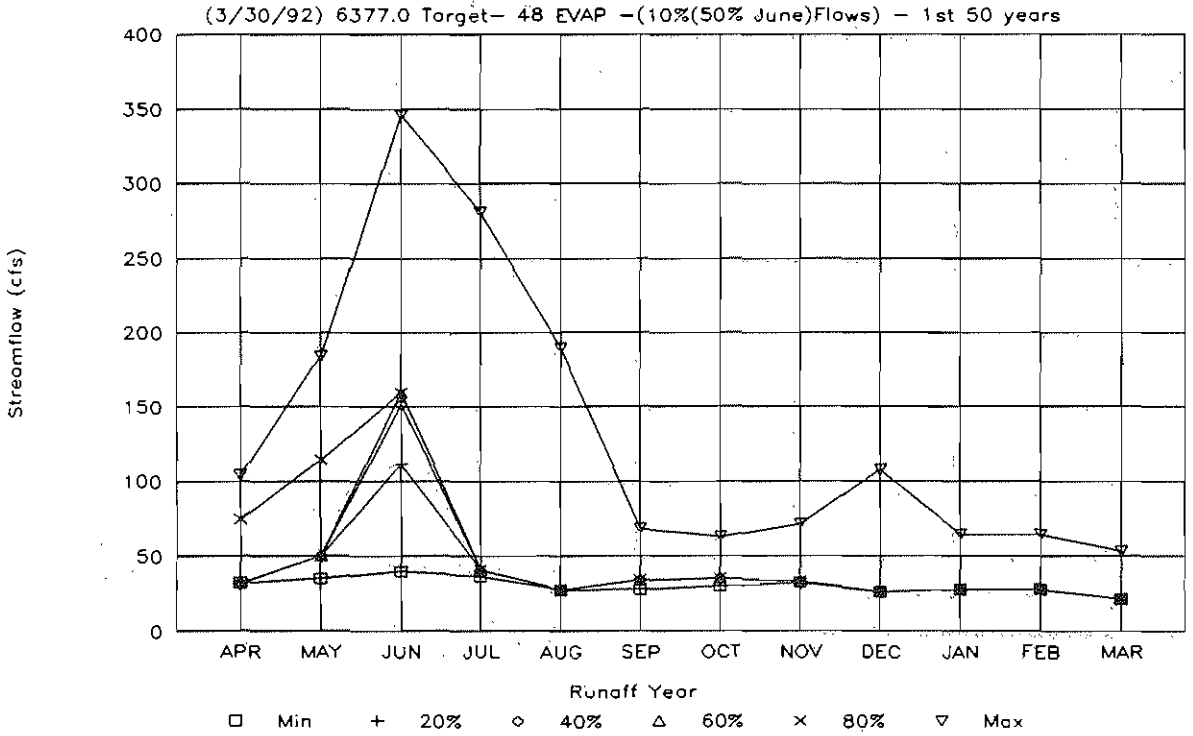
Lee Vining Streamflow Distribution

(3/30/92) 6377.0 Target– 48 EVAP –(10%(50% June)Flows) – 1st 50 years



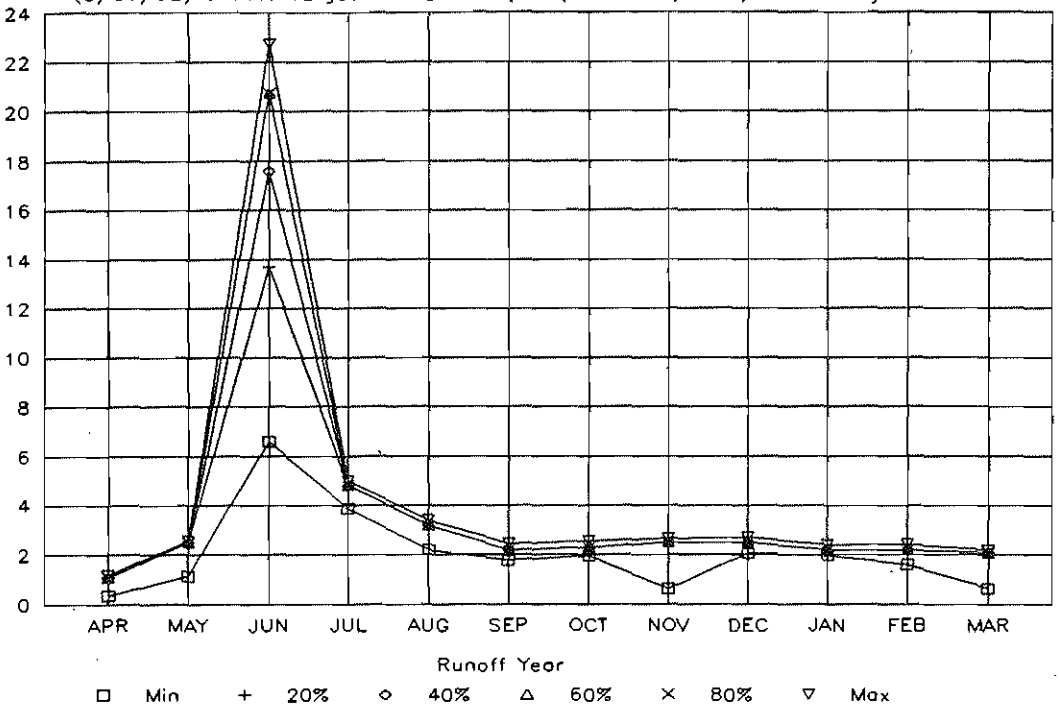
Rush Creek Streamflow Distribution

(3/30/92) 6377.0 Target– 48 EVAP –(10%(50% June)Flows) – 1st 50 years



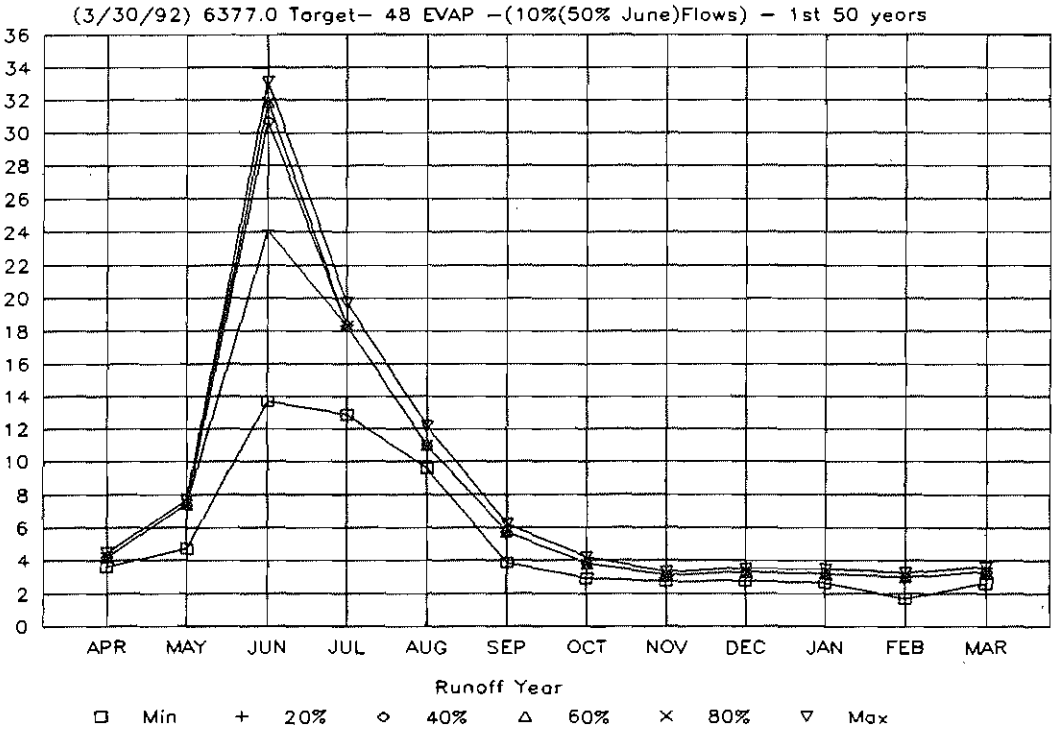
Walker Creek Streamflow Distribution

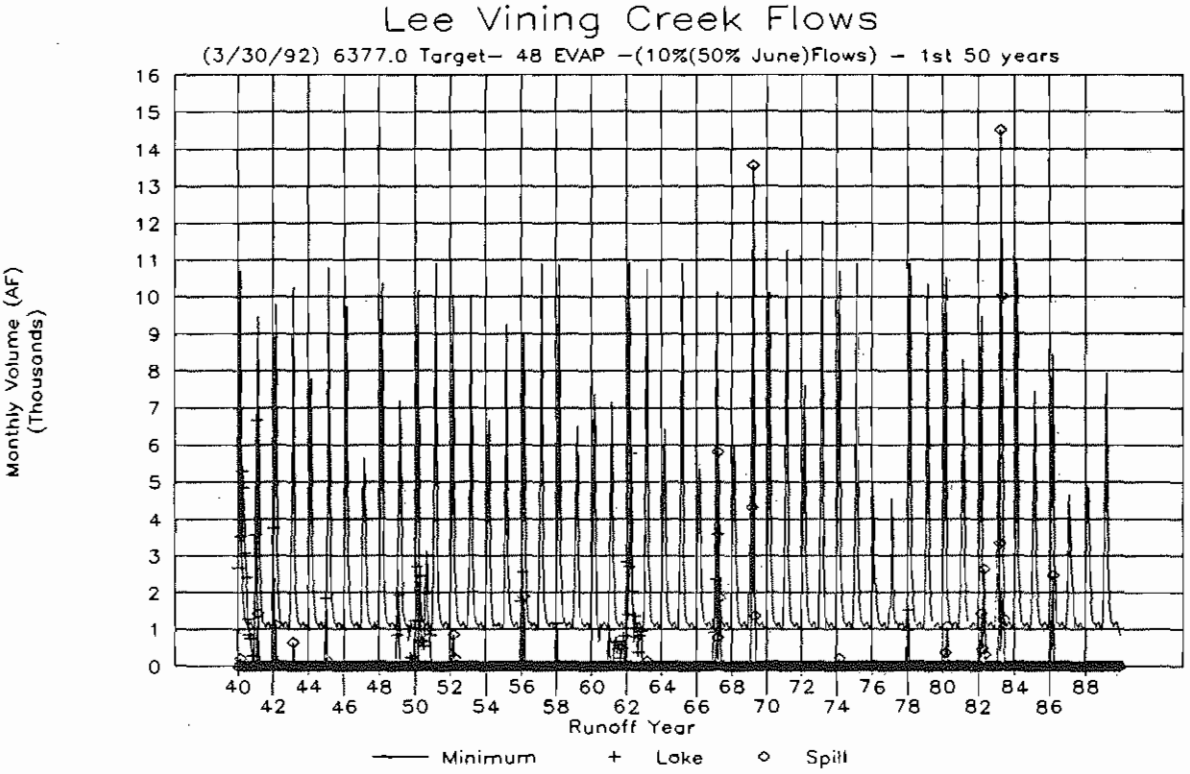
(3/30/92) 6377.0 Target– 48 EVAP –(10%(50% June)Flows) – 1st 50 years

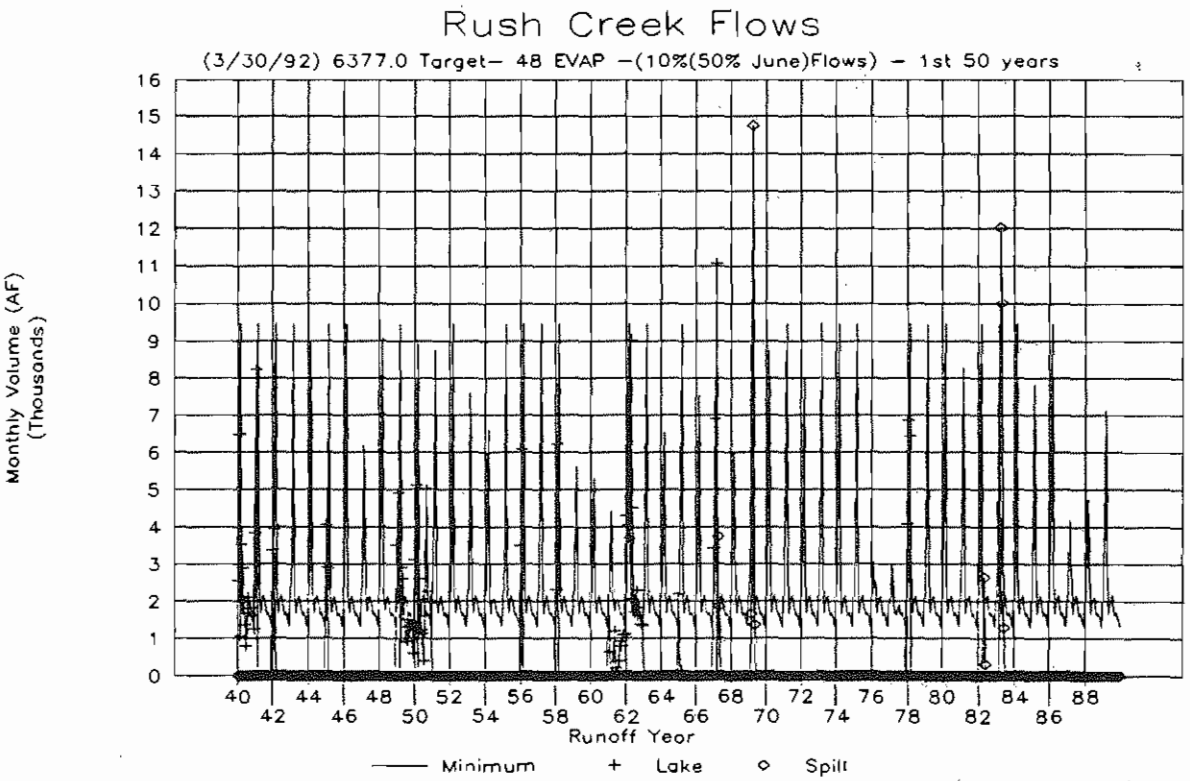


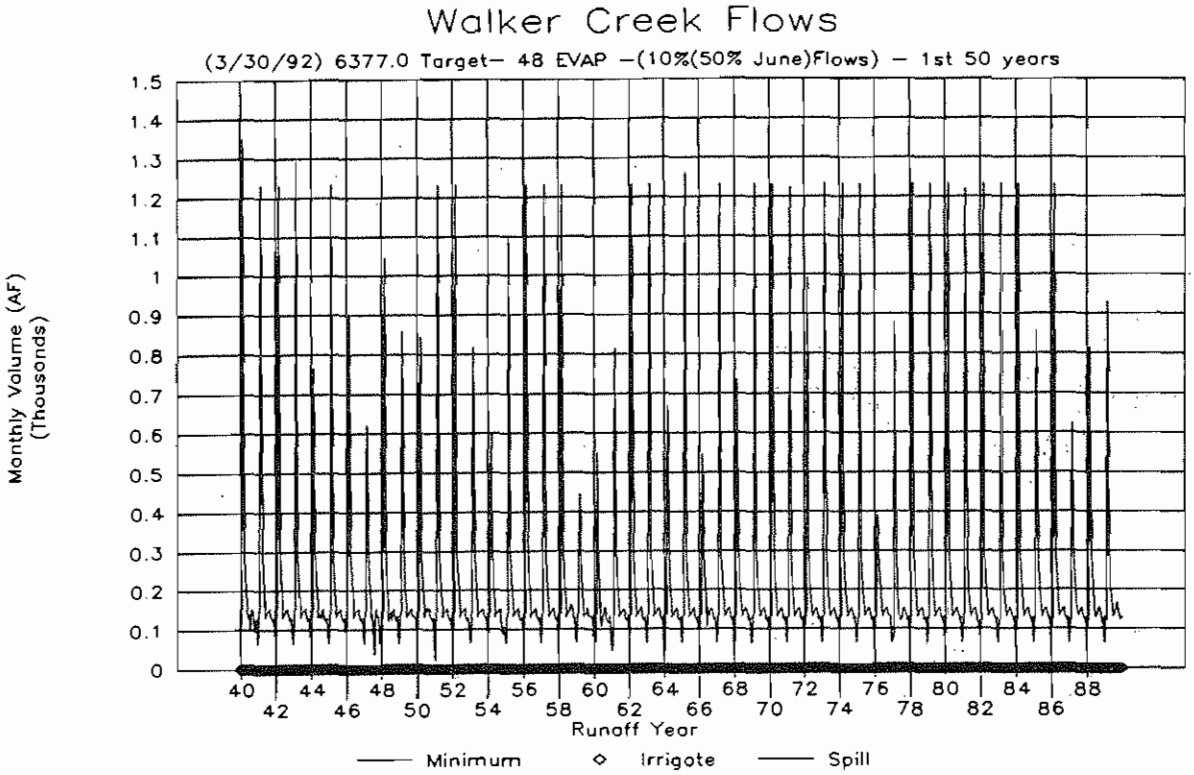
Parker Creek Streamflow Distribution

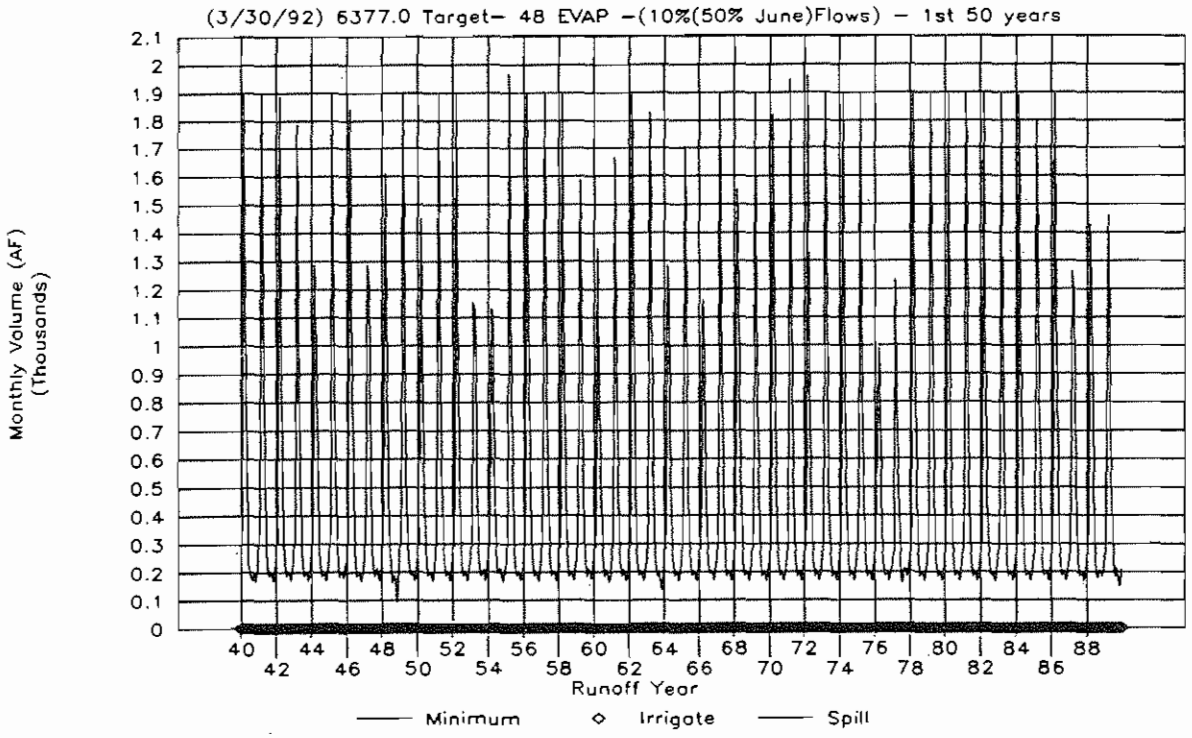
(3/30/92) 6377.0 Target– 48 EVAP –(10%(50% June)Flows) – 1st 50 yeors




Lee Vining Creek Flows
(3/30/92) 6377.0 Target- 48 EVAP -(10%(50% June)Flows) - 1st 50 years
Monthly Volume (AF)
(Thousands)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Minimum
Lake
Spill

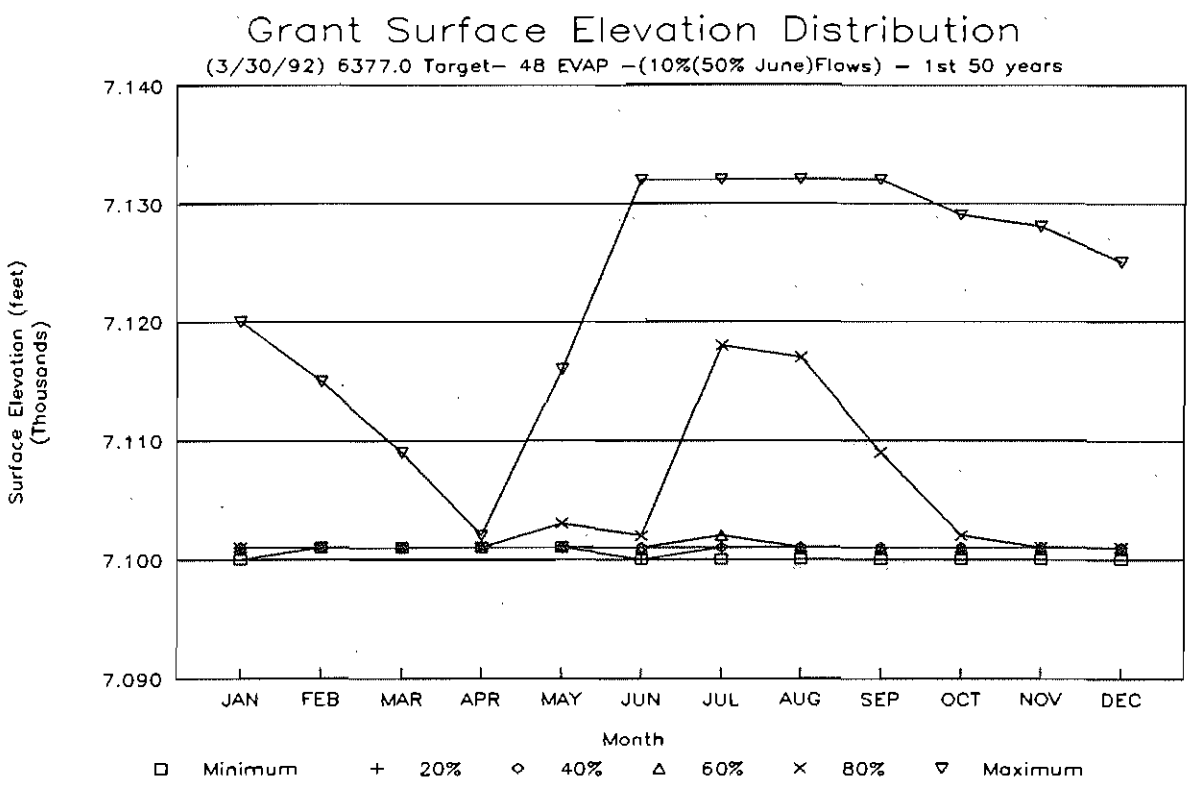

Rush Creek Flows
(3/30/92) 6377.0 Target- 48 EVAP -(10%(50% June)Flows) - 1st 50 years
Monthly Volume (AF)
(Thousands)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Minimum
Lake
Spill

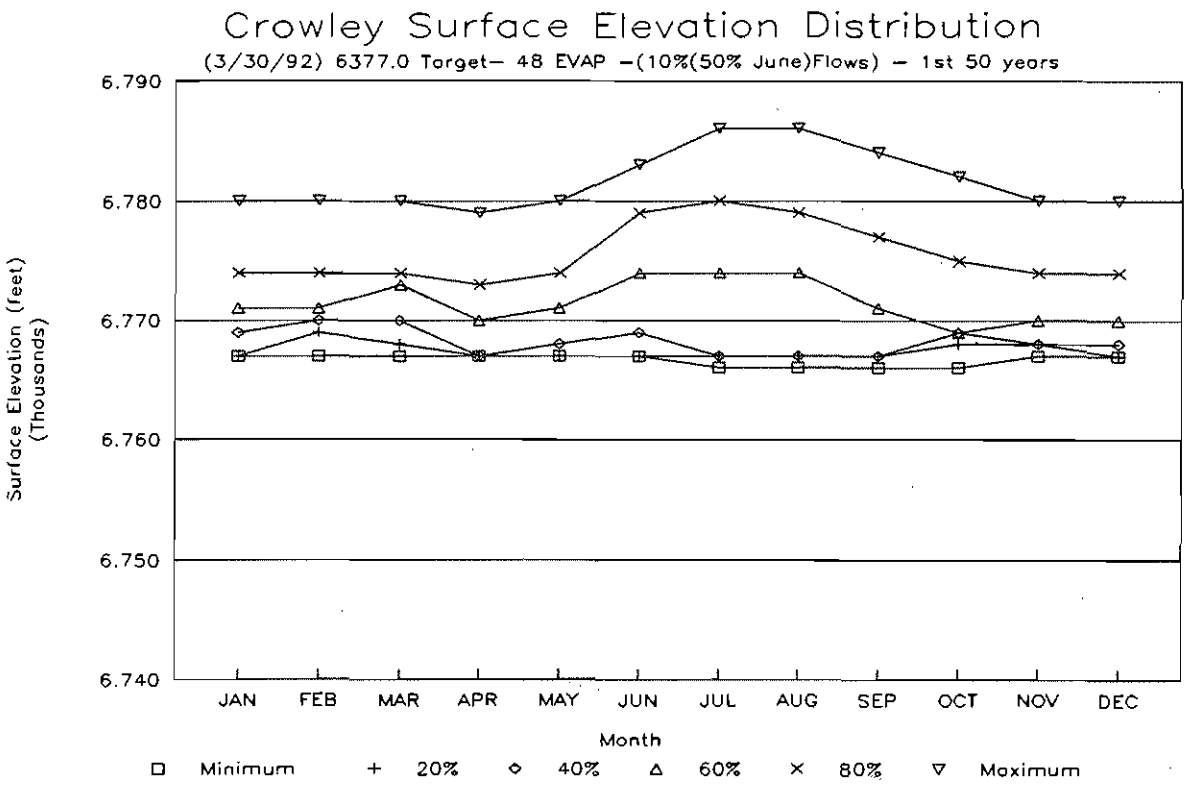

Walker Creek Flows
(3/30/92) 6377.0 Target- 48 EVAP -(10%(50% June)Flows) - 1st 50 years
Monthly Volume (AF)
(Thousands)
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Minimum
Irrigate
Spill


Parker Creek Flows
(3/30/92) 6377.0 Target- 48 EVAP -(10%(50% June)Flows) - 1st 50 years
Monthly Volume (AF)
(Thousands)
2.1
2
1.9
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Minimum
Irrigate
Spill

Monthly Distribution of Lake Elevations
03/30/92
Mono EIR Alternatives
Initial Alternatives - 1st 50 years:
(3/30/92) 6377.0 Target- 48 EVAP -(10%(50% June)Flows) - 1st 50 years

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Grant Lake:												
Minimum	7100	7101	7101	7101	7101	7100	7100	7100	7100	7100	7100	7100
10%	7101	7101	7101	7101	7101	7100	7101	7101	7101	7101	7101	7101
20%	7101	7101	7101	7101	7101	7100	7101	7101	7101	7101	7101	7101
30%	7101	7101	7101	7101	7101	7100	7101	7101	7101	7101	7101	7101
40%	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101
50%	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101
60%	7101	7101	7101	7101	7101	7101	7102	7101	7101	7101	7101	7101
70%	7101	7101	7101	7101	7101	7101	7109	7103	7101	7101	7101	7101
80%	7101	7101	7101	7101	7103	7102	7118	7117	7109	7102	7101	7101
90%	7101	7101	7101	7101	7105	7108	7128	7127	7123	7114	7105	7101
Maximum	7120	7115	7109	7102	7116	7132	7132	7132	7132	7129	7128	7125
Lake Crowley:												
Minimum	6767	6767	6767	6767	6767	6767	6766	6766	6766	6766	6767	6767
10%	6767	6768	6767	6767	6767	6767	6767	6767	6767	6767	6767	6767
20%	6767	6769	6768	6767	6767	6767	6767	6767	6767	6768	6768	6767
30%	6769	6769	6769	6767	6767	6767	6767	6767	6767	6768	6768	6768
40%	6769	6770	6770	6767	6768	6769	6767	6767	6767	6769	6768	6768
50%	6770	6770	6771	6769	6768	6770	6769	6767	6767	6769	6769	6769
60%	6771	6771	6773	6770	6771	6774	6774	6774	6771	6769	6770	6770
70%	6774	6774	6774	6771	6773	6775	6778	6774	6774	6773	6773	6772
80%	6774	6774	6774	6773	6774	6779	6780	6779	6777	6775	6774	6774
90%	6776	6775	6776	6774	6777	6780	6781	6780	6778	6777	6778	6777
Maximum	6780	6780	6780	6779	6780	6783	6786	6786	6784	6782	6780	6780


Grant Surface Elevation Distribution
(3/30/92) 6377.0 Target- 48 EVAP -(10%(50% June)Flows) - 1st 50 years
Surface Elevation (feet)
(Thousands)
7.140
7.130
7.120
7.110
7.100
7.090
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
Month
Minimum
20%
40%
60%
80%
Maximum

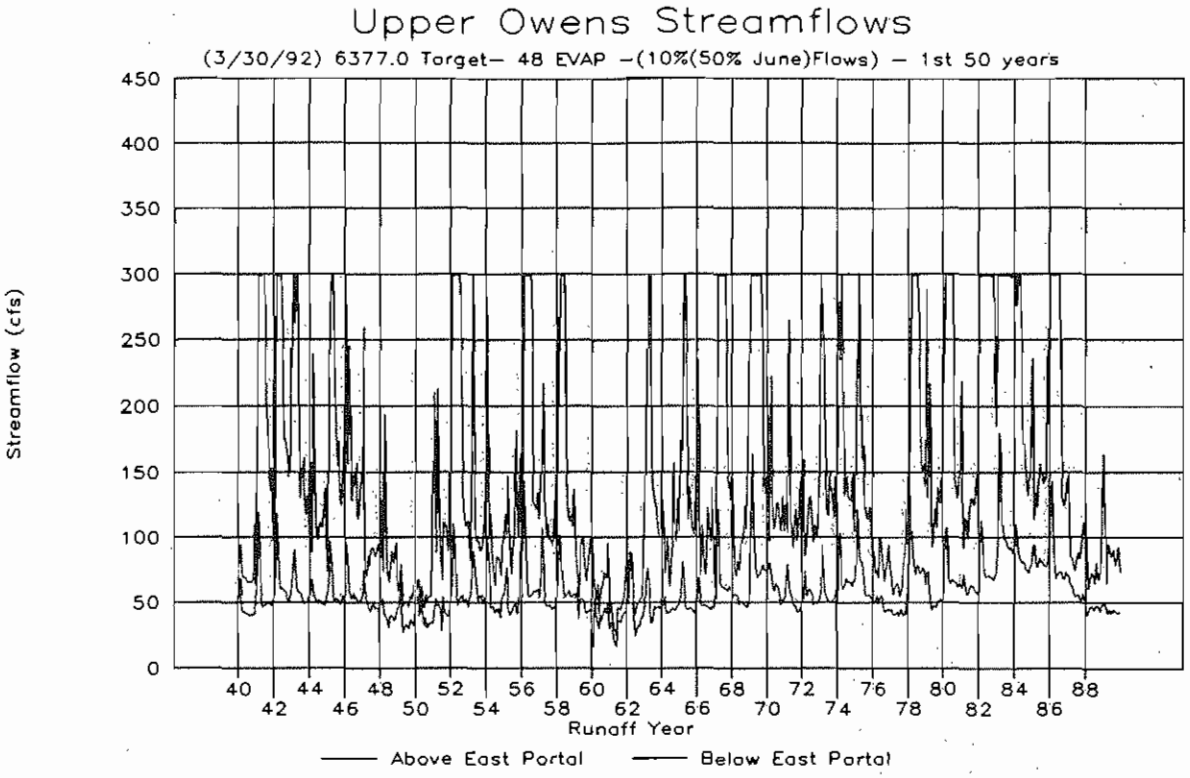

Crowley Surface Elevation Distribution
(3/30/92) 6377.0 Target- 48 EVAP -(10%(50% June)Flows) - 1st 50 years
Surface Elevation (feet)
(Thousands)
6.790
6.780
6.770
6.760
6.750
6.740
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
Month
Minimum
20%
40%
60%
80%
Maximum

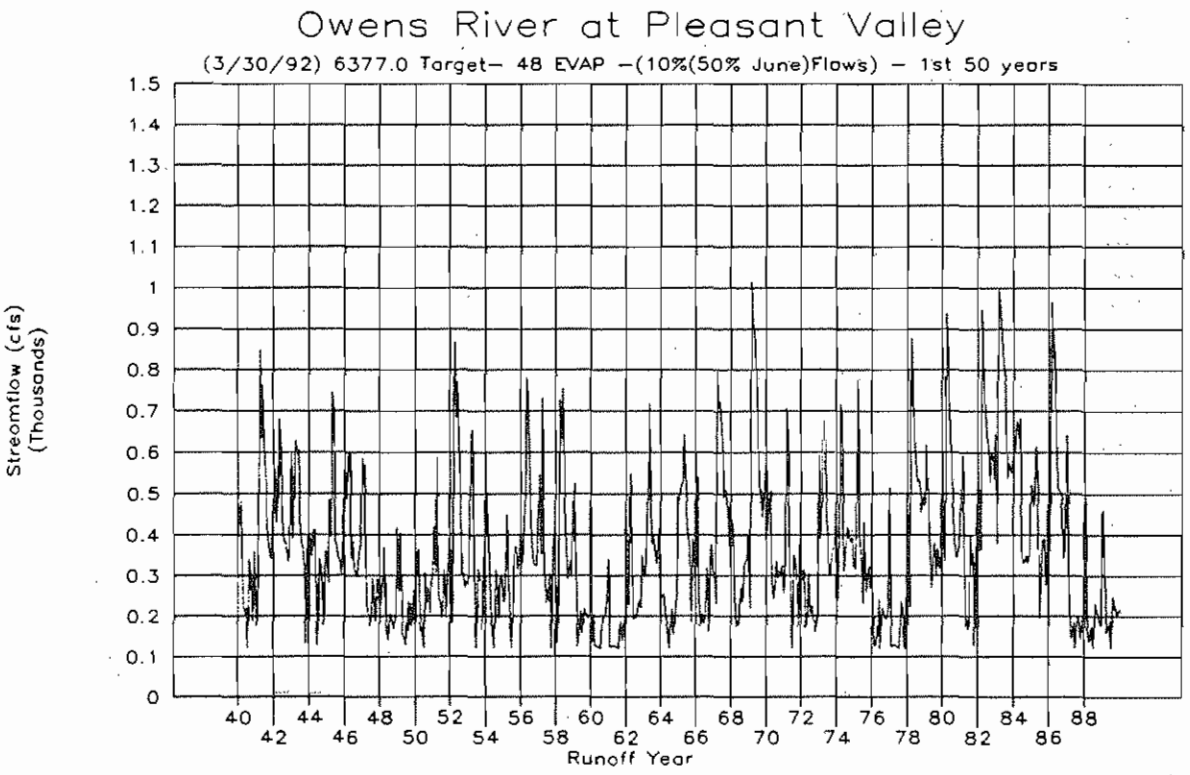
Owens River Streamflows - Monthly Cumulative Percentiles
03/30/92
Mono EIR Alternatives
Initial Alternatives - 1st 50 years:
(3/30/92) 6377.0 Target- 48 EVAP -(10%(50% June)Flows) - 1st 50 years

	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
Owens above East Portal:												
0%	28	17	35	23	19	17	25	31	30	32	34	32
10%	41	47	53	40	40	39	36	39	40	39	40	41
20%	46	50	56	46	46	43	42	45	44	43	42	44
30%	47	56	63	52	49	45	44	47	46	45	44	45
40%	50	64	73	55	51	47	48	48	48	46	46	48
50%	52	66	79	62	54	53	51	51	49	50	49	50
60%	54	72	90	69	56	54	55	54	52	50	50	53
70%	62	79	103	77	60	59	58	56	58	54	54	56
80%	65	84	110	89	68	64	67	63	62	60	61	63
90%	72	98	126	102	79	70	72	73	72	72	72	75
100%	94	123	180	159	117	101	98	97	92	90	92	95
Owens below East Portal:												
0%	39	51	45	32	28	25	41	45	44	50	52	73
10%	64	64	67	61	64	62	62	61	66	67	69	94
20%	76	92	73	75	82	73	67	80	78	81	88	99
30%	93	118	85	93	93	78	86	92	89	91	95	110
40%	104	134	91	147	119	99	97	103	111	107	101	117
50%	113	159	106	223	141	109	111	122	122	112	107	130
60%	136	207	167	299	201	132	131	138	130	124	117	134
70%	144	236	257	299	299	216	170	149	148	127	124	142
80%	172	288	285	299	299	299	299	202	173	140	130	149
90%	220	299	299	299	299	299	299	299	244	160	146	160
100%	297	299	299	299	299	299	299	299	299	299	297	299
Pleasant Valley Outflow:												
0%	223	125	122	125	124	125	118	119	163	118	127	119
10%	266	182	210	137	153	167	121	201	192	183	158	219
20%	296	247	237	195	174	180	122	224	219	194	176	259
30%	323	283	291	290	203	191	139	247	236	213	201	284
40%	395	312	345	450	245	231	194	310	293	271	269	327
50%	419	364	364	492	407	258	221	317	310	302	301	350
60%	479	399	408	593	596	332	362	375	328	324	323	359
70%	515	471	474	676	643	607	405	395	366	349	338	367
80%	562	499	530	779	709	722	521	431	386	372	362	377
90%	594	546	653	877	782	763	626	528	500	489	444	414
100%	645	618	1014	968	915	817	795	758	538	602	592	550
Owens at Horton Creek:												
0%	225	126	126	126	126	126	126	126	169	126	135	126
10%	268	197	216	139	154	169	126	207	199	190	167	225
20%	298	254	253	197	176	182	126	231	227	202	183	266
30%	325	293	319	295	206	194	144	253	244	221	208	291
40%	403	315	362	456	249	233	201	317	300	278	278	334
50%	424	380	388	515	412	261	227	326	318	310	309	357
60%	483	411	422	608	602	337	368	387	336	333	331	366
70%	518	476	490	688	655	611	411	403	373	359	346	374
80%	569	510	550	789	723	733	528	439	395	381	370	384
90%	598	551	670	908	793	770	635	537	508	497	454	420
100%	651	632	1065	1010	946	833	806	769	550	613	604	560

Owens River Streamflows - Monthly Cumulative Percentiles
03/30/92
Mono EIR Alternatives
Initial Alternatives - 1st 50 years:
(3/30/92) 6377.0 Target- 48 EVAP -(10%(50% June)Flows) - 1st 50 years

	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
Owens at Bishop Diversion:												
0%	225	106	126	126	126	126	126	126	169	126	135	126
10%	254	129	152	139	154	169	126	207	199	190	167	225
20%	298	241	215	197	176	182	126	231	227	202	183	266
30%	325	266	253	295	206	194	144	253	244	221	208	289
40%	393	293	313	423	236	227	201	315	296	278	268	330
50%	421	323	342	464	412	247	227	324	315	307	309	357
60%	463	373	398	554	537	324	353	375	335	329	331	362
70%	492	446	437	615	583	517	411	394	365	352	341	369
80%	531	476	505	687	622	638	512	438	395	373	370	384
90%	563	529	577	735	671	672	603	514	486	482	444	420
100%	649	587	872	814	753	722	686	658	521	531	507	550
Owens at Laws Diversion:												
0%	225	126	126	126	126	126	126	126	169	126	135	126
10%	268	189	206	139	154	169	126	207	199	190	167	225
20%	298	254	244	197	176	182	126	231	227	202	183	266
30%	325	277	284	295	206	194	144	253	244	221	208	289
40%	403	308	342	456	249	232	201	317	300	278	275	333
50%	424	341	367	504	412	259	227	324	315	307	309	357
60%	483	399	413	597	590	333	361	380	336	333	331	364
70%	515	476	477	658	633	583	411	399	369	356	345	373
80%	569	500	540	732	679	686	520	438	395	377	370	384
90%	590	547	615	797	712	738	620	523	494	491	451	420
100%	649	623	952	899	835	755	703	667	530	539	514	557
Owens at Laws Return:												
0%	284	132	134	159	159	155	129	131	200	133	143	136
10%	327	173	170	178	197	205	151	218	214	200	179	233
20%	362	279	240	237	217	221	180	237	250	211	195	272
30%	389	308	293	340	249	241	194	316	295	231	216	310
40%	440	323	322	442	294	272	229	330	320	305	277	346
50%	484	346	369	490	474	314	256	381	347	318	331	367
60%	491	381	404	555	542	374	356	386	367	341	347	374
70%	533	473	461	638	596	574	416	407	381	363	355	383
80%	548	506	509	687	628	645	514	445	406	383	378	393
90%	585	569	615	736	672	682	607	524	501	498	453	426
100%	669	604	879	818	759	743	694	670	536	545	520	564
Owens at Bishop Return:												
0%	339	198	123	164	168	204	186	194	254	257	221	255
10%	393	302	261	182	206	258	227	302	291	279	261	286
20%	438	351	298	224	242	286	253	314	296	288	271	340
30%	508	383	344	318	269	302	288	415	399	347	309	423
40%	545	419	380	443	306	332	329	449	417	412	390	442
50%	565	456	422	494	461	366	348	467	451	430	444	470
60%	591	488	431	563	540	436	447	484	466	448	459	478
70%	630	557	495	622	601	654	504	514	479	470	468	486
80%	661	584	560	665	648	712	596	565	508	496	486	494
90%	683	645	664	768	709	744	710	671	620	616	589	510
100%	741	687	1138	825	812	812	721	745	690	703	697	700


Upper Owens Streamflows
(3/30/92) 6377.0 Target- 48 EVAP -(10%(50% June)Flows) - 1st 50 years
Streamflow (cfs)
450
400
350
300
250
200
150
100
50
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Above East Portal
Below East Portal

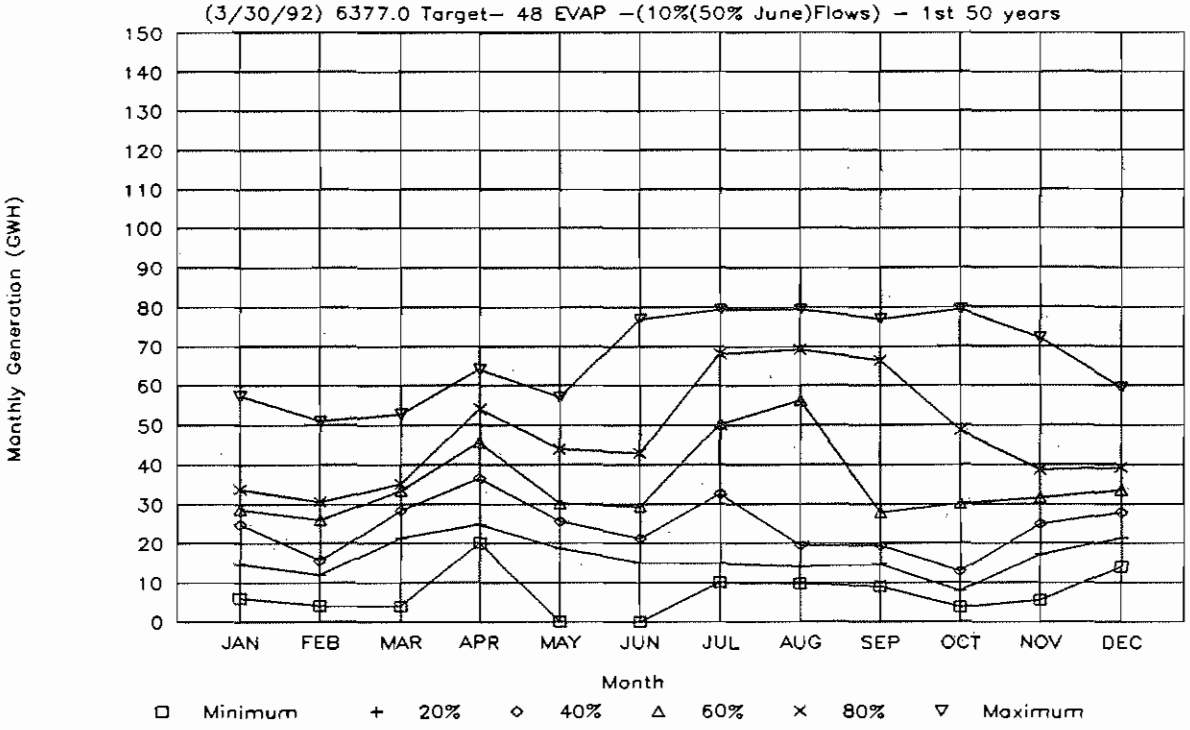

Owens River at Pleasant Valley
(3/30/92) 6377.0 Target- 48 EVAP -(10%(50% June)Flows) - 1st 50 years
Streomflow (cfs)
(Thousands)
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year

Cumulative Monthly Distribution of LADWP Aqueduct Power Generation
03/30/92
Mono EIR Alternatives
Initial Alternatives - 1st 50 years:
(3/30/92) 6377.0 Target- 48 EVAP -(10%(50% June)Flo Annual Average: 956.2 GWH/yr

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Gorge Power Plants:												
0%	6.0	4.1	4.0	20.1	0.0	0.0	10.1	9.7	9.1	3.7	5.5	14.1
10%	12.6	7.8	17.1	22.5	10.4	9.9	12.4	10.6	13.5	6.6	13.6	18.2
20%	14.8	12.0	21.4	24.8	18.6	15.0	14.9	14.1	14.7	8.0	17.2	21.5
30%	16.2	13.6	25.5	30.3	22.2	18.7	19.0	16.3	16.0	9.6	21.0	23.9
40%	24.7	15.6	28.3	36.4	25.5	21.3	32.5	19.5	19.5	12.9	25.0	27.8
50%	26.5	24.0	30.6	40.3	29.1	25.4	42.8	38.8	20.9	17.3	28.4	30.9
60%	28.5	26.0	33.4	45.7	30.1	29.4	50.4	56.1	27.9	30.1	31.5	33.5
70%	30.5	27.1	34.3	47.9	38.8	38.7	61.4	60.8	55.4	36.5	35.6	34.6
80%	33.7	30.5	35.1	54.1	43.8	42.9	68.1	69.1	66.4	48.6	38.6	39.3
90%	46.4	33.3	39.4	58.1	51.4	55.6	79.4	74.4	76.8	61.5	49.0	51.4
100%	57.3	50.9	52.8	64.2	57.0	76.8	79.4	79.4	76.8	79.4	72.0	59.4
Los Angeles Power Plants:												
0%	19.7	19.7	23.5	37.9	22.7	20.6	15.7	19.0	18.7	11.2	13.5	20.1
10%	22.6	20.7	23.5	42.1	39.0	32.2	23.1	23.8	24.4	14.7	21.8	22.9
20%	22.6	20.7	23.5	45.9	42.2	38.6	26.5	28.2	30.4	18.4	21.8	22.9
30%	31.4	26.1	38.8	48.4	46.4	43.8	38.9	31.7	33.1	27.0	34.4	36.1
40%	35.6	31.6	40.9	51.5	49.2	50.5	49.0	38.5	35.8	29.6	39.7	38.5
50%	37.6	37.7	41.7	55.4	53.2	57.0	58.0	46.1	38.1	34.4	39.7	41.2
60%	38.6	37.7	41.7	55.9	58.8	57.0	58.6	57.7	44.5	41.0	39.7	41.2
70%	40.9	37.7	41.7	57.2	58.8	57.0	58.6	58.6	57.3	41.0	39.7	41.2
80%	40.9	37.7	41.7	57.2	58.8	57.0	58.6	58.6	57.3	41.0	39.7	41.2
90%	50.1	42.1	44.4	57.2	58.8	57.0	58.6	58.6	57.3	50.2	48.7	50.4
100%	58.1	53.7	58.9	57.2	58.8	57.0	58.6	58.6	57.3	58.3	56.4	58.4
Owens Valley Power Plants:												
0%	2.9	2.8	3.2	4.6	3.8	4.4	3.9	4.1	3.3	2.3	2.4	3.1
10%	3.2	3.0	3.4	4.8	5.7	5.8	4.7	4.8	4.2	2.7	3.2	3.2
20%	3.4	3.1	3.7	5.0	6.1	6.3	5.3	5.0	4.6	3.3	3.6	3.5
30%	4.2	3.5	4.7	5.5	6.4	6.5	6.3	5.6	5.1	4.0	4.3	4.7
40%	4.6	4.4	5.1	5.6	6.5	6.6	6.7	6.0	5.5	4.2	4.9	4.8
50%	4.8	4.8	5.2	5.7	6.6	6.8	7.2	6.6	5.8	4.6	5.0	5.0
60%	5.1	4.9	5.2	5.9	6.9	6.9	7.3	7.0	6.2	5.3	5.2	5.0
70%	5.1	5.0	5.3	6.1	7.0	7.1	7.4	7.2	6.4	5.7	5.4	5.3
80%	5.3	5.0	5.4	6.2	7.0	7.2	7.6	7.5	7.1	6.2	5.5	5.5
90%	5.6	5.1	5.5	6.4	7.3	7.4	7.7	7.7	7.3	6.6	6.0	5.8
100%	6.8	6.4	6.6	6.9	7.7	7.6	7.9	7.8	7.7	7.2	7.2	6.9
Total Aqueduct Power Plants:												
0%	34.9	26.8	31.3	63.7	36.9	35.7	32.0	33.6	31.4	22.8	23.1	38.9
10%	39.3	32.3	44.0	70.4	59.0	56.8	38.1	41.4	42.6	24.4	38.6	44.6
20%	41.6	37.2	48.3	79.9	67.8	64.8	46.7	45.3	49.8	31.0	42.5	51.3
30%	47.8	40.2	69.4	82.9	71.3	72.1	63.7	53.0	55.2	41.1	60.7	64.5
40%	63.1	50.2	73.6	95.6	80.8	77.1	92.7	63.6	61.0	45.8	69.4	72.1
50%	69.8	65.7	77.6	99.8	85.8	84.4	102.8	91.7	66.3	54.1	72.5	76.9
60%	73.2	68.4	80.0	105.5	94.6	90.0	116.1	121.7	74.8	76.7	76.5	79.3
70%	75.8	70.5	81.4	111.0	101.5	101.0	126.9	127.1	119.2	83.1	80.8	81.1
80%	80.1	73.3	82.5	117.4	109.1	106.5	134.7	134.9	130.8	98.7	83.6	85.3
90%	102.0	76.1	86.4	121.7	117.8	120.0	145.2	140.8	141.0	119.1	103.8	109.8
100%	122.2	111.0	117.6	127.2	122.8	141.2	145.8	145.7	141.7	144.7	134.6	122.8

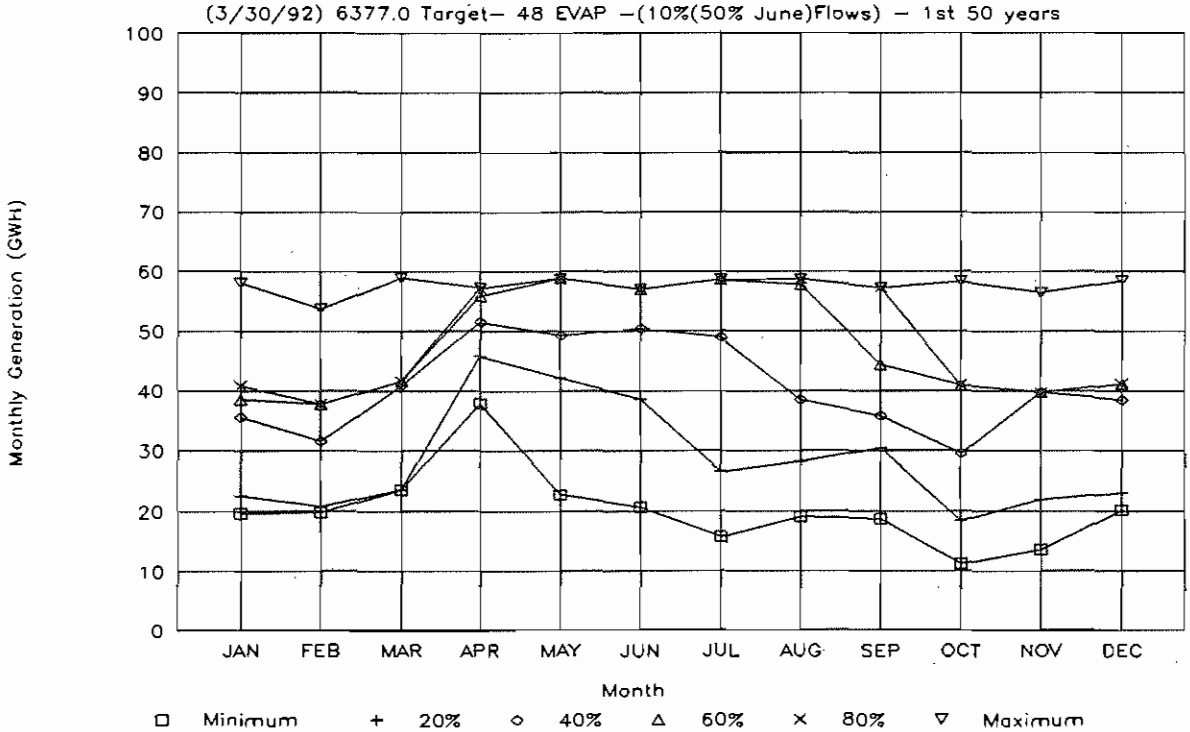
Owens Gorge Power Distribution

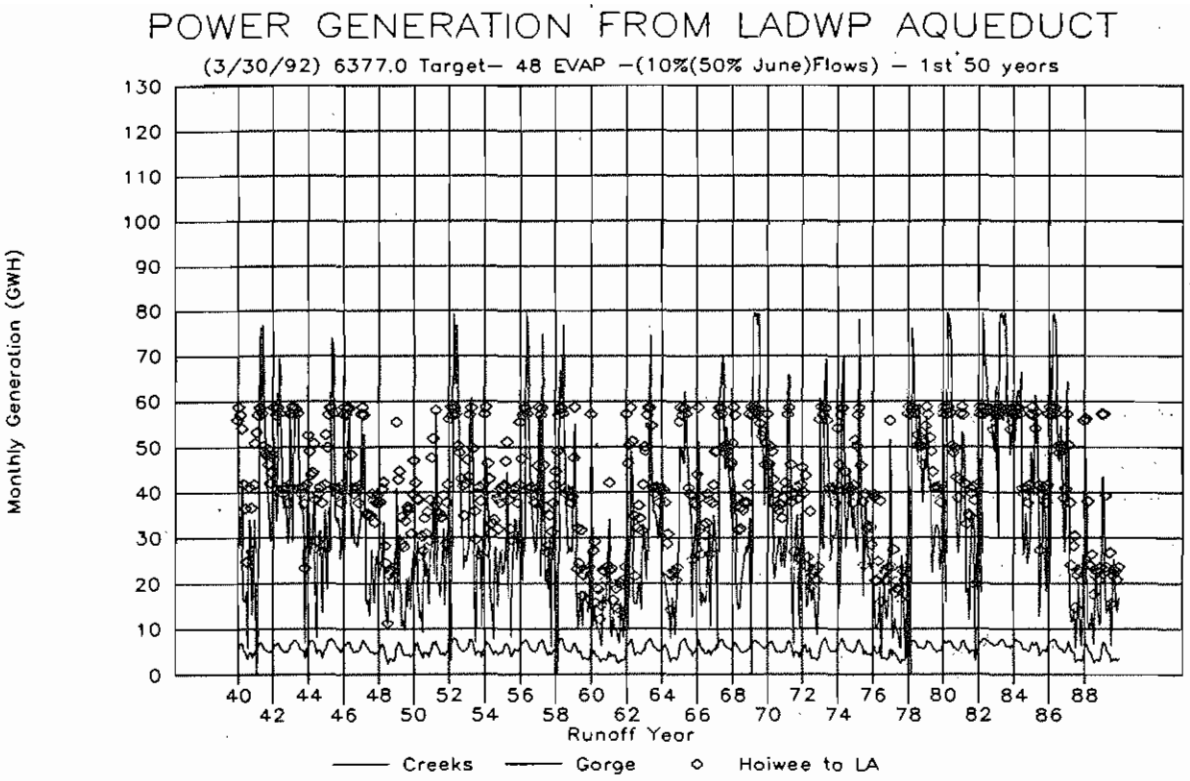
(3/30/92) 6377.0 Target– 48 EVAP –(10%(50% June)Flows) – 1st 50 years

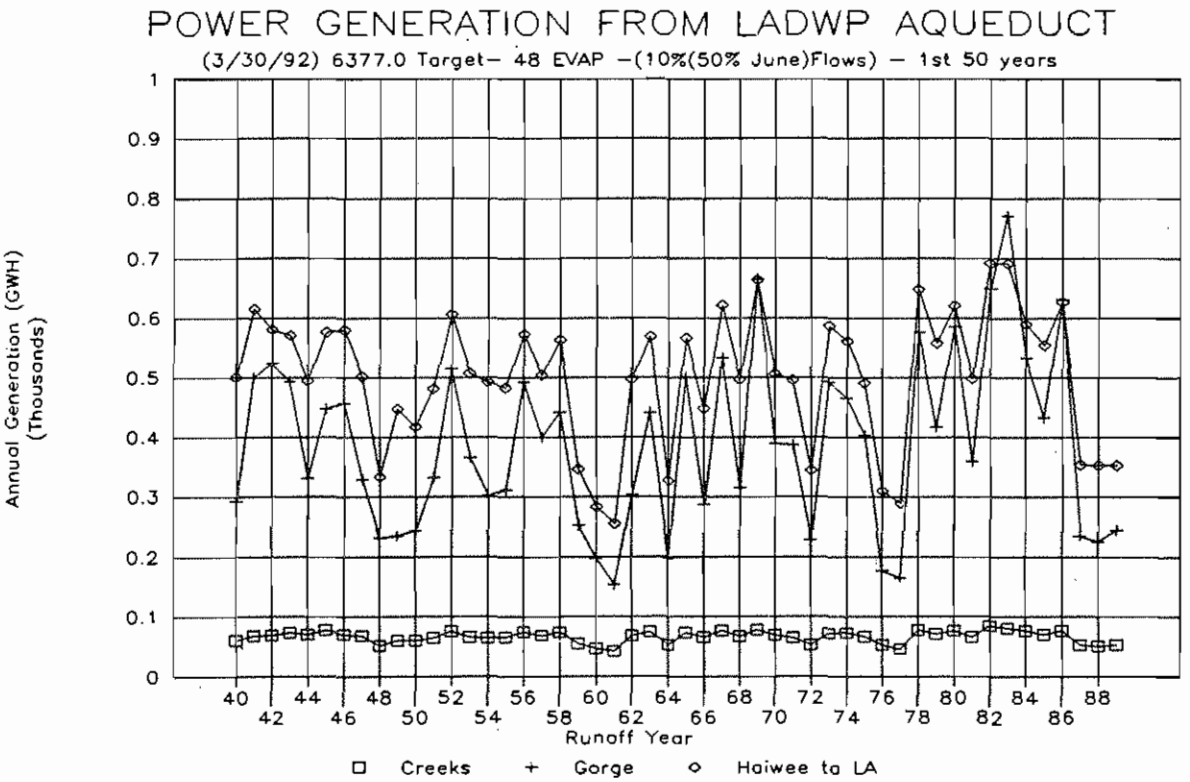


Haiwee to LA Power Distribution

(3/30/92) 6377.0 Target– 48 EVAP –(10%(50% June)Flows) – 1st 50 years



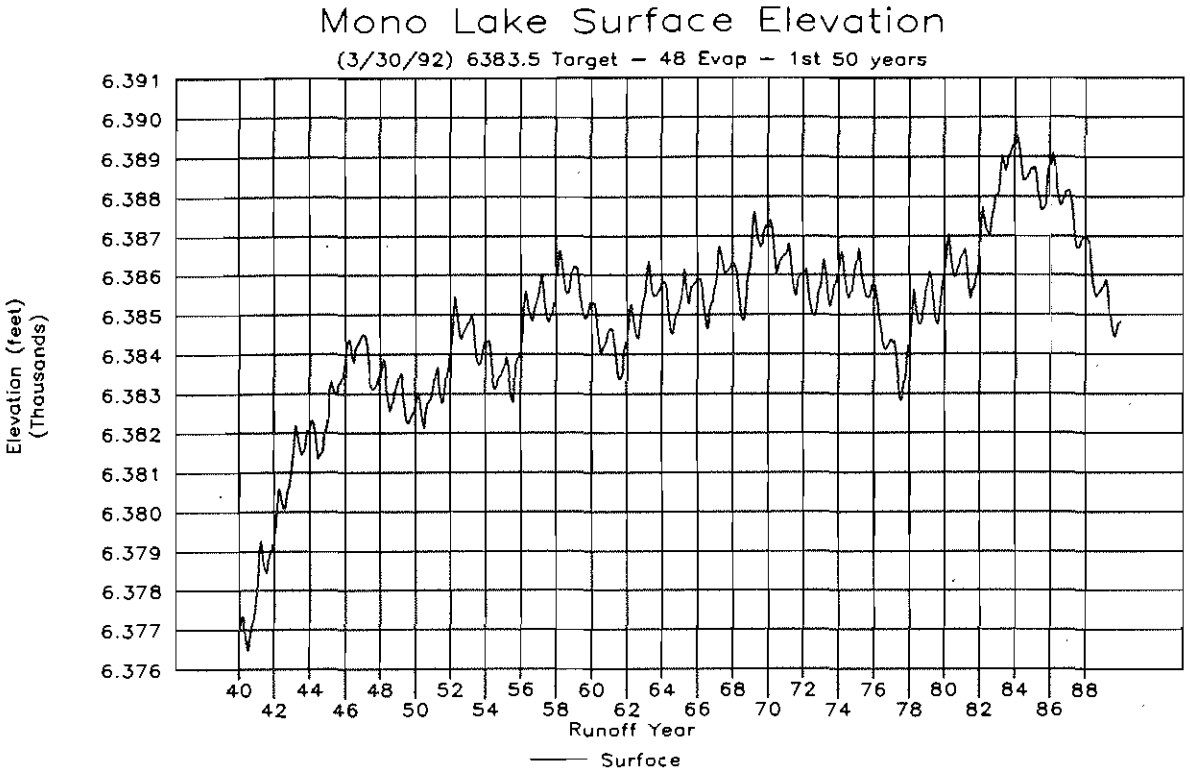

POWER GENERATION FROM LADWP AQUEDUCT
(3/30/92) 6377.0 Target- 48 EVAP -(10%(50% June)Flows) - 1st 50 years
Monthly Generation (GWH)
130
120
110
100
90
80
70
60
50
40
30
20
10
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Creeks
Gorge
Hoiwee to LA

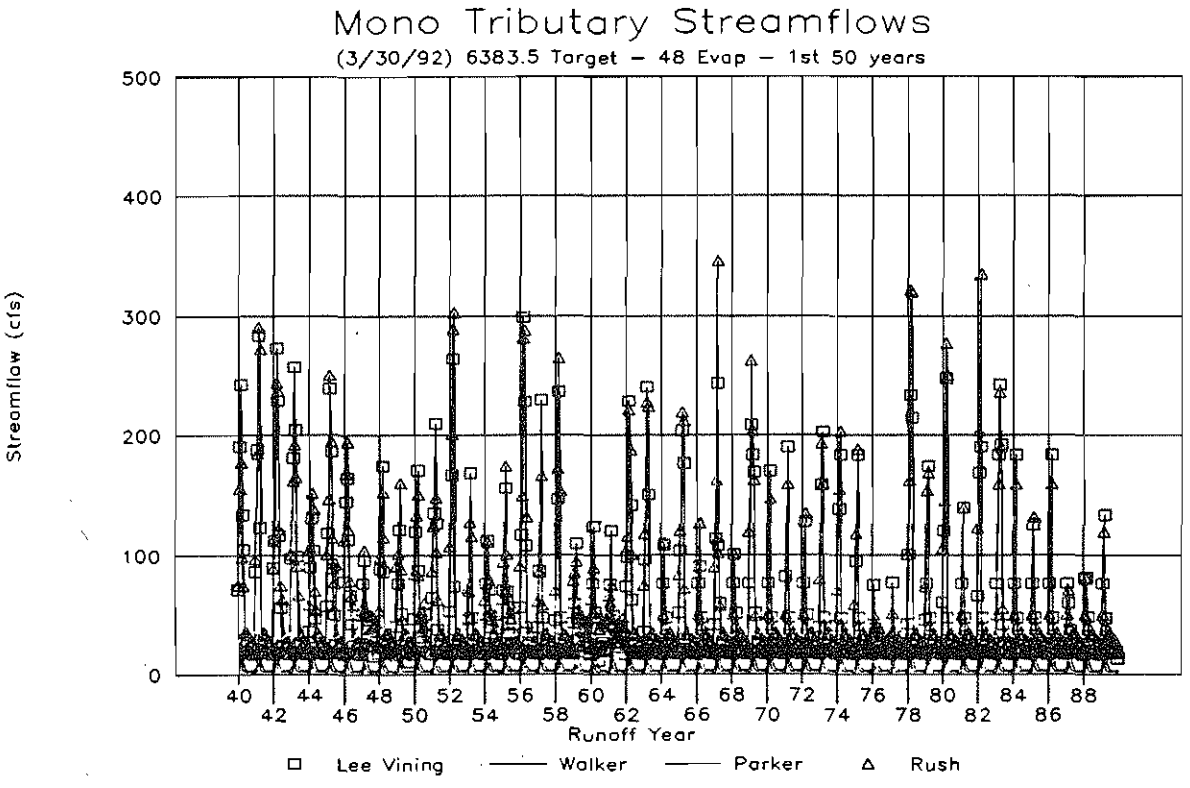

POWER GENERATION FROM LADWP AQUEDUCT
(3/30/92) 6377.0 Target- 48 EVAP -(10%(50% June)Flows) - 1st 50 years
Annual Generation (GWH)
(Thousands)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Creeks
Gorge
Hoiwee to LA

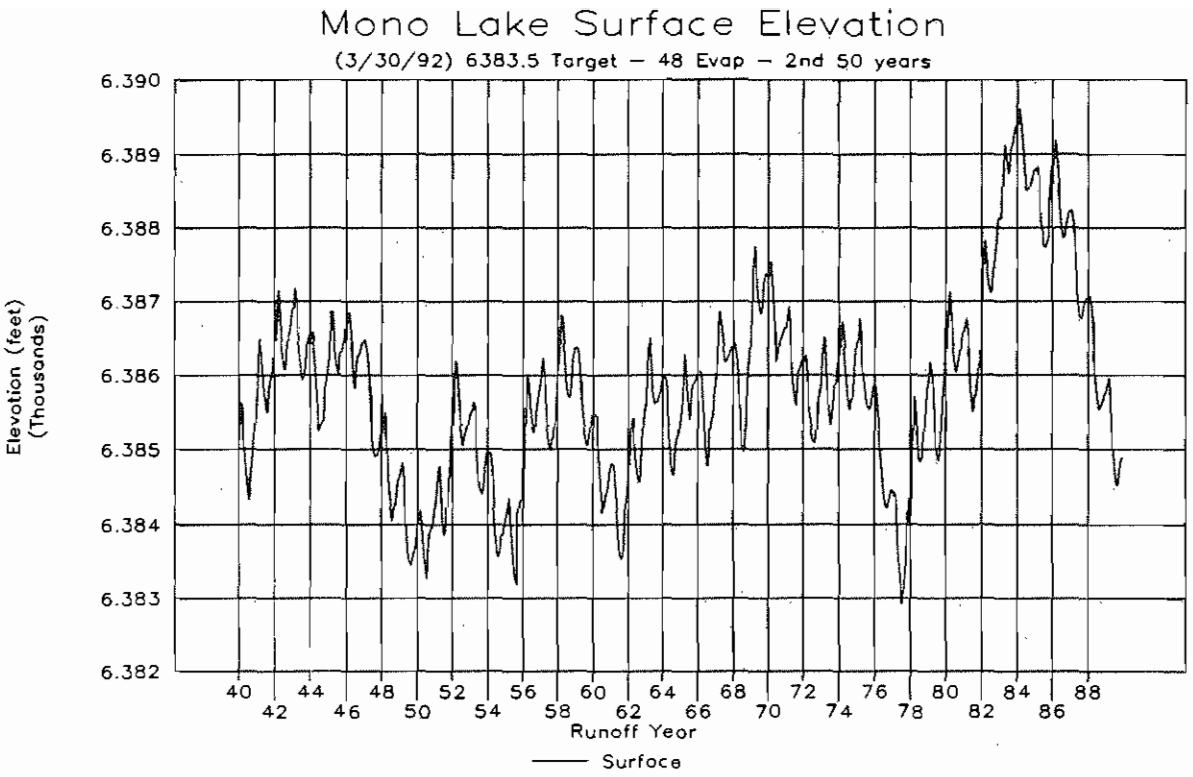
Section 6. 6,383.5-Ft Alternative

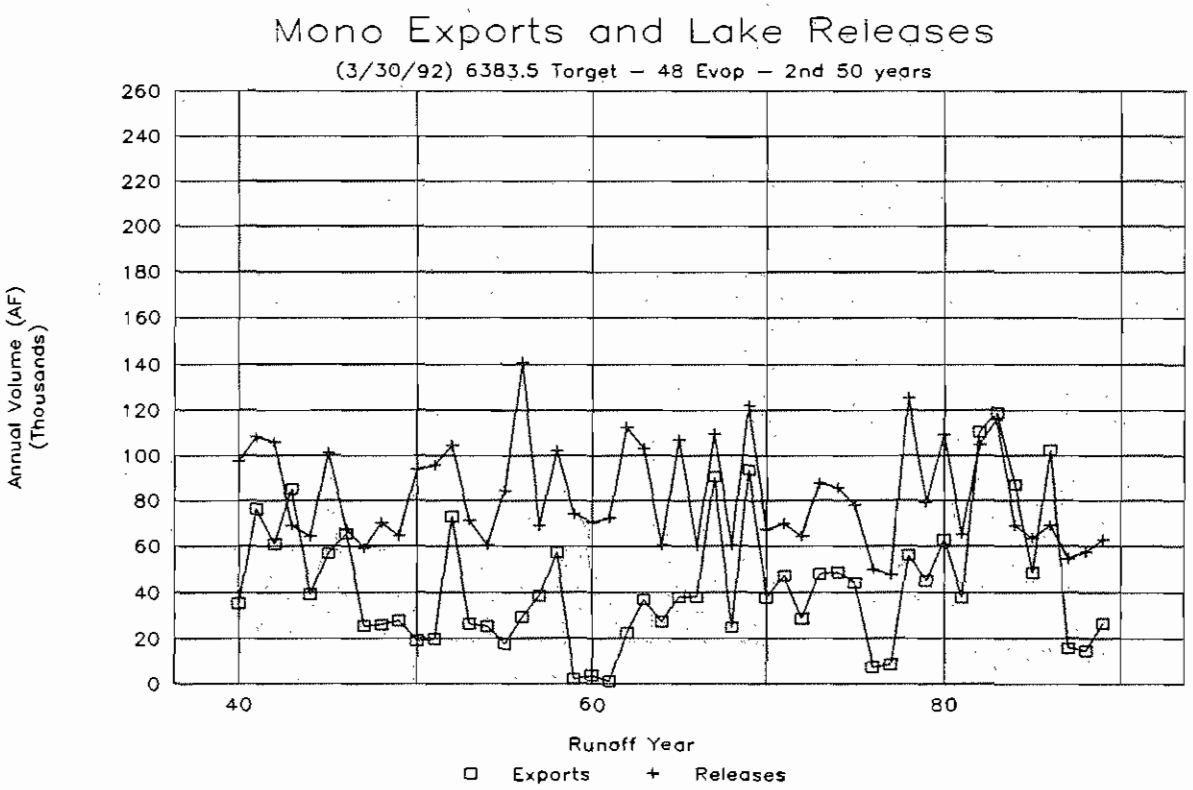
Summary of LAAMP Simulations
03/30/92
Mono EIR Alternatives
Initial Alternatives - 1st 50 years:
(3/30/92) 6383.5 Target - 48 Evap - 1st 50 years

	Owens Available Export (AF)	Total Owens Uses (AF)	Haiwee Exports (AF)	Haiwee Target (AF)	Mono Lake Level (feet)	Grant Storage (AF)	Releases to Mono Lake (AF)	West Portal Exports (AF)	Long Valley Storage (AF)	Long Valley Outflow (AF)	Pleasant Valley Outflow (AF)	Tinemaha Inflow= Outflow (AF)	Total Owens Pumping (AF)	Total Owens Spreading (AF)	Aqueduct Spilling (AF)	Tinemaha Storage (AF)	Haiwee Storage (AF)
Starting:					6376.50	20095			120000							8000	8000
Minimum:	8357	1645	10135	16520	6376.47	18139	2475	0	112336	0	7500	8437	3070	0	0	0	0
Average:	29248	8875	33601	40048	6384.83	21413	7333	3140	134292	16151	21430	30237	9223	1109	917	1629	1423
Maximum:	162922	21682	49600	49600	6389.53	50000	39250	14104	209407	42346	62135	103949	26264	37820	140954	10000	10000
(TAF/yr):	351.0	106.5	403.2	480.6			88.0	37.7		193.8	257.2	362.8	110.7	13.3	11.0		
71-89 Avg:	401.4	107.7	413.3	478.6			76.8	50.3		214.4	282.9	387.9	97.4	21.6	15.3		
71-89 Historical:			470					77.5					108.7				
Ending:					6384.81	20000			131849							0	0
Monthly:																	
April	30047	8117	41830	48000	6384.95	20071	6753	1545	128178	19927	23811	34992	14303	0	0	1340	1294
May	34009	14984	40473	49600	6385.07	20771	13327	2577	131166	13465	20187	30794	11669	1134	0	1220	1183
June	41728	19360	40528	48000	6385.33	21237	23685	1032	139275	14351	23255	33629	9564	2691	6028	1480	1463
July	41469	19335	38176	49600	6385.29	23789	13511	3878	140699	20406	28368	36549	13219	5646	2543	1840	1823
August	33306	16379	35879	49600	6384.93	23678	6777	4617	137115	19801	25246	32558	15001	2276	435	1840	1847
September	28736	11543	33638	48000	6384.63	22638	4282	3859	132625	18509	22552	30422	15236	686	0	1894	1374
October	24498	4564	26646	32008	6384.41	21854	3968	3428	133054	13405	18014	25333	8087	238	363	1949	1480
November	23821	3204	29332	31023	6384.38	21368	3546	3647	133002	15109	19850	27976	5589	309	399	1807	1446
December	24076	2849	29892	31971	6384.51	20794	3224	3749	132383	16513	19309	28214	5533	9	327	1675	1406
January	23726	2166	29472	31996	6384.66	20442	3296	3077	133695	14199	19151	28262	4458	152	351	1535	1200
February	22020	1723	26969	28861	6384.83	20209	2935	2575	134990	12395	16940	25649	3700	164	279	1467	1240
March	23540	2279	30379	31919	6384.99	20100	2696	3695	135322	15731	20482	28470	4310	0	274	1500	1325
Cumulative Distribution of			Minimum	5%	10%	20%	30%	40%	Median	60%	70%	80%	90%	95%	Maximum		
Mono Lake Monthly Elevations			6376.47	6380.35	6382.25	6383.31	6384.16	6384.71	6385.21	6385.59	6385.92	6386.35	6387.39	6388.45	6389.53		
Annual:																	
Minimum:	158630	86853	200982	400180			47405	1114		73616	109385	164724	39457	0	0		
Average:	350976	106505	403214	480578			87998	37679		193810	257165	362849	110670	13304	10998		
Maximum:	913533	121300	581248	581248			140722	118769		410942	525986	700960	195688	158604	226338		


Mono Lake Surface Elevation
(3/30/92) 6383.5 Target – 48 Evap – 1st 50 years
Elevation (feet)
(Thousands)
6.391
6.390
6.389
6.388
6.387
6.386
6.385
6.384
6.383
6.382
6.381
6.380
6.379
6.378
6.377
6.376
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Surfoce

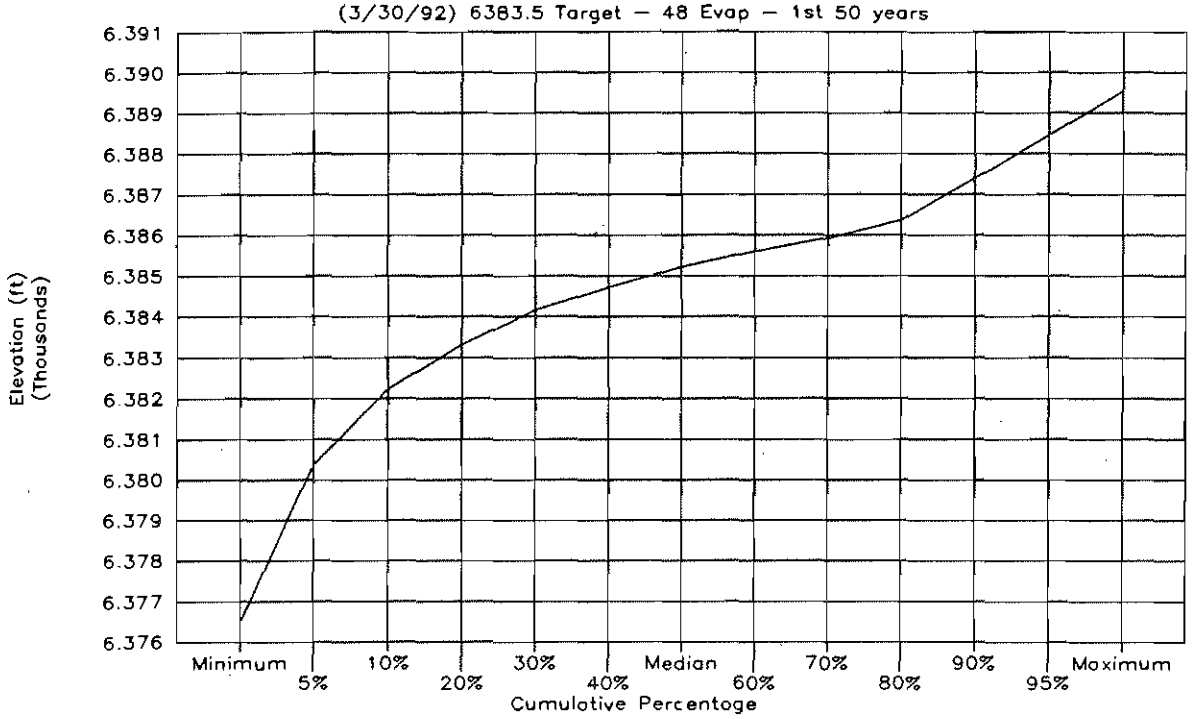

Mono Tributary Streamflows
(3/30/92) 6383.5 Target – 48 Evap – 1st 50 years
Streamflow (cfs)
500
400
300
200
100
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Lee Vining
Walker
Parker
Rush


Mono Lake Surface Elevation
(3/30/92) 6383.5 Target – 48 Evap – 2nd 50 years
Elevation (feet)
(Thousands)
6.390
6.389
6.388
6.387
6.386
6.385
6.384
6.383
6.382
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Surface


Mono Exports and Lake Releases
(3/30/92) 6383.5 Target – 48 Evap – 2nd 50 years
Annual Volume (AF)
(Thousands)
260
240
220
200
180
160
140
120
100
80
60
40
20
0
40
60
80
Runoff Year
Exports
Releases

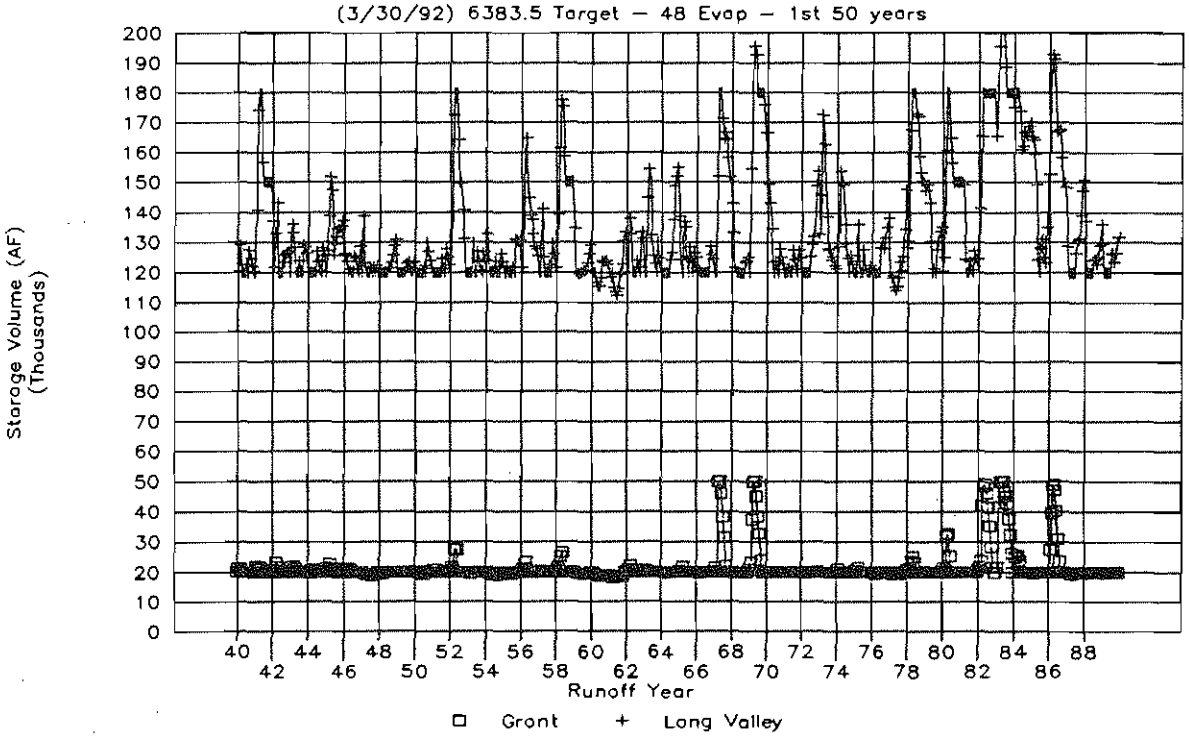
Mono Elevation Cumulative Distribution

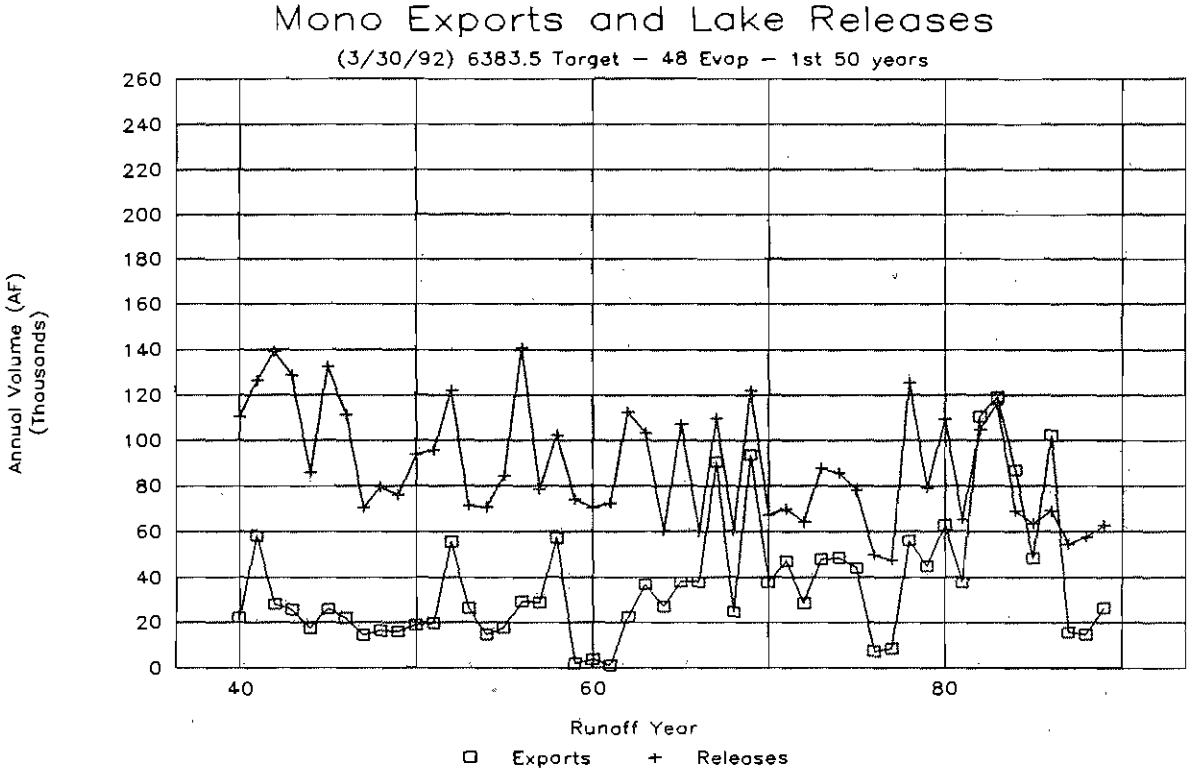
(3/30/92) 6383.5 Target – 48 Evap – 1st 50 years

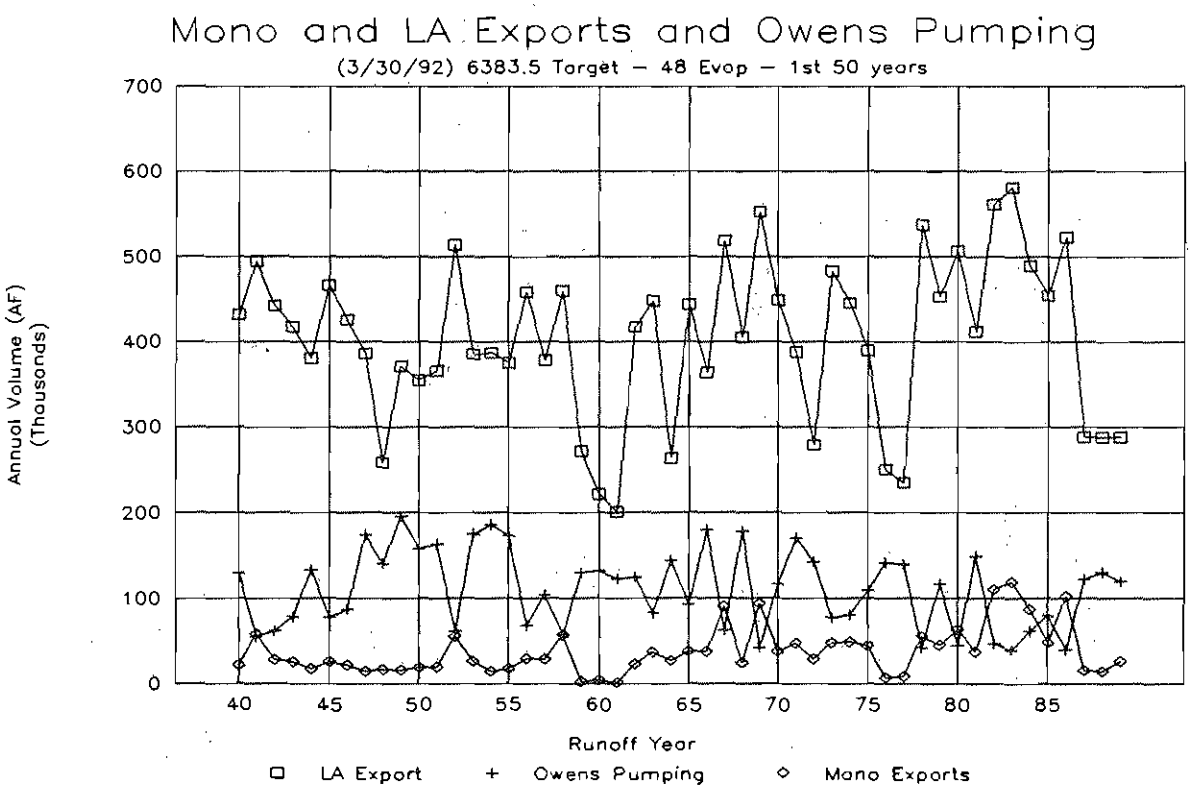


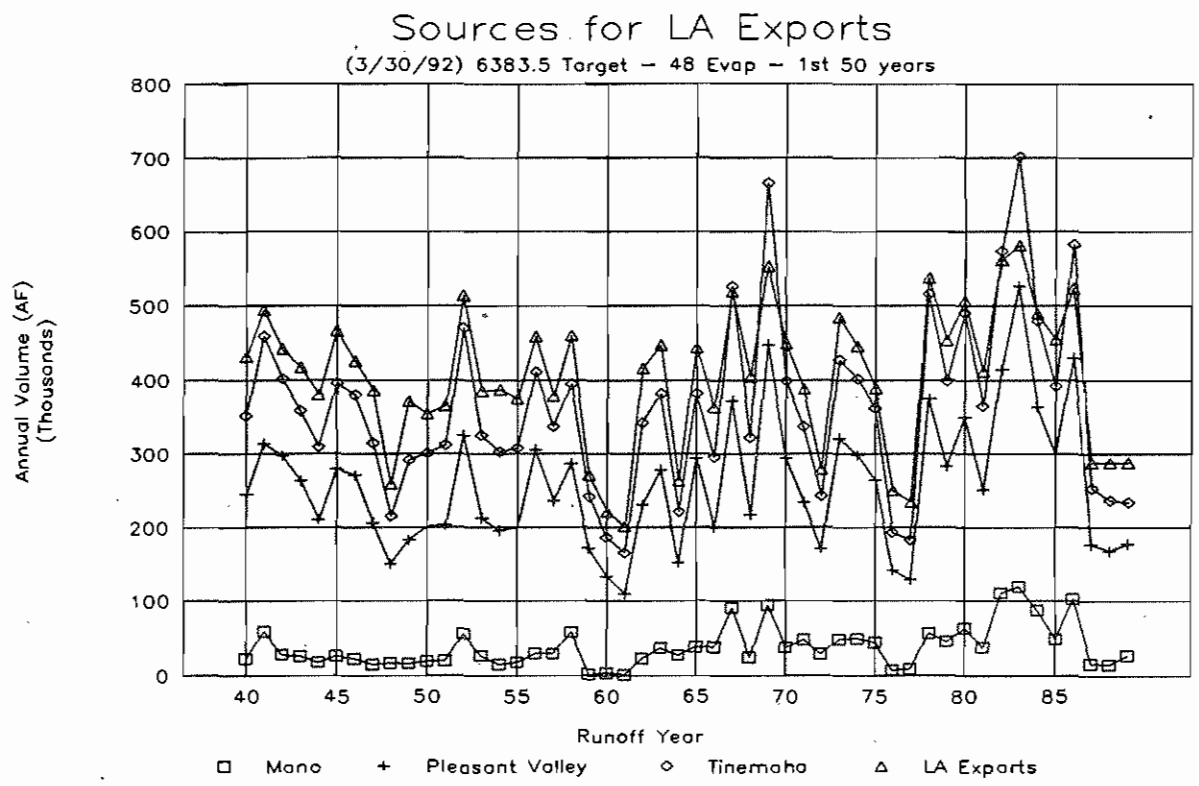
Grant and Long Valley Storage

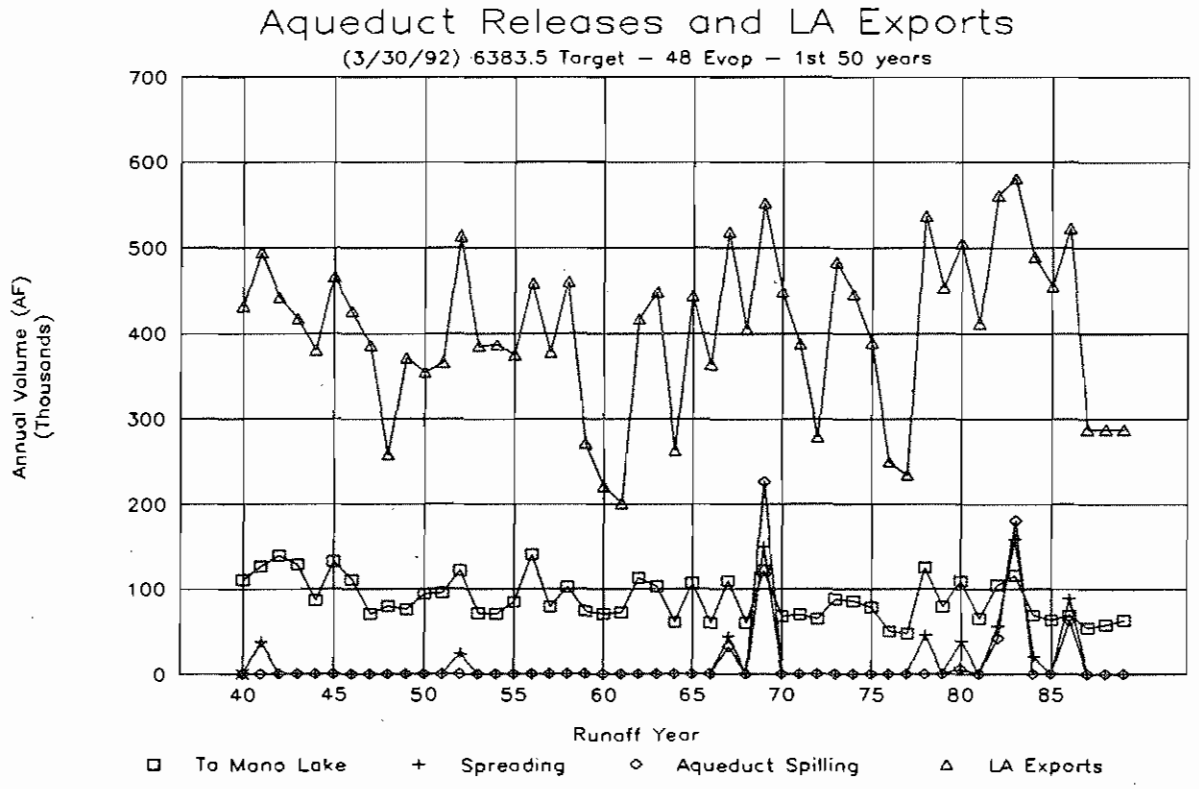
(3/30/92) 6383.5 Target – 48 Evap – 1st 50 years

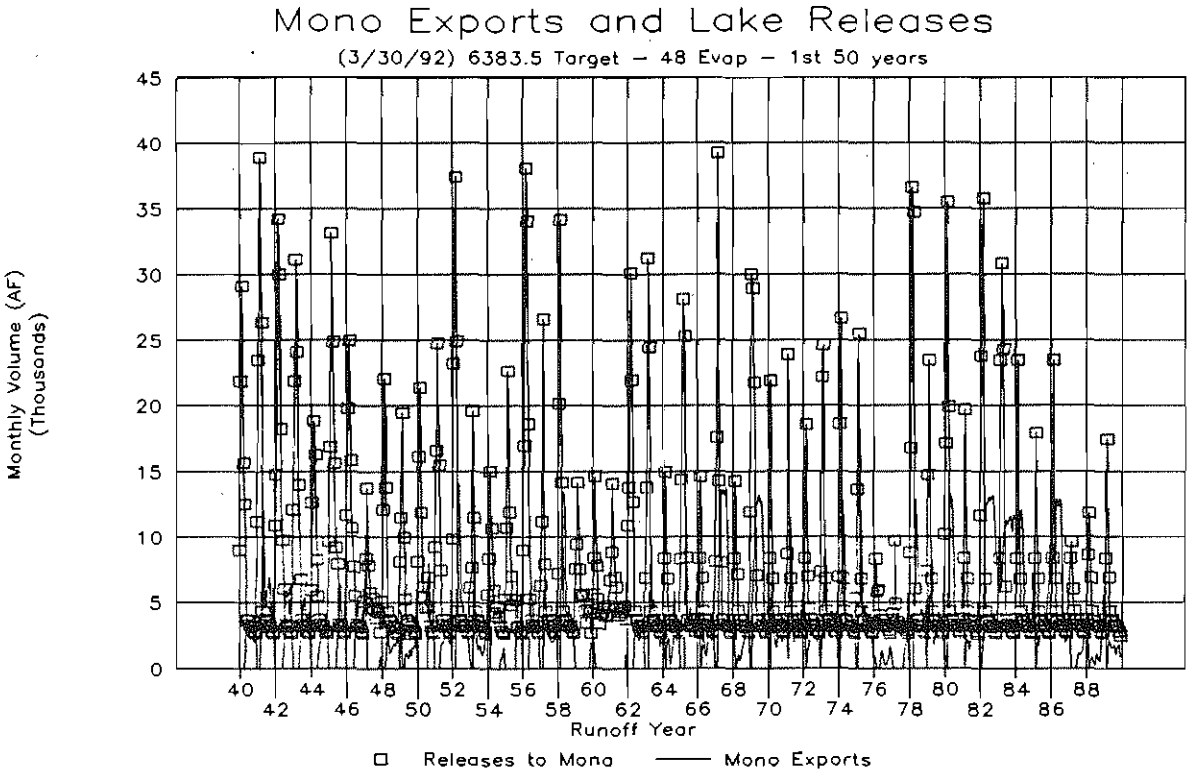


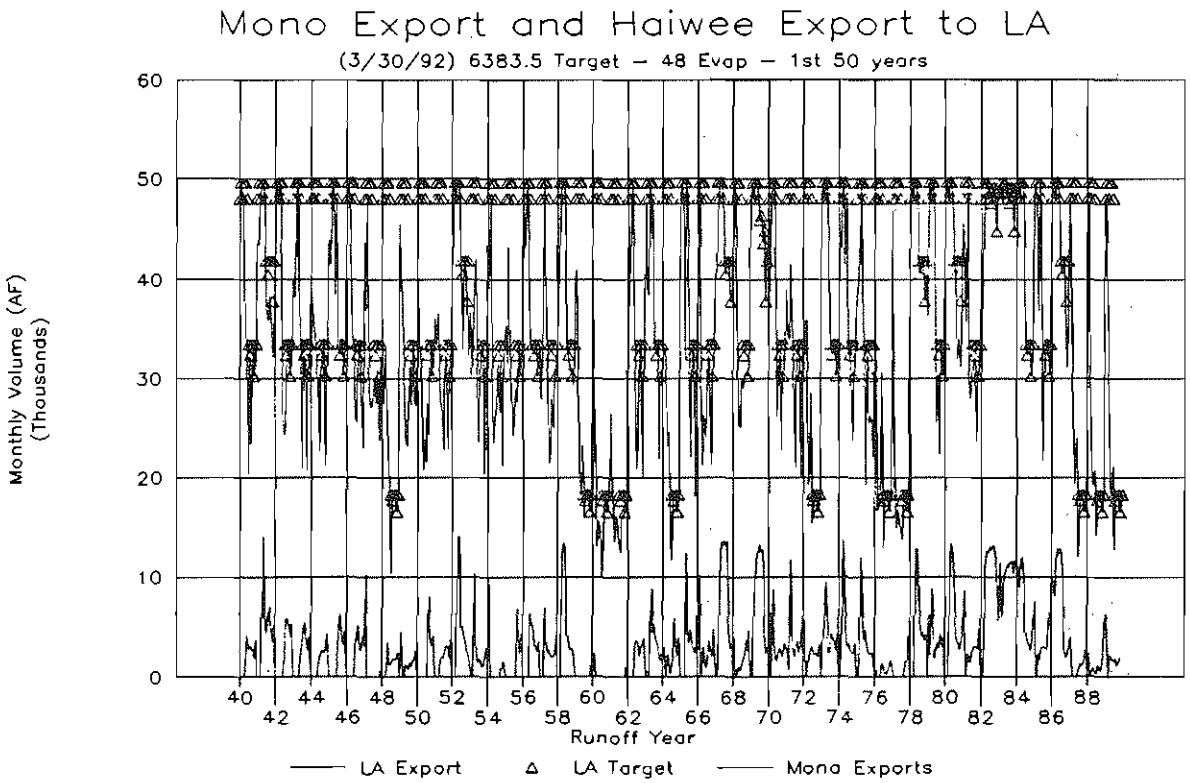

Mono Exports and Lake Releases
(3/30/92) 6383.5 Target – 48 Evop – 1st 50 years
Annual Volume (AF)
(Thousands)
260
240
220
200
180
160
140
120
100
80
60
40
20
0
40
60
80
Runoff Year
Exports
Releases


Mono and LA Exports and Owens Pumping
(3/30/92) 6383.5 Target – 48 Evop – 1st 50 years
Annual Volume (AF)
(Thousands)
700
600
500
400
300
200
100
0
40
45
50
55
60
65
70
75
80
85
Runoff Year
LA Export
Owens Pumping
Mono Exports


Sources for LA Exports
(3/30/92) 6383.5 Target – 48 Evap – 1st 50 years
Annual Volume (AF)
(Thousands)
800
700
600
500
400
300
200
100
0
40
45
50
55
60
65
70
75
80
85
Runoff Year
Mono
Pleasant Valley
Tinemaha
LA Exports


Aqueduct Releases and LA Exports
(3/30/92) 6383.5 Target – 48 Evap – 1st 50 years
Annual Volume (AF)
(Thousands)
700
600
500
400
300
200
100
0
40
45
50
55
60
65
70
75
80
85
Runoff Year
To Mono Lake
Spreading
Aqueduct Spilling
LA Exports


Mono Exports and Lake Releases
(3/30/92) 6383.5 Target – 48 Evap – 1st 50 years
Monthly Volume (AF)
(Thousands)
45
40
35
30
25
20
15
10
5
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Releases to Mono
Mono Exports


Mono Export and Haiwee Export to LA
(3/30/92) 6383.5 Target – 48 Evap – 1st 50 years
Monthly Volume (AF)
(Thousands)
60
50
40
30
20
10
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
LA Export
LA Target
Mono Exports

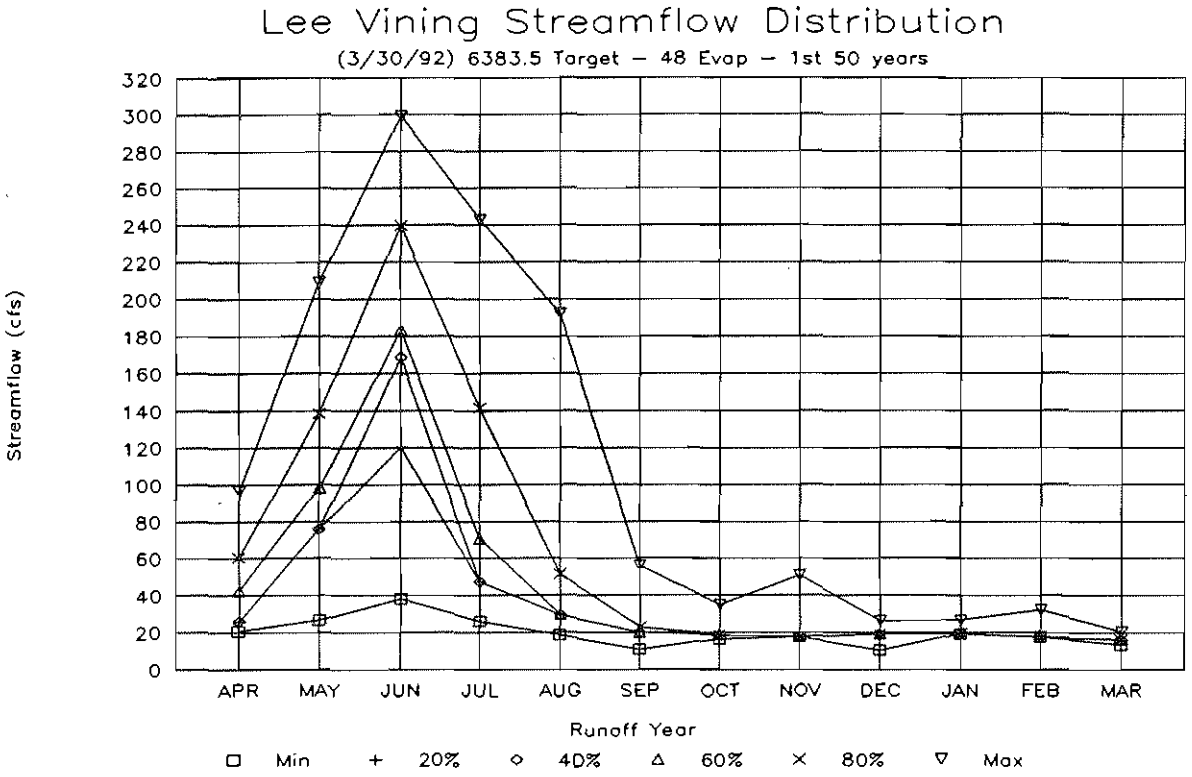
Mono Lake Tributary Streamflows
03/30/92
Mono EIR Alternatives
Initial Alternatives - 1st 50 years:
(3/30/92) 6383.5 Target - 48 Evap - 1st 50 years

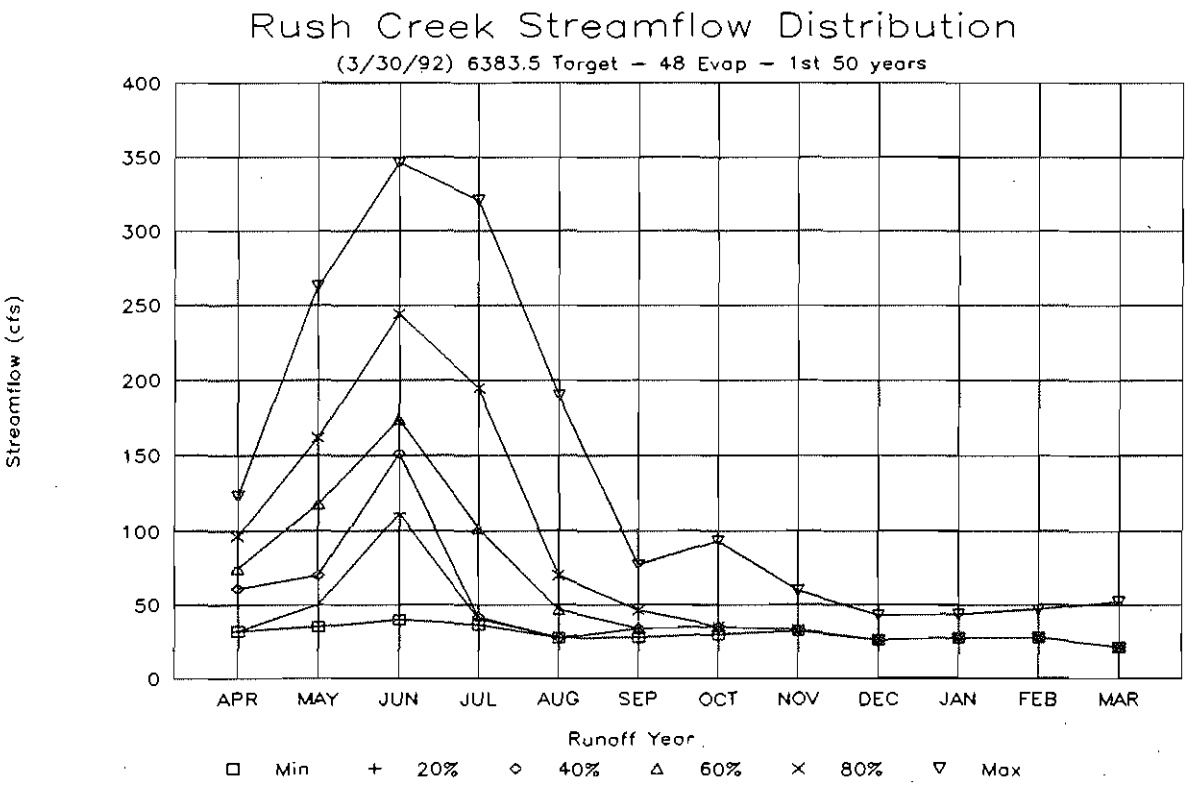
	Lee Vining Runoff (AF)	Lee Vining Min Flow (AF)	Lee Vining Lakeflow (AF)	Lee Vining Irrigate (AF)	Lee Vining Conduit (AF)	Lee Vining Spill (AF)	Walker Creek Runoff (AF)	Walker Creek Min Flow (AF)	Walker Creek Irrigate (AF)	Walker Creek Conduit (AF)	Walker Creek Spill (AF)	Parker Creek Runoff (AF)	Parker Creek Min Flow (AF)	Parker Creek Irrigate (AF)	Parker Creek Conduit (AF)	Parker Creek Spill (AF)
Minimum:	645	390	0	0	0	0	22	22	0	0	0	94	94	0	0	0
Average:	4107	2252	579	62	1110	104	450	223	0	227	0	760	475	0	285	0
Maximum:	20828	12025	11151	180	13223	14518	2722	1350	0	1969	0	4369	1967	0	3244	0
Total (TAF/yr):	49.3	27.0	6.9	0.7	13.3	1.3	5.4	2.7	0.0	2.7	0.0	9.1	5.7	0.0	3.4	0.0
Annual Values																
Minimum:	19852	18048	0	748	541	0	2410	1987	0	423	0	4690	4585	0	98	0
Average:	49287	27027	6943	748	13319	1250	5401	2681	0	2720	0	9126	5705	0	3421	0
Maximum:	92303	30630	30203	748	45196	29134	12132	2967	0	9227	0	16759	5991	0	10833	0

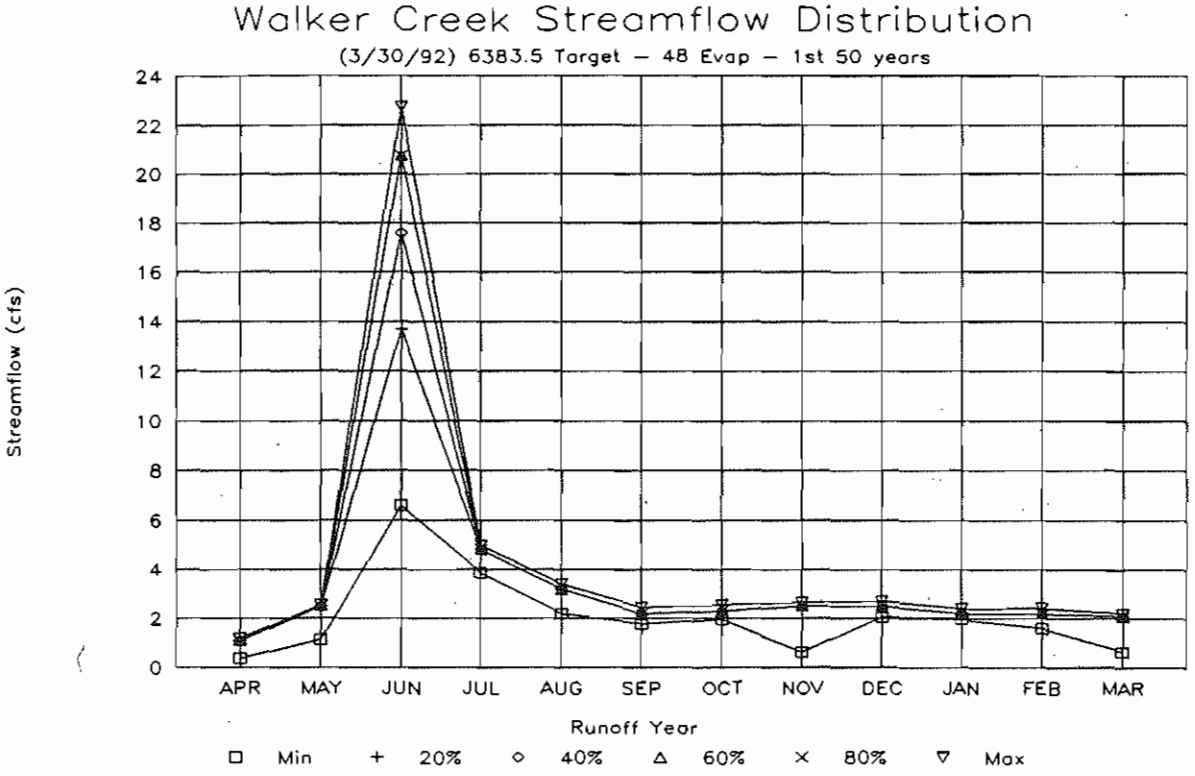
	Rush Creek Runoff (AF)	Conduit Inflow to Grant (AF)	Mono Basin Gains (AF)	Mono Gate #1 Min Flow (AF)	Rush Creek Lakeflow (AF)	Grant Storage Lakeflow (AF)	Rush Creek Storage (AF)	Grant Evap - Rain (AF)	West Portal Export (AF)	Grant Storage Spill (AF)	Lee Vining Flow (cfs)	Walker Flow (cfs)	Parker Flow (cfs)	Rush Flow (cfs)
Minimum:	1264	0	-127	1304	0	0	18139	-636	0	0	10.5	0.4	1.7	21.2
Average:	4973	1622	422	2455	1101	81	21413	177	3140	63	48.6	3.7	7.9	60.0
Maximum:	29989	17546	868	9467	17179	3056	50000	603	14104	12012	299.1	22.7	33.1	345.8
Total (TAF/yr):	59.7	19.5	5.1	29.5	13.2	1.0		2.1	37.7	0.8				
Annual Values														
Minimum:	24610	1643	5060	22376	0	0		1396	1114	0	25.0	2.7	6.3	30.9
Average:	59681	19460	5060	29459	13207	971		2129	37679	754	48.7	3.7	7.9	59.0
Maximum:	117750	59578	5060	30755	39008	5496		3003	118769	23299	82.6	4.1	8.3	96.5

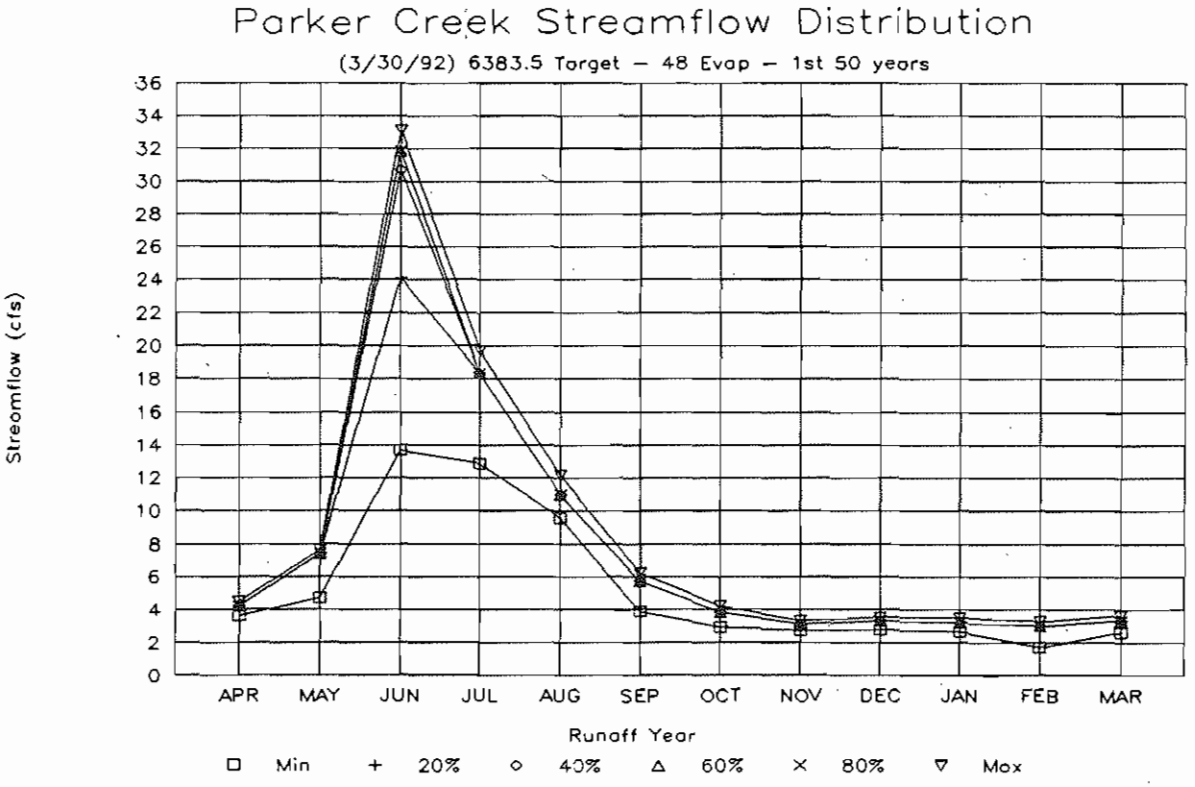
Mono Lake Tributary Streamflows Monthly Percentiles
03/30/92
Mono EIR Alternatives
Initial Alternatives – 1st 50 years:
(3/30/92) 6383.5 Target – 48 Evap – 1st 50 years

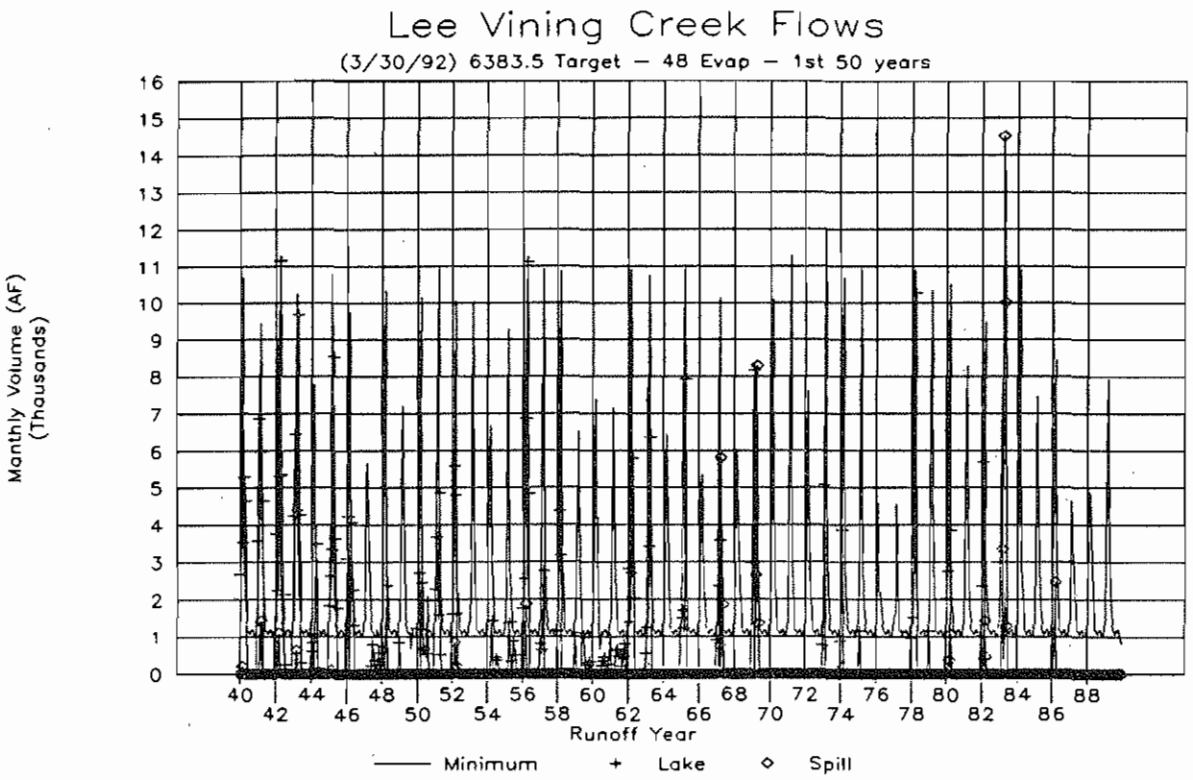
	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
Lee Vining Creek:												
0%	20.8	26.5	37.9	26.0	18.6	10.9	16.4	17.6	10.5	19.2	17.7	13.6
10%	25.9	74.9	95.4	47.2	29.0	19.9	18.8	17.7	19.0	19.2	17.7	16.2
20%	25.9	75.7	120.4	47.2	29.1	19.9	18.8	17.7	19.0	19.2	17.7	16.2
30%	25.9	75.7	131.0	47.2	29.1	19.9	18.8	17.7	19.0	19.2	17.7	16.2
40%	25.9	75.7	168.6	47.2	29.1	19.9	18.8	17.7	19.0	19.2	17.7	16.2
50%	39.0	86.2	183.3	49.3	29.1	19.9	18.8	17.7	19.0	19.2	17.7	16.2
60%	42.2	98.3	183.3	70.4	29.4	19.9	18.8	17.7	19.0	19.2	17.7	16.2
70%	46.5	117.3	209.8	107.9	34.6	19.9	18.8	17.7	19.0	19.2	17.7	16.2
80%	60.2	138.5	239.4	141.7	51.2	22.7	18.8	17.7	19.0	19.2	17.7	16.2
90%	75.7	168.5	257.2	204.6	98.6	38.2	26.3	23.8	19.0	19.4	17.7	16.2
100%	97.1	208.8	299.1	242.8	192.1	55.8	34.7	50.6	26.3	26.7	32.1	20.4
Walker Creek:												
0%	0.4	1.1	6.6	3.9	2.2	1.8	2.0	0.6	2.1	2.0	1.6	0.6
10%	1.1	2.5	10.5	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.2	2.1
20%	1.1	2.5	13.7	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.2	2.1
30%	1.1	2.5	14.4	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.2	2.1
40%	1.1	2.5	17.6	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.2	2.1
50%	1.1	2.5	20.7	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.2	2.1
60%	1.1	2.5	20.7	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.2	2.1
70%	1.1	2.5	20.7	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.2	2.1
80%	1.1	2.5	20.7	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.2	2.1
90%	1.1	2.5	20.7	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.3	2.1
100%	1.2	2.6	22.7	5.0	3.4	2.4	2.6	2.7	2.7	2.4	2.4	2.2
Parker Creek:												
0%	3.6	4.7	13.7	12.9	9.6	3.9	2.9	2.7	2.8	2.7	1.7	2.6
10%	4.2	7.4	21.3	18.3	11.0	5.7	3.8	3.1	3.3	3.2	3.0	3.3
20%	4.2	7.4	24.1	18.3	11.0	5.7	3.8	3.1	3.3	3.2	3.0	3.3
30%	4.2	7.4	27.1	18.3	11.0	5.7	3.8	3.1	3.3	3.2	3.0	3.3
40%	4.2	7.4	30.7	18.3	11.0	5.7	3.8	3.1	3.3	3.2	3.0	3.3
50%	4.2	7.4	31.9	18.3	11.0	5.7	3.8	3.1	3.3	3.2	3.0	3.3
60%	4.2	7.4	31.9	18.3	11.0	5.7	3.8	3.1	3.3	3.2	3.0	3.3
70%	4.2	7.4	31.9	18.3	11.0	5.7	3.8	3.1	3.3	3.2	3.0	3.3
80%	4.2	7.4	31.9	18.3	11.0	5.7	3.8	3.1	3.3	3.2	3.0	3.3
90%	4.2	7.4	31.9	18.3	11.0	5.7	3.9	3.1	3.4	3.3	3.0	3.4
100%	4.5	7.6	33.1	19.7	12.2	6.2	4.2	3.3	3.5	3.5	3.3	3.6
Rush Creek:												
0%	31.6	34.7	39.4	36.2	26.9	27.5	29.5	32.0	25.9	27.5	27.5	21.2
10%	31.6	50.0	89.1	40.7	26.9	33.5	34.9	32.7	25.9	27.5	27.5	21.2
20%	31.6	50.0	111.2	40.7	26.9	33.5	34.9	32.7	25.9	27.5	27.5	21.2
30%	31.6	50.0	134.8	40.7	26.9	33.5	34.9	32.7	25.9	27.5	27.5	21.2
40%	60.9	69.7	151.6	41.3	26.9	33.5	34.9	32.7	25.9	27.5	27.5	21.2
50%	70.3	101.1	159.4	79.5	26.9	33.5	34.9	32.7	25.9	27.5	27.5	21.2
60%	74.5	118.1	174.3	101.3	46.3	33.5	34.9	32.7	25.9	27.5	27.5	21.2
70%	86.2	146.5	203.5	138.2	49.3	35.3	34.9	32.7	25.9	27.5	27.5	21.2
80%	96.2	161.9	244.0	195.0	69.6	45.9	34.9	32.7	25.9	27.5	27.5	21.2
90%	105.6	184.3	289.3	250.4	100.6	55.0	48.6	44.9	38.1	28.0	28.1	21.3
100%	123.1	262.9	345.8	320.4	189.9	76.8	92.9	59.5	42.9	43.4	46.9	52.1

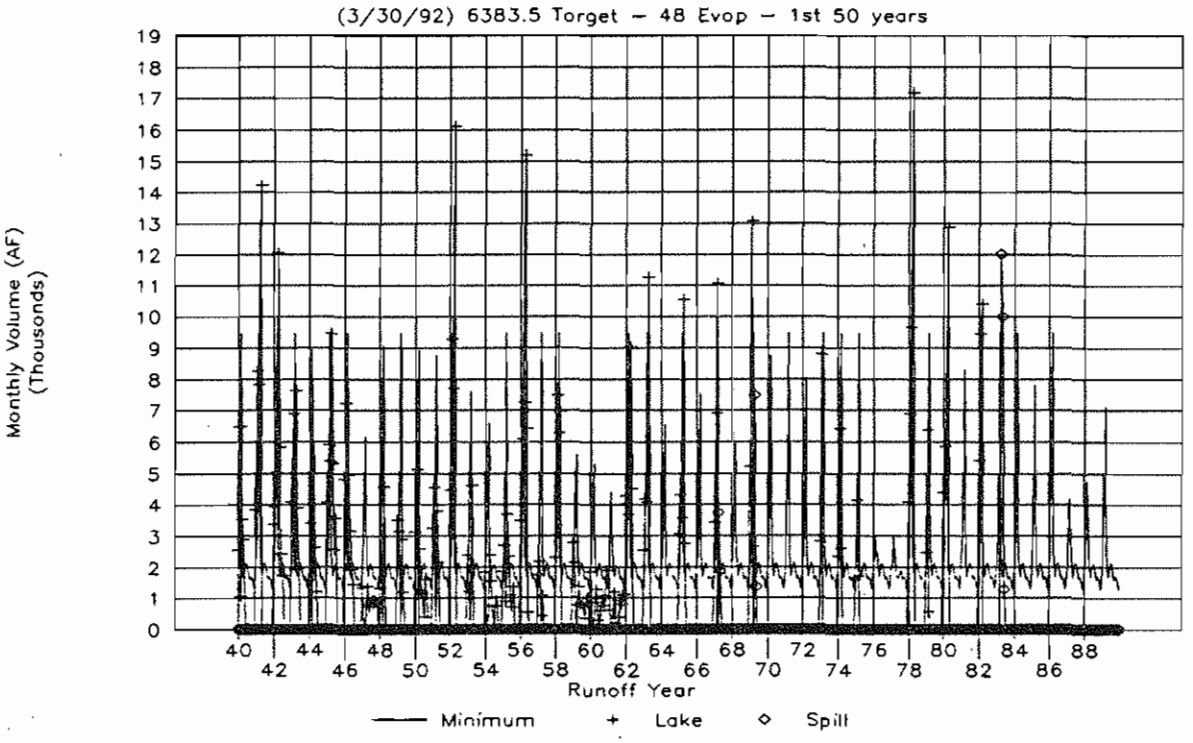

Lee Vining Streamflow Distribution
(3/30/92) 6383.5 Target – 48 Evap – 1st 50 years
Streamflow (cfs)
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR
Runoff Year
Min
20%
40%
60%
80%
Max

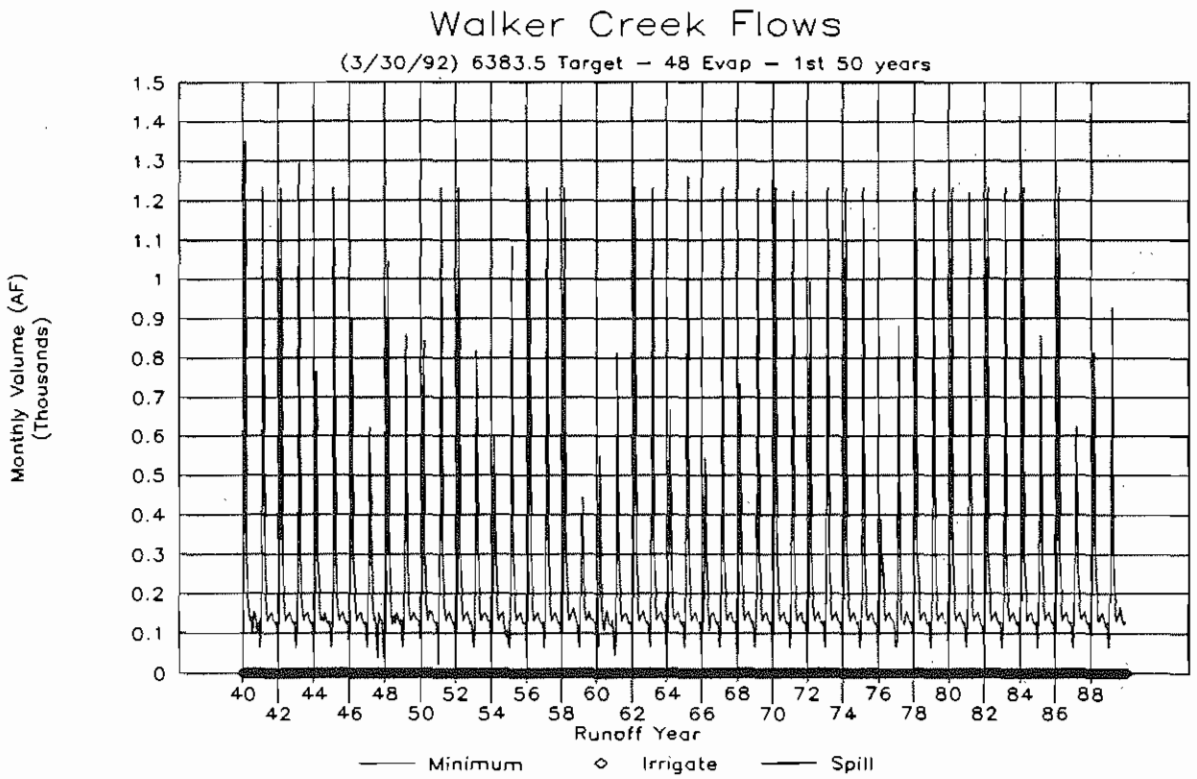

Rush Creek Streamflow Distribution
(3/30/92) 6383.5 Target – 48 Evap – 1st 50 years
Streamflow (cfs)
400
350
300
250
200
150
100
50
0
APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR
Runoff Year
Min
20%
40%
60%
80%
Max

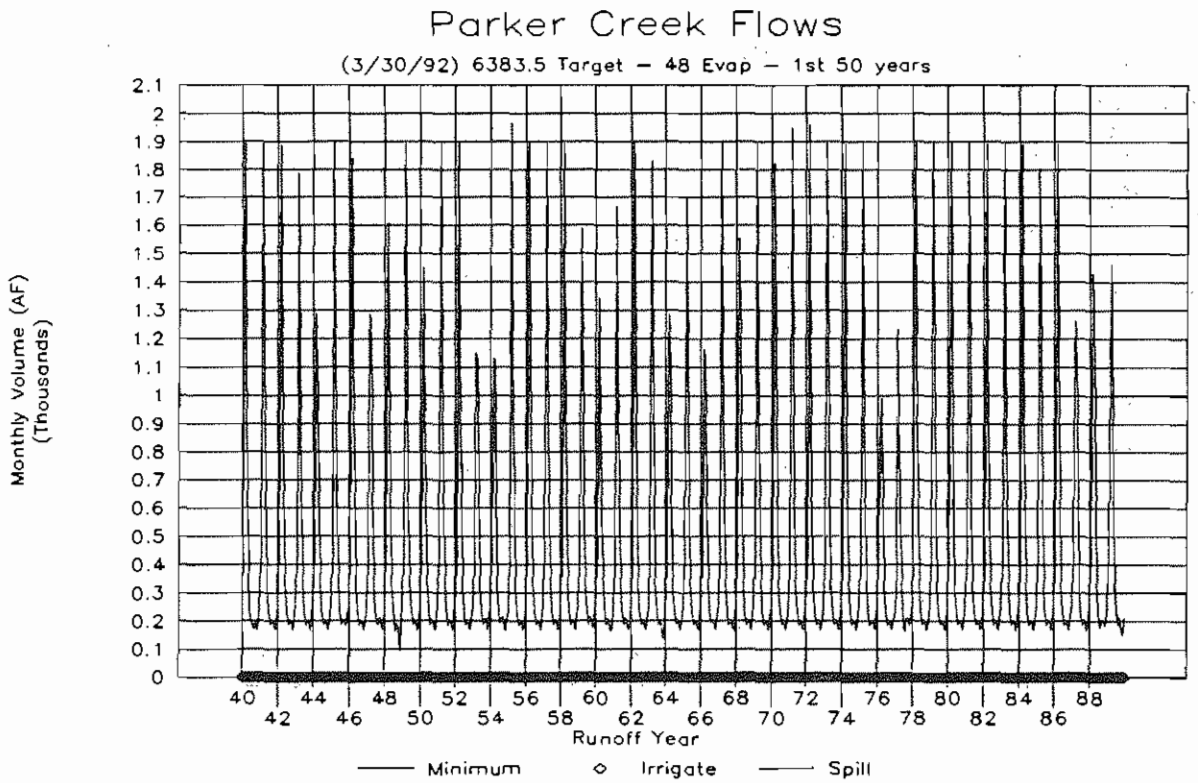

Walker Creek Streamflow Distribution
(3/30/92) 6383.5 Target – 48 Evap – 1st 50 years
Streamflow (cfs)
0
2
4
6
8
10
12
14
16
18
20
22
24
APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR
Runoff Year
Min
20%
40%
60%
80%
Max


Parker Creek Streamflow Distribution
(3/30/92) 6383.5 Target – 48 Evap – 1st 50 years
Streamflow (cfs)
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34
36
APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR
Runoff Year
Min
20%
40%
60%
80%
Max


Lee Vining Creek Flows
(3/30/92) 6383.5 Target – 48 Evap – 1st 50 years
Monthly Volume (AF)
(Thousands)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Minimum
Lake
Spill

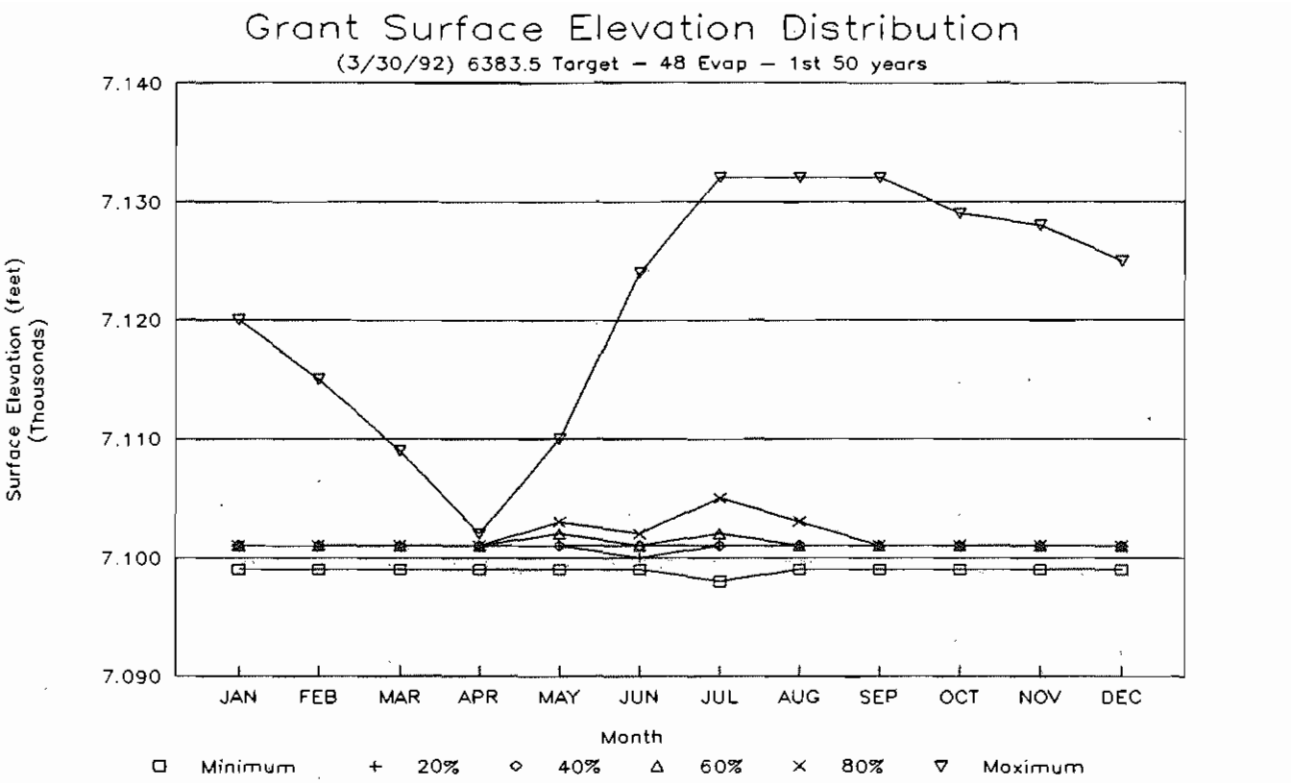

Rush Creek Flows
(3/30/92) 6383.5 Target – 48 Evap – 1st 50 years
Monthly Volume (AF)
(Thousands)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Minimum
Lake
Spill

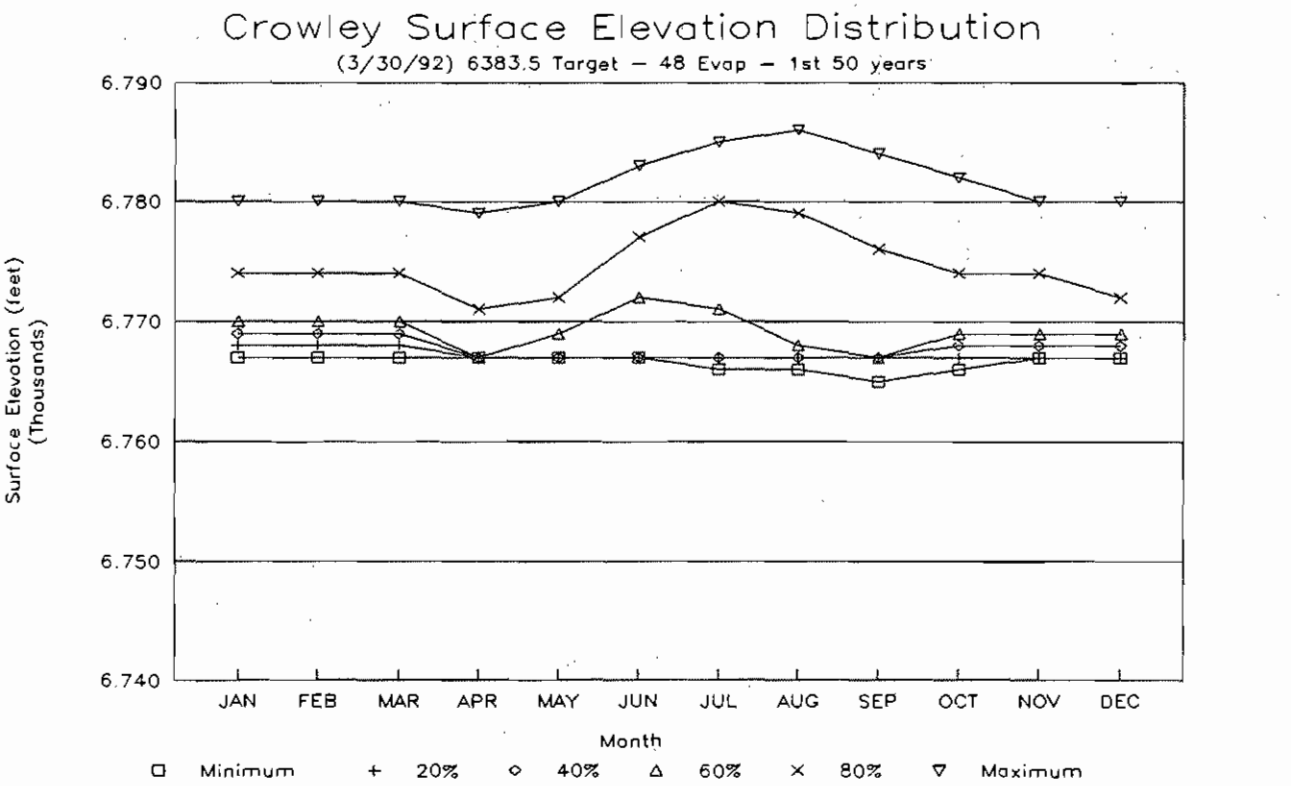

Walker Creek Flows
(3/30/92) 6383.5 Target – 48 Evap – 1st 50 years
Monthly Volume (AF)
(Thousands)
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Minimum
Irrigate
Spill


Parker Creek Flows
(3/30/92) 6383.5 Target – 48 Evap – 1st 50 years
Monthly Volume (AF)
(Thousands)
2.1
2
1.9
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Minimum
Irrigate
Spill

Monthly Distribution of Lake Elevations
03/30/92
Mono EIR Alternatives
Initial Alternatives – 1st 50 years:
(3/30/92) 6383.5 Target – 48 Evap – 1st 50 years

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Grant Lake:												
Minimum	7099	7099	7099	7099	7099	7099	7098	7099	7099	7099	7099	7099
10%	7101	7101	7101	7101	7101	7100	7100	7100	7100	7100	7100	7100
20%	7101	7101	7101	7101	7101	7100	7101	7101	7101	7101	7101	7101
30%	7101	7101	7101	7101	7101	7100	7101	7101	7101	7101	7101	7101
40%	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101
50%	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101
60%	7101	7101	7101	7101	7102	7101	7102	7101	7101	7101	7101	7101
70%	7101	7101	7101	7101	7102	7101	7103	7102	7101	7101	7101	7101
80%	7101	7101	7101	7101	7103	7102	7105	7103	7101	7101	7101	7101
90%	7101	7101	7101	7101	7103	7102	7115	7115	7107	7101	7102	7101
Maximum	7120	7115	7109	7102	7110	7124	7132	7132	7132	7129	7128	7125
Lake Crowley:												
Minimum	6767	6767	6767	6767	6767	6767	6766	6766	6765	6766	6767	6767
10%	6767	6768	6767	6767	6767	6767	6767	6767	6767	6767	6767	6767
20%	6768	6768	6768	6767	6767	6767	6767	6767	6767	6767	6767	6767
30%	6768	6769	6768	6767	6767	6767	6767	6767	6767	6768	6768	6768
40%	6769	6769	6769	6767	6767	6767	6767	6767	6767	6768	6768	6768
50%	6769	6769	6770	6767	6767	6770	6768	6767	6767	6769	6768	6768
60%	6770	6770	6770	6767	6769	6772	6771	6768	6767	6769	6769	6769
70%	6770	6771	6772	6769	6771	6774	6774	6774	6769	6769	6770	6770
80%	6774	6774	6774	6771	6772	6777	6780	6779	6776	6774	6774	6772
90%	6775	6775	6775	6774	6774	6779	6780	6780	6778	6777	6778	6776
Maximum	6780	6780	6780	6779	6780	6783	6785	6786	6784	6782	6780	6780


Grant Surface Elevation Distribution
(3/30/92) 6383.5 Target – 48 Evap – 1st 50 years
Surface Elevation (feet)
(Thousands)
7.140
7.130
7.120
7.110
7.100
7.090
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
Month
Minimum
20%
40%
60%
80%
Maximum


Crowley Surface Elevation Distribution
(3/30/92) 6383.5 Target – 48 Evap – 1st 50 years
Surface Elevation (feet)
(Thousands)
6.790
6.780
6.770
6.760
6.750
6.740
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
Month
Minimum
20%
40%
60%
80%
Maximum

Owens River Streamflows – Monthly Cumulative Percentiles
03/30/92
Mono EIR Alternatives
Initial Alternatives – 1st 50 years:
(3/30/92) 6383.5 Target – 48 Evap – 1st 50 years

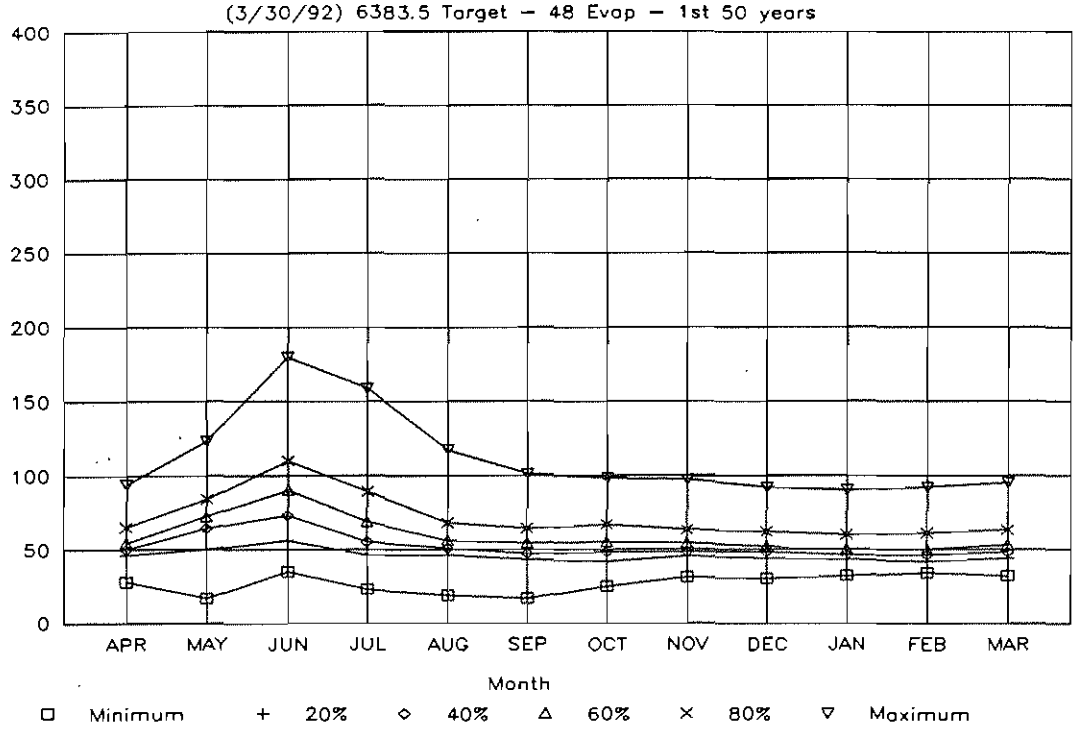
	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
Owens above East Portal:												
0%	28	17	35	23	19	17	25	31	30	32	34	32
10%	41	47	53	40	40	39	36	39	40	39	40	41
20%	46	50	56	46	46	43	42	45	44	43	42	44
30%	47	56	63	52	49	45	44	47	46	45	44	45
40%	50	64	73	55	51	47	48	48	48	46	46	48
50%	52	66	79	62	54	53	51	51	49	50	49	50
60%	54	72	90	69	56	54	55	54	52	50	50	53
70%	62	79	103	77	60	59	58	56	58	54	54	56
80%	65	84	110	89	68	64	67	63	62	60	61	63
90%	72	98	126	102	79	70	72	73	72	72	72	75
100%	94	123	180	159	117	101	98	97	92	90	92	95
Owens below East Portal:												
0%	39	47	45	32	28	25	46	43	44	50	51	61
10%	61	63	66	60	64	63	62	63	62	74	77	93
20%	64	74	72	70	72	69	65	78	83	84	89	108
30%	69	88	79	76	74	75	85	95	98	100	99	113
40%	72	93	91	87	83	88	98	110	115	108	102	121
50%	75	101	97	97	109	101	113	122	122	114	109	130
60%	85	115	114	134	132	122	123	138	131	124	117	134
70%	97	133	123	222	199	145	138	149	148	127	124	142
80%	122	186	152	275	299	268	160	170	173	140	130	149
90%	172	260	218	299	299	299	299	299	194	160	146	160
100%	297	299	299	299	299	299	299	299	299	299	297	299
Pleasant Valley Outflow:												
0%	204	125	122	125	124	125	118	120	118	118	133	119
10%	256	156	187	137	153	166	121	206	185	163	158	215
20%	280	214	222	195	174	180	121	224	200	194	175	235
30%	306	249	244	245	189	188	152	252	232	213	201	289
40%	331	281	290	364	234	233	195	273	280	277	300	332
50%	383	313	364	476	417	259	230	325	308	302	323	350
60%	431	332	402	493	461	332	266	343	328	343	336	361
70%	486	397	429	609	594	503	373	381	353	356	341	365
80%	515	459	510	683	645	682	457	400	386	390	366	377
90%	593	488	579	779	728	759	583	508	500	489	456	407
100%	645	592	998	968	915	817	795	758	538	602	592	550
Owens at Horton Creek:												
0%	206	126	126	126	126	126	126	126	126	126	142	126
10%	261	171	198	139	154	167	126	212	194	171	167	220
20%	285	218	239	197	176	181	126	231	207	201	183	242
30%	309	254	257	248	191	189	157	258	241	221	208	295
40%	337	293	300	374	238	237	202	279	287	284	309	339
50%	392	325	371	490	420	264	235	331	315	310	331	357
60%	437	343	415	514	465	337	272	350	335	352	344	368
70%	491	400	449	615	604	507	380	388	362	366	349	371
80%	522	465	527	718	655	690	465	409	395	398	374	384
90%	597	502	594	795	750	766	592	518	508	497	465	415
100%	651	610	1044	1010	946	833	806	769	550	613	604	560

Owens River Streamflows – Monthly Cumulative Percentiles
03/30/92
Mono EIR Alternatives
Initial Alternatives – 1st 50 years:
(3/30/92) 6383.5 Target – 48 Evap – 1st 50 years

	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
Owens at Bishop Diversion:												
0%	206	126	68	126	126	126	126	126	126	126	142	126
10%	261	126	126	139	154	167	126	212	194	171	167	220
20%	285	186	198	197	176	181	126	231	207	201	183	242
30%	303	231	239	248	191	189	157	258	241	221	208	295
40%	327	280	287	361	238	237	202	279	285	284	309	339
50%	377	297	344	442	393	264	235	324	315	310	331	357
60%	437	323	397	490	465	337	272	350	333	352	341	366
70%	465	383	415	522	537	460	380	378	362	361	345	371
80%	500	446	478	598	563	609	449	409	395	398	374	384
90%	554	476	575	687	603	656	560	494	486	482	455	413
100%	649	564	851	814	753	715	686	658	521	531	507	550
Owens at Laws Diversion:												
0%	206	126	126	126	126	126	126	126	126	126	142	126
10%	261	171	194	139	154	167	126	212	194	171	167	220
20%	285	198	216	197	176	181	126	231	207	201	183	242
30%	309	254	253	248	191	189	157	258	241	221	208	295
40%	330	287	300	374	238	237	202	279	287	284	309	339
50%	392	315	367	486	420	264	235	325	315	310	331	357
60%	437	335	414	503	465	337	272	350	335	352	344	368
70%	490	400	437	589	592	493	380	378	362	362	348	371
80%	518	465	515	661	635	641	458	409	395	398	374	384
90%	585	493	585	732	680	722	577	504	494	491	462	413
100%	649	564	931	899	835	749	703	667	530	539	514	557
Owens at Laws Return:												
0%	256	132	74	159	159	155	129	131	174	133	150	136
10%	327	166	158	178	197	206	161	226	207	182	179	229
20%	338	239	218	219	217	220	180	237	230	211	195	252
30%	365	278	276	293	232	228	196	277	262	230	220	308
40%	397	305	303	368	295	285	239	327	295	313	318	356
50%	433	326	369	442	429	324	251	361	342	347	341	370
60%	472	344	402	506	514	376	285	379	355	363	352	379
70%	516	397	438	544	546	525	380	395	376	377	364	383
80%	536	464	483	607	581	625	451	414	406	409	384	398
90%	583	506	591	687	607	666	568	503	501	498	467	422
100%	669	603	859	818	759	716	694	670	536	545	520	564
Owens at Bishop Return:												
0%	305	198	113	164	168	204	186	199	252	256	238	255
10%	398	281	245	182	206	258	227	305	289	279	260	286
20%	429	302	285	221	235	280	260	317	295	288	271	340
30%	448	359	316	271	267	301	286	385	345	336	309	410
40%	494	394	358	361	315	339	329	435	399	405	413	448
50%	530	419	422	470	438	373	347	466	437	440	452	472
60%	569	434	438	498	516	481	384	484	459	470	467	479
70%	614	485	477	550	542	610	502	509	487	487	477	487
80%	630	557	503	600	594	696	540	522	510	498	487	498
90%	680	584	594	665	654	729	675	632	620	616	594	511
100%	741	658	1091	822	812	782	714	745	690	703	697	700

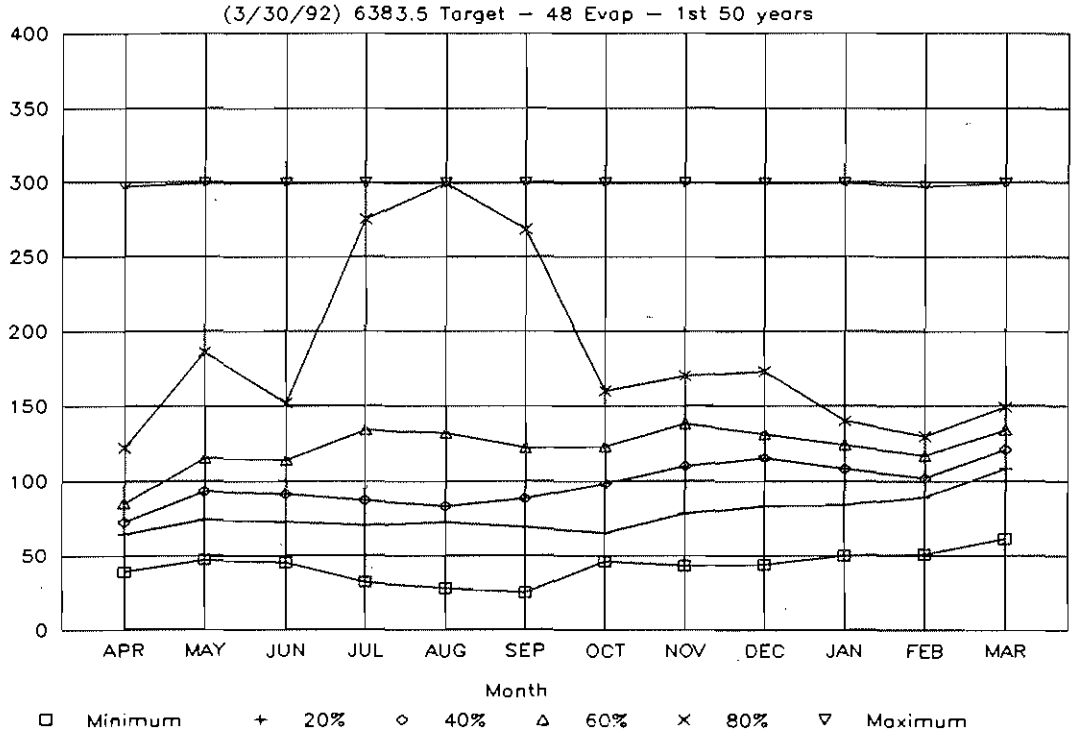
Owens Above East Portal Monthly Flows

(3/30/92) 6383.5 Target – 48 Evap – 1st 50 years



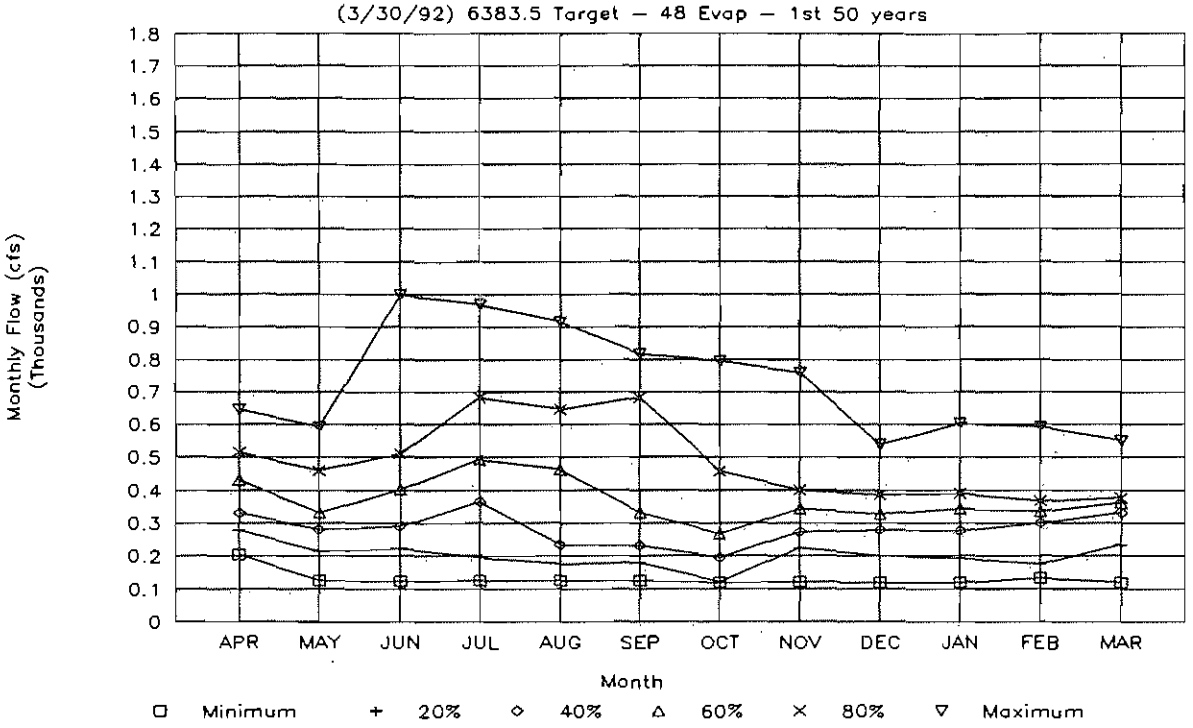
Owens Below East Portal Monthly Flows

(3/30/92) 6383.5 Target – 48 Evap – 1st 50 years



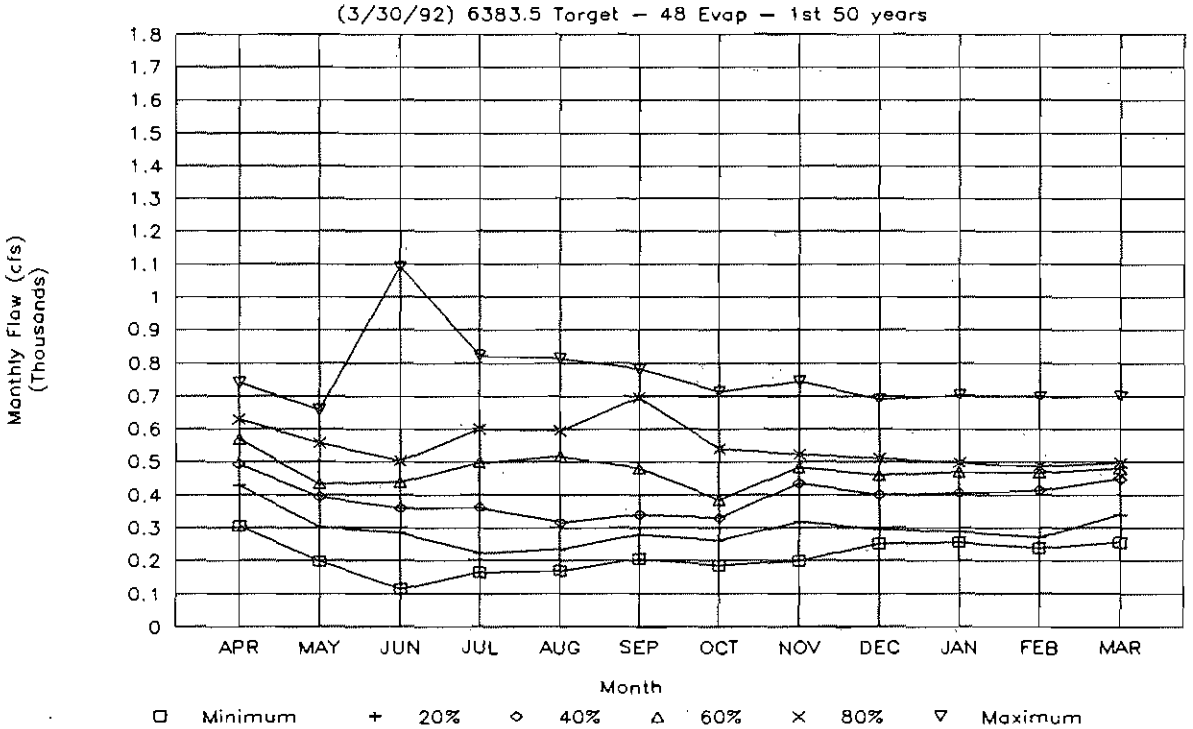
Owens @ Pleasant Valley Monthly Flows

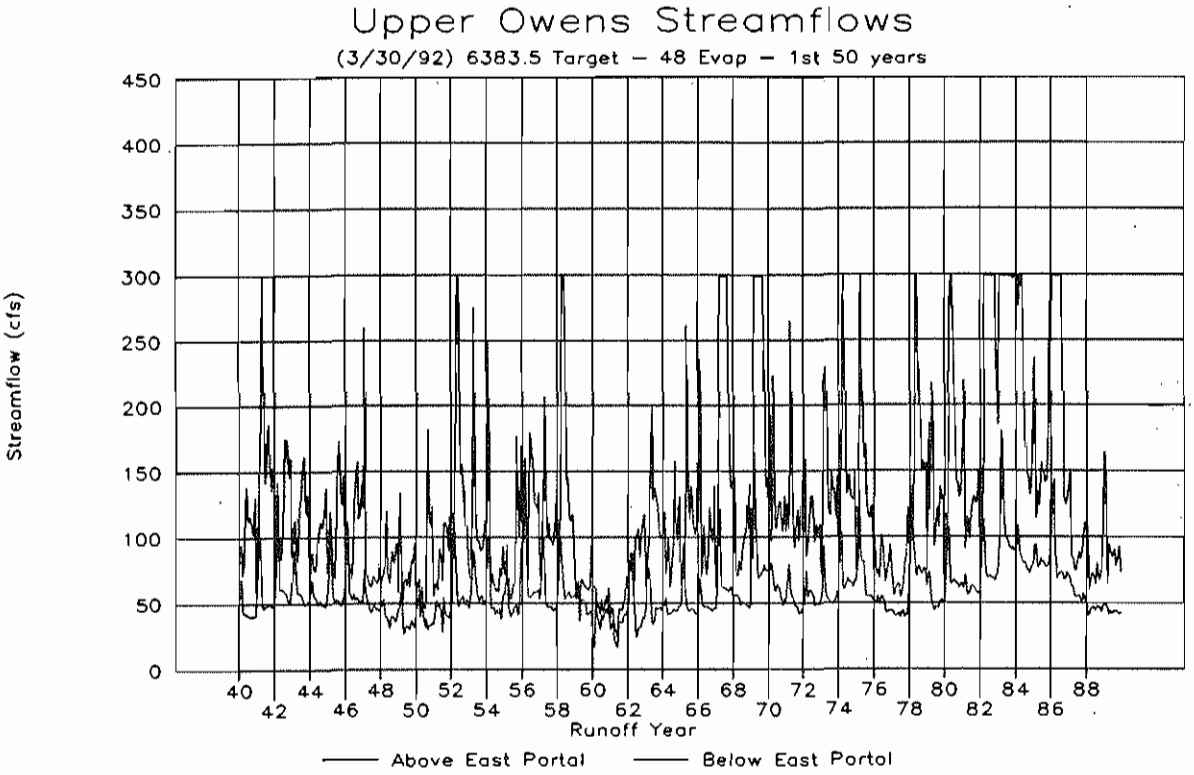
(3/30/92) 6383.5 Target – 48 Evap – 1st 50 years

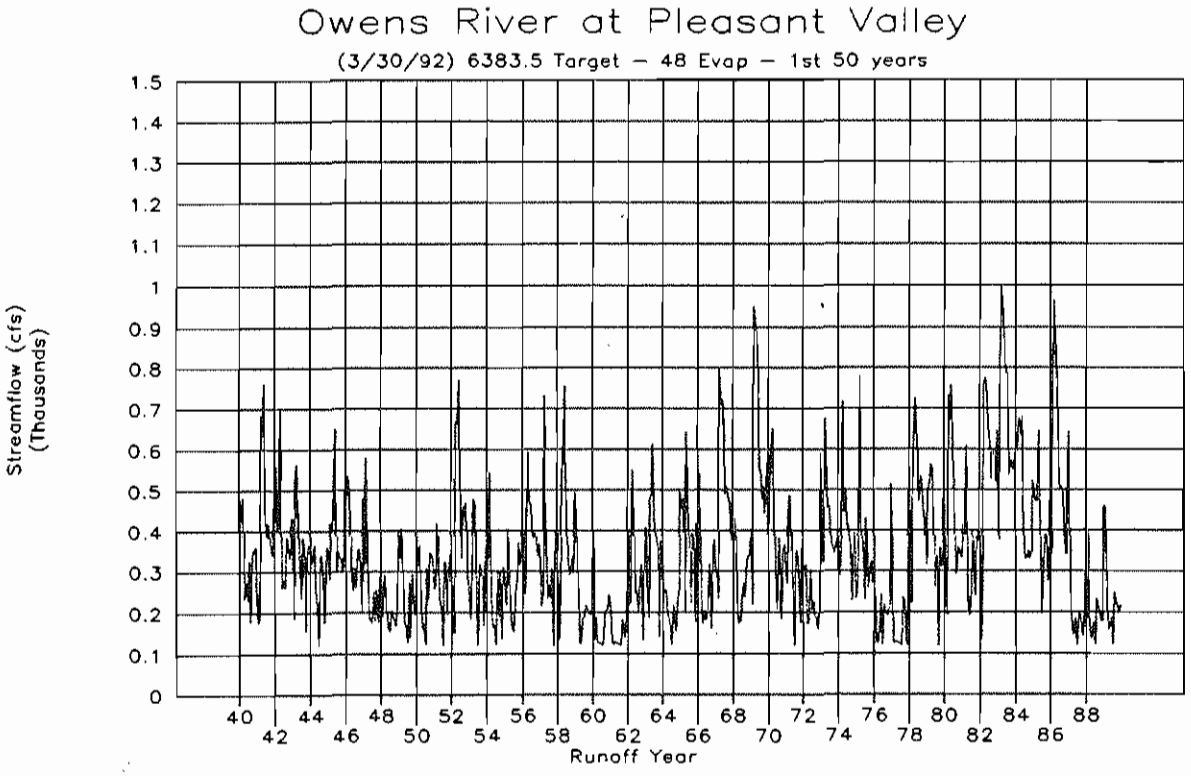


Owens @ Big Pine Canal Monthly Flows

(3/30/92) 6383.5 Target – 48 Evap – 1st 50 years




Upper Owens Streamflows
(3/30/92) 6383.5 Target – 48 Evap – 1st 50 years
Streamflow (cfs)
450
400
350
300
250
200
150
100
50
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Above East Portal
Below East Portol

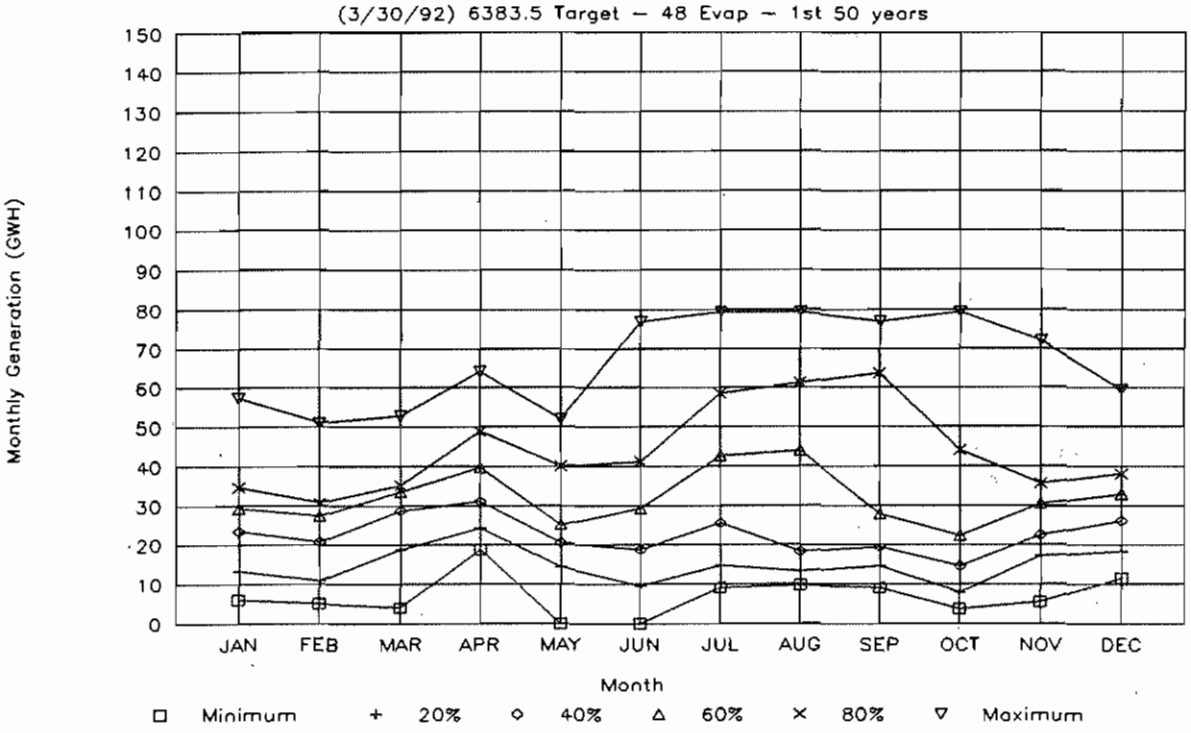

Owens River at Pleasant Valley
(3/30/92) 6383.5 Target – 48 Evap – 1st 50 years
Streamflow (cfs)
(Thousands)
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year

Cumulative Monthly Distribution of LADWP Aqueduct Power Generation
03/30/92
Mono EIR Alternatives
Initial Alternatives - 1st 50 years:
(3/30/92) 6383.5 Target - 48 Evap - 1st 50 years Annual Average: 919.5 GWH/yr

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Gorge Power Plants:												
0%	6.0	5.0	4.0	18.8	0.0	0.0	9.1	9.7	9.1	3.7	5.5	11.5
10%	10.4	7.8	16.9	21.6	0.4	2.6	11.6	10.6	13.7	6.6	15.3	15.4
20%	13.3	10.8	18.7	24.3	14.4	9.5	14.8	13.2	14.5	8.0	17.2	18.3
30%	16.2	13.6	23.2	27.4	18.7	15.0	19.0	15.6	15.7	9.6	21.0	23.0
40%	23.4	20.8	28.7	31.0	20.5	18.7	25.5	18.2	19.5	14.6	22.5	26.0
50%	26.9	25.6	32.1	34.8	22.7	24.8	36.1	36.2	22.0	17.3	28.3	30.2
60%	29.2	27.2	33.5	39.7	25.2	29.4	42.5	43.8	27.8	22.3	30.5	32.9
70%	33.3	28.8	34.3	46.5	35.2	33.7	54.0	55.6	44.4	31.6	32.5	35.2
80%	34.7	30.7	35.1	48.8	40.0	41.2	58.5	61.2	63.6	44.0	35.6	38.0
90%	46.6	37.2	36.8	57.9	43.8	52.2	68.1	66.8	76.8	55.5	45.1	51.4
100%	57.3	50.9	52.8	64.2	52.0	76.8	79.4	79.4	76.8	79.4	72.0	59.4
Los Angeles Power Plants:												
0%	19.6	20.7	23.5	33.3	22.7	20.6	15.7	19.0	18.7	12.1	15.1	20.1
10%	22.6	20.7	23.5	40.9	34.9	32.2	23.1	22.7	24.4	15.5	21.8	22.9
20%	22.6	20.7	23.5	44.4	40.6	38.9	26.5	28.2	30.4	19.0	21.8	22.9
30%	28.5	26.1	37.2	46.6	44.9	43.2	38.4	31.7	32.6	26.2	32.2	32.3
40%	32.7	35.0	41.7	48.4	47.1	46.6	40.0	37.8	35.8	28.7	36.9	35.0
50%	38.3	37.7	41.7	50.9	49.2	54.2	52.4	45.2	38.1	32.1	39.7	38.6
60%	40.9	37.7	41.7	54.4	50.4	57.0	58.6	50.3	41.2	33.9	39.7	41.2
70%	40.9	37.7	41.7	55.9	58.8	57.0	58.6	58.6	53.9	41.0	39.7	41.2
80%	40.9	37.7	41.7	57.2	58.8	57.0	58.6	58.6	57.3	41.0	39.7	41.2
90%	50.1	46.1	42.5	57.2	58.8	57.0	58.6	58.6	57.3	50.2	48.7	50.4
100%	58.1	53.7	58.4	57.2	58.8	57.0	58.6	58.6	57.3	58.3	56.4	58.4
Owens Valley Power Plants:												
0%	2.9	2.8	3.2	4.4	3.8	4.4	3.9	4.1	3.3	2.4	2.4	3.1
10%	3.2	3.0	3.4	4.7	5.5	5.8	4.7	4.7	4.2	2.7	3.2	3.2
20%	3.4	3.1	3.7	5.0	6.0	6.3	5.3	5.0	4.6	3.5	3.6	3.5
30%	4.1	3.5	4.7	5.4	6.3	6.5	6.3	5.5	5.0	4.0	4.5	4.4
40%	4.6	4.4	5.0	5.5	6.4	6.5	6.5	6.0	5.5	4.2	4.7	4.8
50%	4.8	4.9	5.2	5.6	6.5	6.6	7.0	6.7	5.7	4.5	4.9	4.9
60%	5.0	4.9	5.2	5.7	6.6	6.8	7.3	6.9	6.1	4.9	5.0	5.1
70%	5.2	5.0	5.3	5.9	6.9	7.0	7.4	7.1	6.5	5.5	5.3	5.2
80%	5.4	5.0	5.4	6.2	6.9	7.1	7.5	7.4	7.0	6.1	5.4	5.5
90%	5.6	5.4	5.5	6.3	7.1	7.2	7.6	7.6	7.4	6.5	5.9	5.7
100%	6.8	6.4	6.5	6.9	7.7	7.6	7.9	7.8	7.7	7.2	7.2	6.9
Total Aqueduct Power Plants:												
0%	34.9	28.8	31.3	56.8	36.9	35.7	32.0	33.6	31.4	22.8	24.3	38.5
10%	39.3	34.0	44.0	70.8	54.2	55.7	38.1	39.2	42.6	25.0	41.1	44.5
20%	41.1	37.2	48.3	74.0	59.7	63.1	46.7	46.0	49.2	37.3	43.4	49.0
30%	42.3	39.3	68.8	80.9	68.1	65.9	62.6	53.0	51.9	40.5	59.0	53.5
40%	63.1	61.0	75.3	82.9	71.3	72.1	71.8	61.3	61.3	47.5	65.5	66.5
50%	70.9	67.9	78.2	91.4	76.9	75.4	97.1	86.8	66.3	53.1	71.3	73.7
60%	74.8	70.5	80.1	99.1	85.7	84.2	103.5	101.1	73.6	59.2	75.1	76.9
70%	79.2	71.4	81.2	105.9	93.3	92.4	119.9	119.8	103.1	78.6	77.5	81.1
80%	80.7	73.8	82.3	111.0	101.5	105.2	124.7	127.5	128.2	91.4	81.6	84.4
90%	102.5	88.7	86.5	121.3	109.1	116.3	134.7	132.5	140.5	112.6	99.9	109.8
100%	122.2	111.0	117.6	127.2	117.9	141.2	145.6	145.6	141.7	144.7	134.6	122.8

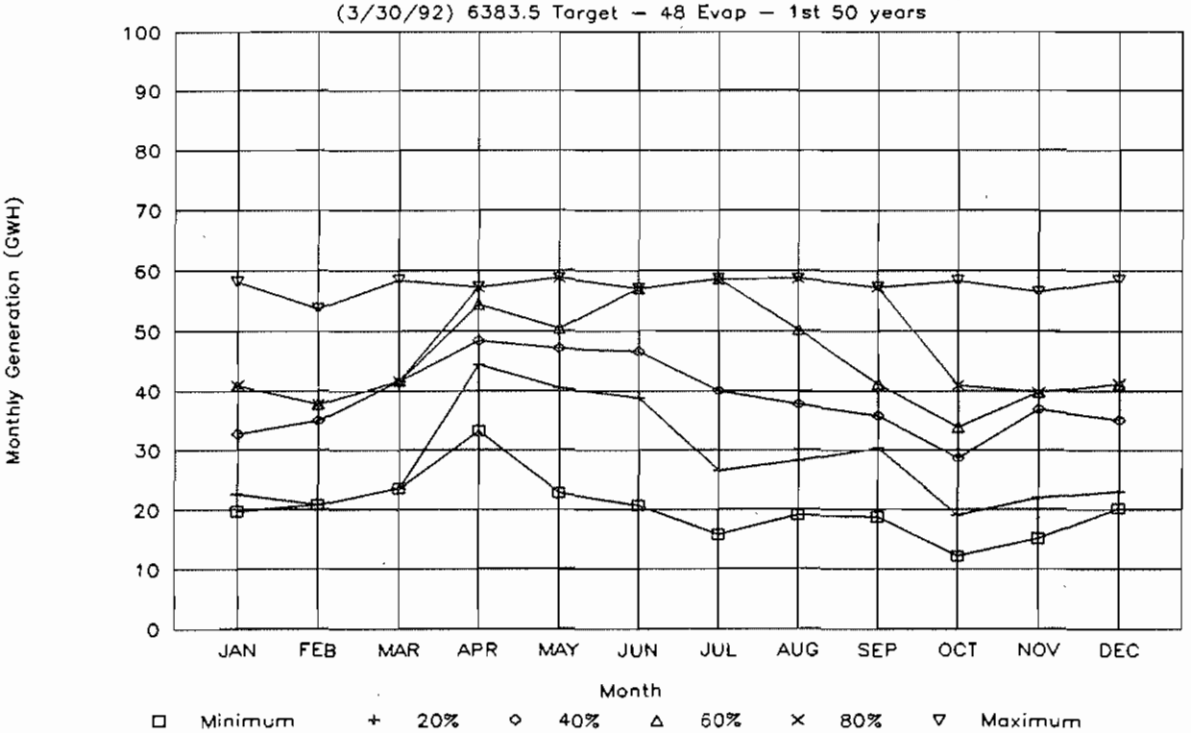
Owens Gorge Power Distribution

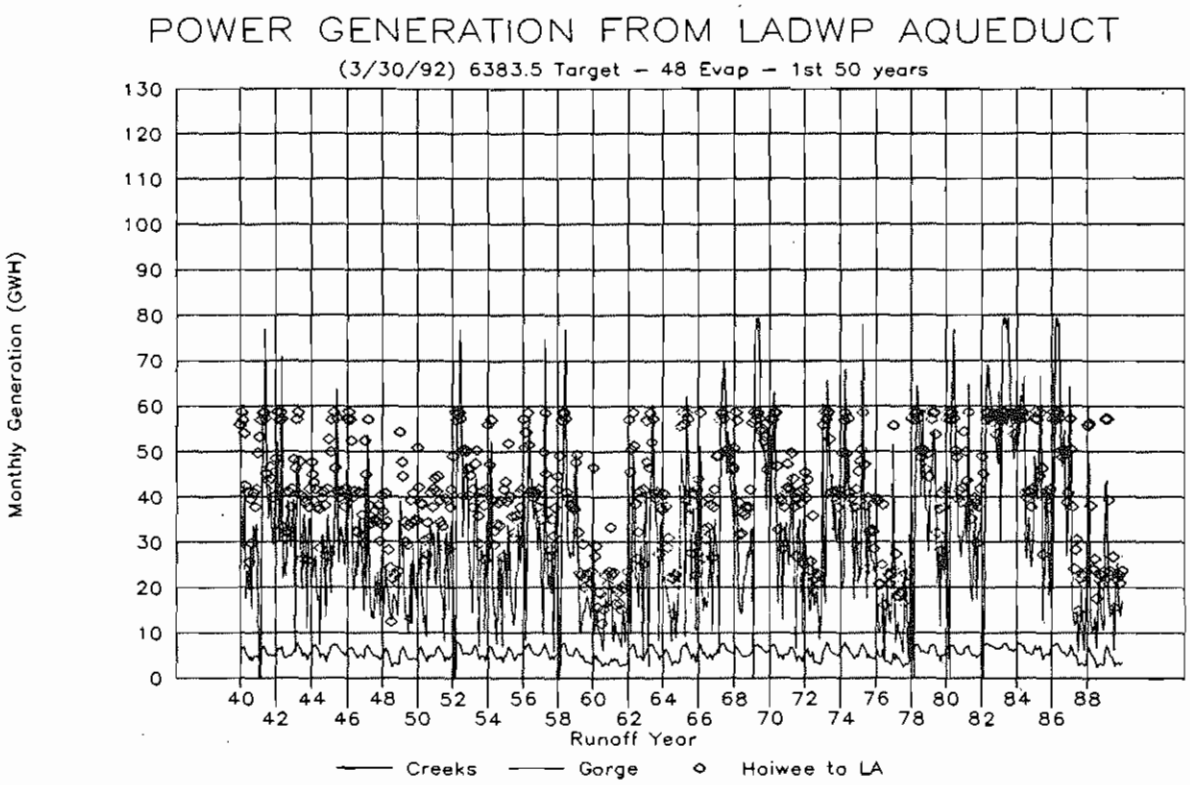
(3/30/92) 6383.5 Target – 48 Evap – 1st 50 years

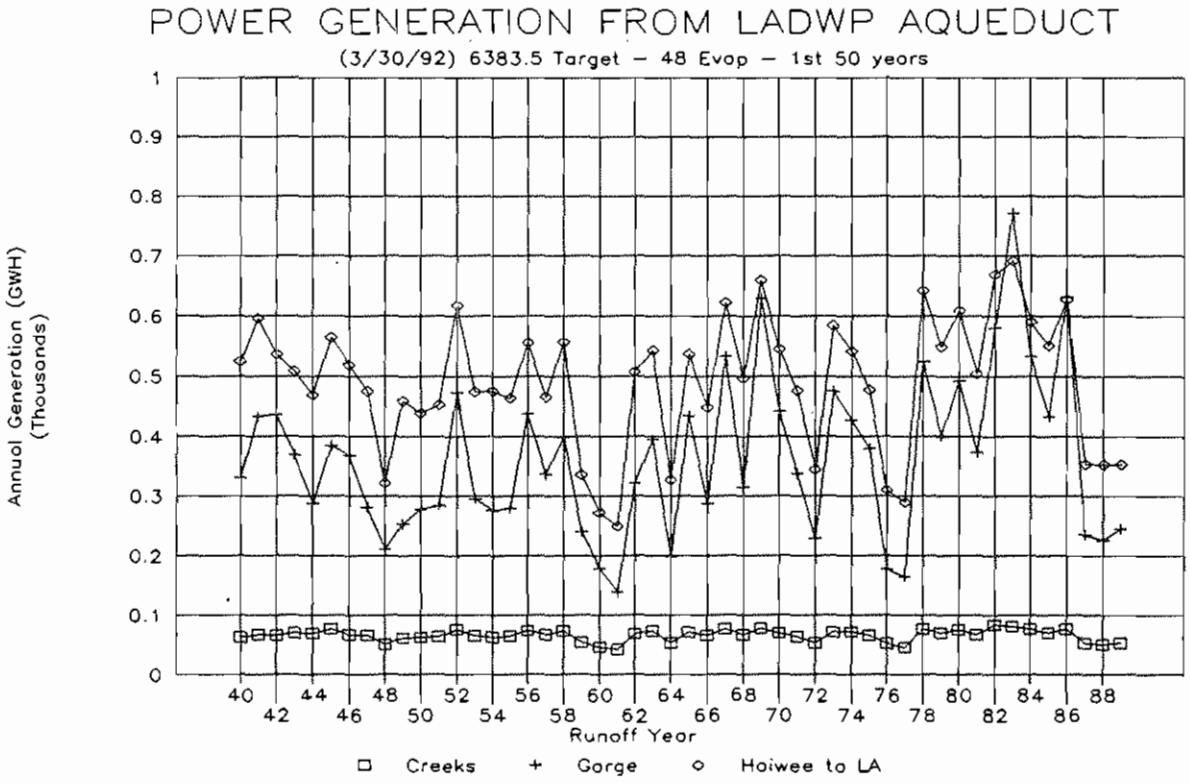


Haiwee to LA Power Distribution

(3/30/92) 6383.5 Target – 48 Evap – 1st 50 years



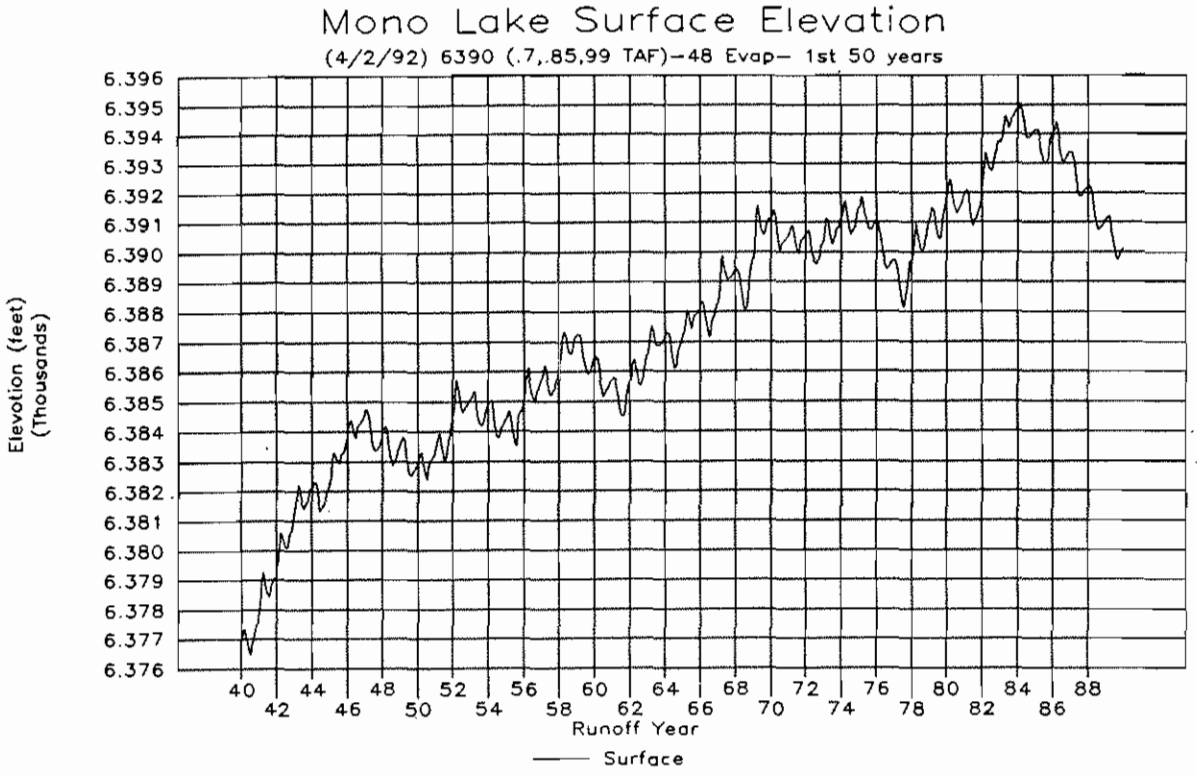

POWER GENERATION FROM LADWP AQUEDUCT
(3/30/92) 6383.5 Target – 48 Evap – 1st 50 years
Monthly Generation (GWH)
130
120
110
100
90
80
70
60
50
40
30
20
10
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Yeor
Creeks
Gorge
Hoiwee to LA

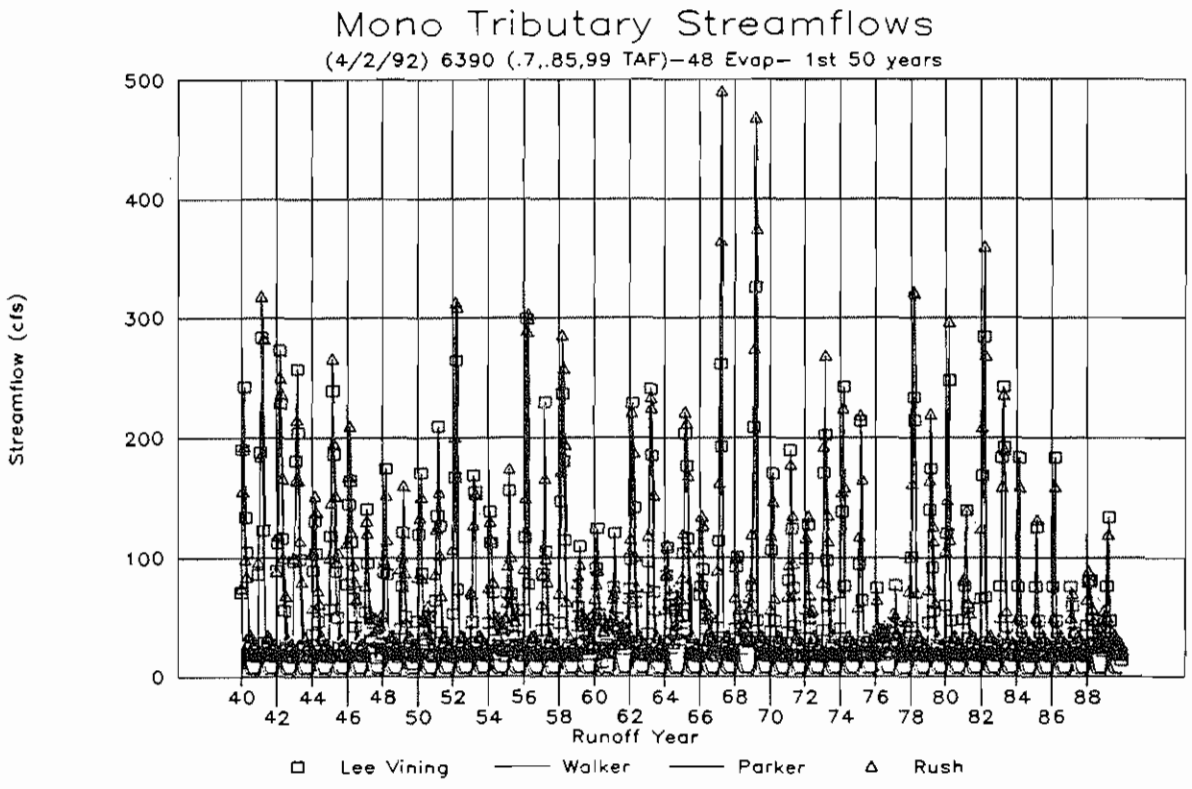

POWER GENERATION FROM LADWP AQUEDUCT
(3/30/92) 6383.5 Target – 48 Evap – 1st 50 yeors
Annuol Generotion (GWH)
(Thousands)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Yeor
Creeks
Gorge
Hoiwee to LA

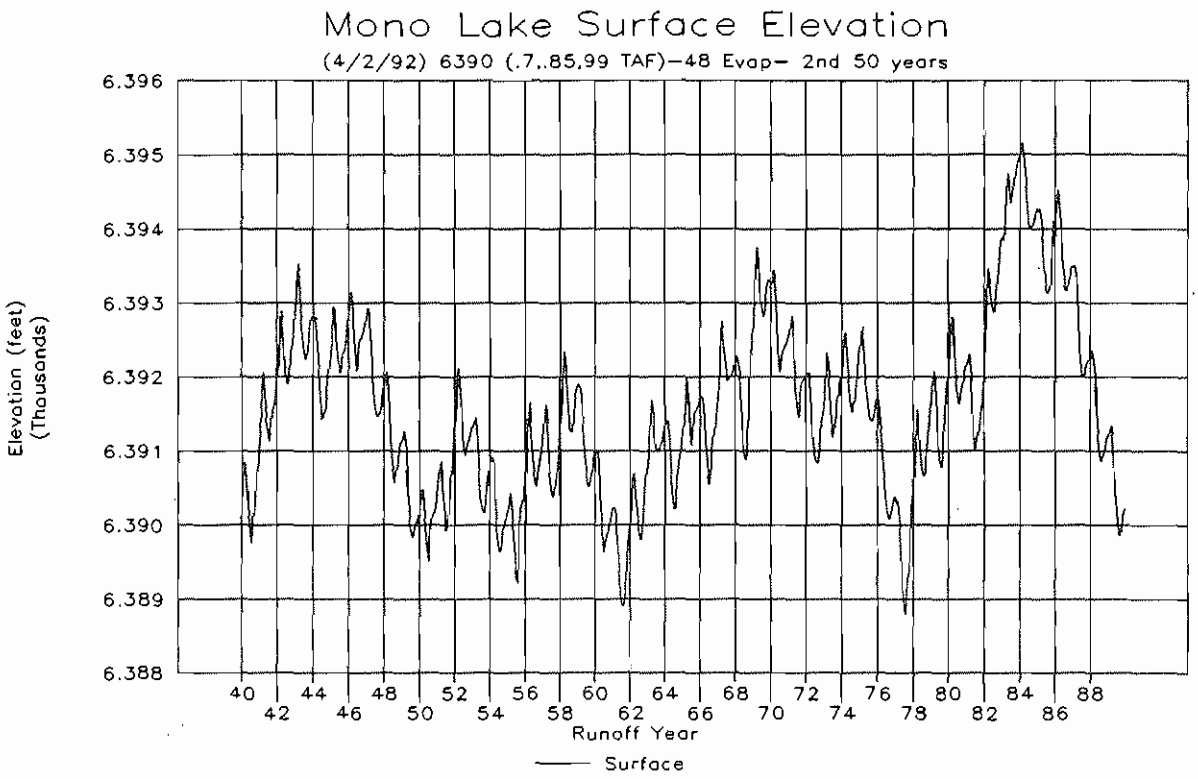
Section 7. 6,390-Ft Alternative

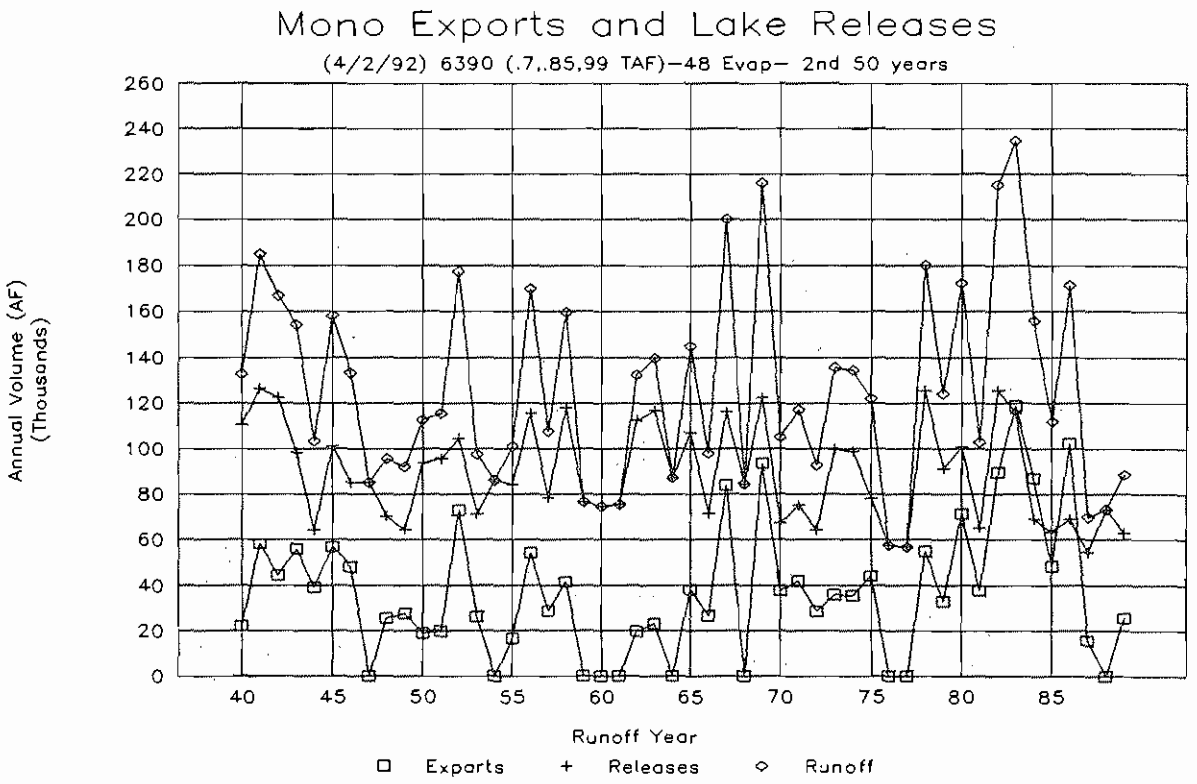
Summary of LAAMP Simulations
04/02/92
Mono EIR Alternatives
Initial Alternatives – 1st 50 years:
(4/2/92) 6390 (.7,.85,99 TAF)–48 Evap– 1st 50 years

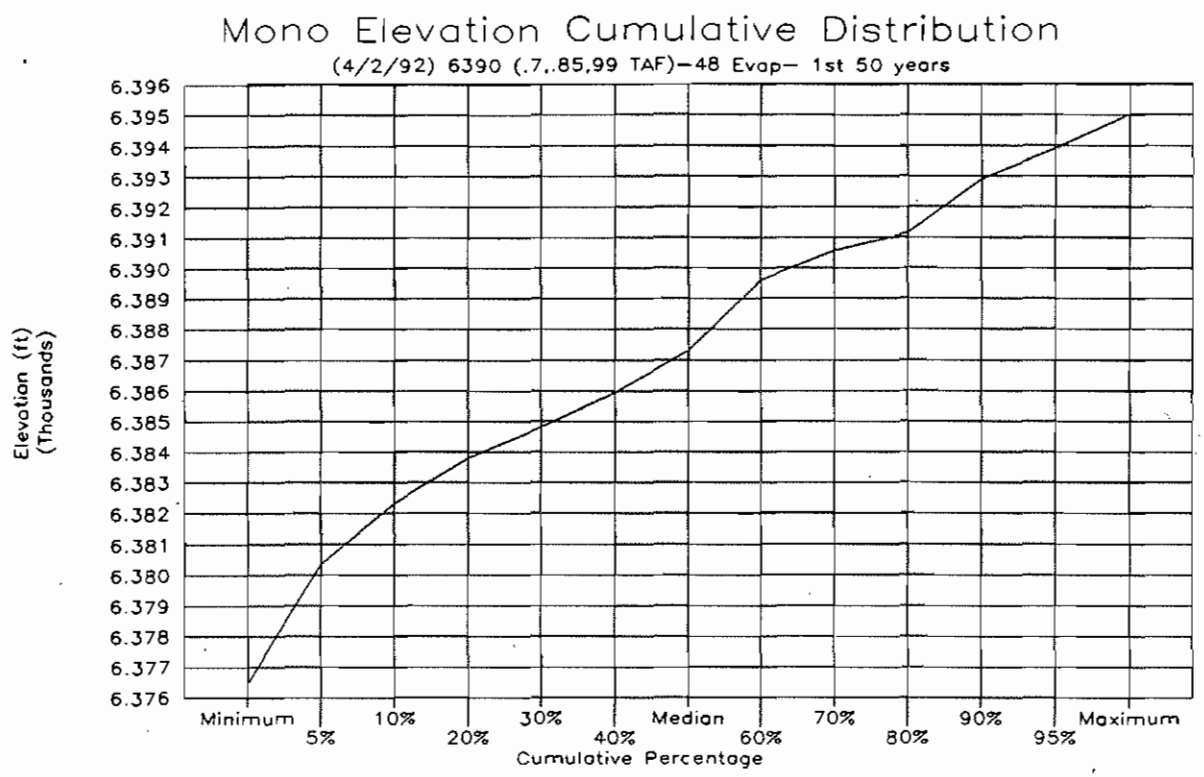
	Owens Available Export (AF)	Total Owens Uses (AF)	Haiwee Exports (AF)	Haiwee Target (AF)	Mono Lake Level (feet)	Grant Storage (AF)	Releases to Mono Lake (AF)	West Portal Exports (AF)	Long Valley Storage (AF)	Long Valley Outflow (AF)	Pleasant Valley Outflow (AF)	Tinemaha Inflow= Outflow (AF)	Total Owens Pumping (AF)	Total Owens Spreading (AF)	Aqueduct Spilling (AF)	Tinemaha Storage (AF)	Haiwee Storage (AF)
Starting:					6376.50	20095			120000							8000	8000
Minimum:	8357	1645	10153	16520	6376.47	16730	2475	0	112336	0	7000	8437	3070	0	0	0	0
Average:	29330	8852	33216	40031	6387.45	20928	7994	2480	134095	15493	20773	29647	9451	1100	878	1580	1389
Maximum:	162922	21682	49600	49600	6395.02	50000	50234	14104	209407	42346	62135	98100	26264	37820	129257	10000	10000
(TAF/yr):	352.0	106.2	398.6	480.4			95.9	29.8		185.9	249.3	355.8	113.4	13.2	10.5		
71-89 Avg:	412.7	107.6	410.2	478.5			85.8	41.4		205.7	274.1	381.2	103.8	21.6	16.4		
71-89 Historical:			470					77.5					108.7				
Ending:					6390.10	20000			131849							0	0
Monthly:																	
April	30248	8024	41299	48000	6387.50	19927	7447	841	128356	18763	22648	34264	14960	0	0	1260	1200
May	34324	14999	39700	49600	6387.64	20726	14487	1319	130682	12867	19590	30499	12038	1575	0	1180	1129
June	41655	19287	40576	48000	6387.90	20825	24619	464	138568	14011	22915	33504	9835	2691	5794	1480	1422
July	41306	19239	37827	49600	6387.90	22997	15893	1880	139645	18763	26725	35367	13978	5401	2485	1760	1696
August	33241	16319	34547	49600	6387.56	22954	7828	3501	136701	18054	23498	30990	15602	2286	435	1902	1775
September	28918	11524	33222	48000	6387.27	21814	4705	3538	132923	17480	21523	29173	15729	587	0	1895	1478
October	24444	4585	26748	31943	6387.04	20977	4054	3397	132966	13759	18368	25403	7753	238	298	1889	1558
November	24069	3222	27931	31023	6387.02	20509	3670	3505	133851	14032	18772	26701	5332	309	439	1760	1480
December	24308	2869	29897	31936	6387.15	20236	3425	3247	132749	16493	19289	28231	5571	8	291	1628	1440
January	23860	2160	30186	31904	6387.30	20161	3486	2608	133096	14697	19649	28657	4477	48	259	1474	1160
February	22064	1727	26689	28848	6387.47	20069	3113	2256	134564	11904	16449	25163	3747	62	266	1380	1160
March	23524	2275	29968	31913	6387.63	19946	3205	3201	135038	15097	19848	27816	4396	0	268	1350	1175
Cumulative Distribution of			Minimum	5%	10%	20%	30%	40%	Median	60%	70%	80%	90%	95%	Maximum		
Mono Lake Monthly Elevations			6376.47	6380.35	6382.32	6383.79	6384.81	6385.93	6387.3	6389.62	6390.57	6391.14	6392.88	6393.88	6395.02		
Annual:																	
Minimum:	158630	86853	199727	400180			54466	0		72361	108130	163469	39457	0	0		
Average:	351962	106229	398589	480367			95931	29756		185919	249273	355769	113417	13204	10535		
Maximum:	911668	121300	581248	581248			146442	118769		410942	525986	700960	196163	158604	206654		

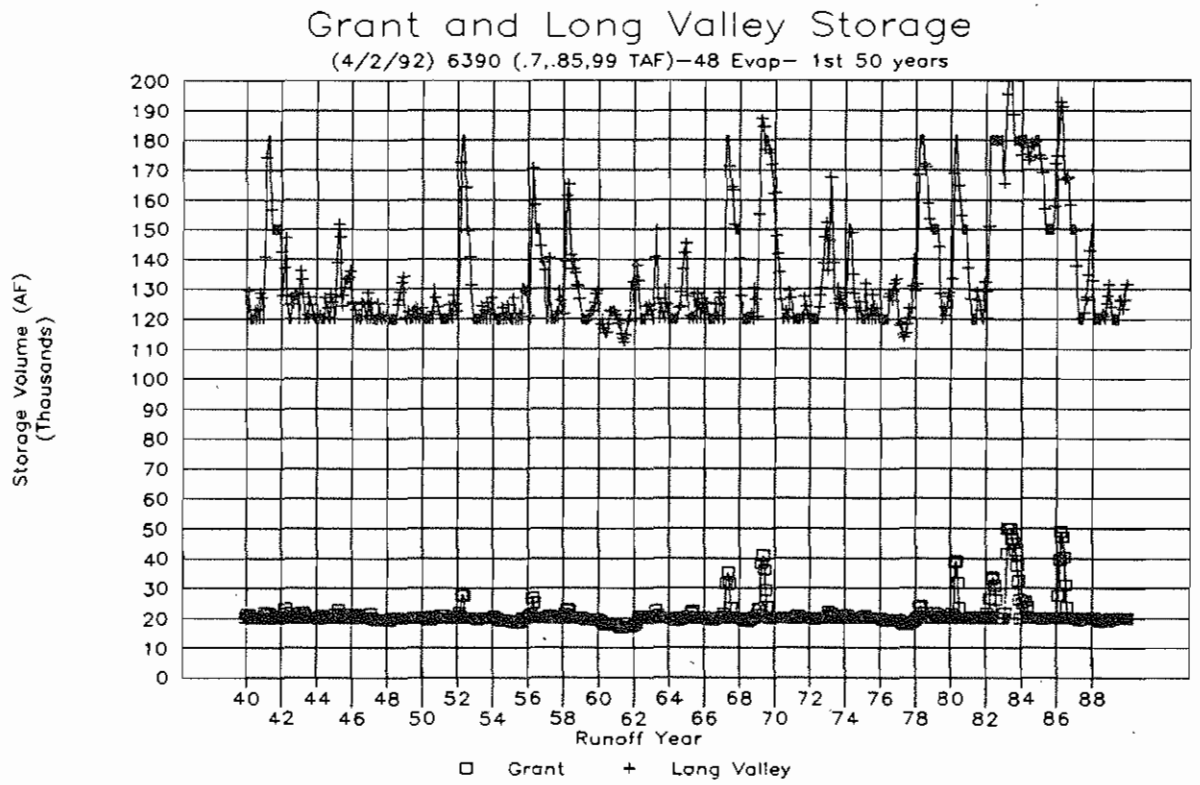

Mono Lake Surface Elevation
(4/2/92) 6390 (.7,.85,99 TAF)-48 Evap- 1st 50 years
Elevation (feet)
(Thousands)
6.396
6.395
6.394
6.393
6.392
6.391
6.390
6.389
6.388
6.387
6.386
6.385
6.384
6.383
6.382
6.381
6.380
6.379
6.378
6.377
6.376
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Surface

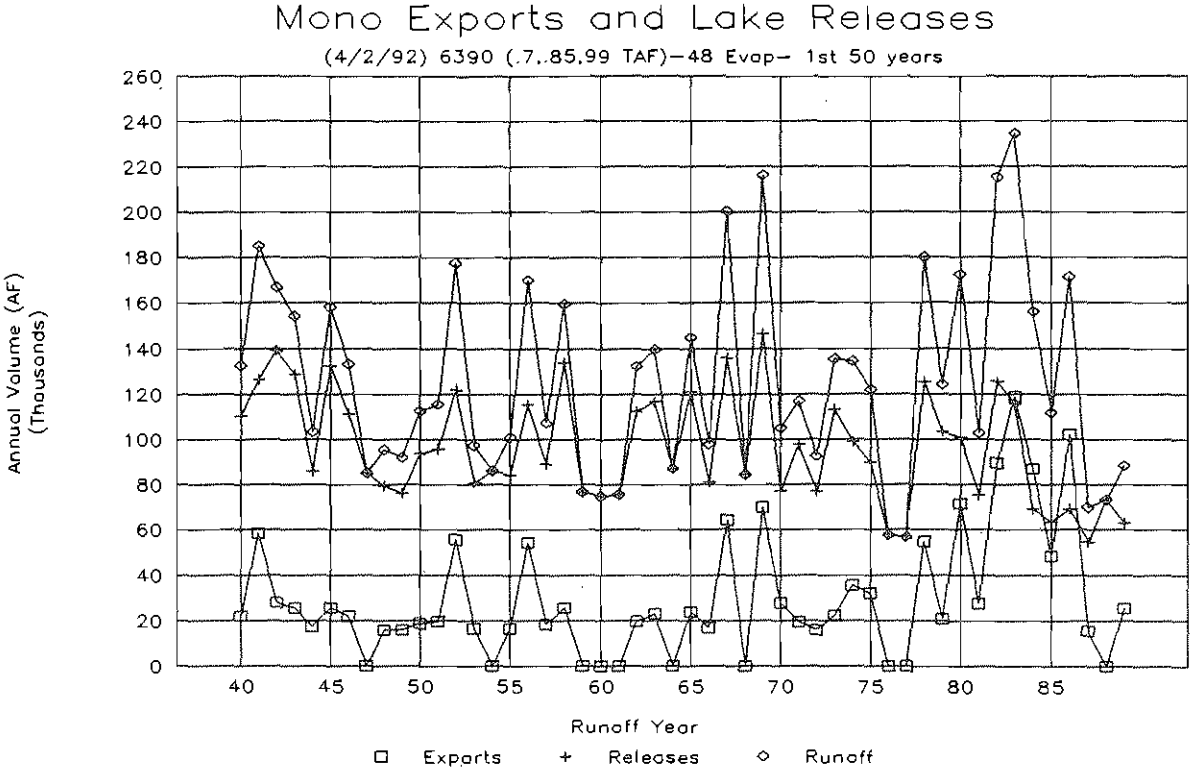

Mono Tributary Streamflows
(4/2/92) 6390 (.7,.85,99 TAF)-48 Evap- 1st 50 years
Streamflow (cfs)
500
400
300
200
100
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Lee Vining
Walker
Parker
Rush

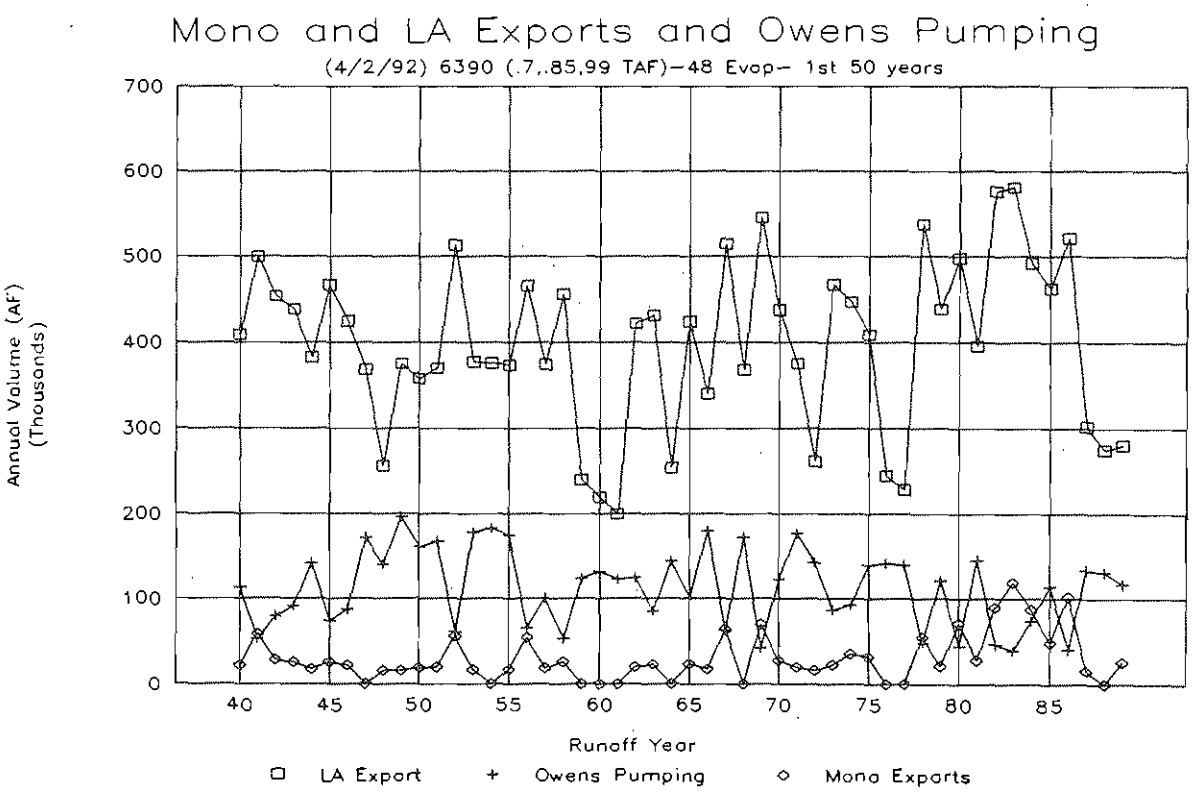

Mono Lake Surface Elevation
(4/2/92) 6390 (.7,.85,99 TAF)–48 Evap– 2nd 50 years
Elevation (feet)
(Thousands)
6.396
6.395
6.394
6.393
6.392
6.391
6.390
6.389
6.388
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Surface

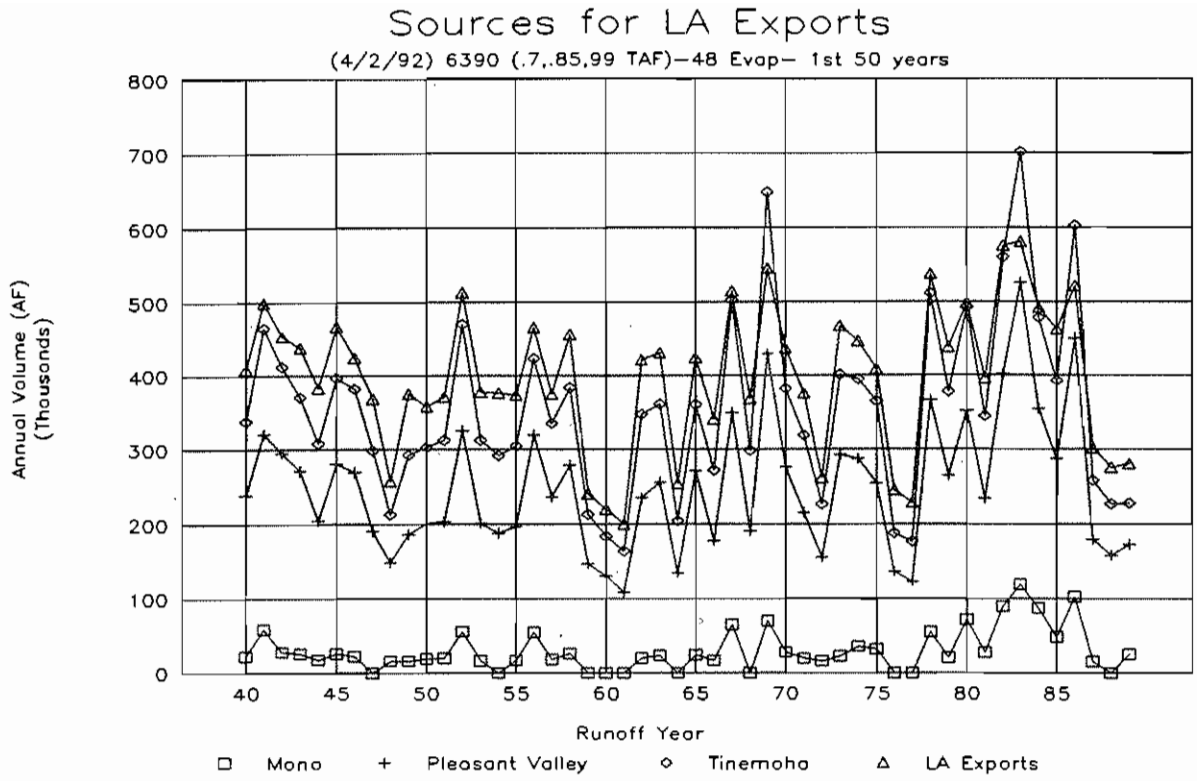

Mono Exports and Lake Releases
(4/2/92) 6390 (.7,.85,99 TAF)–48 Evap– 2nd 50 years
Annual Volume (AF)
(Thousands)
260
240
220
200
180
160
140
120
100
80
60
40
20
0
40 45 50 55 60 65 70 75 80 85
Runoff Year
Exports
Releases
Runoff

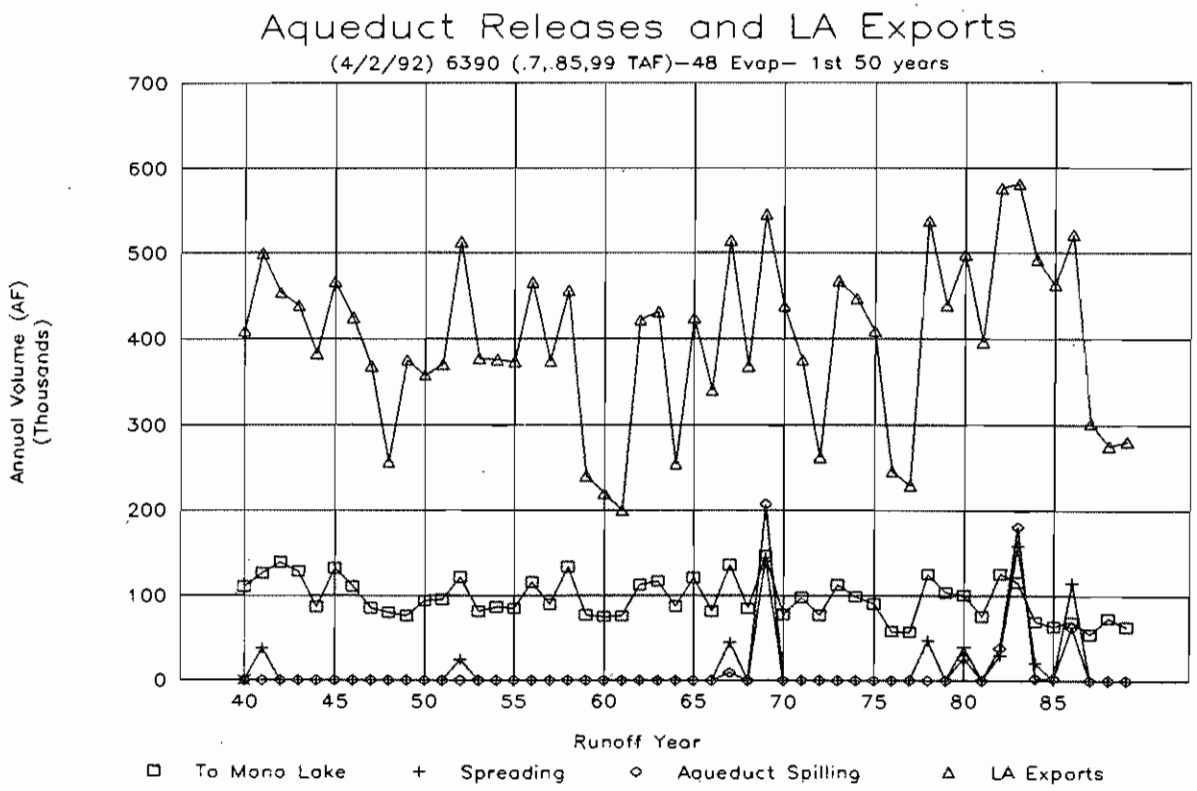

Mono Elevation Cumulative Distribution
(4/2/92) 6390 (.7,.85,99 TAF)–48 Evap– 1st 50 years
Elevation (ft)
(Thousands)
6.396
6.395
6.394
6.393
6.392
6.391
6.390
6.389
6.388
6.387
6.386
6.385
6.384
6.383
6.382
6.381
6.380
6.379
6.378
6.377
6.376
Minimum
5%
10%
20%
30%
40%
Median
60%
70%
80%
90%
95%
Maximum
Cumulative Percentage

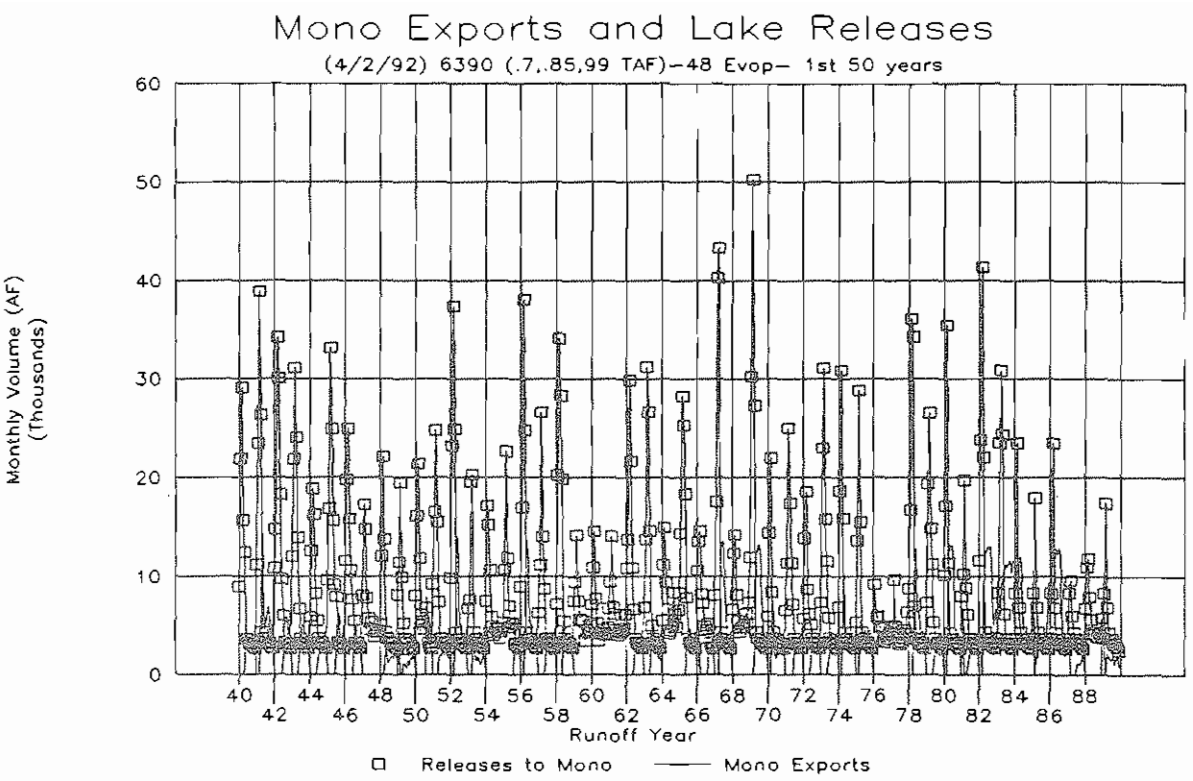

Grant and Long Valley Storage
(4/2/92) 6390 (.7,.85,99 TAF)–48 Evap– 1st 50 years
Storage Volume (AF)
(Thousands)
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
40
42
44
46
48
50
52
54
56
58
60
62
64
66
68
70
72
74
76
78
80
82
84
86
88
Runoff Year
□ Grant + Long Valley

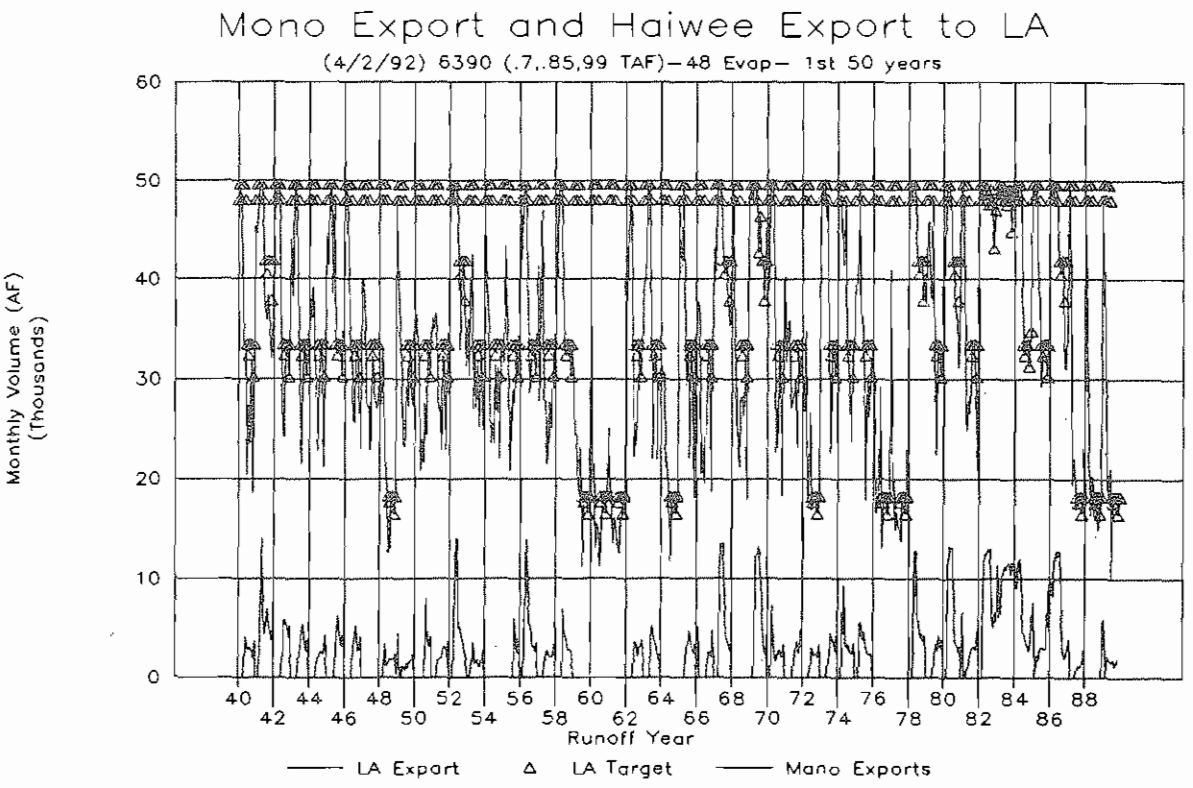

Mono Exports and Lake Releases
(4/2/92) 6390 (.7,.85,99 TAF)–48 Evap– 1st 50 years
Annual Volume (AF)
(Thousands)
260
240
220
200
180
160
140
120
100
80
60
40
20
0
40
45
50
55
60
65
70
75
80
85
Runoff Year
Exports
Releases
Runoff


Mono and LA Exports and Owens Pumping
(4/2/92) 6390 (.7,.85,99 TAF)–48 Evap– 1st 50 years
Annual Volume (AF)
(Thousands)
700
600
500
400
300
200
100
0
40
45
50
55
60
65
70
75
80
85
Runoff Year
LA Export
Owens Pumping
Mono Exports


Sources for LA Exports
(4/2/92) 6390 (.7,.85,99 TAF)—48 Evap— 1st 50 years
Annual Volume (AF)
(Thousands)
800
700
600
500
400
300
200
100
0
40
45
50
55
60
65
70
75
80
85
Runoff Year
Mono
Pleasant Valley
Tinemoha
LA Exports


Aqueduct Releases and LA Exports
(4/2/92) 6390 (.7,.85,99 TAF)—48 Evap— 1st 50 years
Annual Volume (AF)
(Thousands)
700
600
500
400
300
200
100
0
40
45
50
55
60
65
70
75
80
85
Runoff Year
To Mono Lake
Spreading
Aqueduct Spilling
LA Exports


Mono Exports and Lake Releases
(4/2/92) 6390 (.7,.85,99 TAF)–48 Evap– 1st 50 years
Monthly Volume (AF)
(Thousands)
60
50
40
30
20
10
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Releases to Mono
Mono Exports


Mono Export and Haiwee Export to LA
(4/2/92) 6390 (.7,.85,99 TAF)–48 Evap– 1st 50 years
Monthly Volume (AF)
(Thousands)
60
50
40
30
20
10
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
LA Export
LA Target
Mono Exports

Mono Lake Tributary Streamflows
04/02/92
Mono EIR Alternatives
Initial Alternatives - 1st 50 years:
(4/2/92) 6390 (.7,.85,99 TAF)-48 Evap- 1st 50 years

	Lee Vining Runoff (AF)	Lee Vining Min Flow (AF)	Lee Vining Lakeflow (AF)	Lee Vining Irrigate (AF)	Lee Vining Conduit (AF)	Lee Vining Spill (AF)	Walker Creek Runoff (AF)	Walker Creek Min Flow (AF)	Walker Creek Irrigate (AF)	Walker Creek Conduit (AF)	Walker Creek Spill (AF)	Parker Creek Runoff (AF)	Parker Creek Min Flow (AF)	Parker Creek Irrigate (AF)	Parker Creek Conduit (AF)	Parker Creek Spill (AF)
Minimum:	645	390	0	0	0	0	22	22	0	0	0	94	94	0	0	0
Average:	4107	2252	792	62	920	80	450	223	0	227	0	760	475	0	285	0
Maximum:	20828	12025	11151	180	13223	14518	2722	1350	0	1969	0	4369	1967	0	3244	0
Total (TAF/yr):	49.3	27.0	9.5	0.7	11.0	1.0	5.4	2.7	0.0	2.7	0.0	9.1	5.7	0.0	3.4	0.0
Annual Values																
Minimum:	19852	18048	0	748	0	0	2410	1987	0	423	0	4690	4585	0	98	0
Average:	49287	27027	9506	748	11044	962	5401	2681	0	2720	0	9126	5705	0	3421	0
Maximum:	92303	30630	30203	748	38762	29134	12132	2967	0	9227	0	16759	5991	0	10833	0

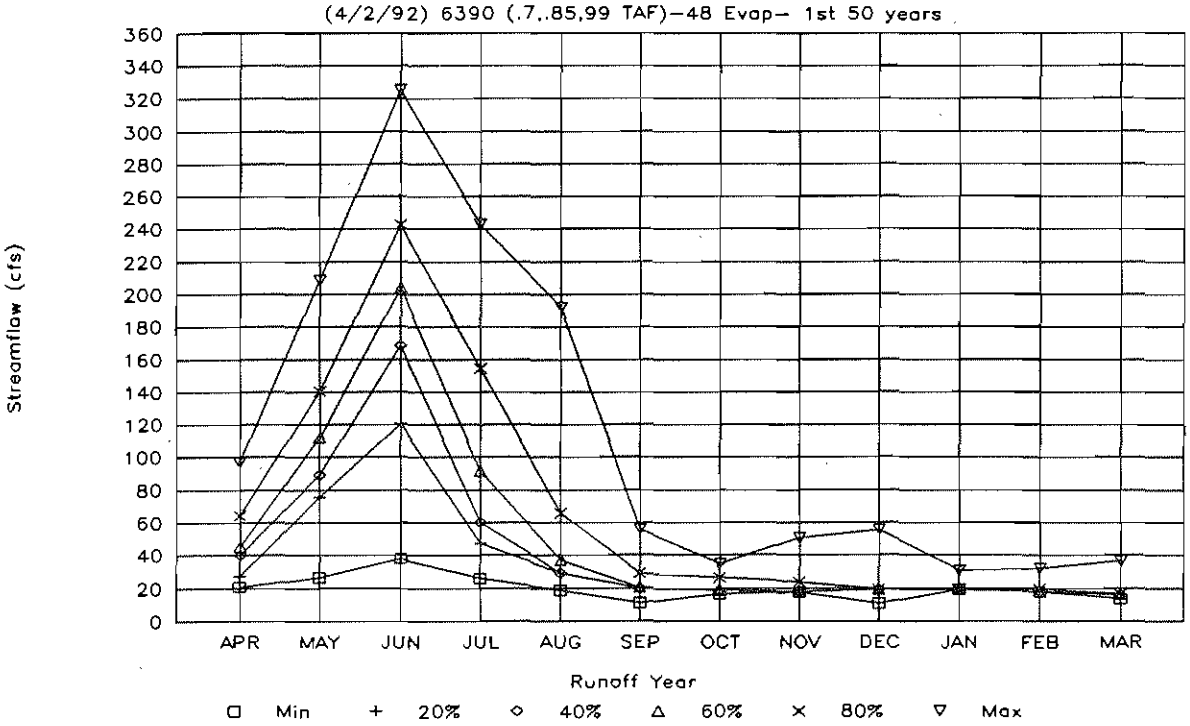
	Rush Creek Runoff (AF)	Conduit Inflow to Grant (AF)	Mono Basin Gains (AF)	Mono Gate #1 Min Flow (AF)	Rush Creek Lakeflow (AF)	Grant Storage Lakeflow (AF)	Rush Creek Storage (AF)	Grant Evap - Rain (AF)	West Portal Export (AF)	Grant Storage Spill (AF)	Lee Vining Flow (cfs)	Walker Flow (cfs)	Parker Flow (cfs)	Rush Flow (cfs)
Minimum:	1264	0	-127	1304	0	0	16730	-622	0	0	10.5	0.4	1.7	21.2
Average:	4973	1432	422	2455	1567	110	20928	177	2480	39	51.8	3.7	7.9	69.1
Maximum:	29989	17546	868	9467	27366	2807	50000	603	14104	12012	325.2	22.7	33.1	490.2
Total (TAF/yr):	59.7	17.2	5.1	29.5	18.8	1.3		2.1	29.8	0.5				
Annual Values														
Minimum:	24610	521	5060	22376	0	0		1379	0	0	99.6	2.7	6.3	107.8
Average:	59681	17185	5060	29459	18805	1320		2119	29756	466	222.7	3.7	7.9	157.8
Maximum:	117750	58821	5060	30755	51961	6045		3003	118769	23299	403.5	4.1	8.3	210.0

Mono Lake Tributary Streamflows Monthly Percentiles
04/02/92
Mono EIR Alternatives
Initial Alternatives – 1st 50 years:
(4/2/92) 6390 (.7,.85,99 TAF)–48 Evap– 1st 50 years

	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
Lee Vining Creek:												
0%	20.8	26.5	37.9	26.0	18.6	10.9	16.4	17.6	10.5	19.2	17.7	13.6
10%	25.9	74.9	95.4	47.2	29.0	19.9	18.8	17.7	19.0	19.2	17.7	16.2
20%	27.3	75.7	120.4	47.2	29.1	19.9	18.8	17.7	19.0	19.2	17.7	16.2
30%	37.1	79.7	131.0	50.8	29.1	19.9	18.8	17.7	19.0	19.2	17.7	16.2
40%	40.1	89.4	168.6	60.1	29.1	19.9	18.8	17.7	19.0	19.2	17.7	16.2
50%	42.3	98.3	183.3	73.6	30.5	19.9	18.8	17.7	19.0	19.2	17.7	16.2
60%	45.4	112.1	203.9	91.7	36.8	20.5	18.8	17.7	19.0	19.2	17.7	16.2
70%	52.8	120.5	233.7	122.8	46.6	23.3	18.8	17.7	19.0	19.2	17.7	16.2
80%	64.2	140.3	242.7	154.5	65.9	29.0	26.3	23.7	19.0	19.4	19.5	16.6
90%	75.7	170.5	273.0	192.8	104.7	41.5	30.4	27.0	23.7	23.5	25.1	26.2
100%	97.1	208.8	325.2	242.8	192.1	55.8	34.7	50.6	55.5	30.5	32.1	36.5
Walker Creek:												
0%	0.4	1.1	6.6	3.9	2.2	1.8	2.0	0.6	2.1	2.0	1.6	0.6
10%	1.1	2.5	10.5	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.2	2.1
20%	1.1	2.5	13.7	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.2	2.1
30%	1.1	2.5	14.4	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.2	2.1
40%	1.1	2.5	17.6	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.2	2.1
50%	1.1	2.5	20.7	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.2	2.1
60%	1.1	2.5	20.7	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.2	2.1
70%	1.1	2.5	20.7	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.2	2.1
80%	1.1	2.5	20.7	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.2	2.1
90%	1.1	2.5	20.7	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.3	2.1
100%	1.2	2.6	22.7	5.0	3.4	2.4	2.6	2.7	2.7	2.4	2.4	2.2
Parker Creek:												
0%	3.6	4.7	13.7	12.9	9.6	3.9	2.9	2.7	2.8	2.7	1.7	2.6
10%	4.2	7.4	21.3	18.3	11.0	5.7	3.8	3.1	3.3	3.2	3.0	3.3
20%	4.2	7.4	24.1	18.3	11.0	5.7	3.8	3.1	3.3	3.2	3.0	3.3
30%	4.2	7.4	27.1	18.3	11.0	5.7	3.8	3.1	3.3	3.2	3.0	3.3
40%	4.2	7.4	30.7	18.3	11.0	5.7	3.8	3.1	3.3	3.2	3.0	3.3
50%	4.2	7.4	31.9	18.3	11.0	5.7	3.8	3.1	3.3	3.2	3.0	3.3
60%	4.2	7.4	31.9	18.3	11.0	5.7	3.8	3.1	3.3	3.2	3.0	3.3
70%	4.2	7.4	31.9	18.3	11.0	5.7	3.8	3.1	3.3	3.2	3.0	3.3
80%	4.2	7.4	31.9	18.3	11.0	5.7	3.8	3.1	3.3	3.2	3.0	3.3
90%	4.2	7.4	31.9	18.3	11.0	5.7	3.9	3.1	3.4	3.3	3.0	3.4
100%	4.5	7.6	33.1	19.7	12.2	6.2	4.2	3.3	3.5	3.5	3.3	3.6
Rush Creek:												
0%	31.6	34.7	39.4	36.2	26.9	27.5	29.5	32.0	25.9	27.5	27.5	21.2
10%	31.6	50.0	89.1	40.7	26.9	33.5	34.9	32.7	25.9	27.5	27.5	21.2
20%	56.8	77.9	119.7	54.8	26.9	33.5	34.9	32.7	25.9	27.5	27.5	21.2
30%	62.7	88.5	134.8	66.2	26.9	33.5	34.9	32.7	25.9	27.5	27.5	21.2
40%	67.9	101.1	152.5	87.8	46.1	33.5	34.9	32.7	25.9	27.5	27.5	21.2
50%	74.5	118.1	160.1	115.2	49.3	37.1	34.9	32.7	25.9	27.5	27.5	21.2
60%	79.1	130.5	210.1	135.6	57.3	45.5	34.9	32.7	25.9	27.5	27.5	21.2
70%	88.4	148.7	221.5	165.3	73.1	52.5	34.9	32.7	26.0	27.5	27.5	21.2
80%	100.0	162.3	268.5	236.3	100.6	62.2	38.3	41.5	33.1	32.9	39.7	45.6
90%	105.6	184.3	318.3	302.8	152.3	79.8	48.6	48.8	42.9	42.6	46.5	55.6
100%	124.8	274.0	468.0	490.2	194.7	103.9	104.0	59.5	75.3	66.2	58.2	81.9

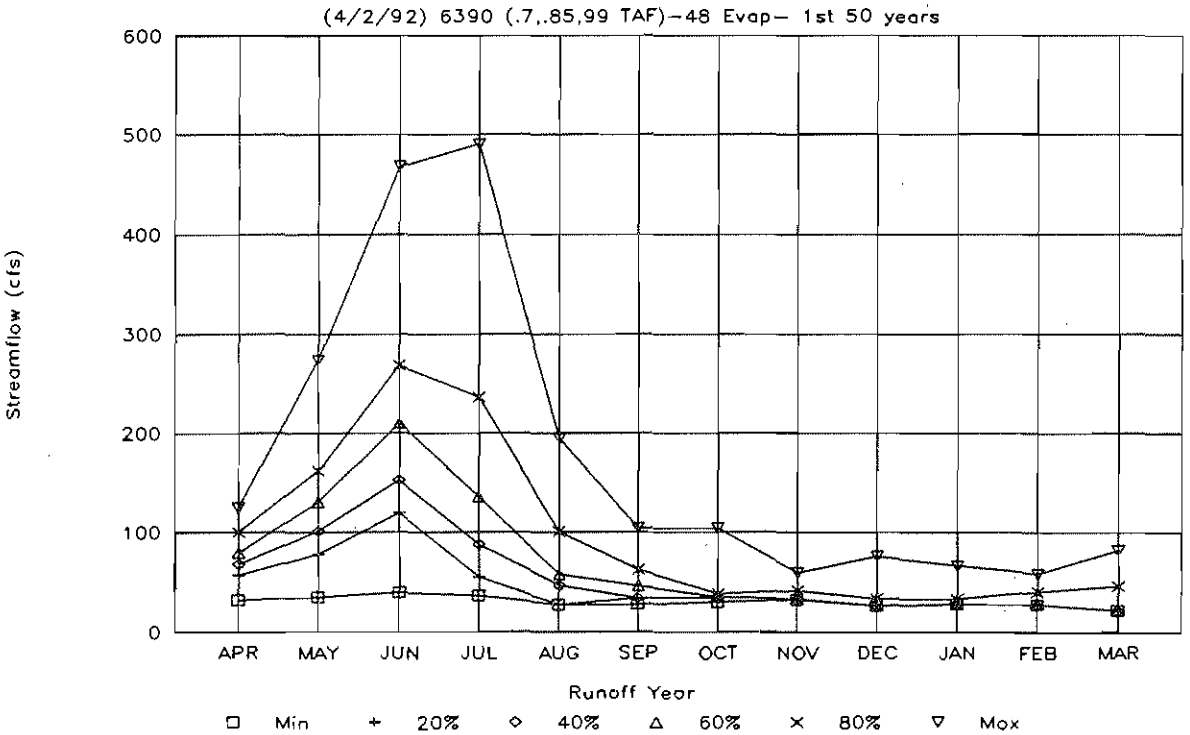
Lee Vining Streamflow Distribution

(4/2/92) 6390 (.7,.85,99 TAF)–48 Evap– 1st 50 years



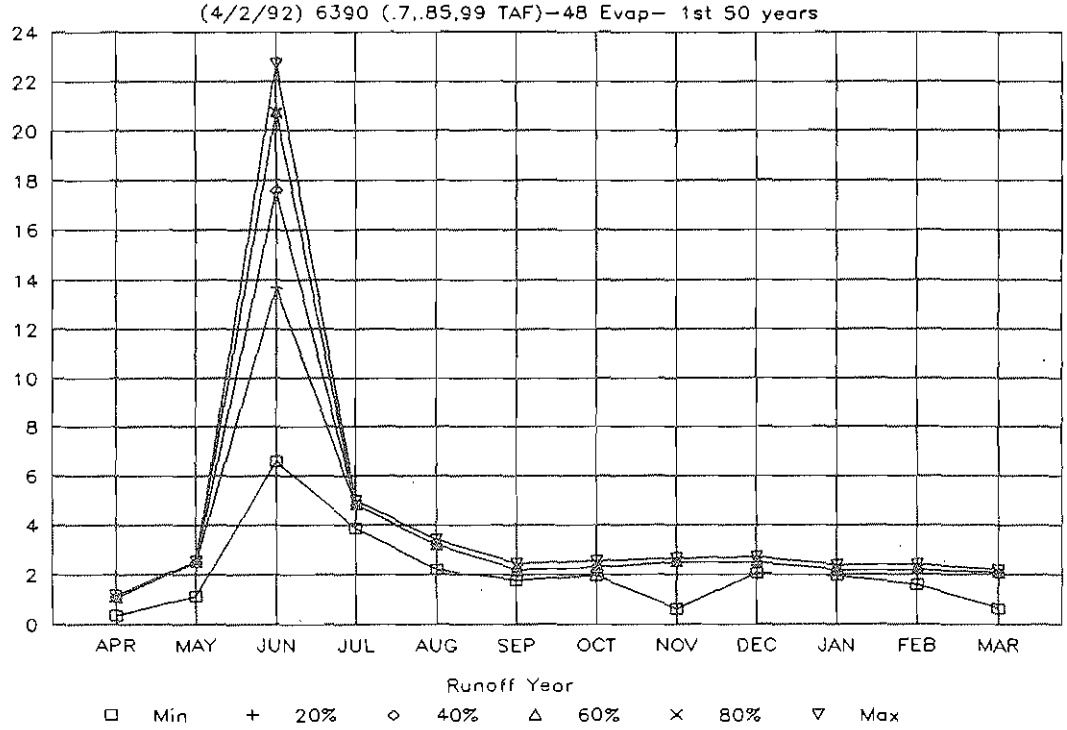
Rush Creek Streamflow Distribution

(4/2/92) 6390 (.7,.85,99 TAF)–48 Evap– 1st 50 years



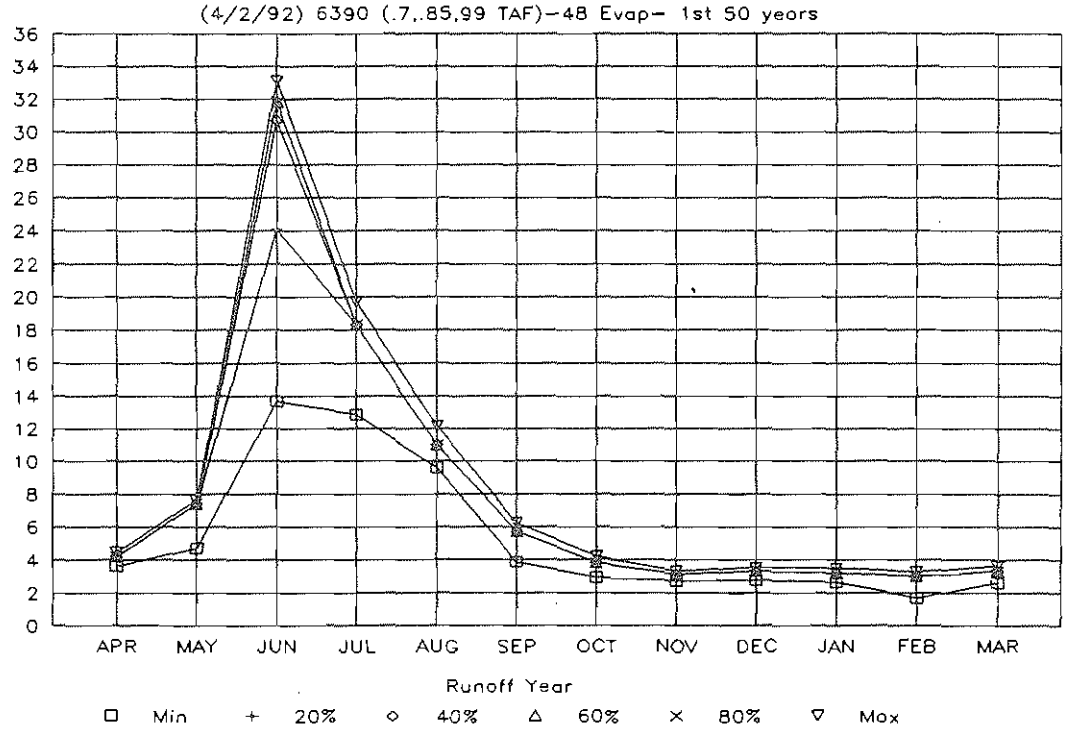
Walker Creek Streamflow Distribution

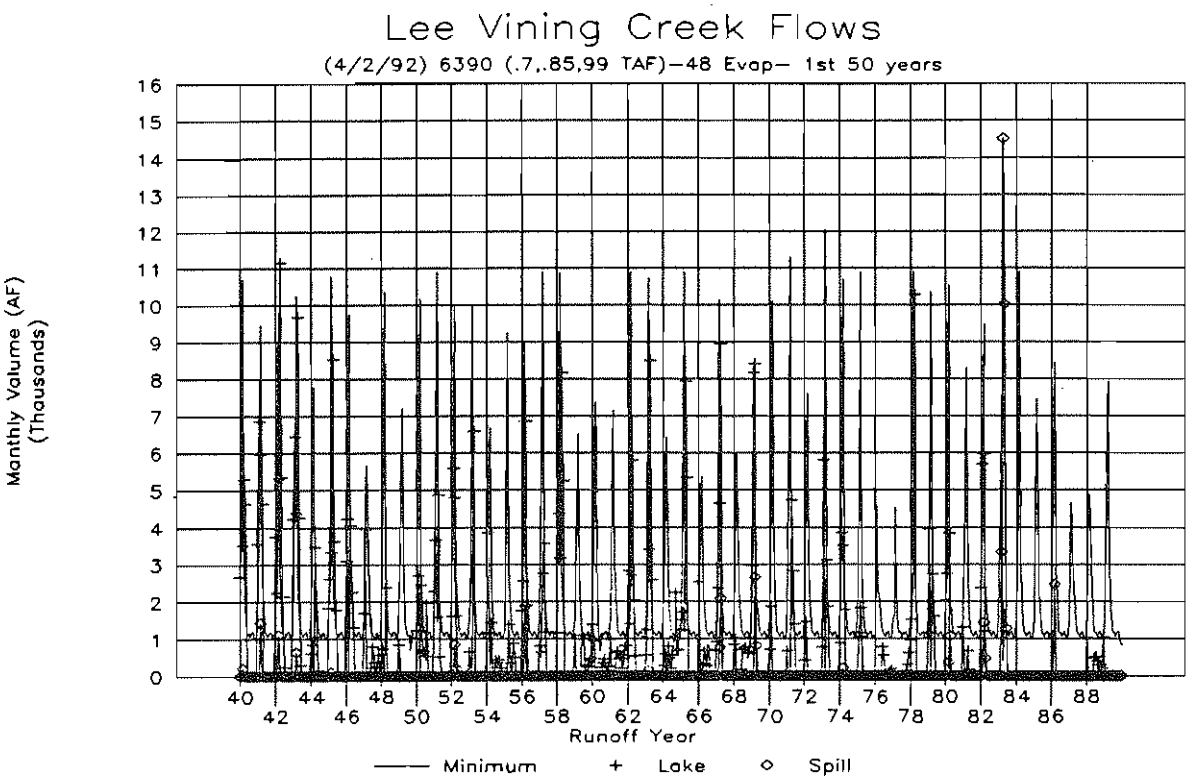
(4/2/92) 6390 (.7,.85,99 TAF)–48 Evap– 1st 50 years

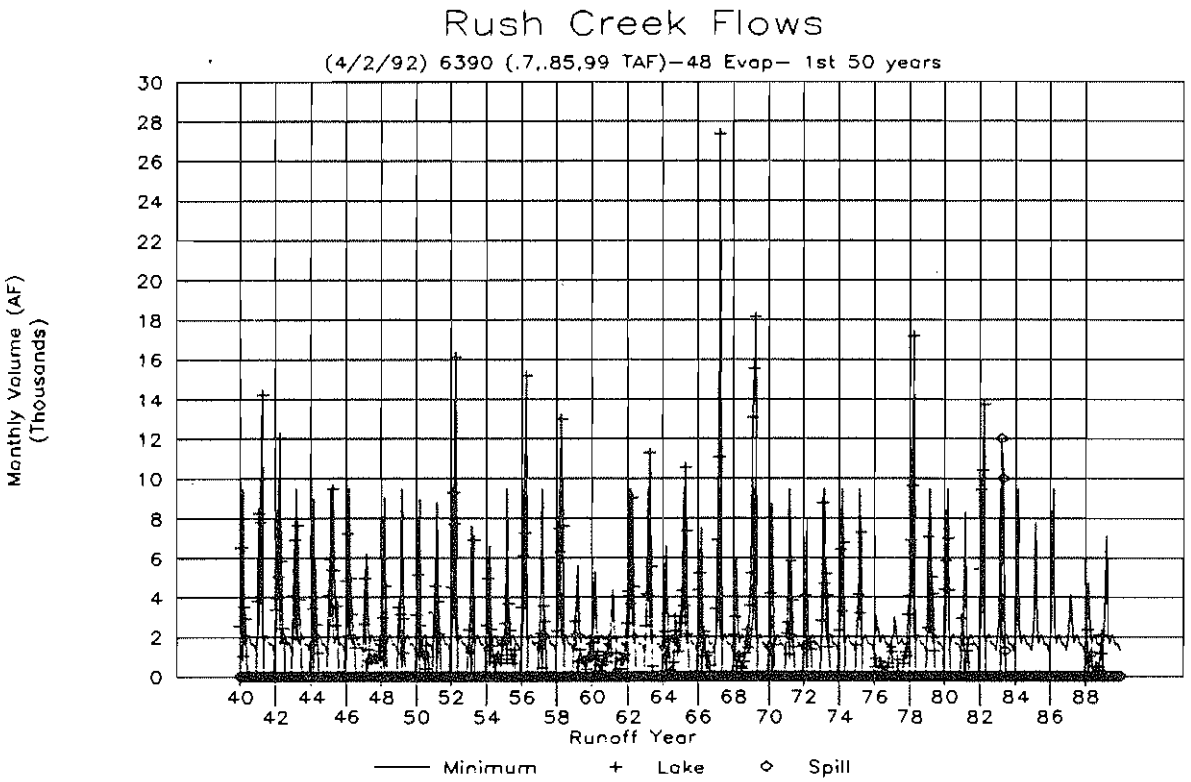


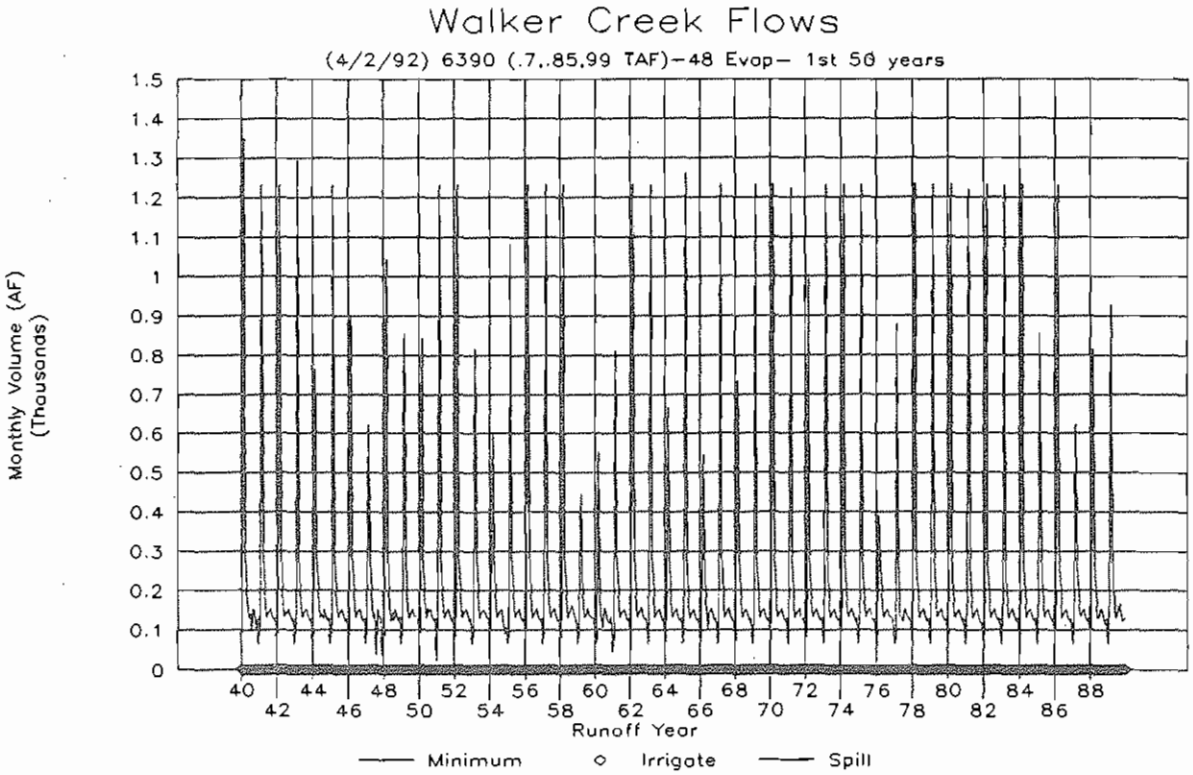
Parker Creek Streamflow Distribution

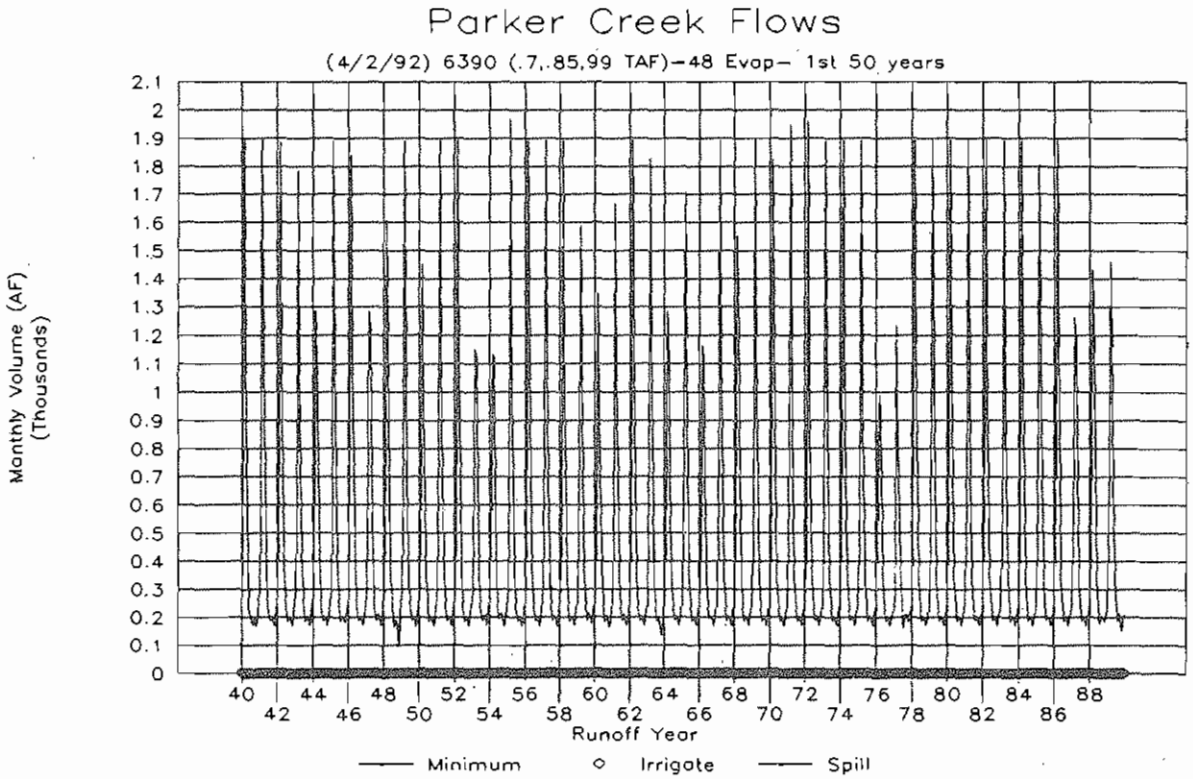
(4/2/92) 6390 (.7,.85,99 TAF)–48 Evap– 1st 50 years




Lee Vining Creek Flows
(4/2/92) 6390 (.7,.85,99 TAF)–48 Evap– 1st 50 years
Monthly Volume (AF)
(Thousands)
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Yeor
Minimum
Lake
Spill

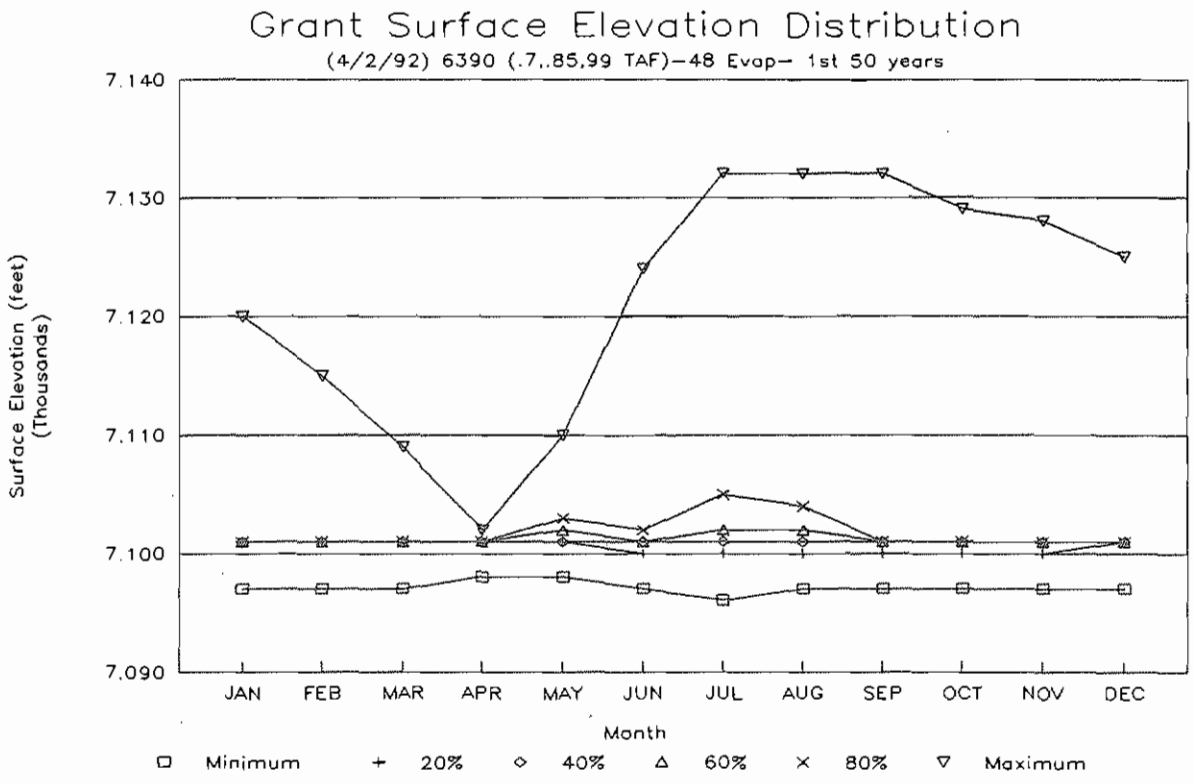

Rush Creek Flows
(4/2/92) 6390 (.7,.85,99 TAF)–48 Evap– 1st 50 years
Monthly Volume (AF)
(Thousands)
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Minimum
Lake
Spill

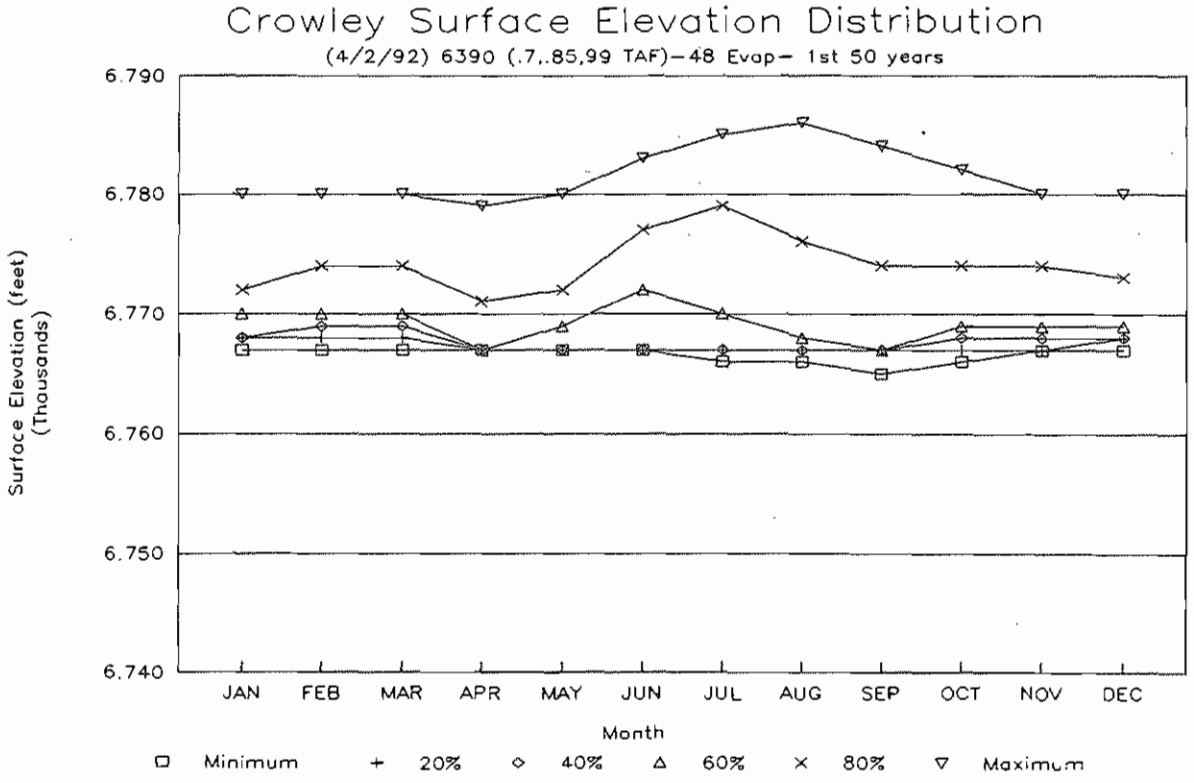

Walker Creek Flows
(4/2/92) 6390 (.7,.85,99 TAF)-48 Evap- 1st 50 years
Monthly Volume (AF)
(Thousands)
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Minimum
Irrigate
Spill


Parker Creek Flows
(4/2/92) 6390 (.7,.85,99 TAF)-48 Evap- 1st 50 years
Monthly Volume (AF)
(Thousands)
2.1
2
1.9
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Minimum
Irrigate
Spill

Monthly Distribution of Lake Elevations
04/02/92
Mono EIR Alternatives
Initial Alternatives - 1st 50 years:
(4/2/92) 6390 (.7,.85,99 TAF)-48 Evap- 1st 50 years

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Grant Lake:												
Minimum	7097	7097	7097	7098	7098	7097	7096	7097	7097	7097	7097	7097
10%	7100	7100	7100	7100	7100	7100	7100	7100	7100	7099	7100	7100
20%	7101	7101	7101	7101	7101	7100	7100	7100	7100	7100	7100	7101
30%	7101	7101	7101	7101	7101	7100	7101	7100	7101	7101	7101	7101
40%	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101
50%	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101
60%	7101	7101	7101	7101	7102	7101	7102	7102	7101	7101	7101	7101
70%	7101	7101	7101	7101	7103	7102	7103	7102	7101	7101	7101	7101
80%	7101	7101	7101	7101	7103	7102	7105	7104	7101	7101	7101	7101
90%	7101	7101	7101	7101	7103	7102	7110	7116	7114	7105	7101	7101
Maximum	7120	7115	7109	7102	7110	7124	7132	7132	7132	7129	7128	7125
Lake Crowley:												
Minimum	6767	6767	6767	6767	6767	6767	6766	6766	6765	6766	6767	6767
10%	6767	6767	6767	6767	6767	6767	6767	6767	6767	6767	6767	6767
20%	6768	6768	6768	6767	6767	6767	6767	6767	6767	6767	6767	6768
30%	6768	6769	6768	6767	6767	6767	6767	6767	6767	6767	6768	6768
40%	6768	6769	6769	6767	6767	6767	6767	6767	6767	6768	6768	6768
50%	6769	6769	6770	6767	6767	6769	6767	6767	6767	6768	6769	6769
60%	6770	6770	6770	6767	6769	6772	6770	6768	6767	6769	6769	6769
70%	6770	6770	6771	6768	6770	6774	6774	6773	6769	6769	6769	6770
80%	6772	6774	6774	6771	6772	6777	6779	6776	6774	6774	6774	6773
90%	6774	6774	6775	6774	6774	6779	6780	6780	6779	6778	6778	6776
Maximum	6780	6780	6780	6779	6780	6783	6785	6786	6784	6782	6780	6780


Grant Surface Elevation Distribution
(4/2/92) 6390 (.7,.85,99 TAF)-48 Evap- 1st 50 years
Surface Elevation (feet)
(Thousands)
7.140
7.130
7.120
7.110
7.100
7.090
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
Month
Minimum 20% 40% 60% 80% Maximum

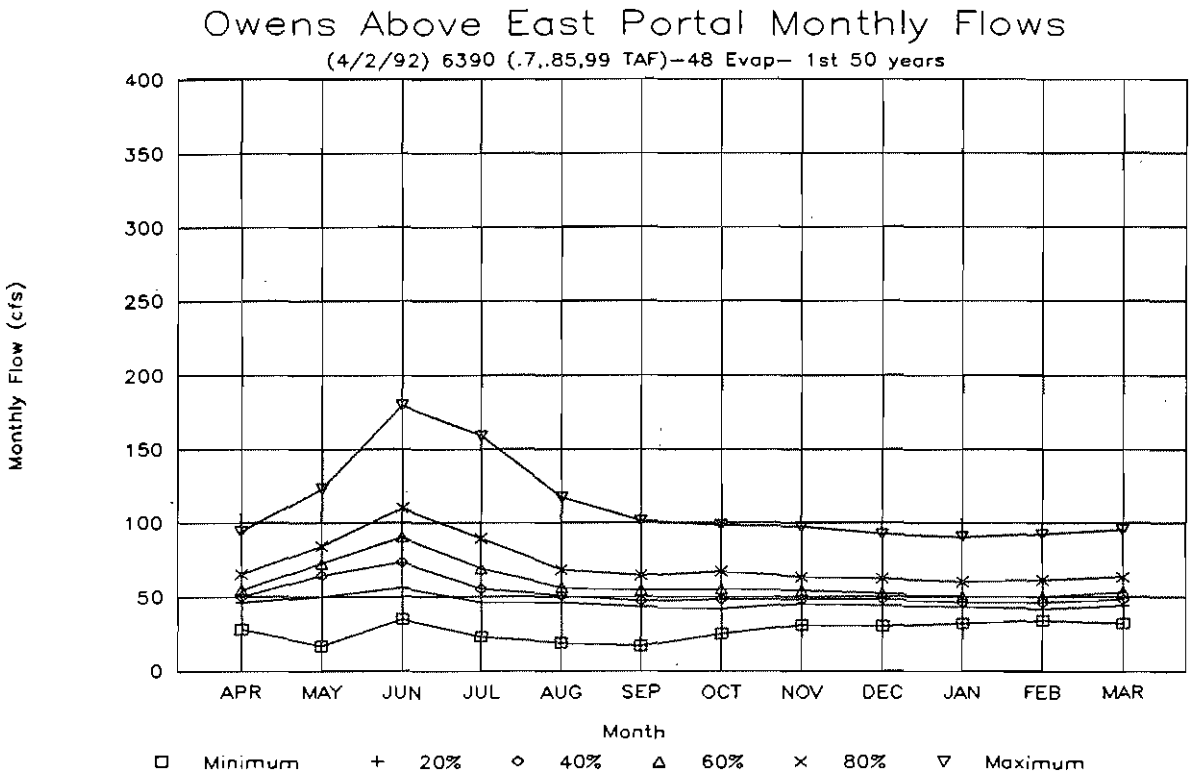

Crowley Surface Elevation Distribution
(4/2/92) 6390 (.7,.85,99 TAF)-48 Evap- 1st 50 years
Surface Elevation (feet)
(Thousands)
6.790
6.780
6.770
6.760
6.750
6.740
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
Month
Minimum 20% 40% 60% 80% Maximum

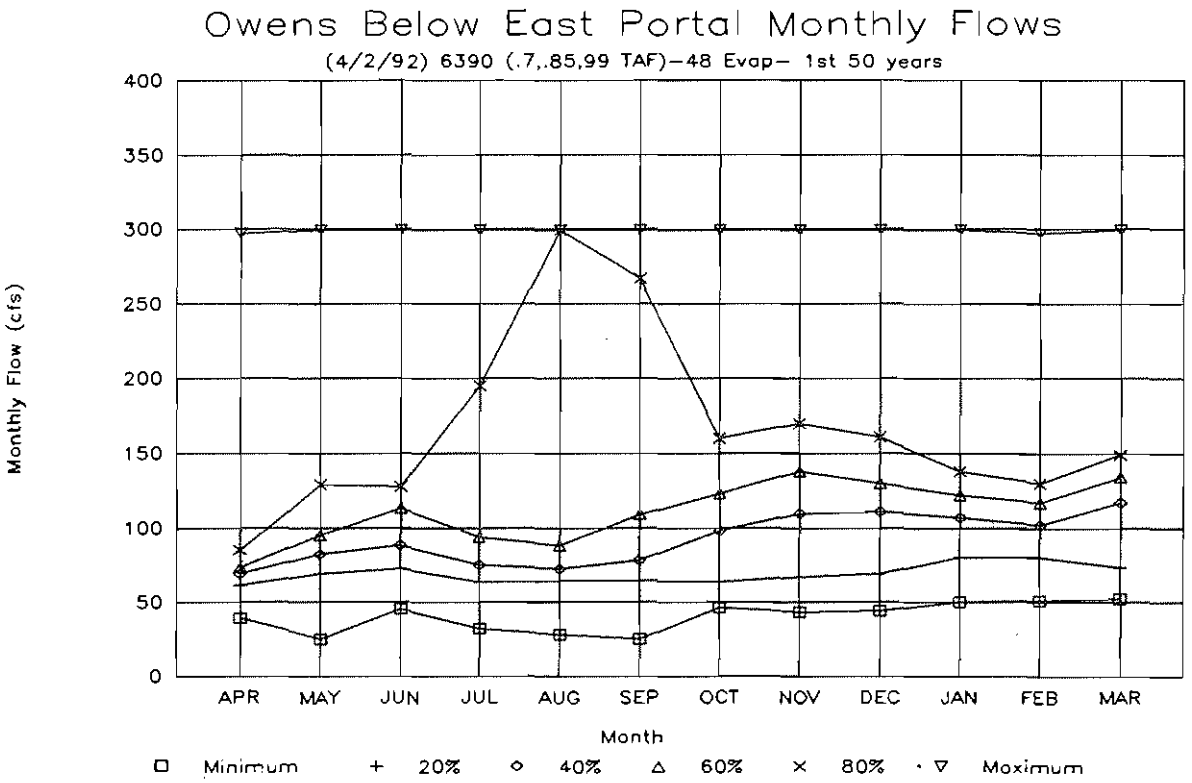
Owens River Streamflows - Monthly Cumulative Percentiles
04/02/92
Mono EIR Alternatives
Initial Alternatives - 1st 50 years:
(4/2/92) 6390 (.7,.85,99 TAF)-48 Evap- 1st 50 years

	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
Owens above East Portal:												
0%	28	17	35	23	19	17	25	31	30	32	34	32
10%	41	47	53	40	40	39	36	39	40	39	40	41
20%	46	50	56	46	46	43	42	45	44	43	42	44
30%	47	56	63	52	49	45	44	47	46	45	44	45
40%	50	64	73	55	51	47	48	48	48	46	46	48
50%	52	66	79	62	54	53	51	51	49	50	49	50
60%	54	72	90	69	56	54	55	54	52	50	50	53
70%	62	79	103	77	60	59	58	56	58	54	54	56
80%	65	84	110	89	68	64	67	63	62	60	61	63
90%	72	98	126	102	79	70	72	73	72	72	72	75
100%	94	123	180	159	117	101	98	97	92	90	92	95
Owens below East Portal:												
0%	39	25	45	32	28	25	46	43	44	50	51	52
10%	58	63	66	60	58	58	59	60	61	61	60	63
20%	61	69	72	63	64	64	63	67	69	80	80	73
30%	63	77	79	71	67	69	79	88	89	94	96	108
40%	69	82	88	75	72	78	98	110	111	107	102	117
50%	71	90	95	80	79	98	113	122	121	111	109	130
60%	73	95	113	94	88	109	123	138	130	122	117	134
70%	78	102	122	131	130	138	138	149	142	127	124	142
80%	85	129	128	195	299	267	160	170	161	138	130	149
90%	147	187	160	251	299	299	299	246	186	157	146	160
100%	297	299	299	299	299	299	299	299	299	299	297	299
Pleasant Valley Outflow:												
0%	186	123	122	125	124	125	118	120	138	118	116	119
10%	223	159	192	129	150	164	121	185	182	170	141	194
20%	256	185	231	162	156	171	122	218	192	198	167	216
30%	298	215	254	245	175	186	155	234	218	228	193	241
40%	338	273	309	330	225	208	192	256	275	320	300	329
50%	381	300	342	427	280	273	253	289	319	336	319	341
60%	420	335	370	488	425	316	309	313	338	353	340	355
70%	455	366	428	549	459	499	365	343	361	363	349	363
80%	493	415	475	646	662	654	423	385	393	381	362	378
90%	524	521	579	688	775	744	583	509	500	461	444	409
100%	645	701	998	968	915	817	795	758	538	574	559	550
Owens at Horton Creek:												
0%	189	126	126	126	126	126	126	126	145	126	125	126
10%	225	171	198	130	150	167	126	193	189	177	148	201
20%	261	198	248	164	159	173	126	225	199	205	174	222
30%	303	219	272	248	177	188	161	242	226	236	201	246
40%	340	280	318	341	228	212	197	264	285	328	309	337
50%	386	308	348	450	287	276	259	297	326	344	329	349
60%	427	349	399	507	437	321	318	320	345	362	349	363
70%	461	377	443	565	464	503	373	350	370	373	357	371
80%	497	428	492	656	678	667	429	394	402	390	370	385
90%	531	529	594	718	792	752	592	519	508	471	454	417
100%	651	723	1044	1010	946	833	806	769	550	584	570	560

Owens River Streamflows - Monthly Cumulative Percentiles
04/02/92
Mono EIR Alternatives
Initial Alternatives - 1st 50 years:
(4/2/92) 6390 (.7,.85,99 TAF)-48 Evap- 1st 50 years

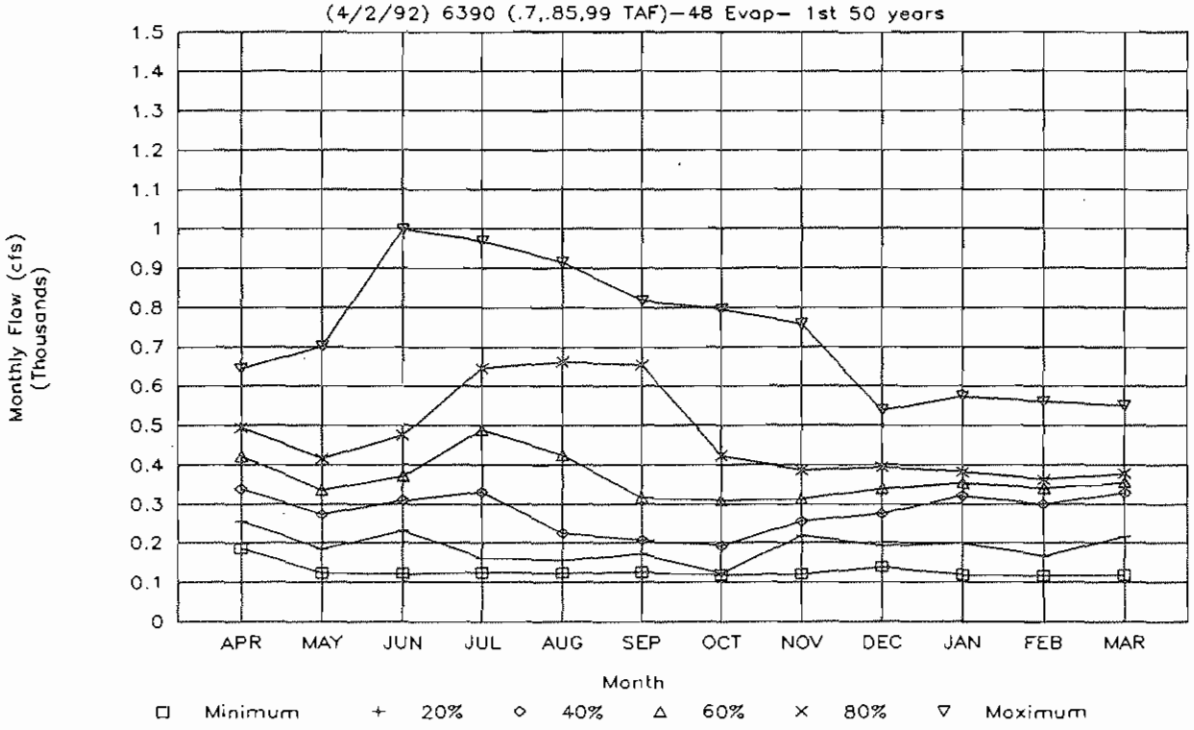
	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
Owens at Bishop Diversion:												
0%	189	126	68	126	126	126	126	126	145	126	125	126
10%	225	126	126	130	150	167	126	193	189	177	148	201
20%	254	183	215	164	159	173	126	225	199	205	174	222
30%	303	218	244	248	177	188	161	242	226	236	201	246
40%	340	270	300	339	228	212	197	264	280	328	309	337
50%	374	298	332	387	287	274	259	297	326	344	329	346
60%	427	323	371	453	393	304	318	319	345	361	341	362
70%	450	350	402	490	464	479	371	350	367	366	354	371
80%	469	384	439	525	557	569	429	394	394	382	370	382
90%	509	476	541	643	606	650	560	495	486	456	444	413
100%	584	544	851	814	753	684	686	658	521	531	505	550
Owens at Laws Diversion:												
0%	189	126	126	126	126	126	126	126	145	126	125	126
10%	225	171	195	130	150	167	126	193	189	177	148	201
20%	261	198	239	164	159	173	126	225	199	205	174	222
30%	303	218	262	248	177	188	161	242	226	236	201	246
40%	340	280	318	341	228	212	197	264	285	328	309	337
50%	386	308	348	424	287	276	259	297	326	344	329	348
60%	427	341	387	496	433	307	318	320	345	362	346	363
70%	461	369	437	531	464	503	371	350	367	371	357	371
80%	497	420	480	589	633	604	429	394	398	383	370	385
90%	525	512	581	686	680	715	577	505	494	464	451	415
100%	639	616	931	899	835	749	703	667	530	539	512	557
Owens at Laws Return:												
0%	235	132	74	159	159	155	129	138	200	133	144	136
10%	284	170	160	169	192	203	169	199	211	182	159	207
20%	327	239	220	205	199	214	187	229	223	211	182	230
30%	365	260	272	292	222	228	208	246	250	277	208	252
40%	396	293	334	368	278	257	249	282	304	343	318	351
50%	428	323	390	413	342	320	274	327	353	365	337	360
60%	474	343	403	459	437	344	320	358	367	377	353	374
70%	504	385	430	506	530	524	376	376	377	382	365	380
80%	516	421	455	526	562	574	429	398	400	395	378	394
90%	560	509	554	648	607	665	568	509	501	466	453	422
100%	597	584	859	818	759	688	694	670	536	545	520	564
Owens at Bishop Return:												
0%	284	198	113	164	168	204	186	199	252	229	238	255
10%	345	281	254	173	199	258	219	279	289	279	252	284
20%	404	303	298	199	225	274	262	311	296	290	264	287
30%	448	322	332	271	237	298	291	356	341	367	272	344
40%	455	394	377	391	270	306	319	408	393	441	428	431
50%	529	419	412	409	354	392	386	444	448	461	450	455
60%	573	430	434	490	472	425	412	463	475	476	467	472
70%	595	467	459	506	529	596	466	483	477	488	478	487
80%	617	491	498	574	572	645	540	509	510	502	486	498
90%	654	584	597	626	660	725	675	632	609	597	589	511
100%	717	662	1091	822	812	753	714	745	690	703	697	700


Owens Above East Portal Monthly Flows
(4/2/92) 6390 (.7,.85,99 TAF)-48 Evap- 1st 50 years
Monthly Flow (cfs)
400
350
300
250
200
150
100
50
0
APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR
Month
Minimum
20%
40%
60%
80%
Maximum


Owens Below East Portal Monthly Flows
(4/2/92) 6390 (.7,.85,99 TAF)-48 Evap- 1st 50 years
Monthly Flow (cfs)
400
350
300
250
200
150
100
50
0
APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR
Month
Minimum
20%
40%
60%
80%
Maximum

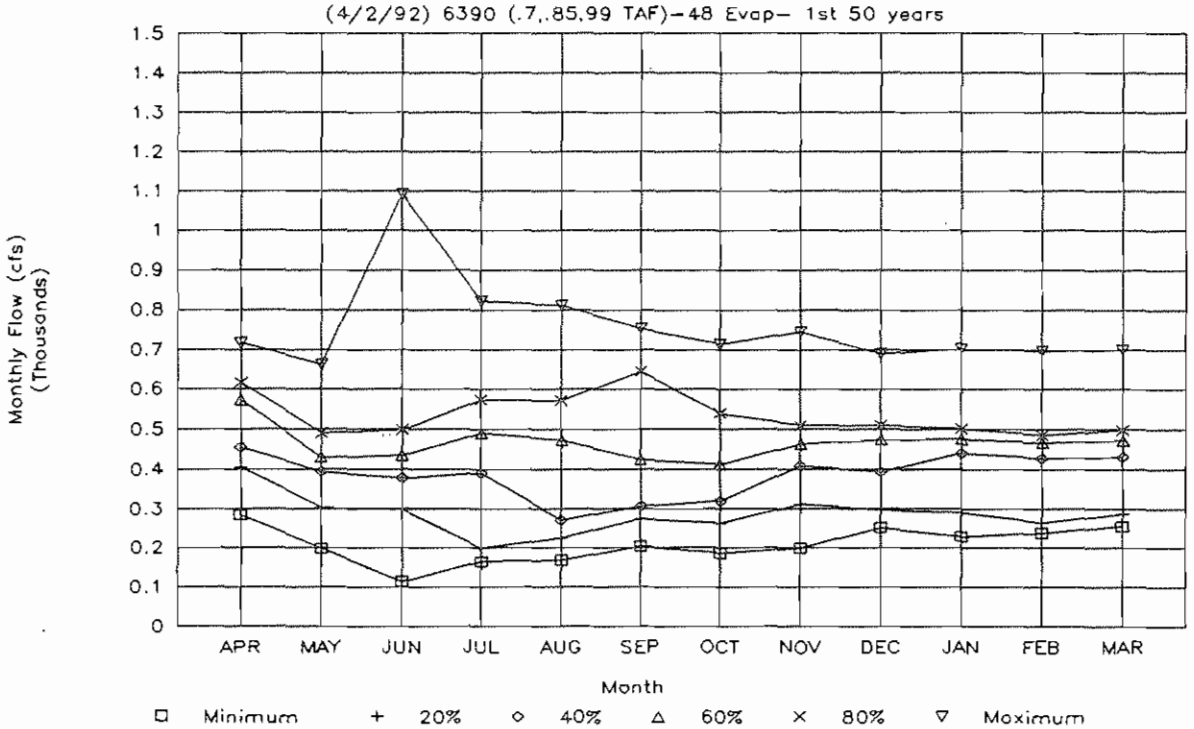
Owens @ Pleasant Valley Monthly Flows

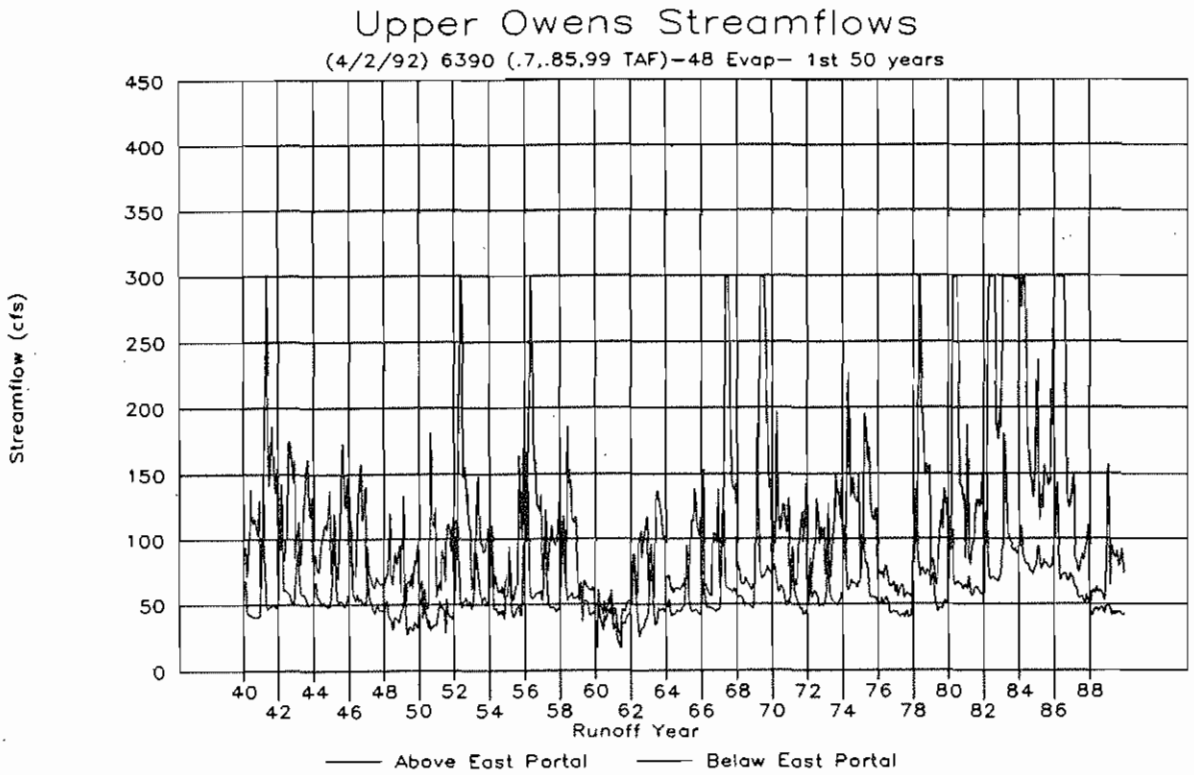
(4/2/92) 6390 (.7,.85,99 TAF)–48 Evap– 1st 50 years

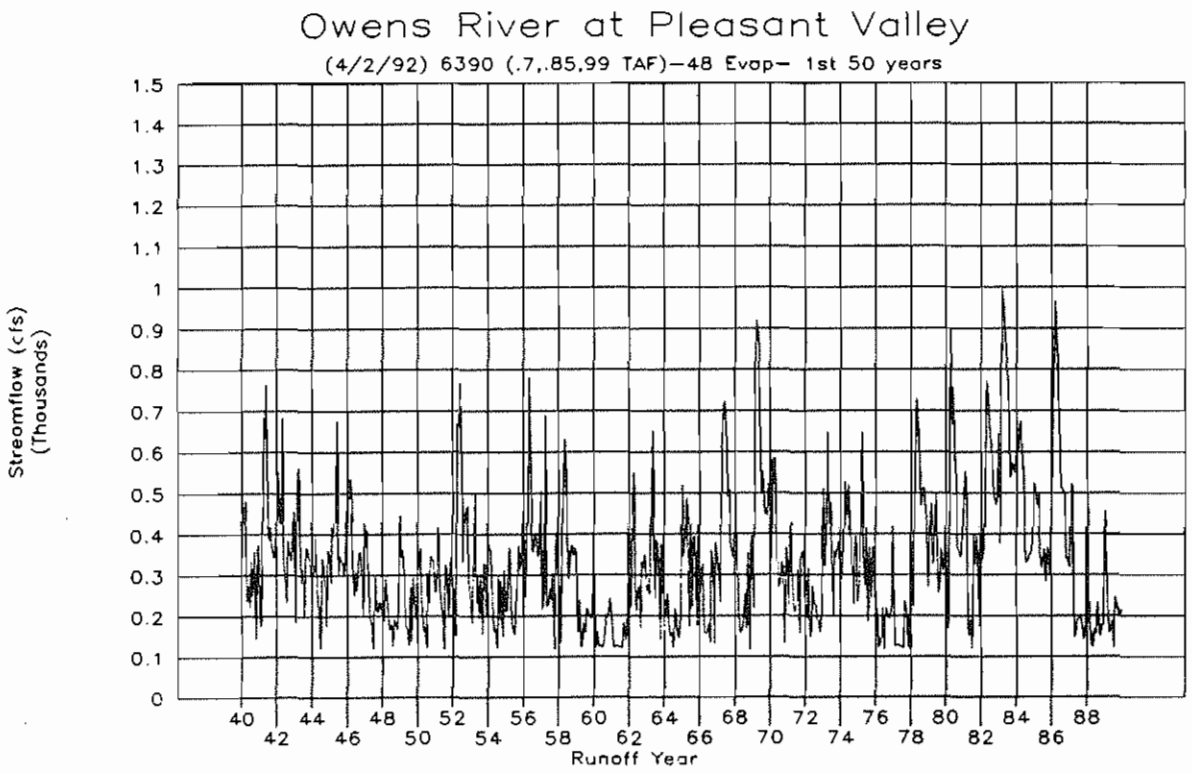


Owens @ Big Pine Canal Monthly Flows

(4/2/92) 6390 (.7,.85,99 TAF)–48 Evap– 1st 50 years




Upper Owens Streamflows
(4/2/92) 6390 (.7,.85,99 TAF)-48 Evap- 1st 50 years
Streamflow (cfs)
450
400
350
300
250
200
150
100
50
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Above East Portal
Below East Portal

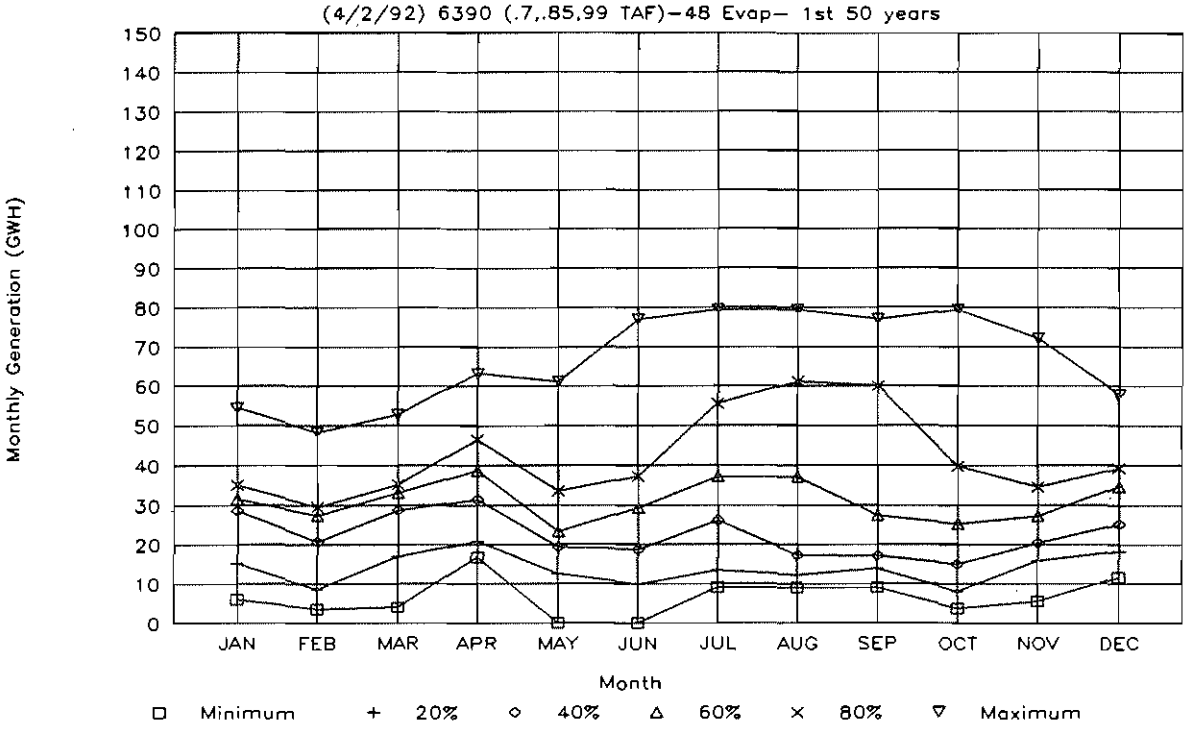

Owens River at Pleasant Valley
(4/2/92) 6390 (.7,.85,99 TAF)-48 Evap- 1st 50 years
Streamflow (cfs)
(Thousands)
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year

Cumulative Monthly Distribution of LADWP Aqueduct Power Generation
04/02/92
Mono EIR Alternatives
Initial Alternatives - 1st 50 years:
(4/2/92) 6390 (.7,.85,99 TAF)-48 Evap- 1st 50 years Annual Average: 899.0 GWH/yr

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Gorge Power Plants:												
0%	6.0	3.6	4.0	16.8	0.0	0.0	9.1	9.1	9.1	3.7	5.5	11.6
10%	9.3	6.2	14.8	19.4	5.5	5.6	12.2	10.6	12.7	7.0	9.4	15.3
20%	15.2	8.6	17.1	21.0	12.6	9.9	13.4	12.4	13.9	8.1	15.9	18.2
30%	17.3	13.5	20.1	26.5	16.6	12.8	19.0	14.1	14.7	10.7	17.6	21.1
40%	28.5	20.8	28.7	31.3	19.4	18.7	26.1	17.3	17.1	15.1	20.4	25.1
50%	30.5	26.1	31.1	34.2	22.7	24.8	30.0	19.1	20.3	19.7	24.5	31.6
60%	31.4	27.3	33.0	38.7	23.3	29.3	37.1	37.1	27.4	25.3	27.2	34.6
70%	33.7	28.6	34.1	43.1	30.1	32.0	43.1	42.7	46.7	32.8	30.5	37.1
80%	35.0	29.5	35.1	46.5	33.6	37.3	55.5	61.2	60.0	39.7	34.5	39.3
90%	42.3	32.0	36.8	51.0	43.8	48.3	62.6	69.1	69.6	55.5	45.1	48.1
100%	54.5	48.3	52.8	63.2	61.2	76.8	79.4	79.4	76.8	79.4	72.0	57.8
Los Angeles Power Plants:												
0%	18.1	20.7	23.5	31.9	22.7	20.6	15.7	19.0	18.7	12.1	15.1	20.1
10%	22.6	20.7	23.5	38.2	33.6	30.7	21.9	22.6	24.4	15.3	21.8	22.9
20%	22.6	20.7	23.5	43.0	38.0	41.9	25.4	27.9	26.7	20.8	21.8	22.9
30%	31.4	23.5	34.8	45.6	44.1	44.1	34.6	30.2	32.6	27.6	28.0	31.7
40%	38.5	35.0	40.0	48.7	47.7	47.7	43.5	33.9	35.0	28.9	31.9	34.8
50%	40.6	37.7	41.7	50.9	48.9	50.9	50.8	40.1	37.3	32.5	35.1	39.3
60%	40.9	37.7	41.7	52.9	49.9	57.0	58.6	47.4	43.5	34.0	39.1	41.2
70%	40.9	37.7	41.7	56.2	53.8	57.0	58.6	54.8	49.4	37.8	39.7	41.2
80%	40.9	37.7	41.7	57.2	58.8	57.0	58.6	58.6	57.3	41.0	39.7	41.2
90%	50.1	43.4	43.2	57.2	58.8	57.0	58.6	58.6	57.3	50.2	48.7	50.4
100%	58.1	53.7	58.4	57.2	58.8	57.0	58.6	58.6	57.3	58.3	56.4	58.4
Owens Valley Power Plants:												
0%	2.7	2.8	3.2	4.2	3.8	4.4	3.9	4.1	3.3	2.5	2.4	3.0
10%	3.2	3.0	3.4	4.8	5.4	5.7	4.6	4.6	4.0	2.8	3.1	3.2
20%	3.4	3.1	3.5	4.9	5.9	6.4	5.2	5.0	4.4	3.5	3.6	3.5
30%	4.2	3.5	4.4	5.3	6.2	6.5	6.1	5.4	5.0	4.0	4.3	4.2
40%	4.8	4.4	4.9	5.4	6.4	6.6	6.5	5.9	5.5	4.3	4.4	4.7
50%	4.9	4.8	5.1	5.6	6.5	6.7	6.8	6.2	5.6	4.6	4.6	5.0
60%	5.2	4.9	5.2	5.8	6.6	6.8	7.3	6.8	6.0	5.1	4.9	5.1
70%	5.3	4.9	5.3	6.0	6.7	6.9	7.4	7.0	6.4	5.6	5.1	5.2
80%	5.4	5.0	5.4	6.1	6.9	7.0	7.5	7.3	7.1	5.8	5.4	5.5
90%	5.5	5.3	5.5	6.2	7.1	7.2	7.6	7.6	7.3	6.5	6.0	5.7
100%	6.6	6.1	6.5	6.9	7.7	7.6	7.8	7.8	7.7	7.2	7.2	6.9
Total Aqueduct Power Plants:												
0%	29.1	28.8	31.3	52.9	36.9	35.7	32.0	33.6	31.4	20.7	24.5	38.5
10%	39.2	31.6	41.8	63.6	53.9	55.2	37.4	37.5	42.3	27.0	36.7	44.6
20%	41.6	35.1	45.3	70.9	59.0	63.5	43.9	45.3	45.7	38.2	42.5	48.1
30%	51.2	37.3	56.2	76.7	63.2	68.4	59.3	49.0	51.9	41.2	47.1	52.1
40%	72.2	60.0	74.7	83.3	69.9	73.9	77.0	56.9	58.2	48.0	59.2	63.2
50%	76.1	67.9	77.3	90.7	76.3	80.1	92.7	63.6	61.8	54.4	67.9	76.4
60%	76.8	70.3	79.8	96.4	82.6	83.6	99.9	91.7	74.0	65.5	69.8	80.6
70%	80.1	71.4	81.2	106.4	89.0	87.9	108.1	105.4	105.9	74.2	75.1	83.4
80%	81.7	73.3	82.1	108.4	93.7	98.9	121.5	127.5	116.5	86.3	80.1	85.2
90%	98.2	77.0	86.5	111.5	109.7	112.5	128.9	135.1	134.6	112.4	99.9	104.5
100%	118.8	107.8	117.6	126.8	127.7	141.2	145.6	145.7	141.7	144.7	134.6	122.7

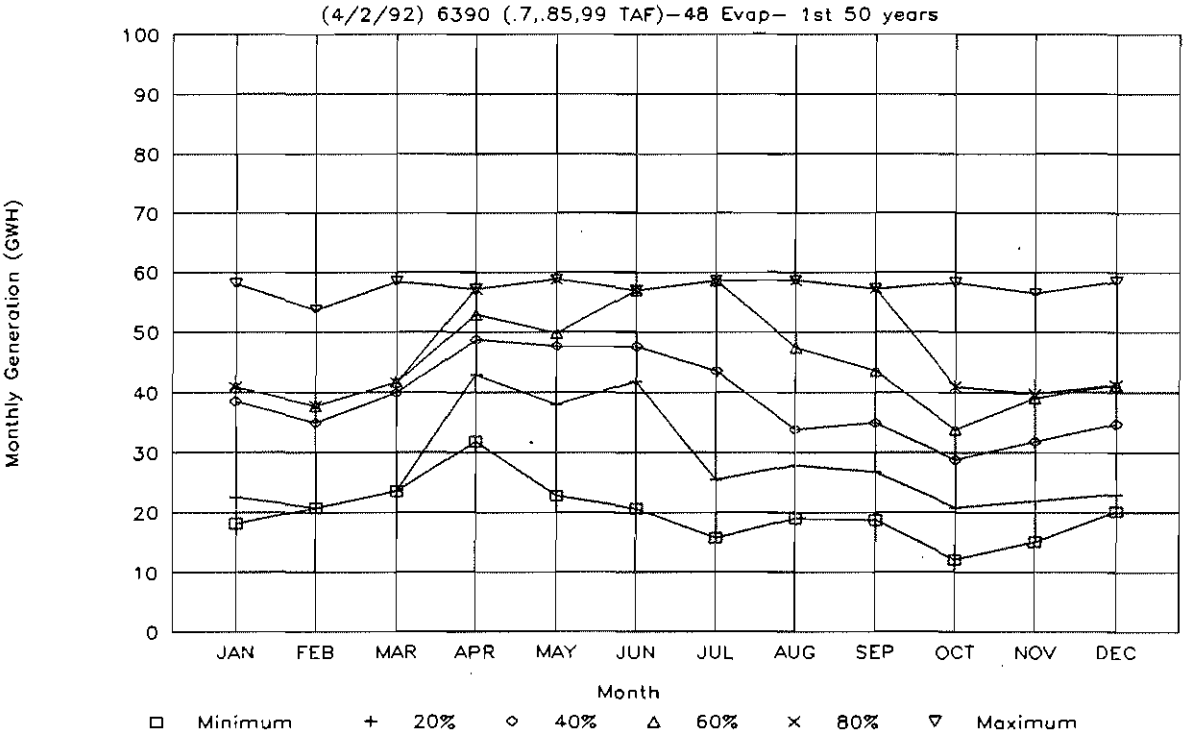
Owens Gorge Power Distribution

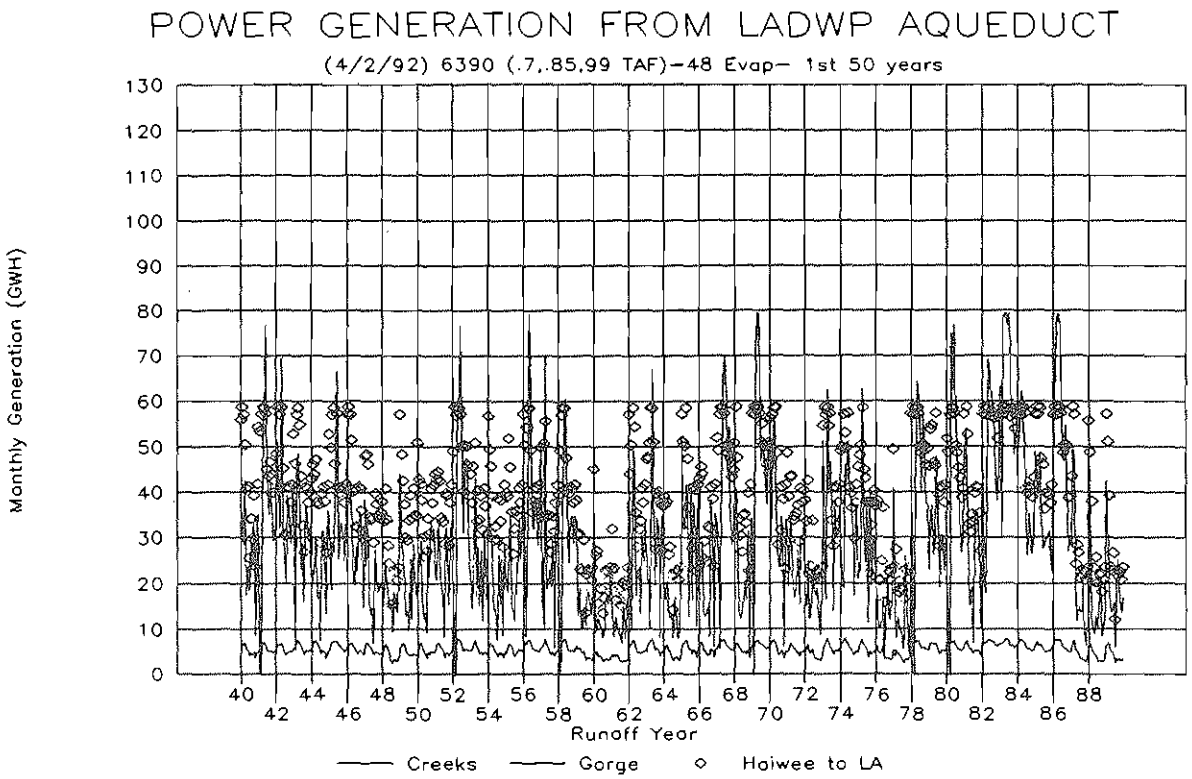
(4/2/92) 6390 (.7,.85,99 TAF)-48 Evap- 1st 50 years

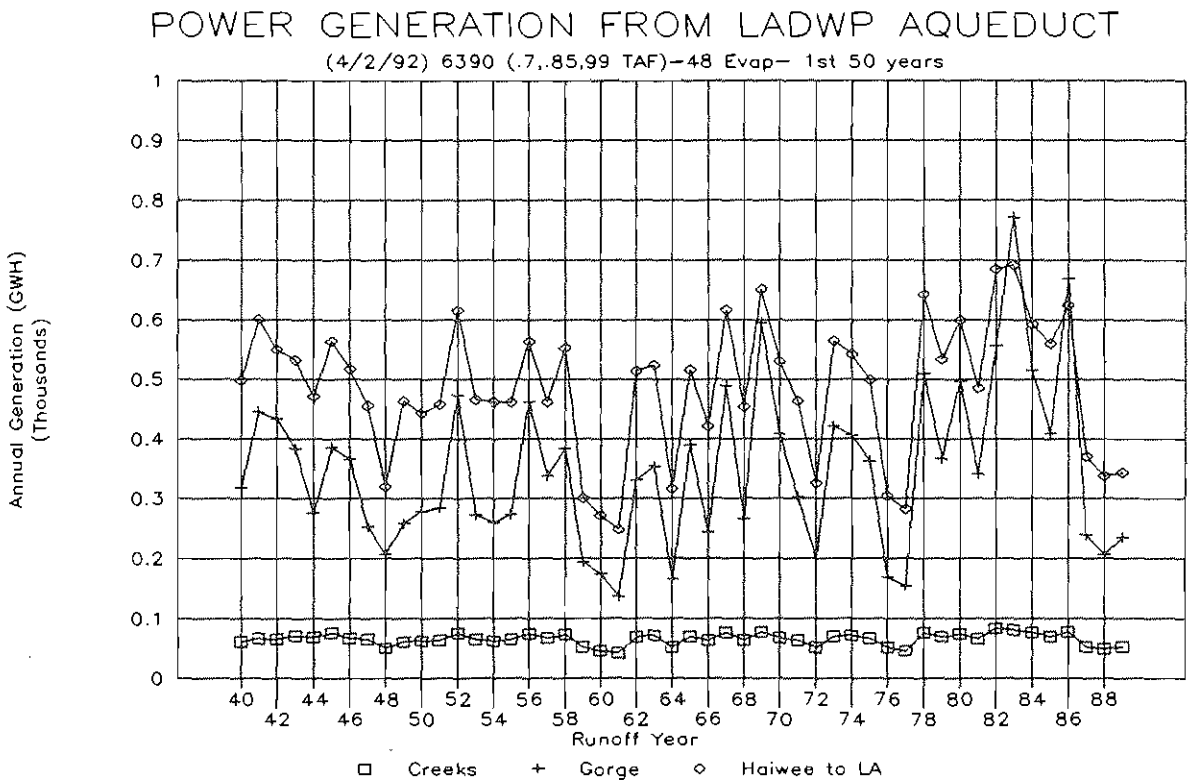


Haiwee to LA Power Distribution

(4/2/92) 6390 (.7,.85,99 TAF)-48 Evap- 1st 50 years



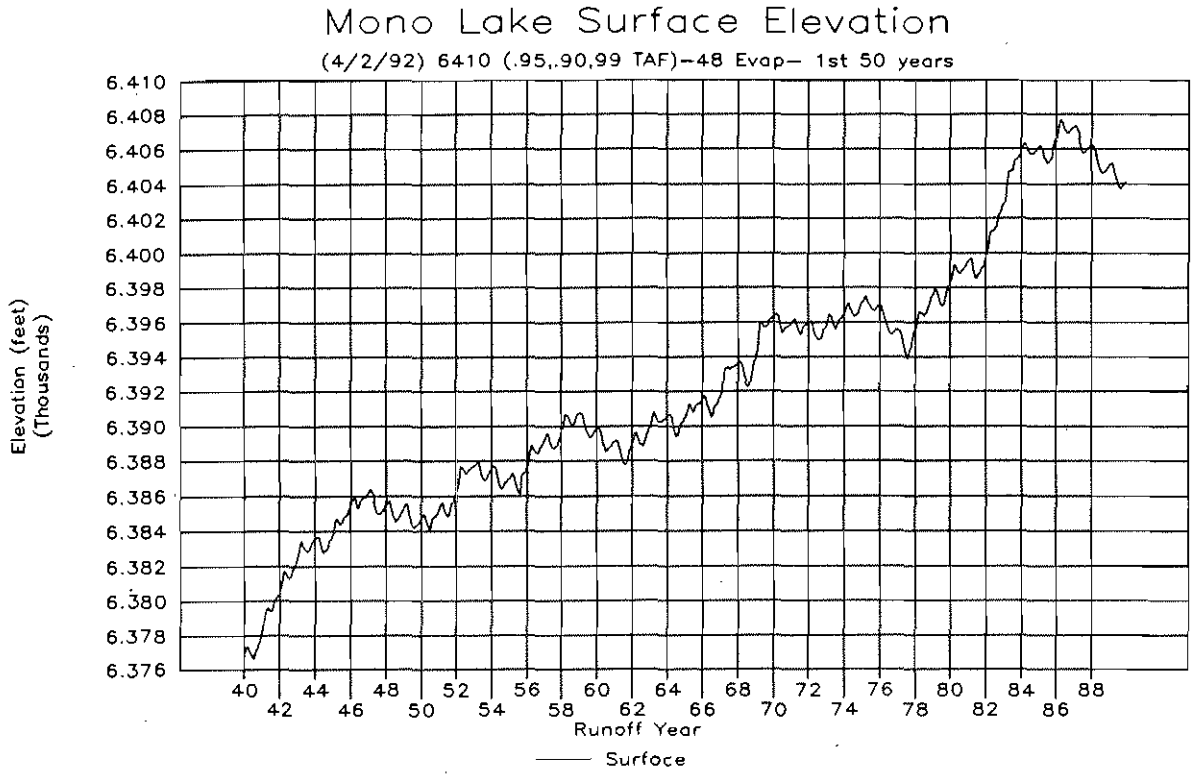

POWER GENERATION FROM LADWP AQUEDUCT
(4/2/92) 6390 (.7,.85,99 TAF)-48 Evap- 1st 50 years
Monthly Generation (GWH)
130
120
110
100
90
80
70
60
50
40
30
20
10
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Creeks
Gorge
Haiwee to LA

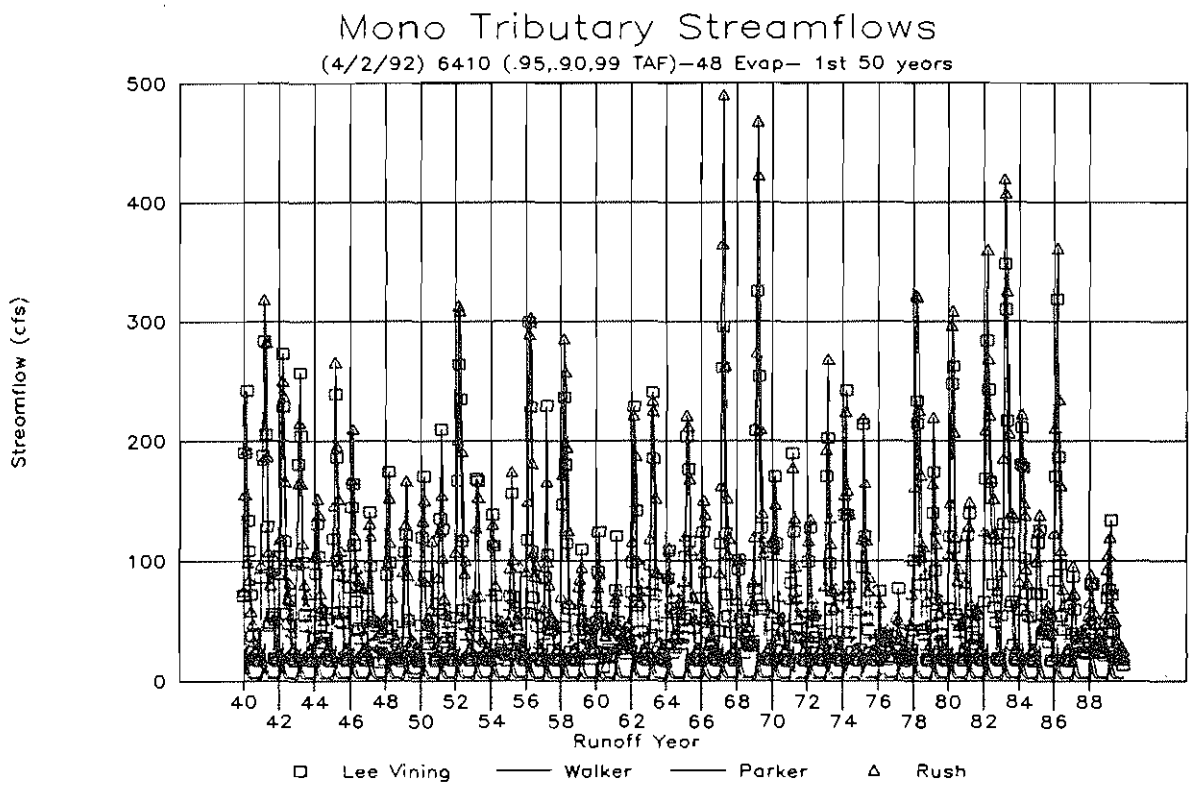

POWER GENERATION FROM LADWP AQUEDUCT
(4/2/92) 6390 (.7,.85,99 TAF)-48 Evap- 1st 50 years
Annual Generation (GWH)
(Thousands)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Creeks
Gorge
Haiwee to LA

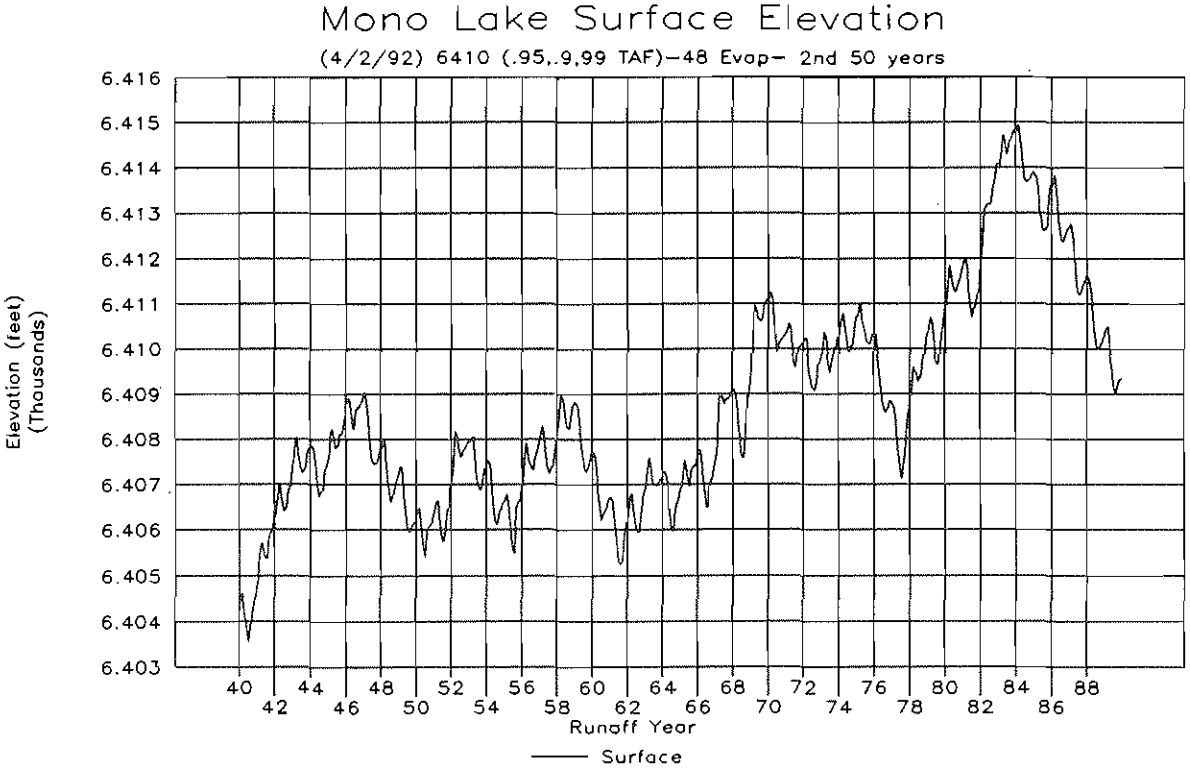
Section 8. 6,410-Ft Alternative

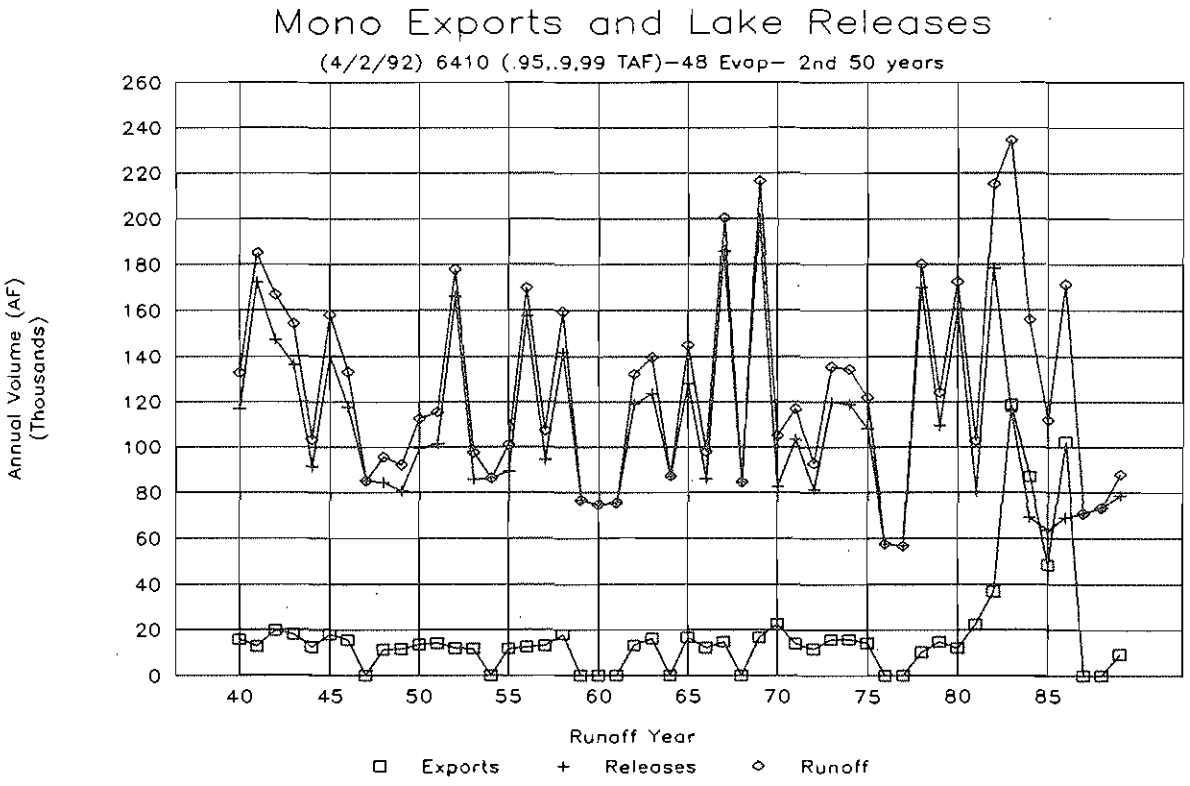
Summary of LAAMP Simulations
04/02/92
Mono EIR Alternatives
Initial Alternatives - 1st 50 years:
(4/2/92) 6410 (.95,.90,99 TAF)-48 Evap- 1st 50 years

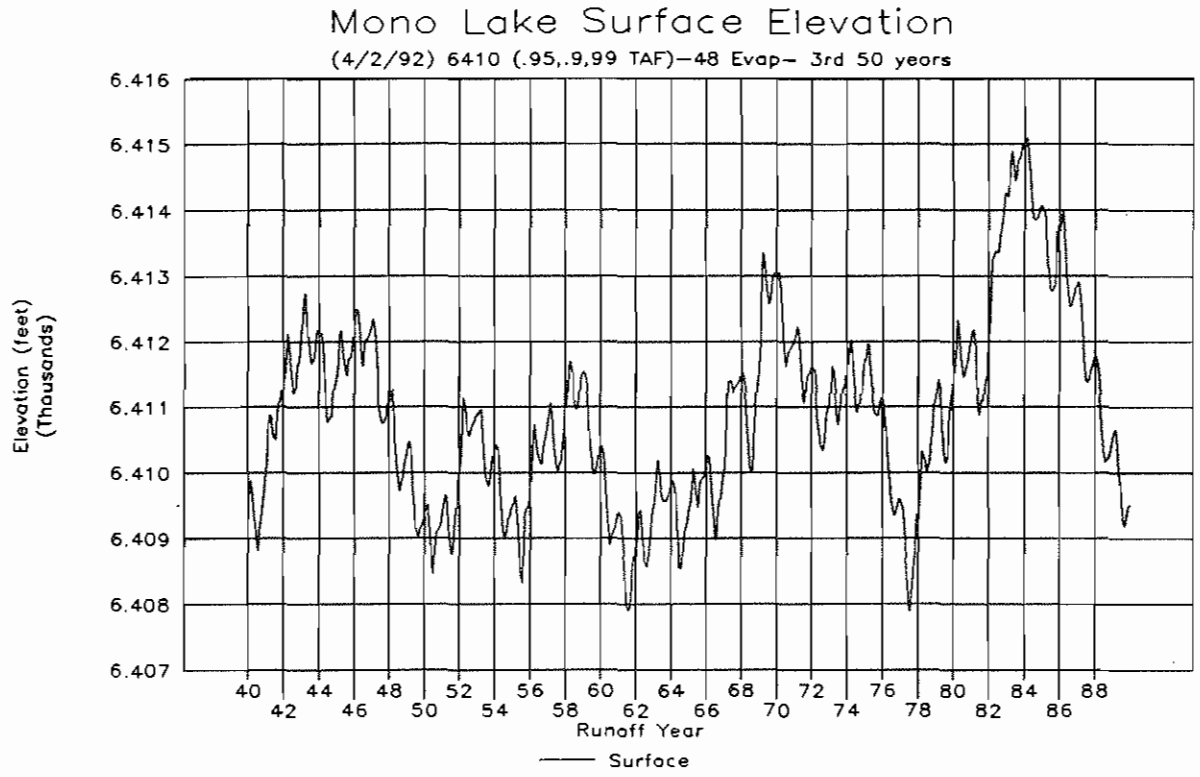
	Owens Available Export (AF)	Total Owens Uses (AF)	Haiwee Exports (AF)	Haiwee Target (AF)	Mono Lake Level (feet)	Grant Storage (AF)	Releases to Mono Lake (AF)	West Portal Exports (AF)	Long Valley Storage (AF)	Long Valley Outflow (AF)	Pleasant Valley Outflow (AF)	Tinemaha Inflow= Outflow (AF)	Total Owens Pumping (AF)	Total Owens Spreading (AF)	Aqueduct Spilling (AF)	Tinemaha Storage (AF)	Haiwee Storage (AF)
Starting:					6376.50	20095			120000							8000	8000
Minimum:	8357	1645	9062	16520	6376.5	16730	2475	0	112336	0	7000	8437	3070	0	0	0	0
Average:	26861	8748	32152	39883	6392.37	20100	9563	914	129967	13945	19225	28094	9451	793	650	1050	897
Maximum:	162922	21682	49600	49600	6407.67	25213	50234	9283	185771	42346	62090	101230	26264	37820	135517	10000	10000
(TAF/yr):	322.3	105.0	385.8	478.6			114.8	11.0		167.3	230.7	337.1	113.4	9.5	7.8		
71-89 Avg:	365.2	106.0	391.6	474.1			116.3	10.9		175.3	243.8	350.8	103.8	13.2	9.5		
71-89 Historical:			470					77.5					108.7				
Ending:					6404.05	20000			129908							0	0
Monthly:																	
April	28390	7870	40139	48000	6392.25	19911	8151	0	124576	17685	21569	33198	14960	0	7	767	560
May	32199	14782	38437	49600	6392.40	20621	15878	17	127735	10759	17481	28401	12038	714	0	807	609
June	40474	19097	39508	48000	6392.67	20129	25676	0	136503	12693	21597	32205	9835	2640	5535	1167	981
July	39903	19014	37081	49600	6392.71	21134	18944	0	137407	17077	25039	33681	13978	4785	2048	1473	1310
August	32124	16255	33701	49600	6392.44	20514	11891	23	132888	16170	21614	29106	15602	1379	134	1600	1527
September	26383	11417	31803	48000	6392.20	20046	7517	64	128003	15141	19183	26816	15729	0	0	1520	1447
October	20355	4536	24707	31645	6392.03	19871	6505	289	127751	10970	15579	22605	7753	0	0	1320	1260
November	20036	3180	27296	30624	6392.03	19829	5693	1058	127604	12627	17367	25283	5332	0	0	1040	994
December	20559	2780	28074	31645	6392.18	19775	4359	2093	127489	14352	17148	26076	5571	0	27	816	693
January	20993	2088	29329	31645	6392.33	19787	3702	2305	128459	13764	18716	27705	4477	0	40	706	480
February	19744	1701	26312	28582	6392.50	19795	3174	2096	130227	11442	15988	24684	3747	0	0	655	440
March	21168	2255	29440	31650	6392.66	19792	3265	3021	130963	14662	19413	27367	4396	0	5	725	468
Cumulative Distribution of			Minimum	5%	10%	20%	30%	40%	Median	60%	70%	80%	90%	95%	Maximum		
Mono Lake Monthly Elevations			6376.5	6381.47	6383.7	6385.42	6387.53	6389.33	6390.7	6395.17	6396.18	6398.3	6405.03	6406.04	6407.67		
Annual:																	
Minimum:	158630	86853	199716	400180			56643	0		72349	108118	163457	39457	0	0		
Average:	322327	104974	385828	478591			114753	10964		167341	230695	337127	113417	9518	7796		
Maximum:	877015	121300	538750	538750			221164	19965		309062	424106	599718	196163	139328	200099		

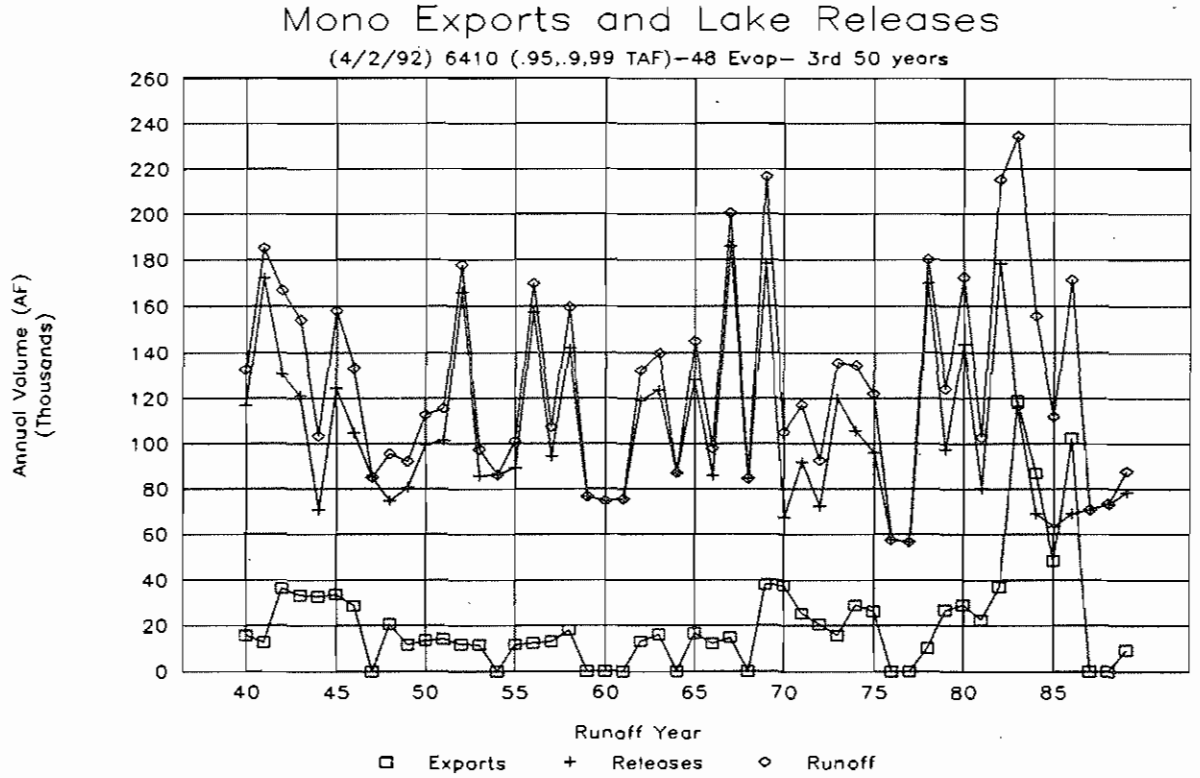

Mono Lake Surface Elevation
(4/2/92) 6410 (.95,.90,99 TAF)-48 Evap- 1st 50 years
Elevation (feet)
(Thousands)
6.410
6.408
6.406
6.404
6.402
6.400
6.398
6.396
6.394
6.392
6.390
6.388
6.386
6.384
6.382
6.380
6.378
6.376
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Surfoce

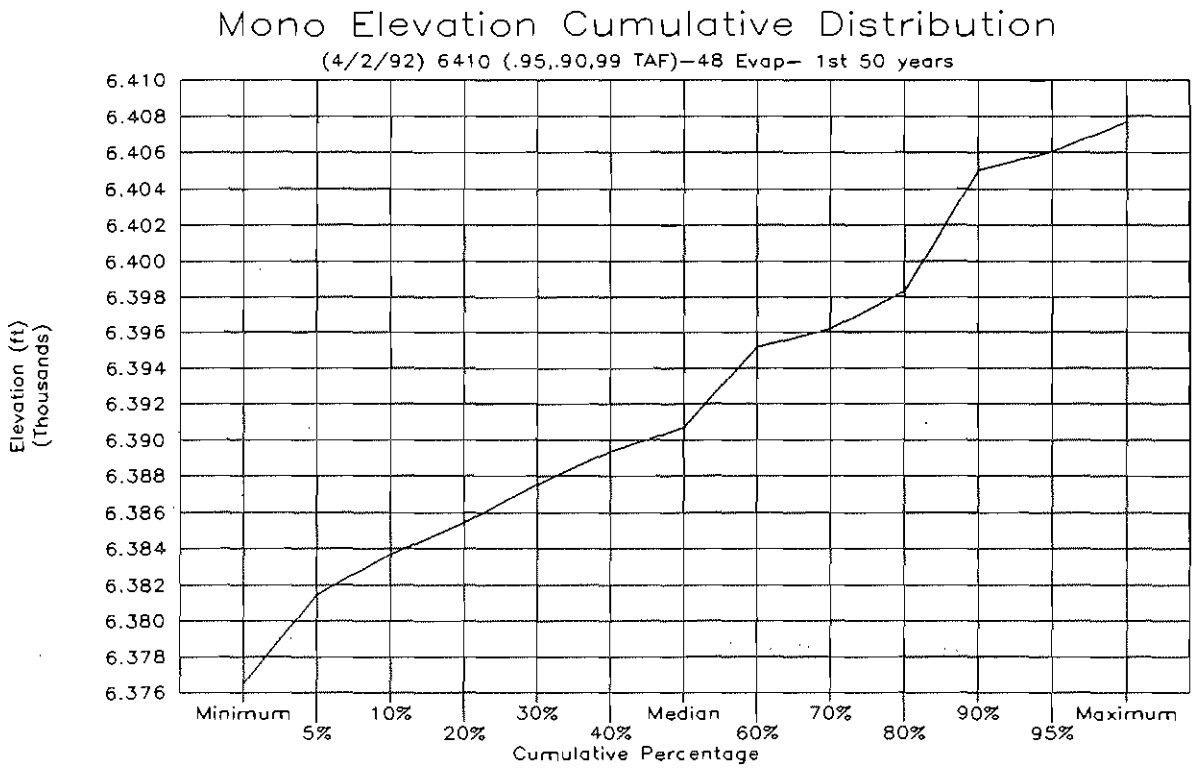

Mono Tributary Streamflows
(4/2/92) 6410 (.95,.90,99 TAF)-48 Evap- 1st 50 yeors
Streamflow (cfs)
500
400
300
200
100
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Yeor
Lee Vining
Walker
Parker
Rush

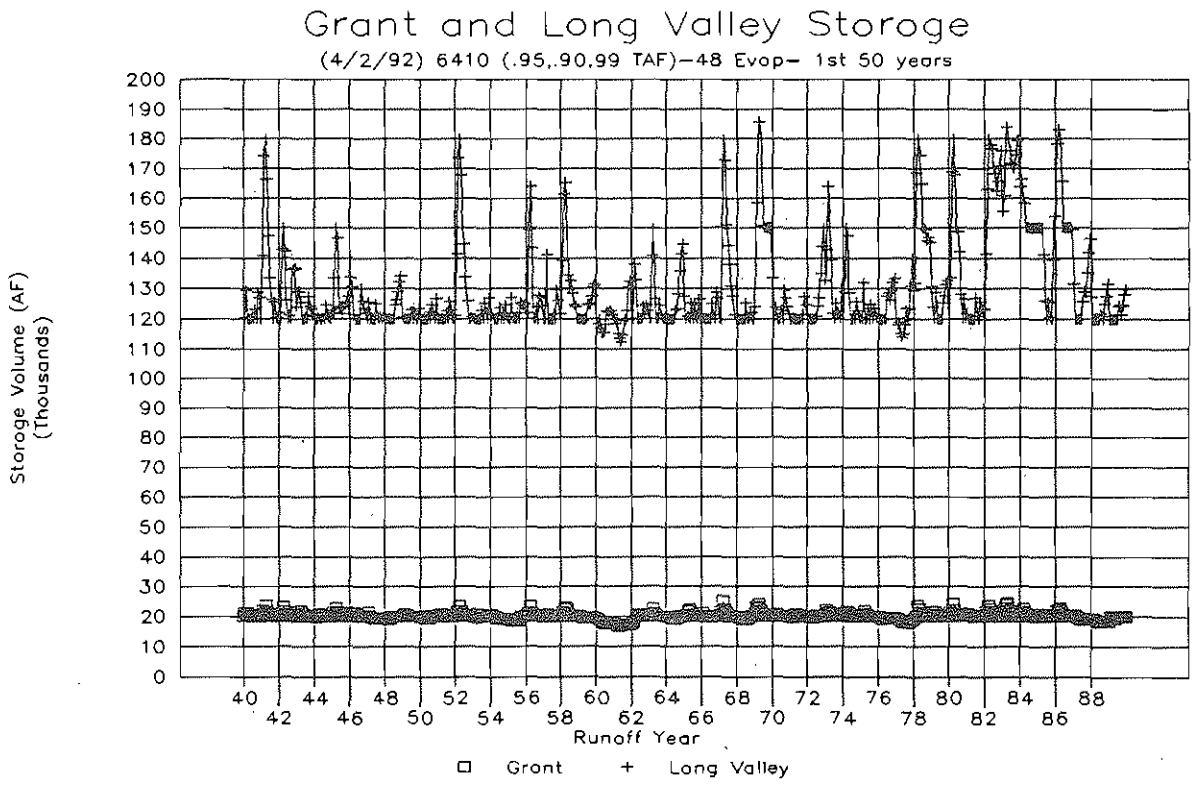

Mono Lake Surface Elevation
(4/2/92) 6410 (.95,.9,99 TAF)–48 Evap– 2nd 50 years
Elevation (feet)
(Thousands)
6.416
6.415
6.414
6.413
6.412
6.411
6.410
6.409
6.408
6.407
6.406
6.405
6.404
6.403
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Surface

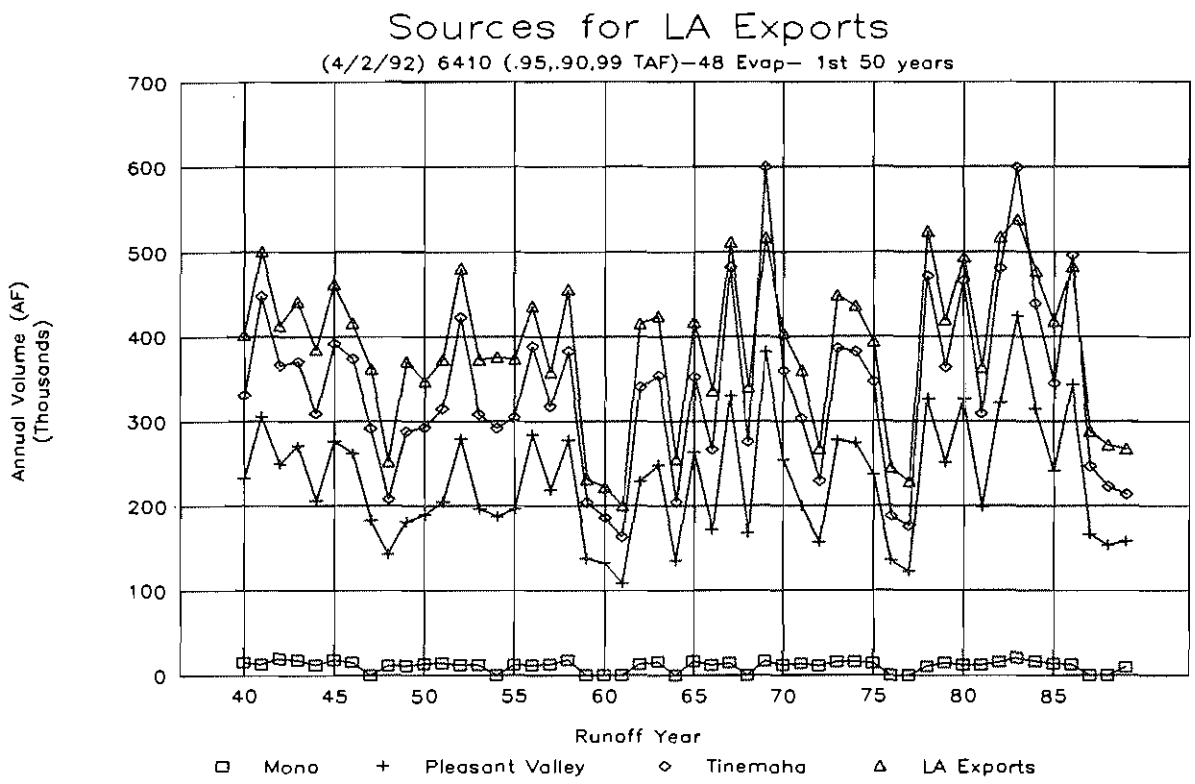

Mono Exports and Lake Releases
(4/2/92) 6410 (.95,.9,99 TAF)–48 Evap– 2nd 50 years
Annual Volume (AF)
(Thousands)
260
240
220
200
180
160
140
120
100
80
60
40
20
0
40 45 50 55 60 65 70 75 80 85
Runoff Year
Exports
Releases
Runoff

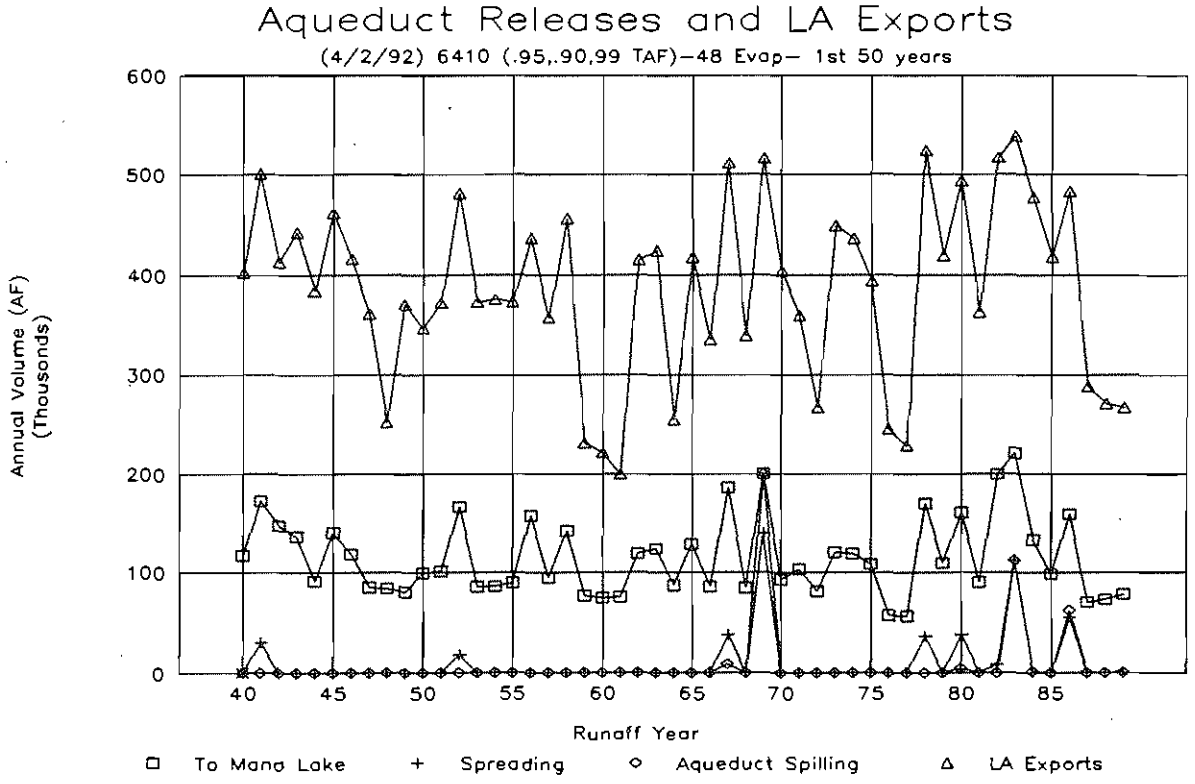

Mono Lake Surface Elevation
(4/2/92) 6410 (.95,.9,99 TAF)-48 Evap- 3rd 50 yeors
Elevation (feet)
(Thousands)
6.416
6.415
6.414
6.413
6.412
6.411
6.410
6.409
6.408
6.407
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Surface

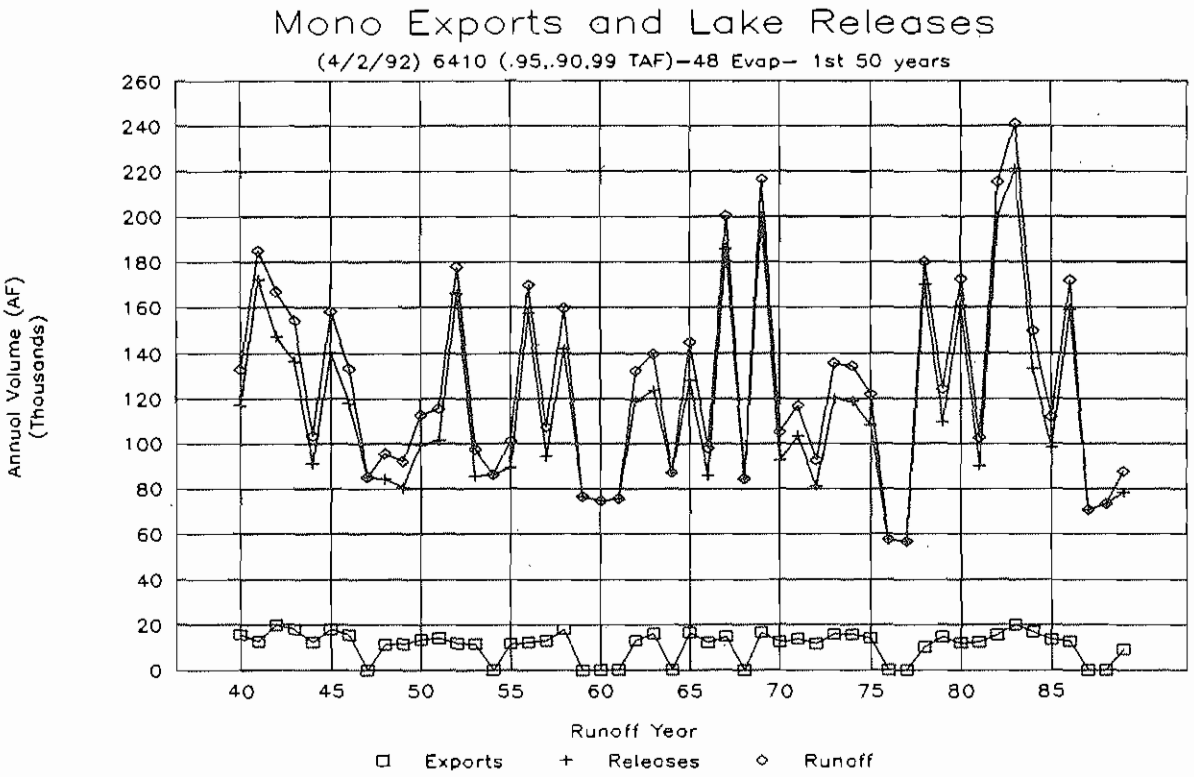

Mono Exports and Lake Releases
(4/2/92) 6410 (.95,.9,99 TAF)-48 Evap- 3rd 50 yeors
Annual Volume (AF)
(Thousands)
260
240
220
200
180
160
140
120
100
80
60
40
20
0
40 45 50 55 60 65 70 75 80 85
Runoff Year
Exports
Releases
Runoff

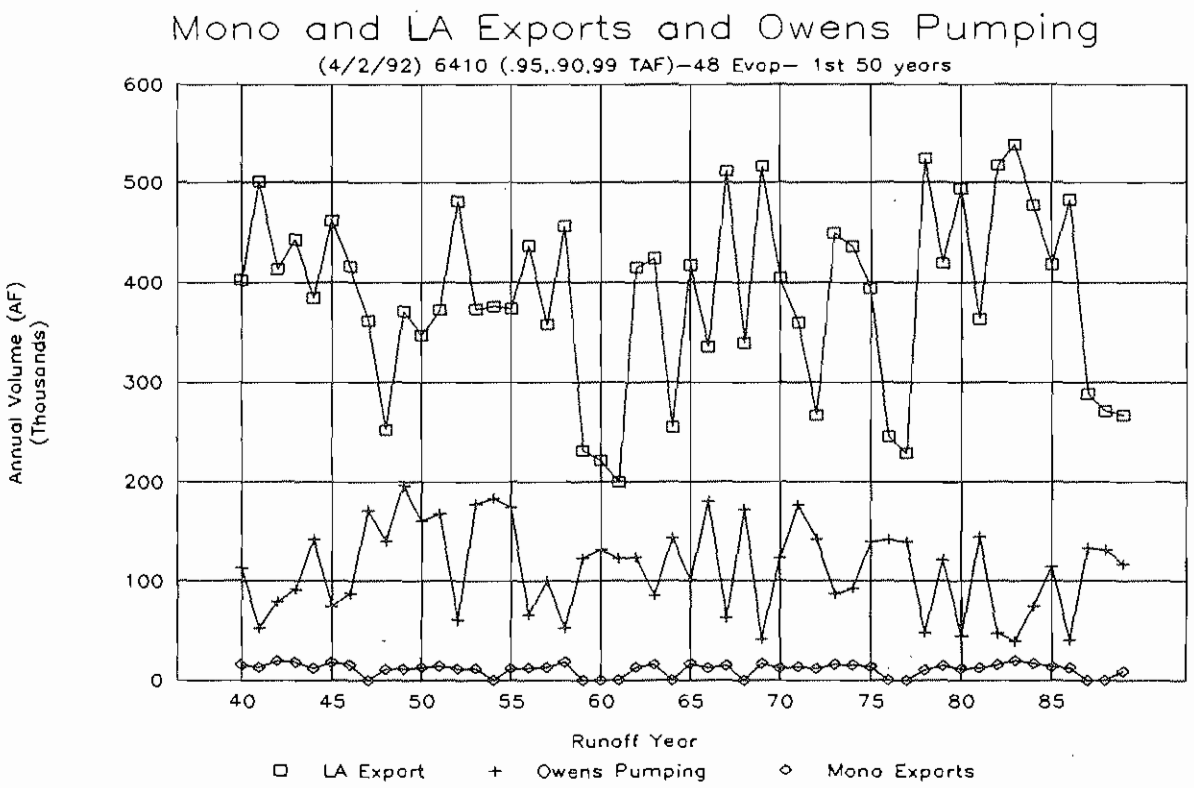

Mono Elevation Cumulative Distribution
(4/2/92) 6410 (.95,.90,99 TAF)-48 Evap- 1st 50 years
Elevation (ft)
(Thousands)
6.410
6.408
6.406
6.404
6.402
6.400
6.398
6.396
6.394
6.392
6.390
6.388
6.386
6.384
6.382
6.380
6.378
6.376
Minimum
5%
10%
20%
30%
40%
Median
60%
70%
80%
90%
95%
Maximum
Cumulative Percentage

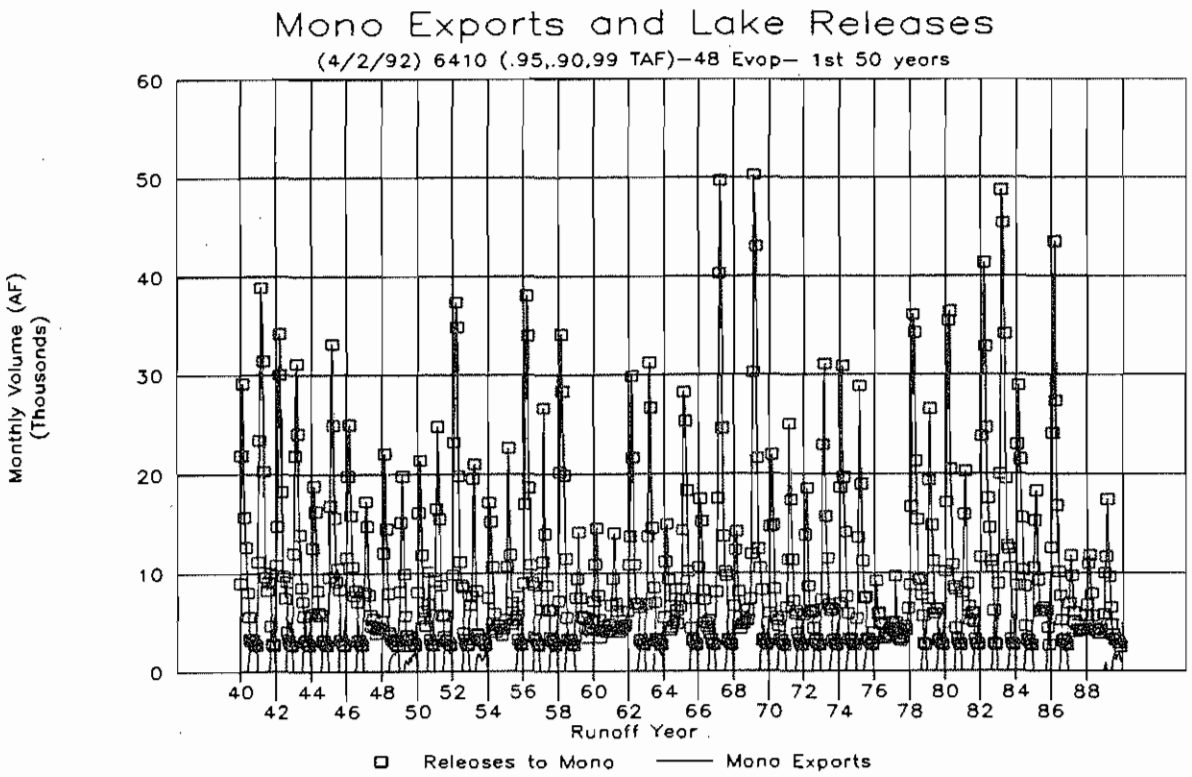

Grant and Long Valley Storoge
(4/2/92) 6410 (.95,.90,99 TAF)-48 Evap- 1st 50 years
Storage Volume (AF)
(Thousands)
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
40
42
44
46
48
50
52
54
56
58
60
62
64
66
68
70
72
74
76
78
80
82
84
86
88
Runoff Year
Grant
Long Valley

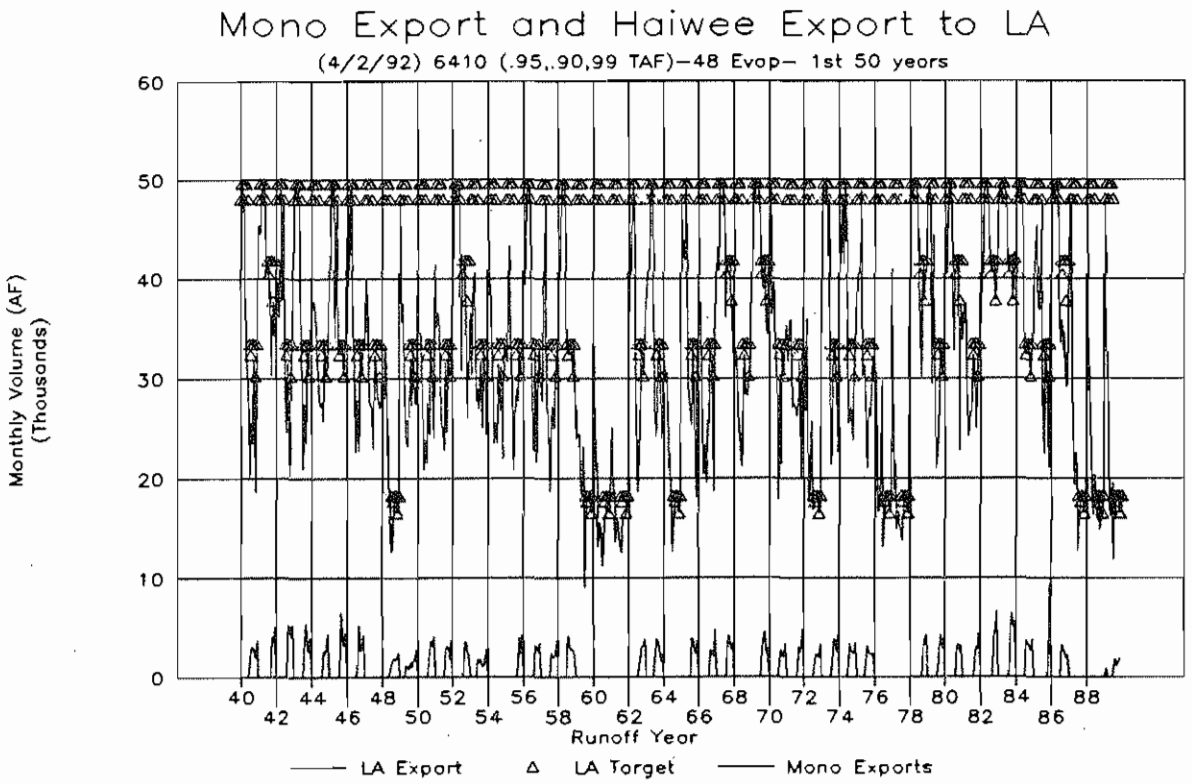

Sources for LA Exports
(4/2/92) 6410 (.95,.90,99 TAF)—48 Evap— 1st 50 years
Annual Volume (AF)
(Thousands)
700
600
500
400
300
200
100
0
40
45
50
55
60
65
70
75
80
85
Runoff Year
Mono
Pleasant Valley
Tinemaha
LA Exports


Aqueduct Releases and LA Exports
(4/2/92) 6410 (.95,.90,99 TAF)—48 Evap— 1st 50 years
Annual Volume (AF)
(Thousands)
600
500
400
300
200
100
0
40
45
50
55
60
65
70
75
80
85
Runoff Year
To Mono Lake
Spreading
Aqueduct Spilling
LA Exports


Mono Exports and Lake Releases
(4/2/92) 6410 (.95,.90,99 TAF)–48 Evap– 1st 50 years
Annual Volume (AF)
(Thousands)
260
240
220
200
180
160
140
120
100
80
60
40
20
0
40
45
50
55
60
65
70
75
80
85
Runoff Year
Exports
Releases
Runoff


Mono and LA Exports and Owens Pumping
(4/2/92) 6410 (.95,.90,99 TAF)–48 Evap– 1st 50 years
Annual Volume (AF)
(Thousands)
600
500
400
300
200
100
0
40
45
50
55
60
65
70
75
80
85
Runoff Year
LA Export
Owens Pumping
Mono Exports


Mono Exports and Lake Releases
(4/2/92) 6410 (.95,.90,99 TAF)-48 Evop- 1st 50 yeors
Monthly Volume (AF)
(Thousands)
60
50
40
30
20
10
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Yeor
Releoses to Mono
Mono Exports


Mono Export and Haiwee Export to LA
(4/2/92) 6410 (.95,.90,99 TAF)-48 Evop- 1st 50 yeors
Monthly Volume (AF)
(Thousands)
60
50
40
30
20
10
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Yeor
LA Export
LA Torget
Mono Exports

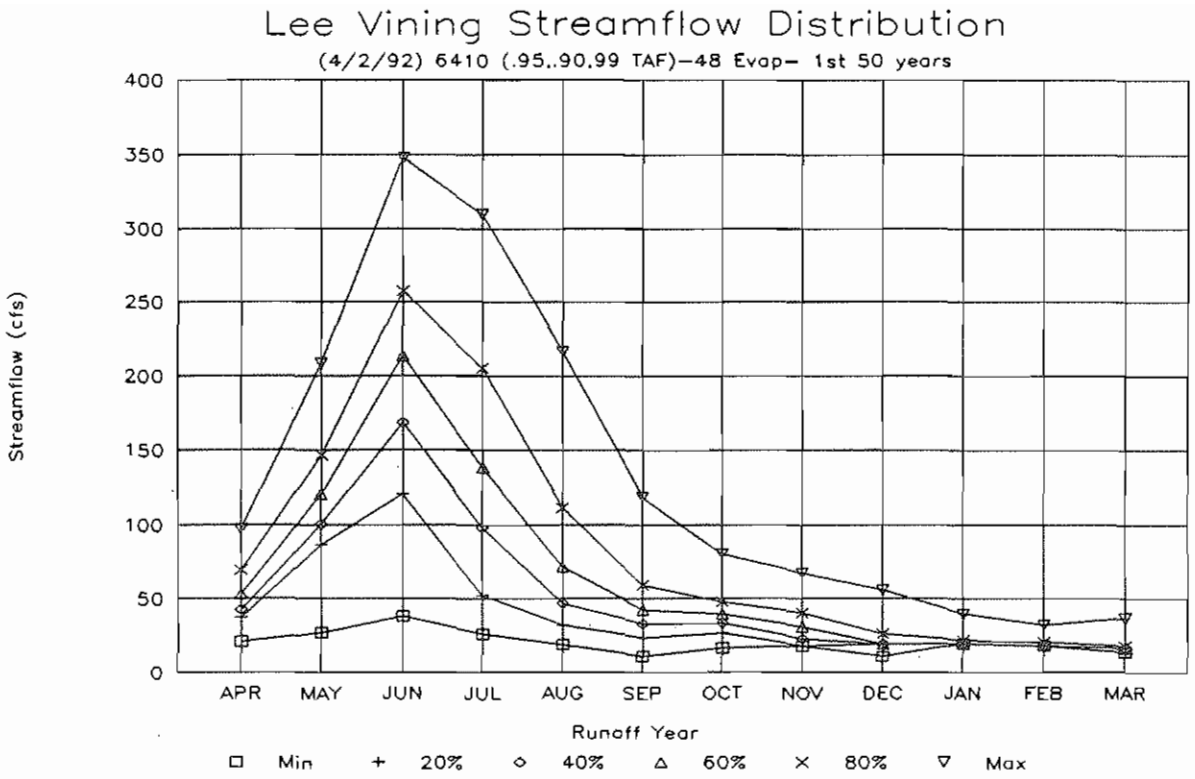
Mono Lake Tributary Streamflows
04/02/92
Mono EIR Alternatives
Initial Alternatives - 1st 50 years:
(4/2/92) 6410 (.95,.90,99 TAF)-48 Evap- 1st 50 years

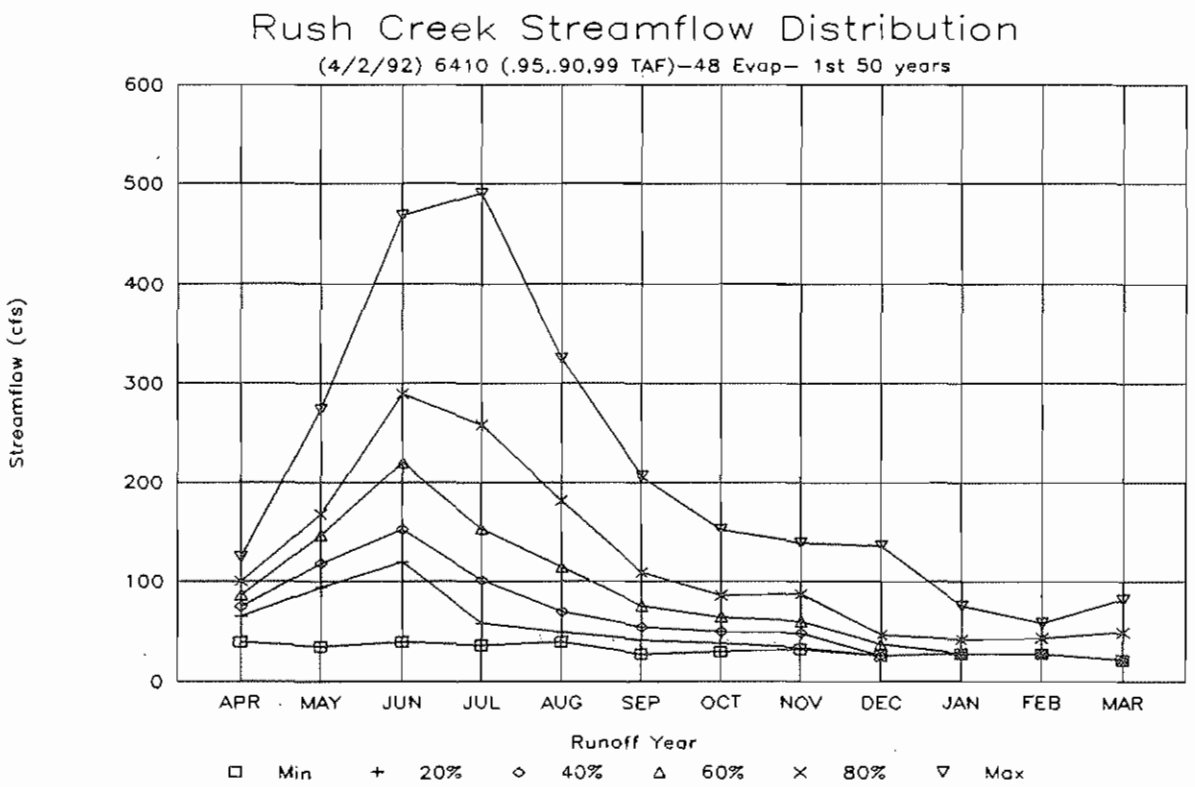
	Lee Vining Runoff (AF)	Lee Vining Min Flow (AF)	Lee Vining Lakeflow (AF)	Lee Vining Irrigate (AF)	Lee Vining Conduit (AF)	Lee Vining Spill (AF)	Walker Creek Runoff (AF)	Walker Creek Min Flow (AF)	Walker Creek Irrigate (AF)	Walker Creek Conduit (AF)	Walker Creek Spill (AF)	Parker Creek Runoff (AF)	Parker Creek Min Flow (AF)	Parker Creek Irrigate (AF)	Parker Creek Conduit (AF)	Parker Creek Spill (AF)
Minimum:	645	390	0	0	0	0	22	22	0	0	0	94	94	0	0	0
Average:	4107	2252	1451	62	301	41	450	223	0	227	0	760	475	0	285	0
Maximum:	20828	12025	16116	180	3653	3329	2722	1350	0	1969	0	4369	1967	0	3244	0
Total (TAF/yr):	49.3	27.0	17.4	0.7	3.6	0.5	5.4	2.7	0.0	2.7	0.0	9.1	5.7	0.0	3.4	0.0
Annual Values																
Minimum:	19852	18048	1056	748	0	0	2410	1987	0	423	0	4690	4585	0	98	0
Average:	49287	27027	17408	748	3608	496	5401	2681	0	2720	0	9126	5705	0	3421	0
Maximum:	92303	30630	54221	748	10528	5835	12132	2967	0	9227	0	16759	5991	0	10833	0

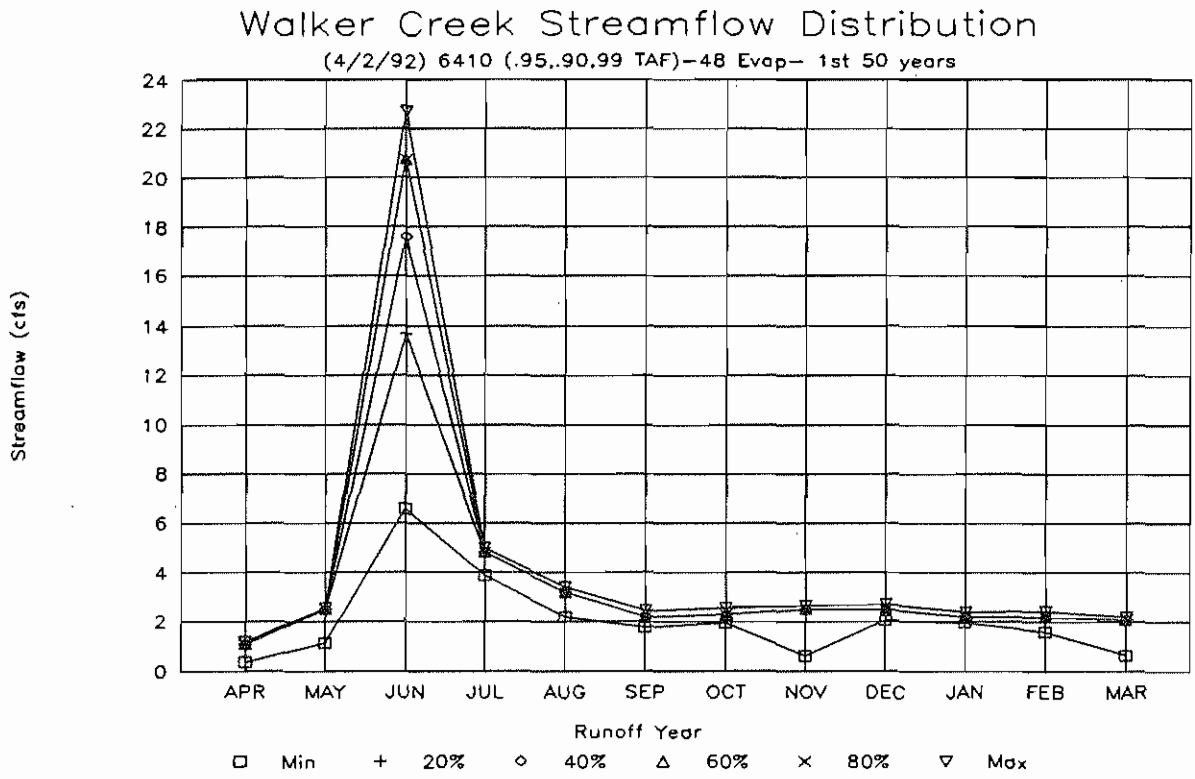
	Rush Creek Runoff (AF)	Conduit Inflow to Grant (AF)	Mono Basin Gains (AF)	Mono Gate #1 Min Flow (AF)	Rush Creek Lakeflow (AF)	Grant Storage Lakeflow (AF)	Rush Creek Storage (AF)	Grant Evap - Rain (AF)	West Portal Export (AF)	Grant Storage Spill (AF)	Lee Vining Flow (cfs)	Walker Flow (cfs)	Parker Flow (cfs)	Rush Flow (cfs)
Minimum:	1264	0	-127	1304	0	0	16730	-615	0	0	10.5	0.4	1.7	21.2
Average:	4973	812	422	2455	2381	284	20100	174	914	0	62.0	3.7	7.9	84.8
Maximum:	29989	5213	868	9467	27366	4853	25213	477	9283	0	347.8	22.7	33.1	490.2
Total (TAF/yr):	59.7	9.7	5.1	29.5	28.6	3.4		2.1	11.0	0.0				
Annual Values														
Minimum:	24610	521	5060	22376	6055	0		1359	0	0	99.6	2.7	6.3	107.8
Average:	59681	9748	5060	29459	28567	3410		2088	10964	0	233.0	3.7	7.9	170.7
Maximum:	117750	27900	5060	30755	81729	16133		2537	19965	0	446.3	4.1	8.3	251.1

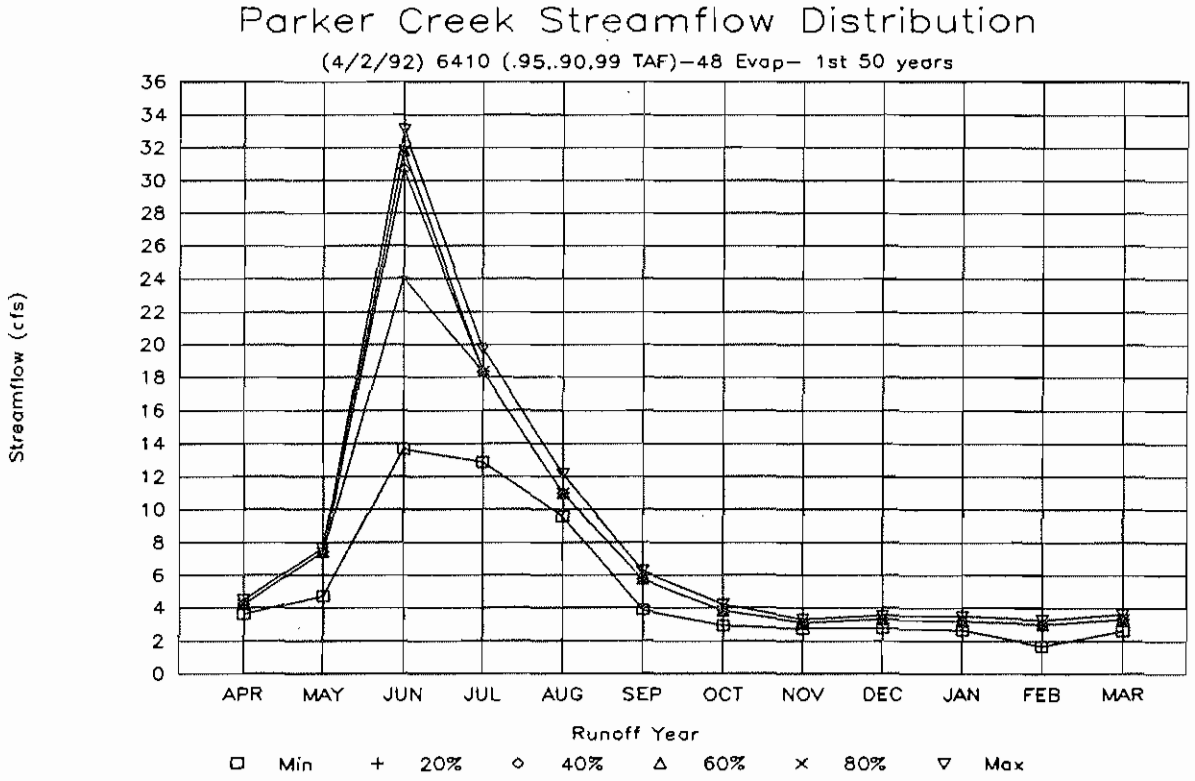
Mono Lake Tributary Streamflows Monthly Percentiles
04/02/92
Mono EIR Alternatives
Initial Alternatives – 1st 50 years:
(4/2/92) 6410 (.95,.90,99 TAF)–48 Evap– 1st 50 years

	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
Lee Vining Creek:												
0%	20.8	26.5	37.9	26.0	18.6	10.9	16.4	17.6	10.5	19.2	17.7	13.6
10%	30.5	74.9	95.4	49.1	29.0	20.5	18.8	17.7	19.0	19.2	17.7	16.2
20%	37.2	86.2	120.4	51.9	31.9	23.3	26.3	17.7	19.0	19.2	17.7	16.2
30%	40.1	92.1	131.0	70.4	39.6	30.3	28.4	17.7	19.0	19.2	17.7	16.2
40%	42.3	100.3	168.6	97.9	46.6	32.8	33.1	22.4	19.0	19.2	17.7	16.2
50%	45.4	114.1	189.9	114.4	55.1	38.2	36.3	24.3	19.0	19.2	17.7	16.2
60%	52.8	120.5	213.9	138.3	71.3	42.1	39.2	30.4	19.0	19.2	17.7	16.2
70%	59.1	138.4	239.4	180.2	98.6	54.1	44.0	35.3	19.0	19.2	17.7	16.2
80%	69.1	146.9	257.2	205.6	111.3	59.0	47.6	40.2	25.8	21.6	20.2	17.8
90%	77.9	180.3	283.9	243.3	122.9	71.6	55.0	50.6	32.8	24.4	25.1	29.4
100%	97.1	208.8	347.8	309.6	216.7	118.6	80.0	67.1	55.5	39.4	32.1	36.5
Walker Creek:												
0%	0.4	1.1	6.6	3.9	2.2	1.8	2.0	0.6	2.1	2.0	1.6	0.6
10%	1.1	2.5	10.5	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.2	2.1
20%	1.1	2.5	13.7	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.2	2.1
30%	1.1	2.5	14.4	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.2	2.1
40%	1.1	2.5	17.6	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.2	2.1
50%	1.1	2.5	20.7	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.2	2.1
60%	1.1	2.5	20.7	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.2	2.1
70%	1.1	2.5	20.7	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.2	2.1
80%	1.1	2.5	20.7	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.2	2.1
90%	1.1	2.5	20.7	4.8	3.2	2.2	2.3	2.5	2.5	2.2	2.3	2.1
100%	1.2	2.6	22.7	5.0	3.4	2.4	2.6	2.7	2.7	2.4	2.4	2.2
Parker Creek:												
0%	3.6	4.7	13.7	12.9	9.6	3.9	2.9	2.7	2.8	2.7	1.7	2.6
10%	4.2	7.4	21.3	18.3	11.0	5.7	3.8	3.1	3.3	3.2	3.0	3.3
20%	4.2	7.4	24.1	18.3	11.0	5.7	3.8	3.1	3.3	3.2	3.0	3.3
30%	4.2	7.4	27.1	18.3	11.0	5.7	3.8	3.1	3.3	3.2	3.0	3.3
40%	4.2	7.4	30.7	18.3	11.0	5.7	3.8	3.1	3.3	3.2	3.0	3.3
50%	4.2	7.4	31.9	18.3	11.0	5.7	3.8	3.1	3.3	3.2	3.0	3.3
60%	4.2	7.4	31.9	18.3	11.0	5.7	3.8	3.1	3.3	3.2	3.0	3.3
70%	4.2	7.4	31.9	18.3	11.0	5.7	3.8	3.1	3.3	3.2	3.0	3.3
80%	4.2	7.4	31.9	18.3	11.0	5.7	3.8	3.1	3.3	3.2	3.0	3.3
90%	4.2	7.4	31.9	18.3	11.0	5.7	3.9	3.1	3.4	3.3	3.0	3.4
100%	4.5	7.6	33.1	19.7	12.2	6.2	4.2	3.3	3.5	3.5	3.3	3.6
Rush Creek:												
0%	39.6	34.7	39.4	36.2	39.1	27.5	29.5	32.0	25.9	27.5	27.5	21.2
10%	57.6	84.8	89.1	53.6	46.3	37.1	34.9	32.7	25.9	27.5	27.5	21.2
20%	65.2	94.1	119.7	57.6	49.3	41.3	38.3	33.9	25.9	27.5	27.5	21.2
30%	70.3	105.7	138.4	79.5	56.9	50.1	44.0	41.5	25.9	27.5	27.5	21.2
40%	74.5	118.2	152.5	100.8	69.4	54.1	49.6	48.8	25.9	27.5	27.5	21.2
50%	79.1	128.7	177.7	126.7	84.3	61.4	55.5	53.3	28.4	27.5	27.5	21.2
60%	86.2	146.5	219.8	152.9	114.1	75.2	64.2	60.0	37.1	27.5	27.5	21.2
70%	90.7	155.7	233.7	195.8	151.8	93.2	76.3	72.2	40.9	32.9	27.5	21.2
80%	100.4	167.7	289.2	258.1	181.4	108.6	85.7	87.3	46.6	41.8	43.3	49.0
90%	107.2	193.1	359.7	309.3	210.0	139.5	105.5	112.0	94.5	55.8	47.9	55.6
100%	124.8	274.0	468.0	490.2	325.0	206.3	151.7	138.8	135.9	75.3	58.2	81.9


Lee Vining Streamflow Distribution
(4/2/92) 6410 (.95,.90,.99 TAF)–48 Evap– 1st 50 years
Streamflow (cfs)
400
350
300
250
200
150
100
50
0
APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR
Runoff Year
Min
20%
40%
60%
80%
Max

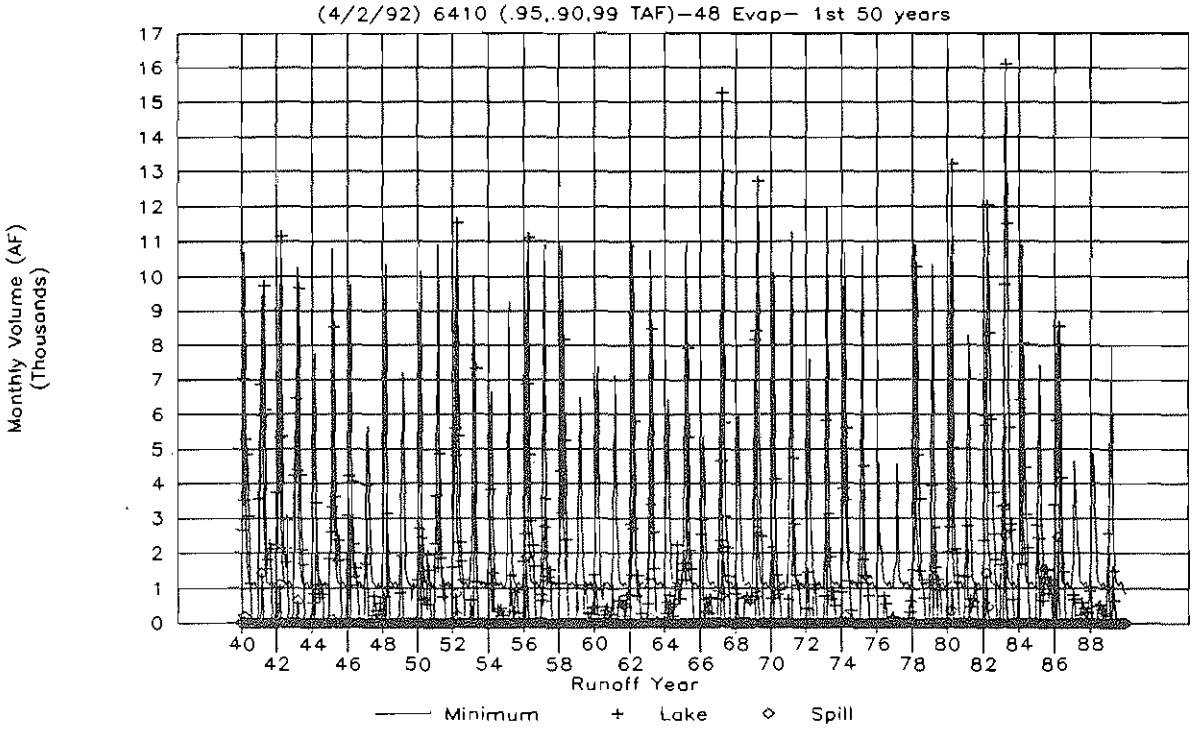

Rush Creek Streamflow Distribution
(4/2/92) 6410 (.95,.90,.99 TAF)–48 Evap– 1st 50 years
Streamflow (cfs)
600
500
400
300
200
100
0
APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR
Runoff Year
Min
20%
40%
60%
80%
Max


Walker Creek Streamflow Distribution
(4/2/92) 6410 (.95,.90,99 TAF)-48 Evap- 1st 50 years
Streamflow (cfs)
0
2
4
6
8
10
12
14
16
18
20
22
24
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
JAN
FEB
MAR
Runoff Year
Min
20%
40%
60%
80%
Max


Parker Creek Streamflow Distribution
(4/2/92) 6410 (.95,.90,99 TAF)-48 Evap- 1st 50 years
Streamflow (cfs)
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34
36
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
JAN
FEB
MAR
Runoff Year
Min
20%
40%
60%
80%
Max

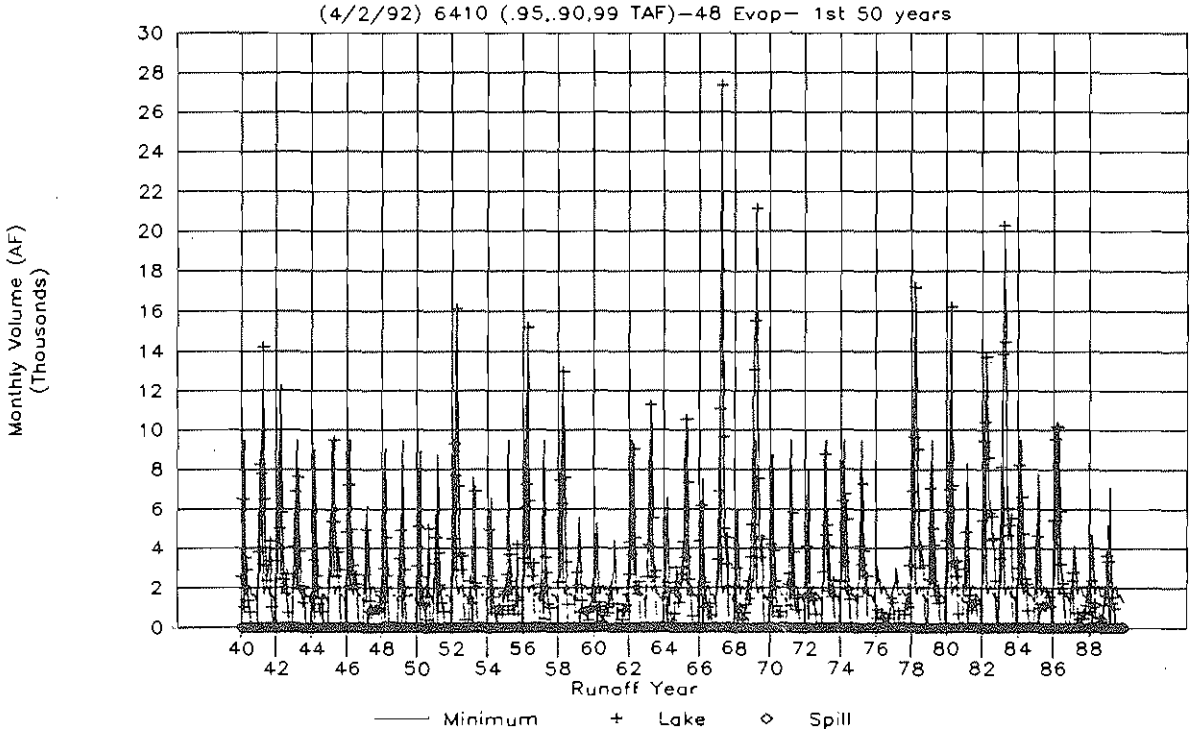
Lee Vining Creek Flows

(4/2/92) 6410 (.95,.90,99 TAF)–48 Evap– 1st 50 years



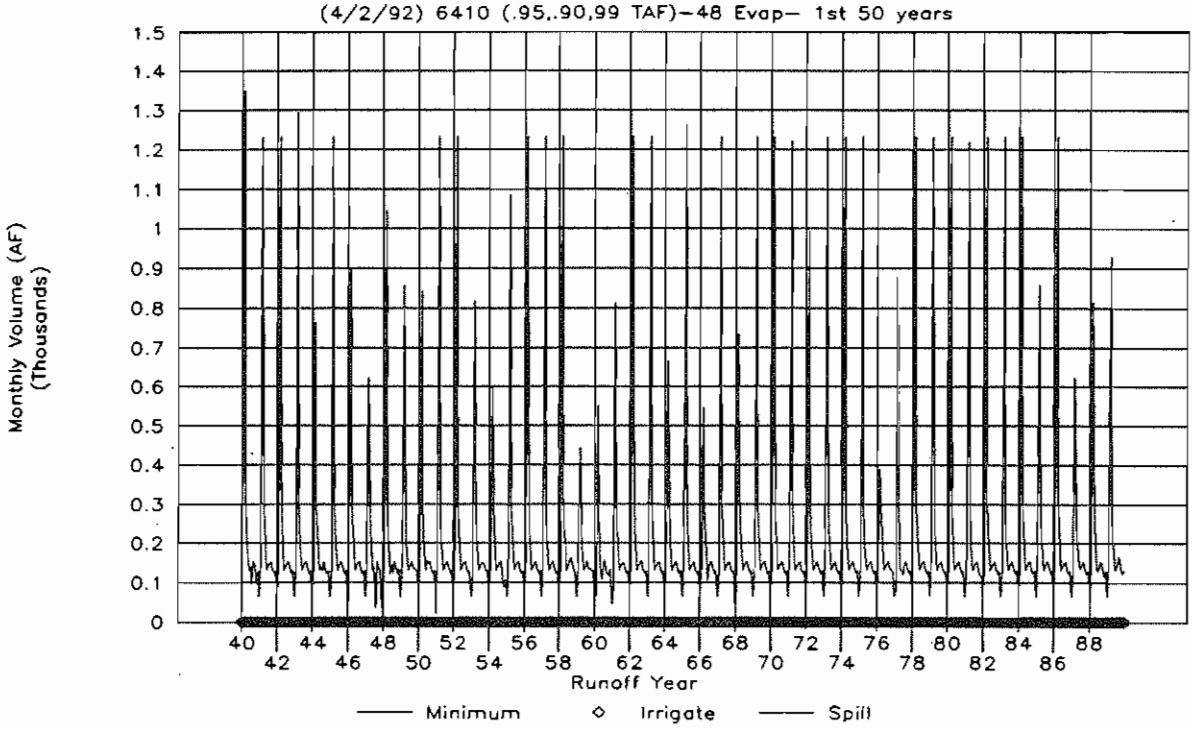
Rush Creek Flows

(4/2/92) 6410 (.95,.90,99 TAF)–48 Evap– 1st 50 years



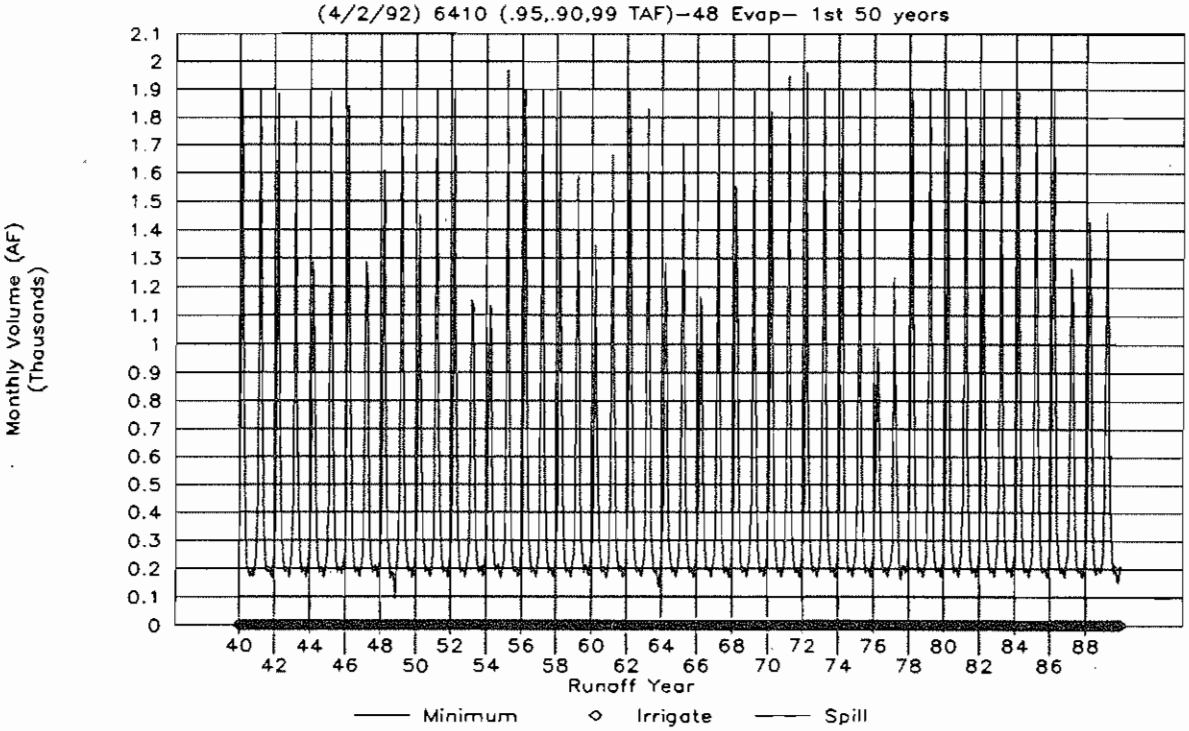
Walker Creek Flows

(4/2/92) 6410 (.95,.90,99 TAF)-48 Evap- 1st 50 years



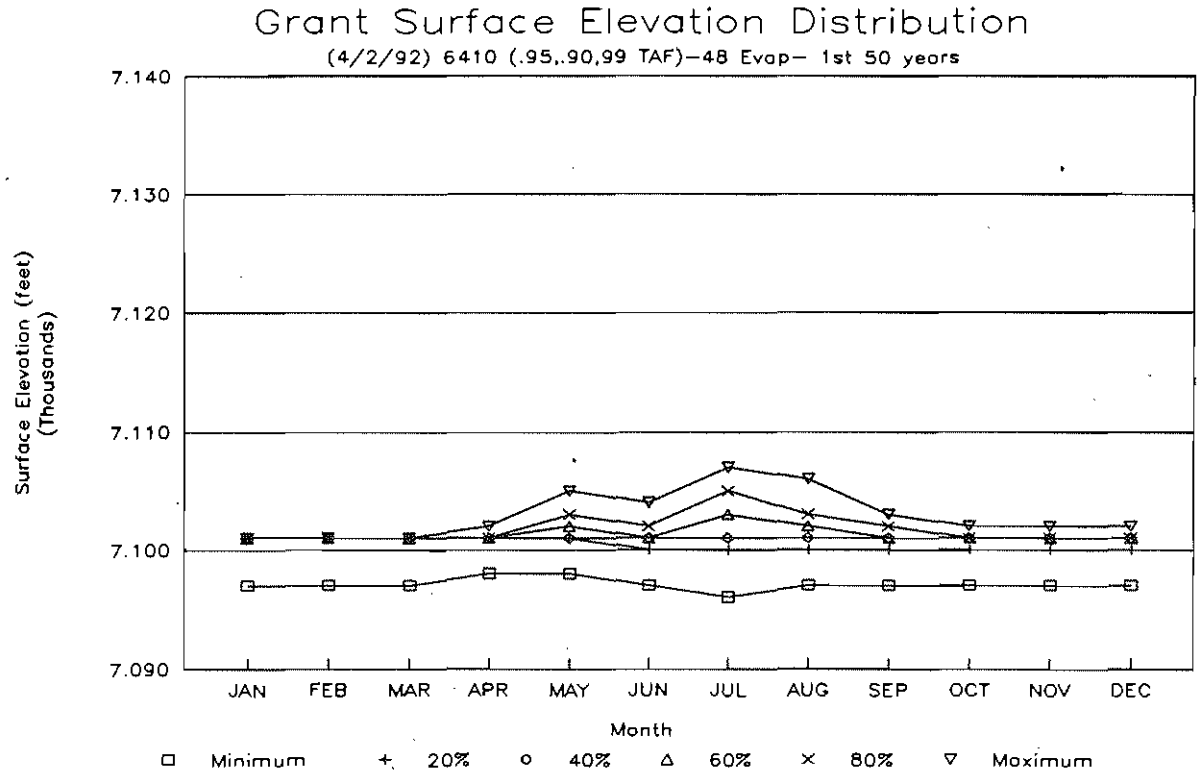
Parker Creek Flows

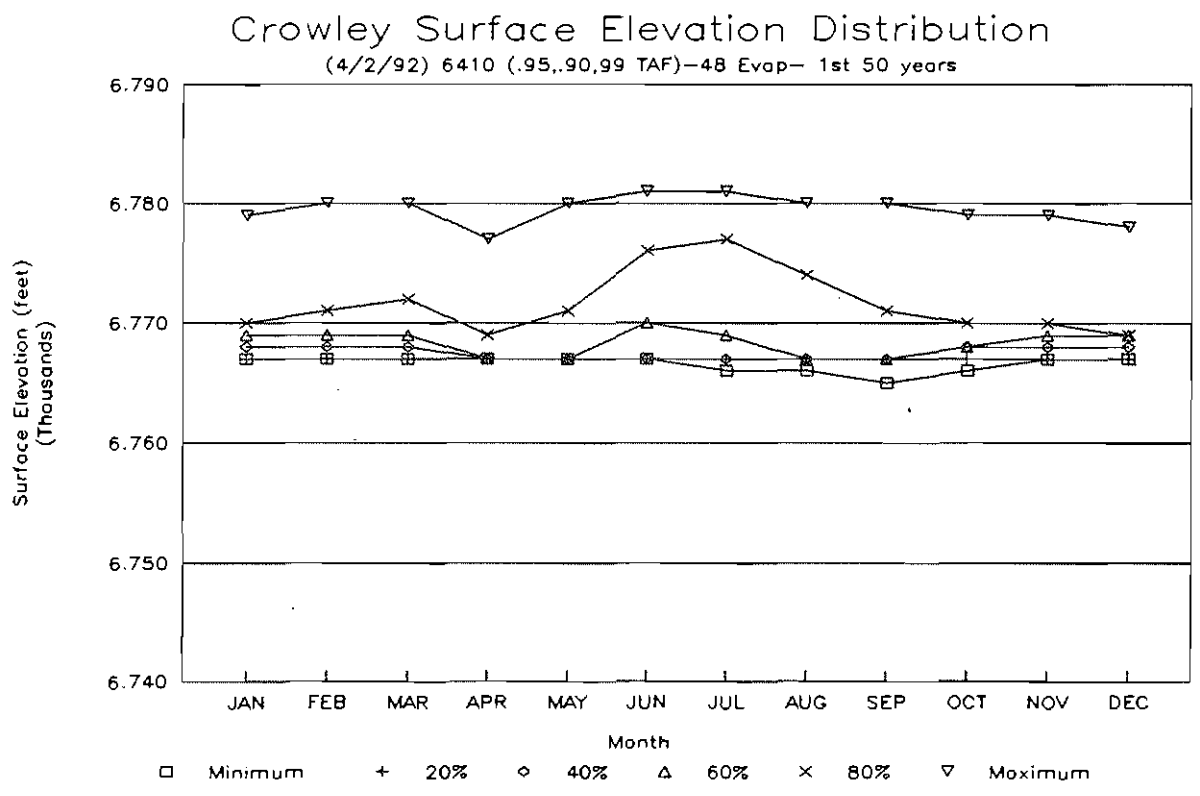
(4/2/92) 6410 (.95,.90,99 TAF)-48 Evap- 1st 50 yeors



Monthly Distribution of Lake Elevations
04/02/92
Mono EIR Alternatives
Initial Alternatives - 1st 50 years:
(4/2/92) 6410 (.95,.90,99 TAF)-48 Evap- 1st 50 years

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Grant Lake:												
Minimum	7097	7097	7097	7098	7098	7097	7096	7097	7097	7097	7097	7097
10%	7100	7100	7100	7100	7100	7100	7100	7099	7099	7099	7099	7100
20%	7101	7101	7101	7101	7101	7100	7100	7100	7100	7100	7100	7100
30%	7101	7101	7101	7101	7101	7100	7101	7100	7101	7101	7101	7101
40%	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101	7101
50%	7101	7101	7101	7101	7102	7101	7102	7102	7101	7101	7101	7101
60%	7101	7101	7101	7101	7102	7101	7103	7102	7101	7101	7101	7101
70%	7101	7101	7101	7101	7103	7102	7103	7102	7102	7101	7101	7101
80%	7101	7101	7101	7101	7103	7102	7105	7103	7102	7101	7101	7101
90%	7101	7101	7101	7102	7103	7102	7105	7104	7102	7102	7102	7101
Maximum	7101	7101	7101	7102	7105	7104	7107	7106	7103	7102	7102	7102
Lake Crowley:												
Minimum	6767	6767	6767	6767	6767	6767	6766	6766	6765	6766	6767	6767
10%	6767	6767	6767	6767	6767	6767	6767	6767	6767	6767	6767	6767
20%	6767	6767	6767	6767	6767	6767	6767	6767	6767	6767	6767	6767
30%	6768	6768	6768	6767	6767	6767	6767	6767	6767	6767	6767	6768
40%	6768	6768	6768	6767	6767	6767	6767	6767	6767	6768	6768	6768
50%	6768	6769	6769	6767	6767	6768	6767	6767	6767	6768	6768	6769
60%	6769	6769	6769	6767	6767	6770	6769	6767	6767	6768	6769	6769
70%	6769	6770	6770	6768	6769	6773	6774	6772	6768	6769	6769	6769
80%	6770	6771	6772	6769	6771	6776	6777	6774	6771	6770	6770	6769
90%	6773	6774	6774	6770	6773	6778	6780	6778	6774	6774	6774	6774
Maximum	6779	6780	6780	6777	6780	6781	6781	6780	6780	6779	6779	6778


Grant Surface Elevation Distribution
(4/2/92) 6410 (.95,.90,99 TAF)—48 Evap— 1st 50 years
Surface Elevation (feet)
(Thousands)
7.140
7.130
7.120
7.110
7.100
7.090
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
Month
Minimum
20%
40%
60%
80%
Maximum


Crowley Surface Elevation Distribution
(4/2/92) 6410 (.95,.90,99 TAF)—48 Evap— 1st 50 years
Surface Elevation (feet)
(Thousands)
6.790
6.780
6.770
6.760
6.750
6.740
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
Month
Minimum
20%
40%
60%
80%
Maximum

Owens River Streamflows - Monthly Cumulative Percentiles
04/02/92
Mono EIR Alternatives
Initial Alternatives - 1st 50 years:
(4/2/92) 6410 (.95,.90,99 TAF)-48 Evap- 1st 50 years

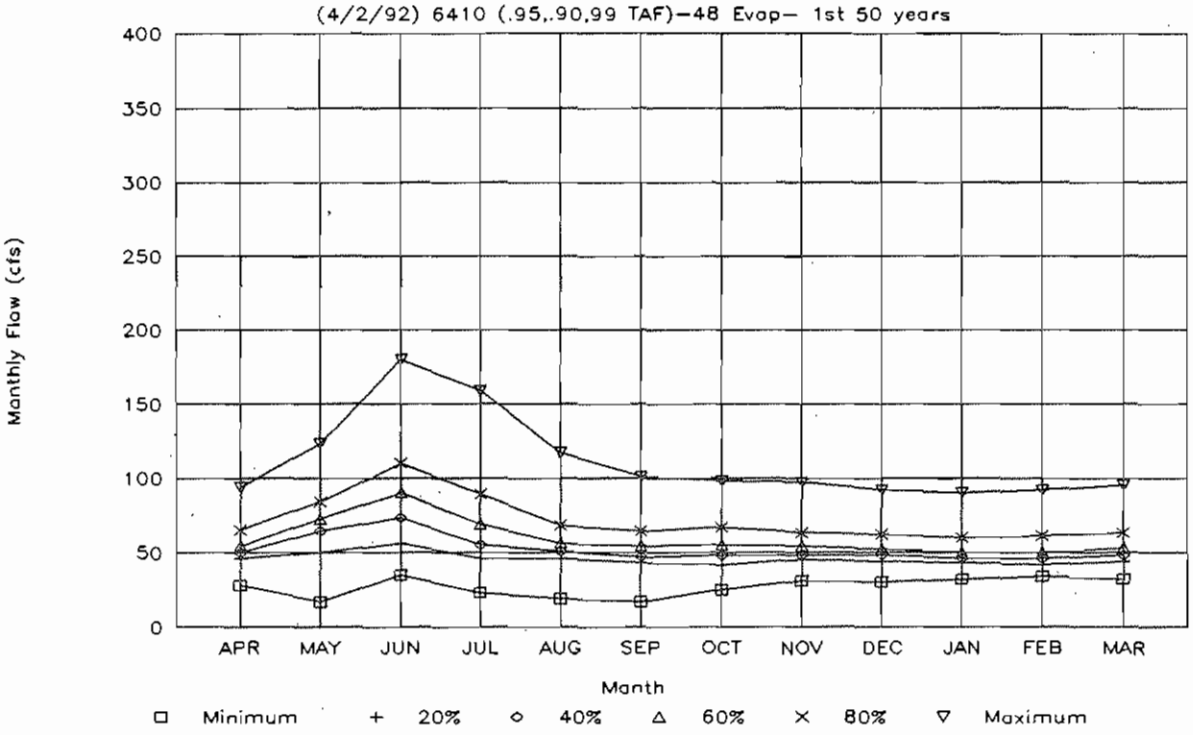
	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
Owens above East Portal:												
0%	28	17	35	23	19	17	25	31	30	32	34	32
10%	41	47	53	40	40	39	36	39	40	39	40	41
20%	46	50	56	46	46	43	42	45	44	43	42	44
30%	47	56	63	52	49	45	44	47	46	45	44	45
40%	50	64	73	55	51	47	48	48	48	46	46	48
50%	52	66	79	62	54	53	51	51	49	50	49	50
60%	54	72	90	69	56	54	55	54	52	50	50	53
70%	62	79	103	77	60	59	58	56	58	54	54	56
80%	65	84	110	89	68	64	67	63	62	60	61	63
90%	72	98	126	102	79	70	72	73	72	72	72	75
100%	94	123	180	159	117	101	98	97	92	90	92	95
Owens below East Portal:												
0%	39	25	45	32	28	25	36	43	44	50	51	52
10%	58	62	66	59	58	54	54	60	61	61	60	63
20%	61	67	72	61	63	58	61	65	66	68	75	67
30%	63	74	79	70	65	63	63	70	84	94	95	108
40%	67	79	88	74	68	67	69	73	91	106	102	117
50%	70	84	95	77	71	69	73	81	108	109	109	130
60%	73	88	113	87	73	74	79	90	115	114	117	134
70%	77	95	122	100	80	78	85	100	126	125	124	142
80%	85	102	127	107	83	84	90	116	135	136	130	149
90%	90	115	143	121	95	97	101	132	157	144	146	160
100%	114	142	198	177	135	119	128	157	177	215	205	256
Pleasant Valley Outflow:												
0%	186	123	122	125	124	125	118	120	134	118	114	119
10%	226	156	192	128	129	161	120	200	179	170	144	194
20%	240	182	216	162	153	167	122	220	190	198	173	215
30%	247	214	237	229	164	173	153	240	200	228	201	241
40%	298	224	270	310	216	193	192	251	218	286	271	303
50%	338	273	318	411	240	214	222	277	249	327	311	340
60%	381	300	364	478	414	258	275	300	296	332	336	364
70%	445	325	405	542	441	516	310	314	334	356	342	369
80%	485	363	428	584	609	568	348	373	359	372	362	377
90%	535	452	548	700	649	599	483	422	407	409	384	410
100%	645	527	963	968	859	722	583	440	507	492	461	458
Owens at Horton Creek:												
0%	188	126	126	126	126	126	126	126	142	126	125	126
10%	229	163	198	126	129	162	126	207	189	177	152	201
20%	244	189	222	164	154	171	126	227	197	205	181	220
30%	254	218	251	232	165	178	158	247	207	236	208	246
40%	303	230	297	319	221	196	197	258	226	294	279	314
50%	340	280	331	432	244	218	228	285	256	335	321	349
60%	386	308	391	496	419	264	281	307	304	340	344	371
70%	448	335	414	558	449	519	319	321	345	365	350	376
80%	492	374	443	602	631	582	354	381	367	381	370	384
90%	539	461	565	710	658	612	494	431	417	418	392	421
100%	651	538	1004	1010	891	733	592	450	516	501	470	465

Owens River Streamflows – Monthly Cumulative Percentiles
04/02/92
Mono EIR Alternatives
Initial Alternatives – 1st 50 years:
(4/2/92) 6410 (.95,.90,99 TAF)–48 Evap– 1st 50 years

	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
Owens at Bishop Diversion:												
0%	188	102	68	126	126	126	126	126	142	126	125	126
10%	229	126	126	126	129	162	126	207	189	177	152	201
20%	244	178	198	164	154	171	126	227	197	205	181	220
30%	254	216	221	221	165	178	158	247	207	236	208	246
40%	295	227	259	310	221	196	197	258	226	294	279	310
50%	340	276	316	378	244	218	228	285	252	335	321	349
60%	386	298	354	440	379	260	281	307	304	340	340	368
70%	442	320	397	460	437	469	293	321	331	365	350	375
80%	484	350	416	511	529	499	354	381	367	379	370	383
90%	527	424	533	565	563	527	463	409	403	412	384	413
100%	584	536	811	814	698	638	560	427	494	501	470	465
Owens at Laws Diversion:												
0%	188	126	126	126	126	126	126	126	142	126	125	126
10%	229	163	195	126	129	162	126	207	189	177	152	201
20%	244	189	220	164	154	171	126	227	197	205	181	220
30%	254	216	248	232	165	178	158	247	207	236	208	246
40%	303	227	284	319	221	196	197	258	226	294	279	313
50%	340	280	331	421	244	218	228	285	253	335	321	349
60%	386	308	371	485	410	264	281	307	304	340	344	371
70%	448	334	414	505	446	516	310	321	334	365	350	375
80%	492	365	437	554	608	553	354	381	367	381	370	384
90%	532	460	565	631	633	583	479	417	411	418	391	419
100%	639	538	891	899	779	704	577	436	502	501	470	465
Owens at Laws Return:												
0%	235	113	74	159	159	155	129	138	172	133	140	136
10%	284	135	160	169	168	195	158	216	207	182	159	214
20%	305	228	217	205	197	211	186	234	215	211	188	230
30%	334	256	263	278	210	220	200	254	240	274	216	252
40%	347	274	300	311	278	248	230	285	251	308	301	323
50%	404	307	351	408	303	273	251	313	290	346	335	363
60%	437	331	390	442	410	313	285	327	319	368	353	379
70%	491	342	405	467	481	473	300	365	354	381	364	384
80%	523	375	433	511	536	505	357	392	377	389	378	394
90%	582	433	538	568	581	604	469	417	417	426	399	425
100%	626	571	820	818	704	665	568	437	506	509	478	474
Owens at Bishop Return:												
0%	283	198	113	164	168	204	182	199	252	229	238	255
10%	351	260	254	171	199	256	234	279	286	275	257	281
20%	389	298	285	194	221	269	255	311	295	288	264	287
30%	415	322	308	256	235	286	284	360	335	366	272	334
40%	424	352	348	351	266	301	309	387	345	414	396	419
50%	473	399	400	400	325	338	343	421	378	444	452	459
60%	547	418	422	445	418	377	364	444	414	474	467	472
70%	593	430	443	490	508	533	420	477	455	484	472	487
80%	634	463	459	550	561	585	451	501	495	501	486	499
90%	657	526	584	615	630	671	563	554	546	552	525	511
100%	717	656	1027	822	742	725	679	585	614	603	597	592

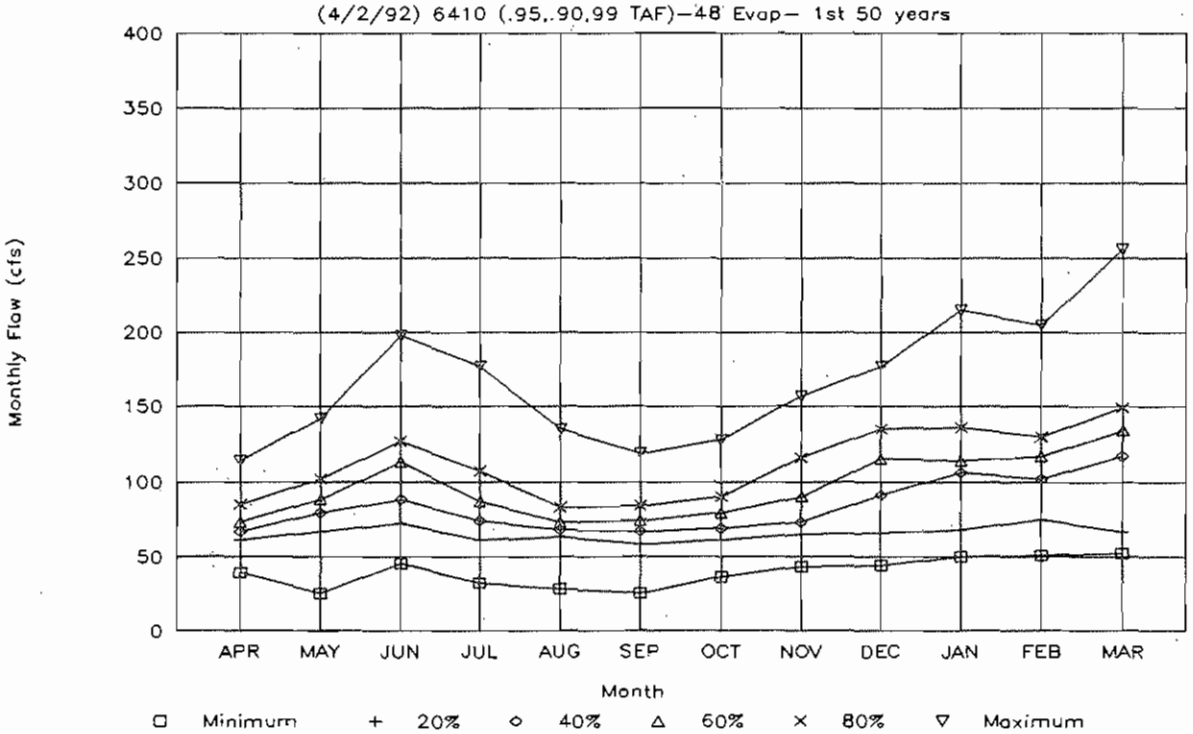
Owens Above East Portal Monthly Flows

(4/2/92) 6410 (.95,.90,99 TAF)–48 Evap– 1st 50 years



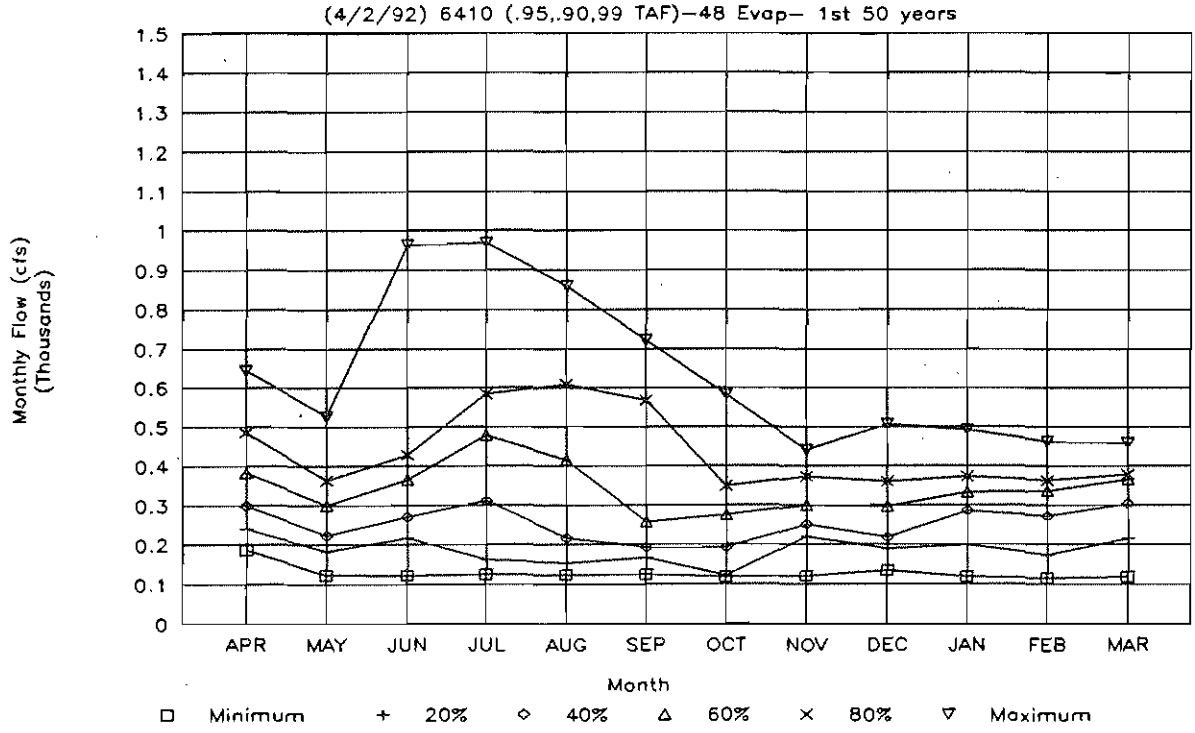
Owens Below East Portal Monthly Flows

(4/2/92) 6410 (.95,.90,99 TAF)–48 Evap– 1st 50 years



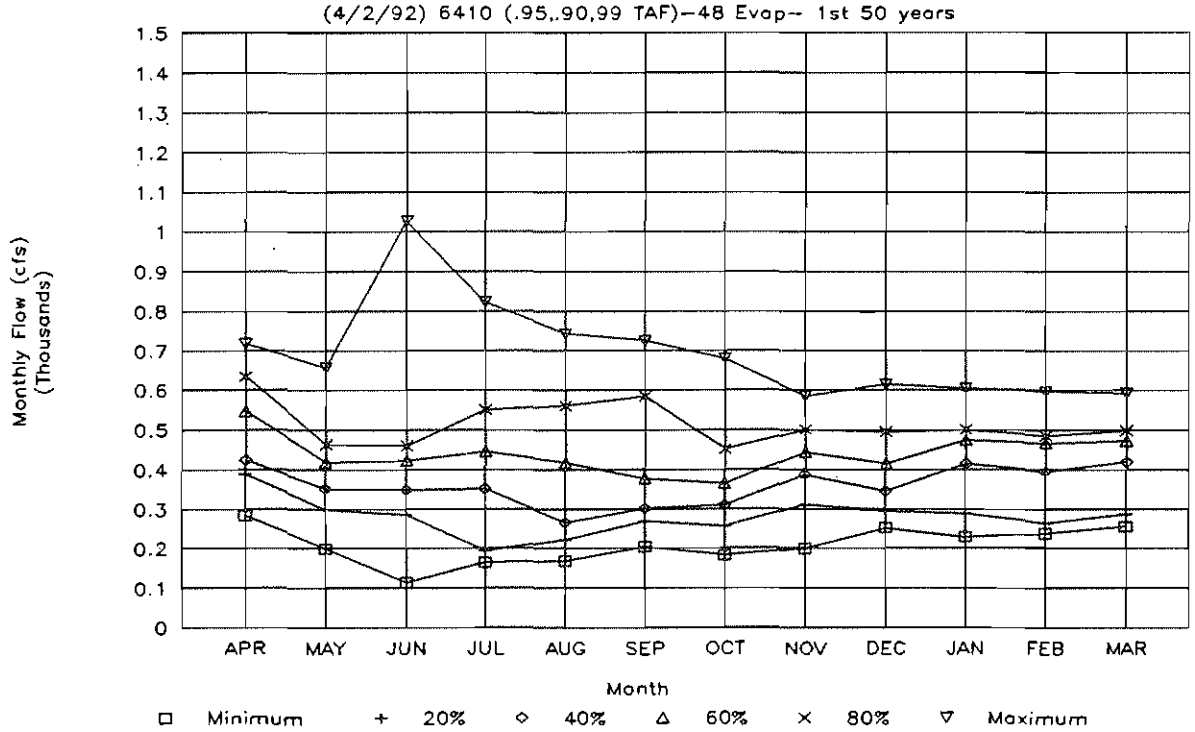
Owens @ Pleasant Valley Monthly Flows

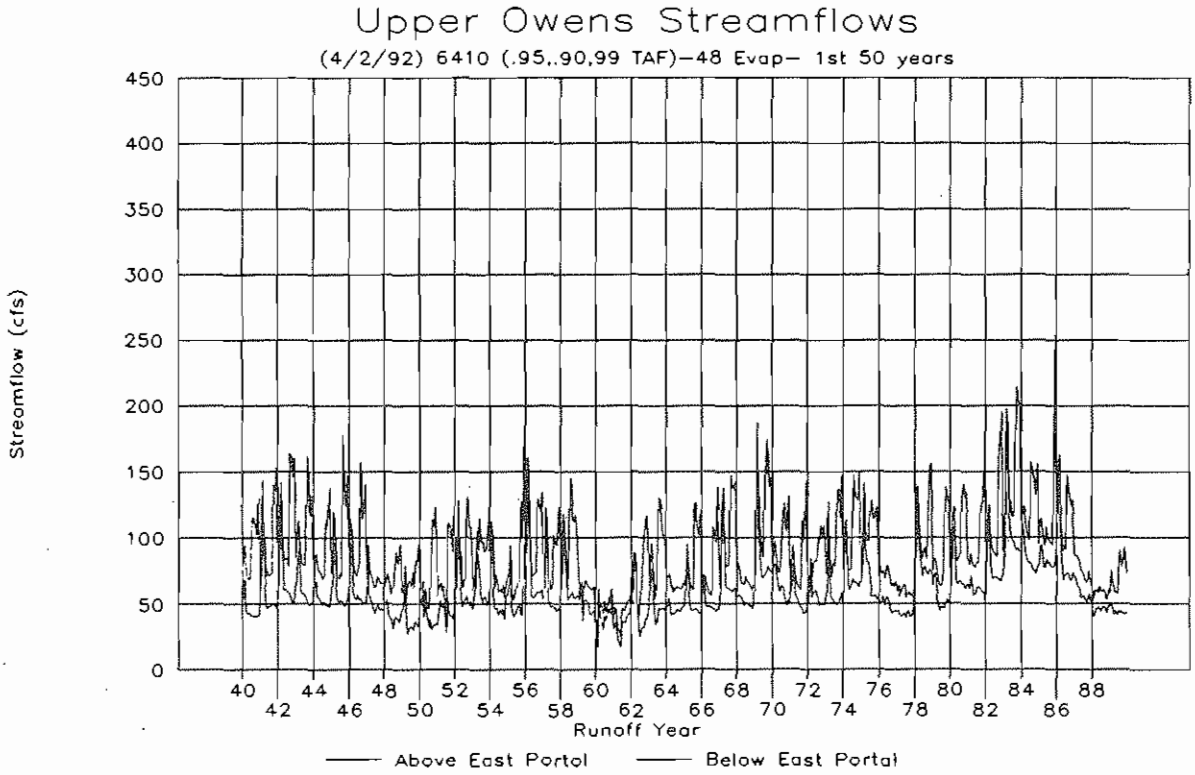
(4/2/92) 6410 (.95,.90,99 TAF)–48 Evap– 1st 50 years

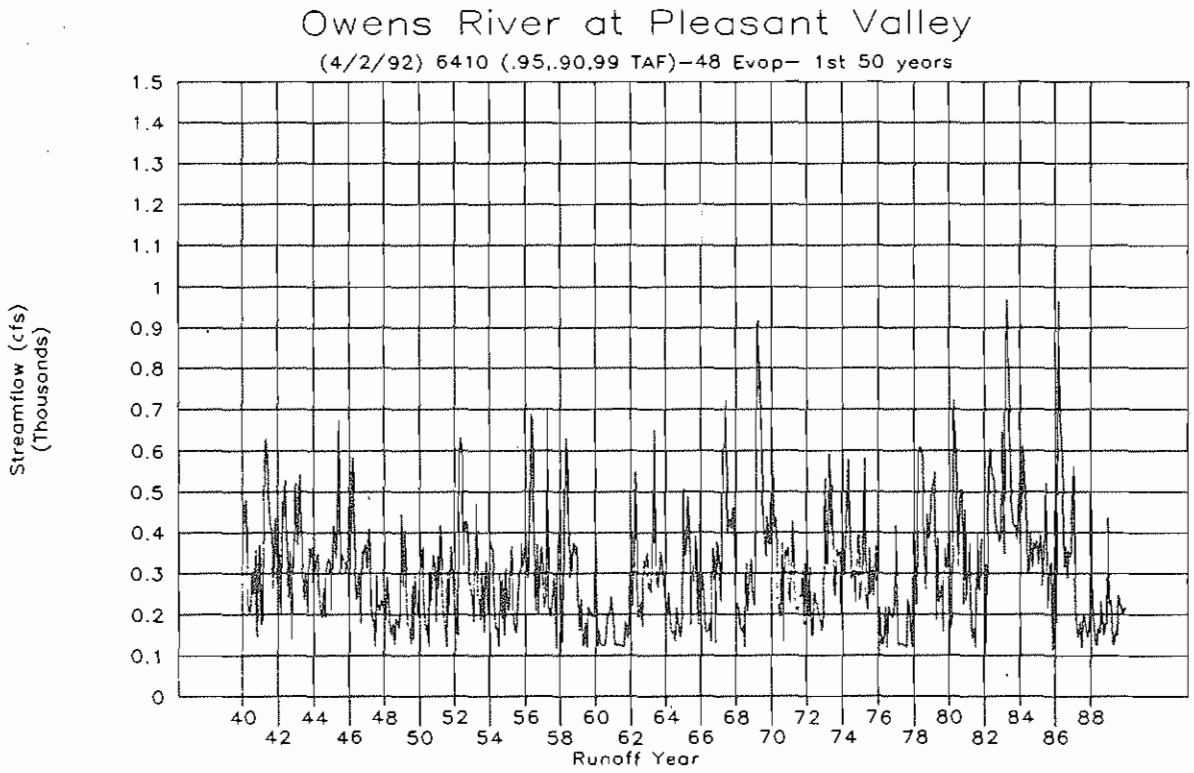


Owens @ Big Pine Canal Monthly Flows

(4/2/92) 6410 (.95,.90,99 TAF)–48 Evap– 1st 50 years




Upper Owens Streamflows
(4/2/92) 6410 (.95,.90,99 TAF)-48 Evap- 1st 50 years
Streamflow (cfs)
450
400
350
300
250
200
150
100
50
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Above East Portol
Below East Portal

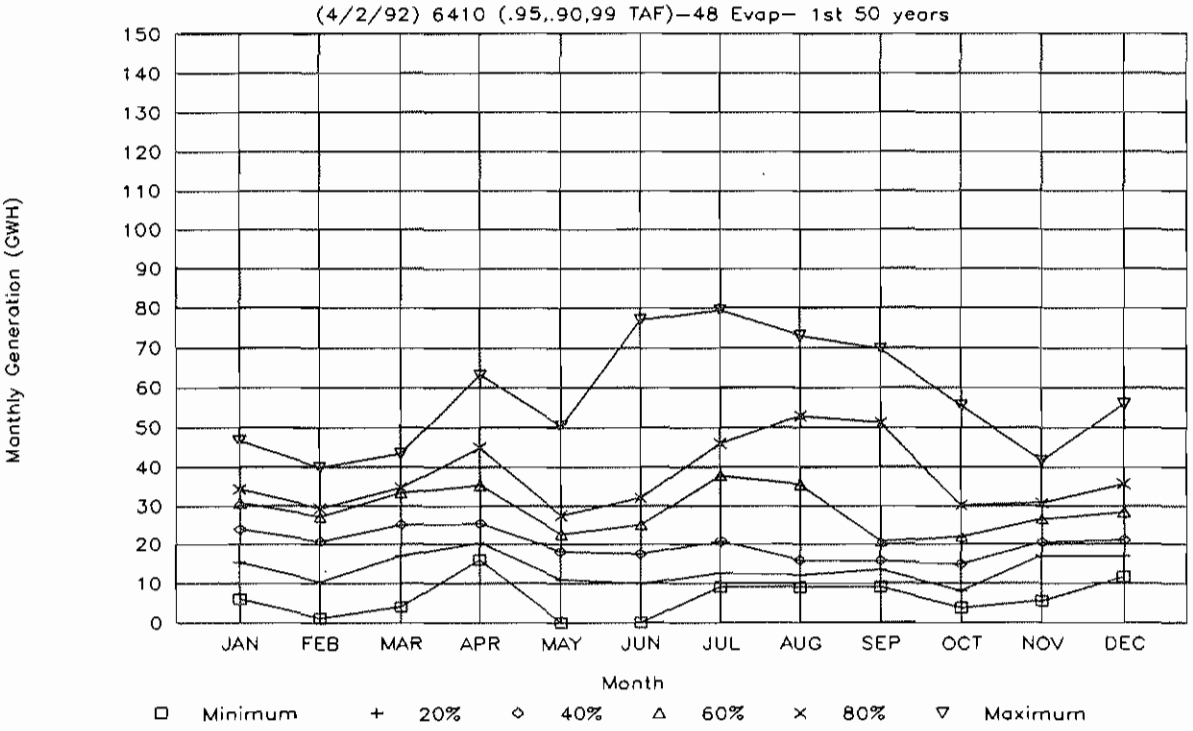

Owens River at Pleasant Valley
(4/2/92) 6410 (.95,.90,99 TAF)-48 Evap- 1st 50 years
Streamflow (cfs)
(Thousands)
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year

Cumulative Monthly Distribution of LADWP Aqueduct Power Generation
04/02/92
Mono EIR Alternatives
Initial Alternatives - 1st 50 years:
(4/2/92) 6410 (.95,.90,99 TAF)-48 Evap- 1st 50 years Annual Average: 849.0 GWH/yr

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Gorge Power Plants:												
0%	6.0	1.1	4.0	16.0	0.0	0.0	9.1	9.1	9.1	3.7	5.5	11.6
10%	9.3	7.8	14.8	19.4	0.0	5.6	10.3	10.4	12.6	6.7	9.4	14.1
20%	15.4	10.3	16.9	20.4	11.0	9.9	12.6	12.2	13.5	8.1	17.0	17.1
30%	17.3	13.6	20.1	21.1	15.1	12.8	15.5	12.7	14.5	9.6	18.3	18.9
40%	23.9	20.8	25.2	25.5	18.1	17.4	20.9	15.9	15.7	14.9	20.5	21.1
50%	29.1	24.9	30.2	29.1	19.9	20.5	28.6	18.8	16.9	18.1	22.5	25.1
60%	30.7	27.1	33.3	35.4	22.7	25.1	37.8	35.5	20.7	21.9	26.6	28.3
70%	31.7	28.4	34.3	40.8	23.7	30.2	41.9	41.5	35.6	25.3	27.9	33.5
80%	34.3	29.4	34.7	44.9	27.5	32.1	46.0	52.9	51.2	30.1	30.7	35.6
90%	36.3	30.5	36.8	52.0	33.9	42.9	55.2	60.5	57.1	36.7	36.2	40.8
100%	46.7	39.9	43.4	63.2	50.5	76.8	79.4	73.0	69.6	55.5	41.6	56.0
Los Angeles Power Plants:												
0%	18.1	20.7	23.5	30.5	22.7	20.6	15.7	19.0	18.7	10.6	15.1	20.1
10%	22.6	20.7	23.5	37.9	33.6	30.7	20.8	20.5	23.2	15.3	21.8	22.9
20%	22.6	20.7	23.5	40.5	38.0	39.3	25.4	25.9	26.7	20.1	21.8	22.9
30%	31.4	25.3	31.0	43.3	42.8	43.7	34.5	30.1	31.4	25.5	28.7	29.8
40%	36.1	33.0	38.4	45.6	44.5	45.4	42.5	33.9	34.2	28.5	31.5	32.6
50%	39.0	36.8	41.7	47.5	47.5	49.9	47.6	38.9	36.7	29.6	32.7	34.2
60%	40.9	37.7	41.7	52.6	48.8	51.7	57.9	44.7	39.6	33.4	35.8	37.4
70%	40.9	37.7	41.7	56.0	51.1	57.0	58.6	52.8	47.7	34.1	39.3	40.5
80%	40.9	37.7	41.7	57.2	58.8	57.0	58.6	58.6	51.3	40.3	39.7	41.2
90%	48.6	43.9	42.7	57.2	58.8	57.0	58.6	58.6	57.3	43.9	48.7	47.3
100%	50.1	46.1	51.2	57.2	58.8	57.0	58.6	58.6	57.3	50.2	48.7	50.4
Owens Valley Power Plants:												
0%	2.7	2.8	3.2	4.2	3.8	4.4	3.9	4.1	3.3	2.6	2.4	3.0
10%	3.2	3.0	3.4	4.8	5.4	5.7	4.6	4.5	4.0	2.7	3.1	3.2
20%	3.4	3.1	3.5	4.8	5.8	6.1	5.2	5.0	4.4	3.5	3.6	3.5
30%	4.2	3.6	4.3	5.1	6.0	6.5	6.0	5.4	4.9	3.9	4.4	4.0
40%	4.7	4.4	4.9	5.4	6.4	6.5	6.3	5.9	5.4	4.1	4.4	4.4
50%	4.9	4.8	5.1	5.5	6.5	6.6	6.9	6.2	5.6	4.5	4.6	4.7
60%	5.1	4.9	5.2	5.7	6.5	6.7	7.2	6.6	6.0	4.7	4.9	4.9
70%	5.2	4.9	5.3	5.8	6.6	6.9	7.3	7.0	6.1	5.2	5.0	5.1
80%	5.3	5.0	5.4	6.0	6.7	7.0	7.5	7.3	6.9	5.7	5.2	5.4
90%	5.6	5.1	5.5	6.1	7.1	7.1	7.6	7.6	7.3	6.0	5.7	5.7
100%	6.3	5.8	6.2	6.8	7.3	7.6	7.8	7.8	7.7	7.1	6.7	6.6
Total Aqueduct Power Plants:												
0%	29.1	28.8	31.3	52.8	36.9	35.7	32.0	33.6	31.4	19.9	24.5	38.5
10%	37.4	31.8	41.9	64.0	51.5	55.2	35.2	35.3	39.6	26.6	38.6	44.5
20%	41.6	35.9	46.9	67.4	59.0	63.1	43.9	43.1	44.9	33.6	42.5	47.6
30%	51.2	39.1	56.2	70.5	62.7	64.8	56.1	48.2	49.7	40.5	48.0	51.5
40%	66.0	59.3	69.8	72.6	64.7	69.1	72.7	56.6	55.3	45.3	55.4	54.1
50%	73.7	67.3	75.3	82.9	69.9	76.9	86.7	64.1	59.1	50.2	62.1	63.2
60%	76.7	69.4	80.3	94.0	76.4	81.8	98.6	85.2	63.2	55.0	67.9	70.4
70%	78.3	71.1	81.5	103.1	80.8	83.6	106.0	97.2	93.2	68.4	72.0	79.9
80%	80.7	72.8	82.0	108.3	86.9	89.4	112.1	119.1	113.5	72.7	79.0	81.5
90%	90.8	79.0	86.5	114.1	100.0	106.5	120.6	126.4	117.2	86.6	90.5	92.4
100%	101.0	91.5	97.6	126.8	115.8	141.2	145.5	139.3	134.6	112.4	95.8	112.3

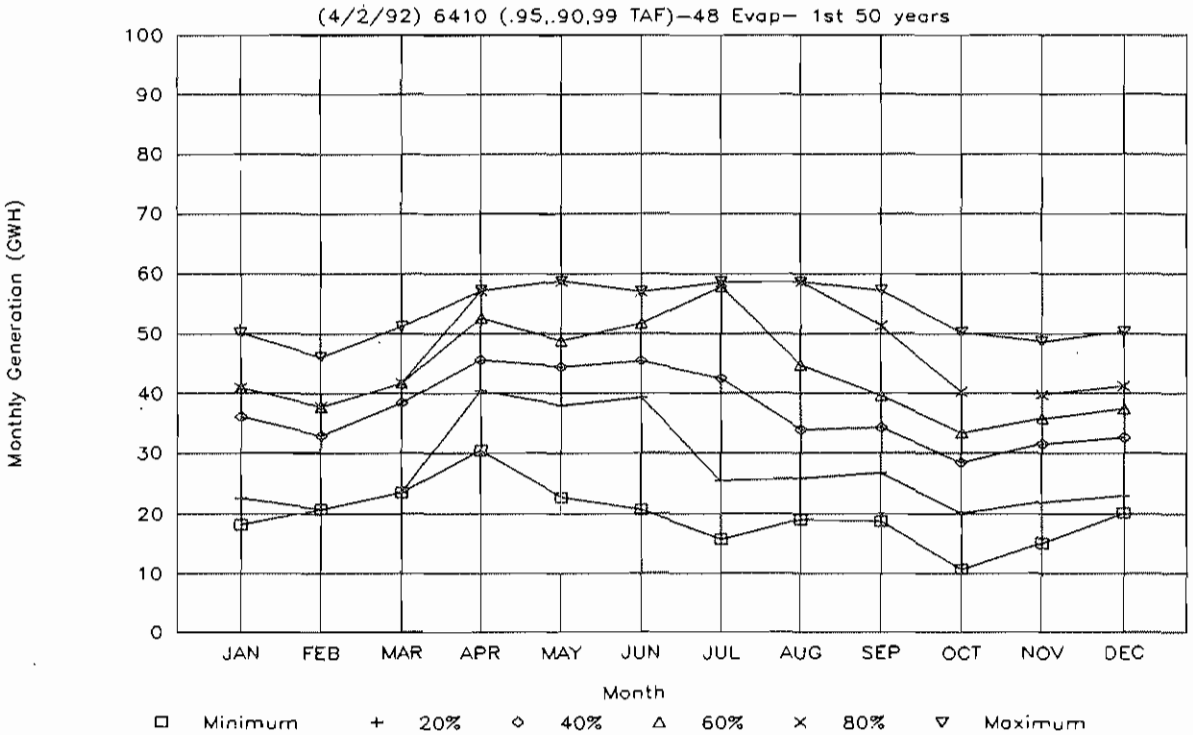
Owens Gorge Power Distribution

(4/2/92) 6410 (.95,.90,99 TAF)–48 Evap– 1st 50 years



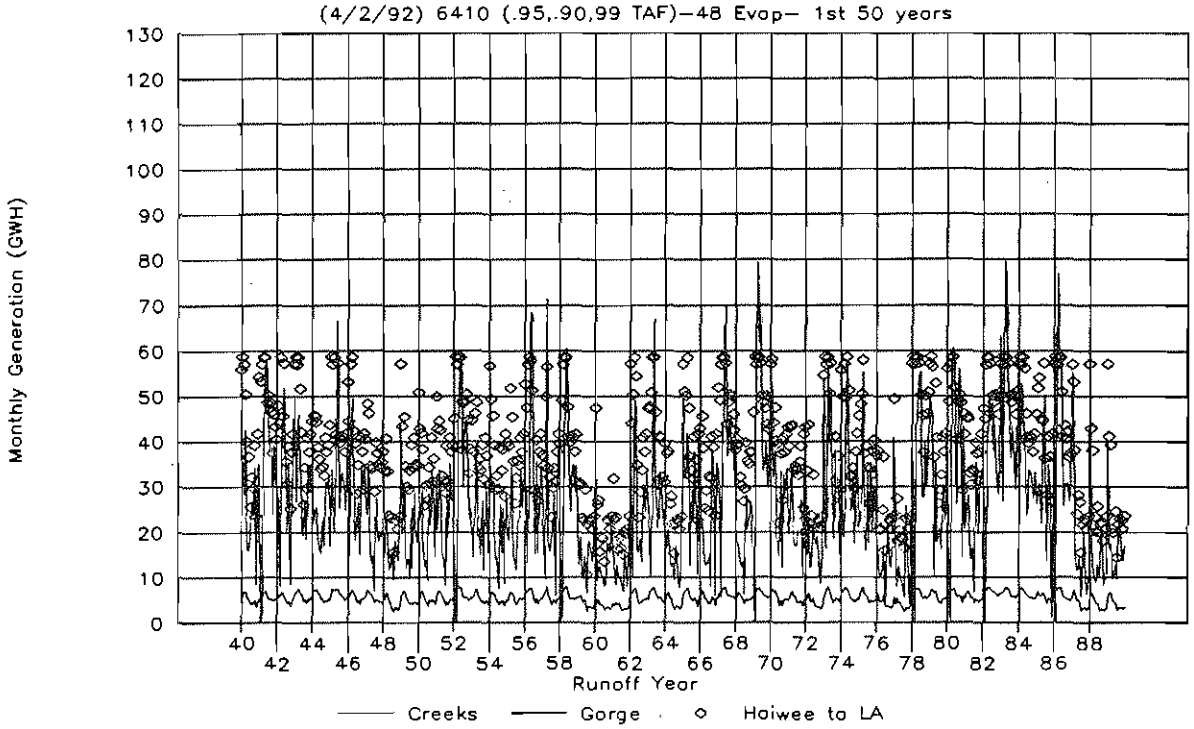
Haiwee to LA Power Distribution

(4/2/92) 6410 (.95,.90,99 TAF)–48 Evap– 1st 50 years



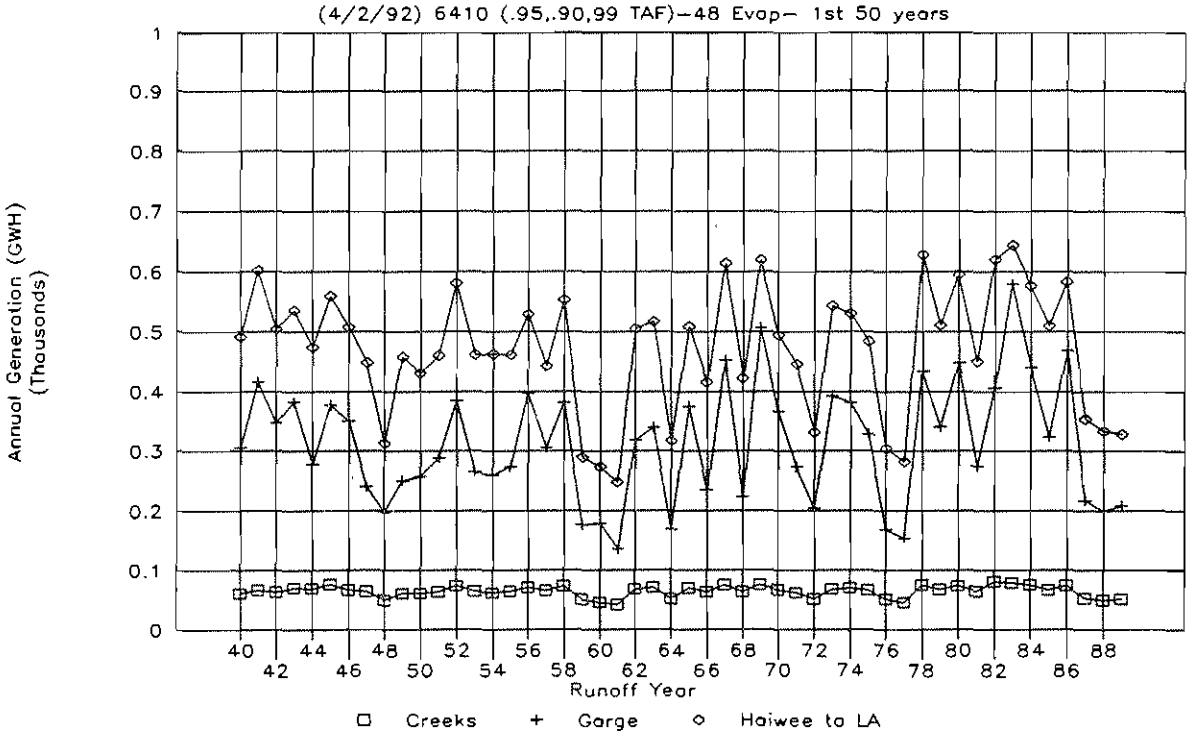
POWER GENERATION FROM LADWP AQUEDUCT

(4/2/92) 6410 (.95,.90,99 TAF)–48 Evap– 1st 50 years



POWER GENERATION FROM LADWP AQUEDUCT

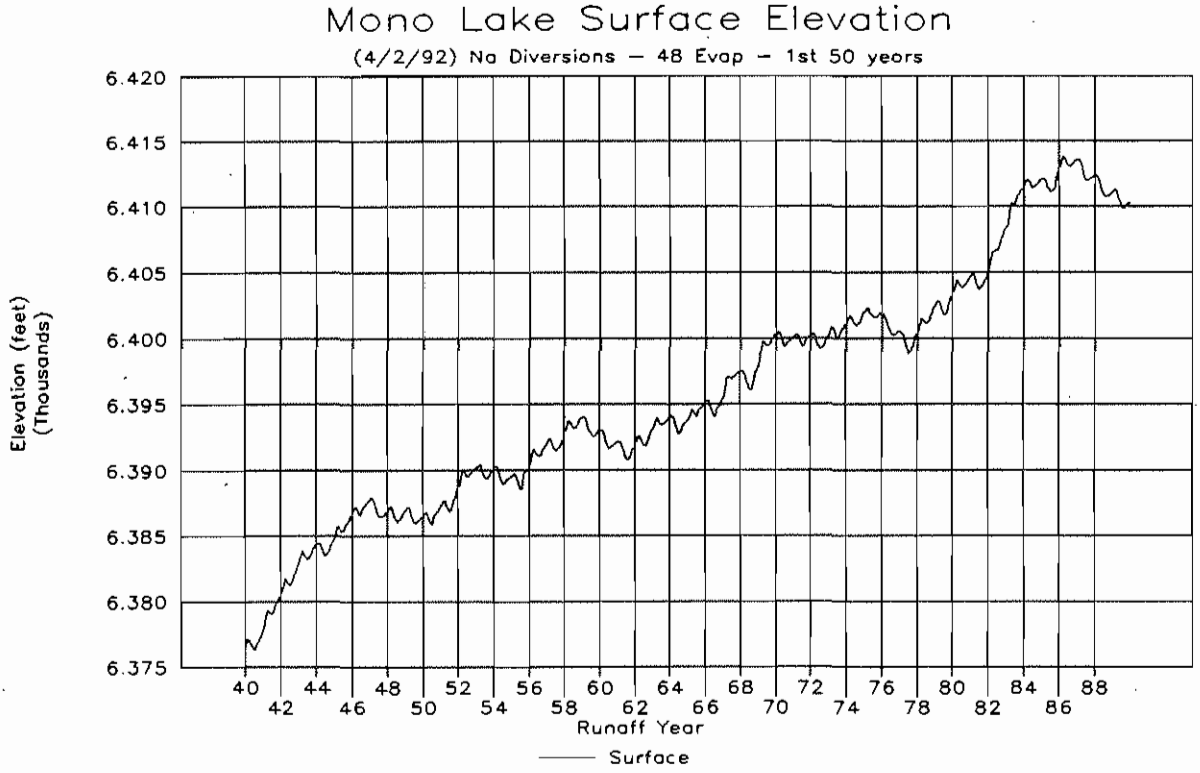
(4/2/92) 6410 (.95,.90,99 TAF)–48 Evap– 1st 50 years

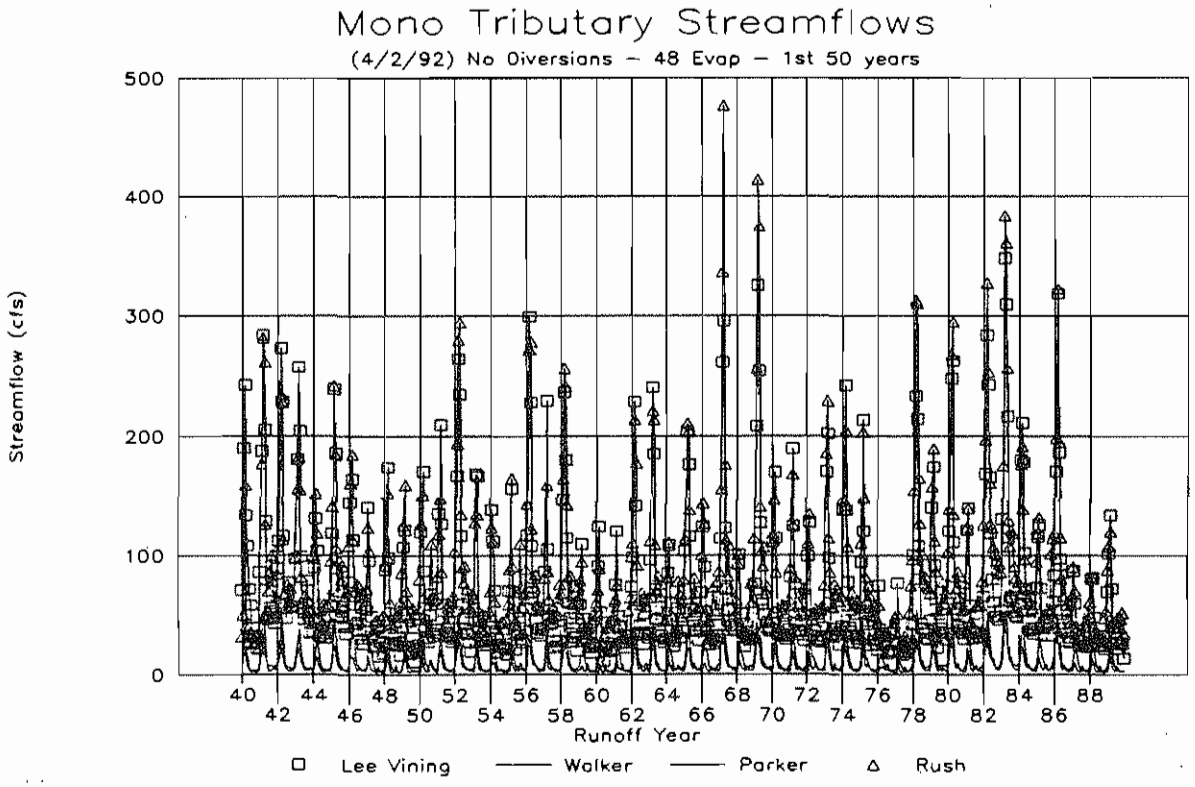


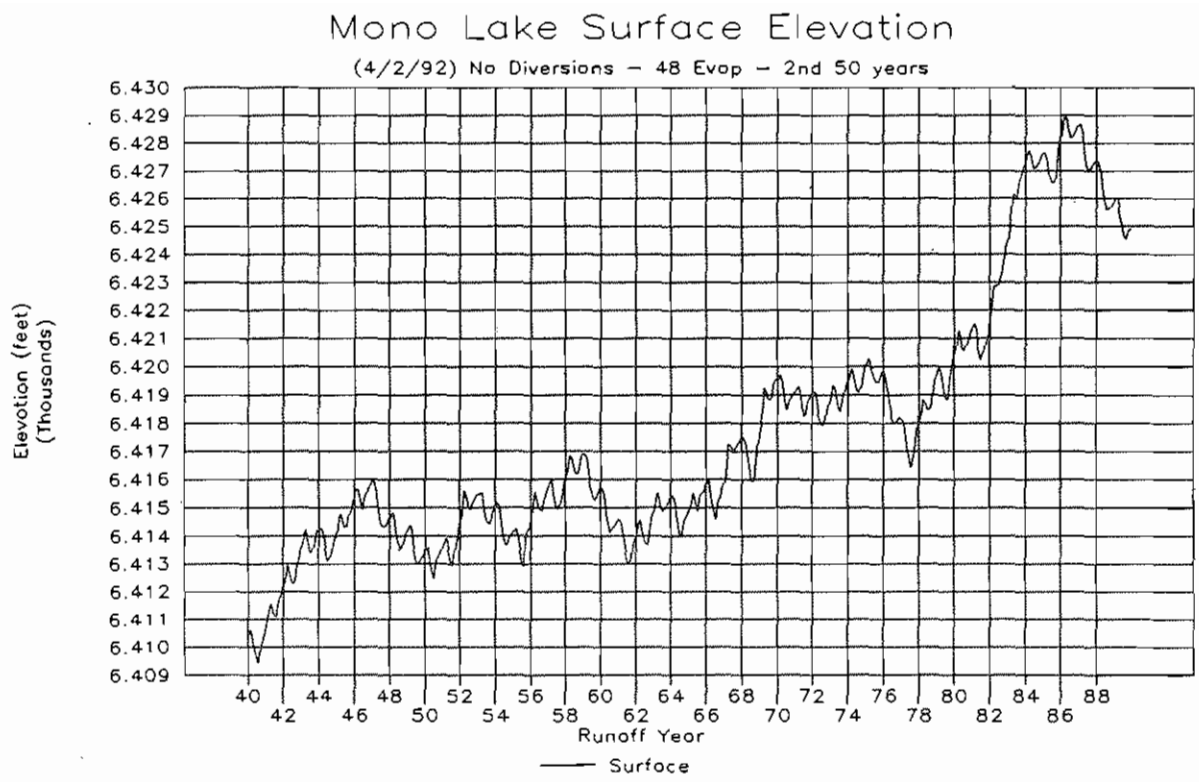
Section 9. No-Diversion Alternative

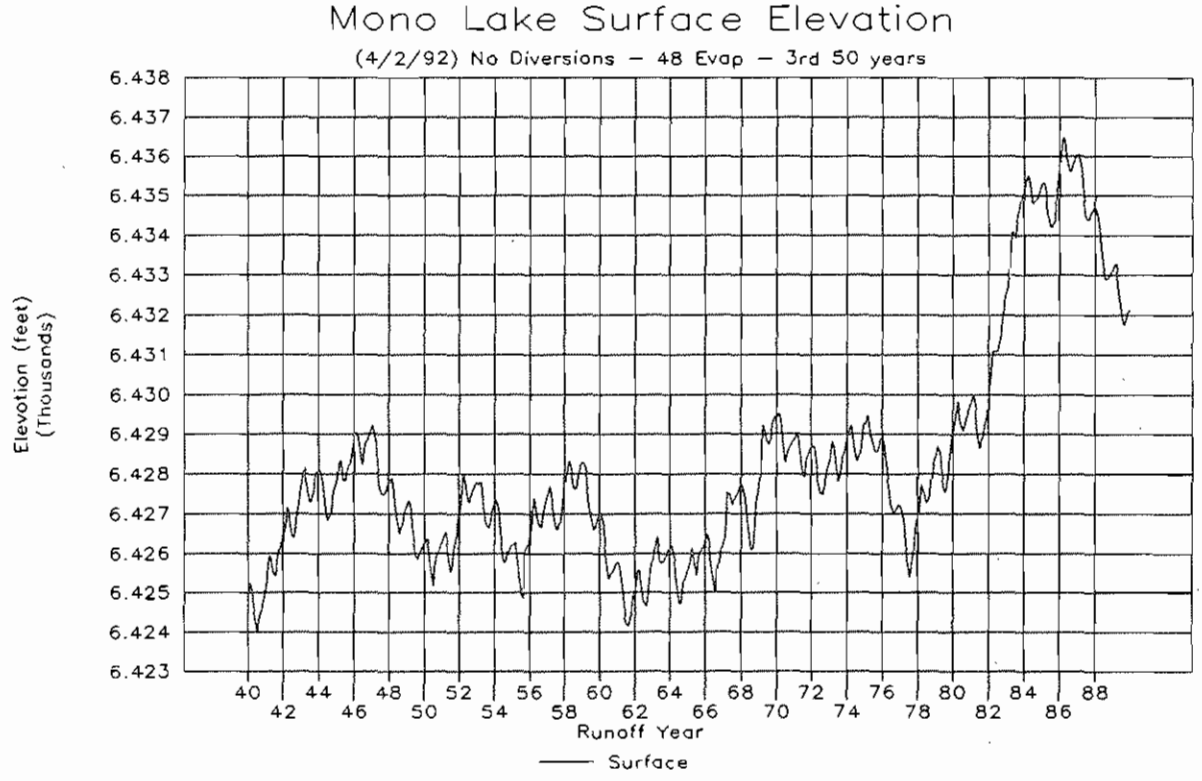
Summary of LAAMP Simulations
04/02/92
Mono EIR Alternatives
Initial Alternatives – 1st 50 years:
(4/2/92) No Diversions – 48 Evap – 1st 50 years

	Owens Available Export (AF)	Total Owens Uses (AF)	Haiwee Exports (AF)	Haiwee Target (AF)	Mono Lake Level (feet)	Grant Storage (AF)	Releases to Mono Lake (AF)	West Portal Exports (AF)	Long Valley Storage (AF)	Long Valley Outflow (AF)	Pleasant Valley Outflow (AF)	Tinemaha Inflow= Outflow (AF)	Total Owens Pumping (AF)	Total Owens Spreading (AF)	Aqueduct Spilling (AF)	Tinemaha Storage (AF)	Haiwee Storage (AF)
Starting:					6376.45	22357			120000							8000	8000
Minimum:	8357	1645	11192	16520	6376.3	22357	3070	0	112336	0	7000	8437	3070	0	0	0	0
Average:	25988	8710	31131	39882	6395.79	49651	10353	0	128387	13043	18322	27122	9223	774	578	882	831
Maximum:	162922	21682	49600	49600	6413.78	50000	54066	0	185771	42346	62090	101230	26264	37820	135517	10000	10000
(TAF/yr):	311.9	104.5	373.6	478.6			124.2	0.0		156.5	219.9	325.5	110.7	9.3	6.9		
71-89 Avg:	337.5	104.4	377.9	474.1			126.3	0.0		164.7	233.1	338.1	97.4	12.8	7.4		
71-89 Historical:			470					77.5					108.7				
Ending:					6410.24	50000			126695							0	0
Monthly:																	
April	26311	7741	37657	48000	6395.67	49447	8076	0	122437	15656	19541	30743	14303	0	7	480	480
May	30840	14712	37477	49600	6395.83	49564	16370	0	126085	10269	16992	27599	11669	714	0	640	582
June	39331	19183	38451	48000	6396.07	49332	25263	0	136024	11537	20441	30815	9564	2640	4704	1000	915
July	39123	18941	36712	49600	6396.12	49519	19582	0	136829	17179	25141	33281	13219	4553	2090	1332	1140
August	31512	16187	33080	49600	6395.82	49628	11037	0	132343	16120	21565	28878	15001	1379	134	1485	1369
September	25910	11375	31190	48000	6395.57	49624	7001	0	127521	15018	19060	26931	15236	0	0	1405	1329
October	20565	4507	24509	31645	6395.39	49612	6551	0	127519	10435	15044	22373	8087	0	0	1205	1169
November	19972	3131	27157	30624	6395.41	49680	6621	0	126857	12083	16823	24939	5589	0	0	880	849
December	20136	2724	27259	31645	6395.59	49771	6318	0	125466	13537	16333	25230	5533	0	3	680	680
January	20202	2095	27590	31645	6395.78	49836	5977	0	125892	12000	16952	26043	4458	0	0	560	560
February	18667	1691	24942	28582	6395.99	49871	5250	0	126967	10040	14586	23273	3700	0	0	480	480
March	19286	2236	27553	31645	6396.21	49932	6193	0	126710	12639	17390	25355	4310	0	0	440	415
Cumulative Distribution of Mono Lake Monthly Elevations			Minimum 6376.3	5% 6381.5	10% 6384.65	20% 6387.09	30% 6389.98	40% 6392.28	Median 6394.05	60% 6399.41	70% 6400.53	80% 6403.44	90% 6410.98	95% 6412.05	Maximum 6413.78		
Annual:																	
Minimum:	158630	86853	199716	400180			55198	0		72349	108118	163457	39457	0	0		
Average:	311856	104523	373577	478586			124239	0		156514	219868	325458	110670	9286	6938		
Maximum:	828234	118064	532746	538500			240360	0		293512	408556	583530	195688	139328	198099		


Mono Lake Surface Elevation
(4/2/92) No Diversions – 48 Evap – 1st 50 yeors
Elevation (feet)
(Thousands)
6.420
6.415
6.410
6.405
6.400
6.395
6.390
6.385
6.380
6.375
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Surface

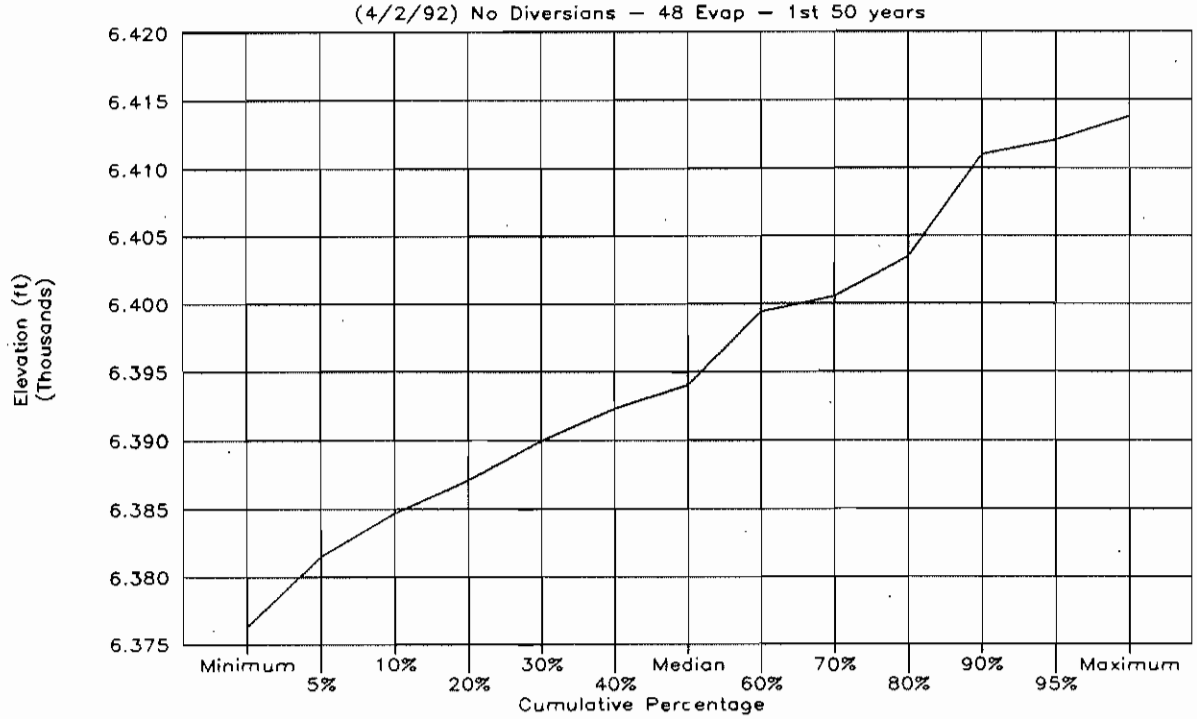

Mono Tributary Streamflows
(4/2/92) No Diversions – 48 Evap – 1st 50 years
Streamflow (cfs)
500
400
300
200
100
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Lee Vining
Walker
Parker
Rush


Mono Lake Surface Elevation
(4/2/92) No Diversions – 48 Evap – 2nd 50 years
Elevation (feet)
(Thousands)
6.430
6.429
6.428
6.427
6.426
6.425
6.424
6.423
6.422
6.421
6.420
6.419
6.418
6.417
6.416
6.415
6.414
6.413
6.412
6.411
6.410
6.409
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Yeor
Surfoce


Mono Lake Surface Elevation
(4/2/92) No Diversions – 48 Evap – 3rd 50 years
Elevation (feet)
(Thousands)
6.438
6.437
6.436
6.435
6.434
6.433
6.432
6.431
6.430
6.429
6.428
6.427
6.426
6.425
6.424
6.423
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Surface

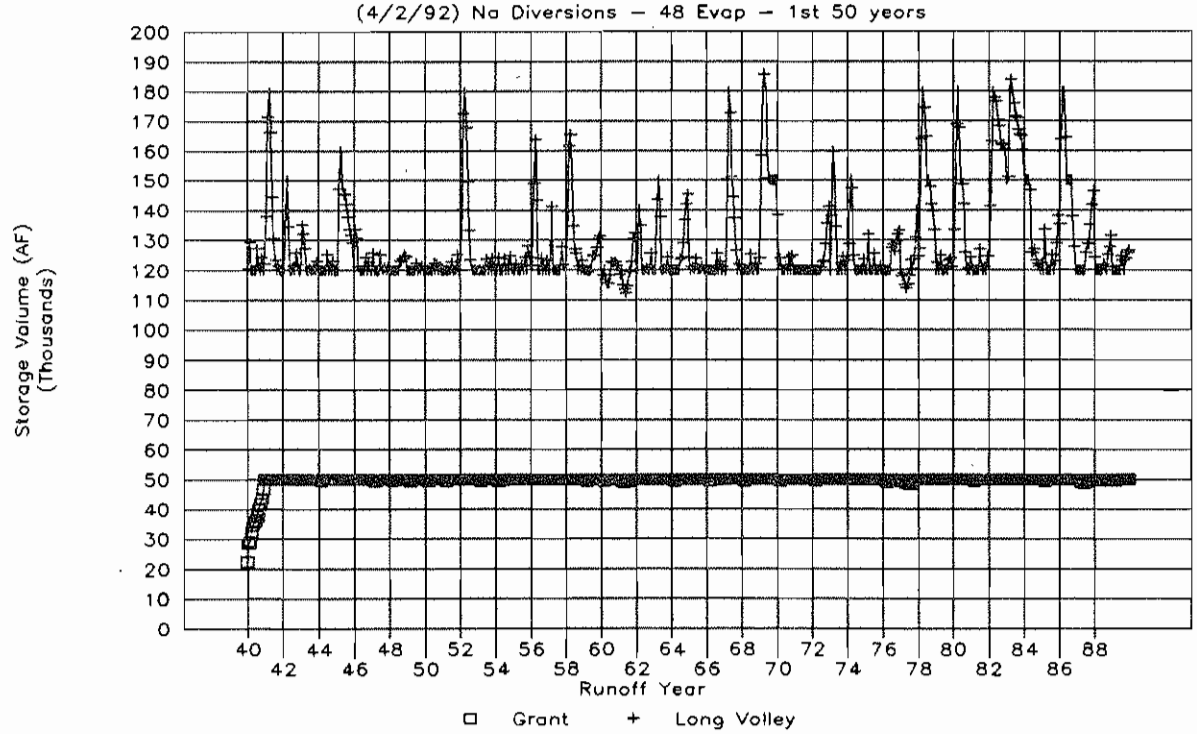
Mono Elevation Cumulative Distribution

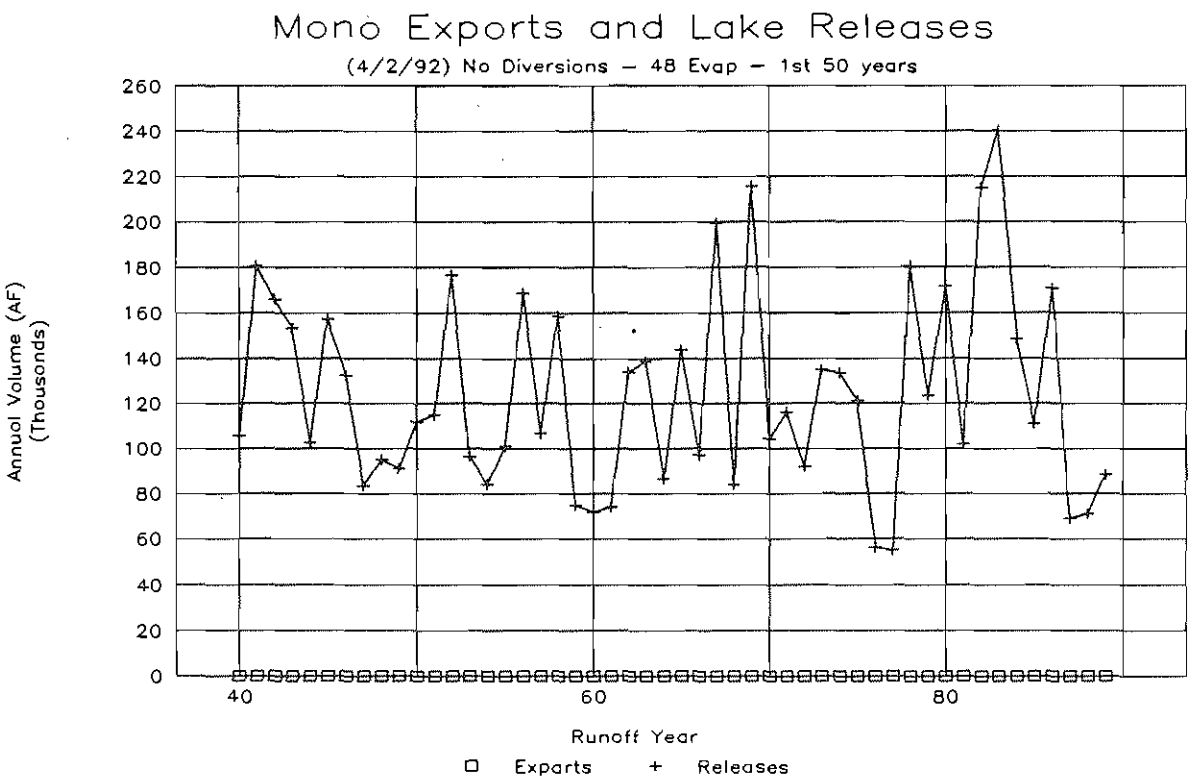
(4/2/92) No Diversions – 48 Evap – 1st 50 years

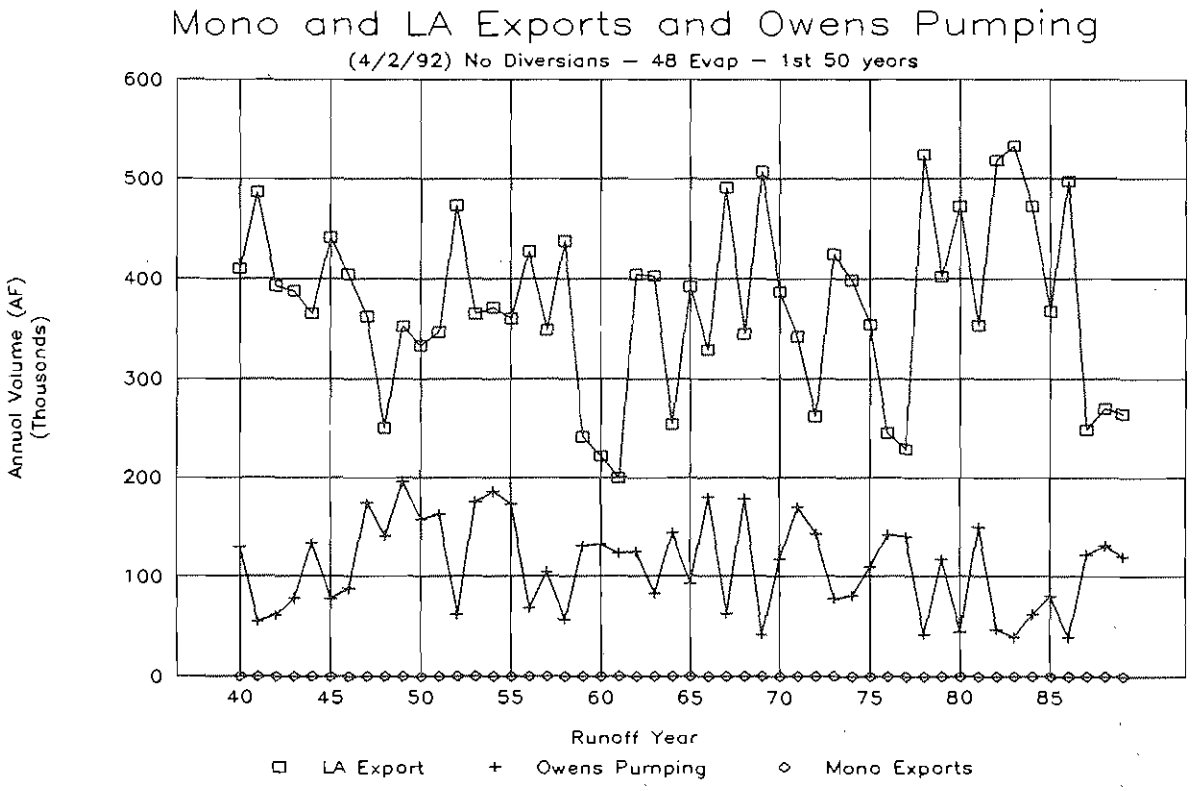


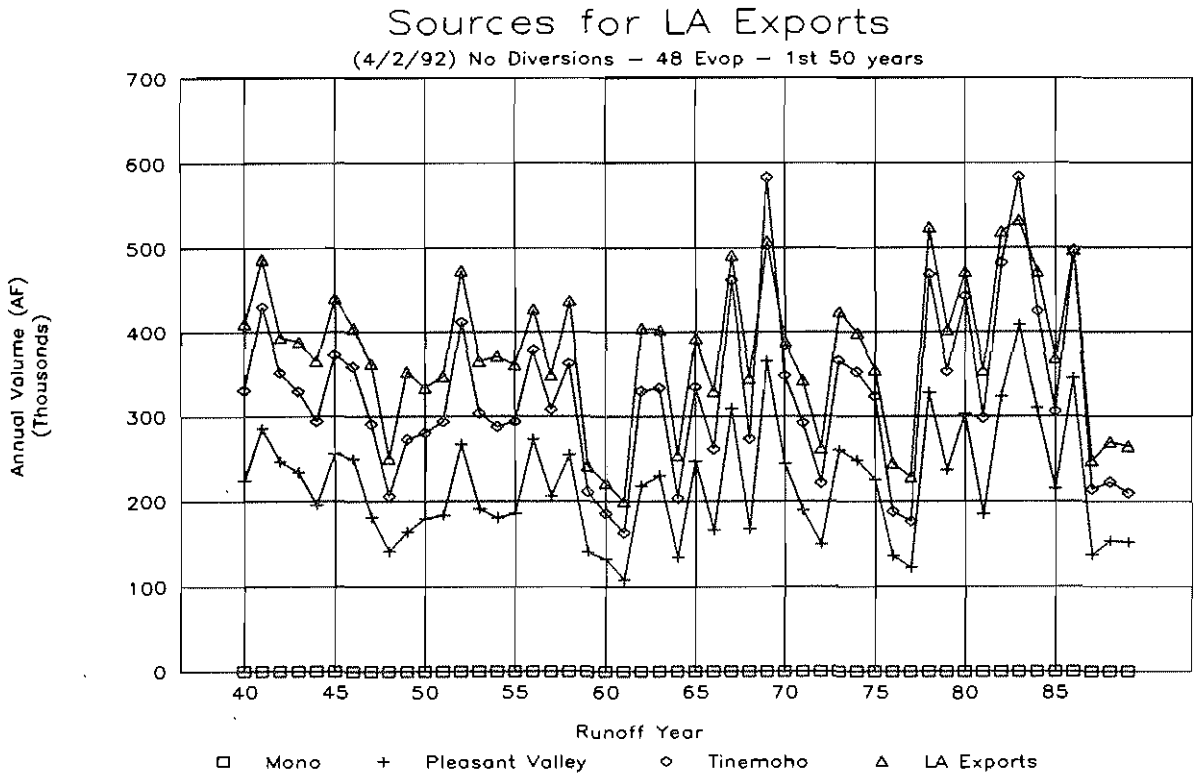
Grant and Long Valley Storage

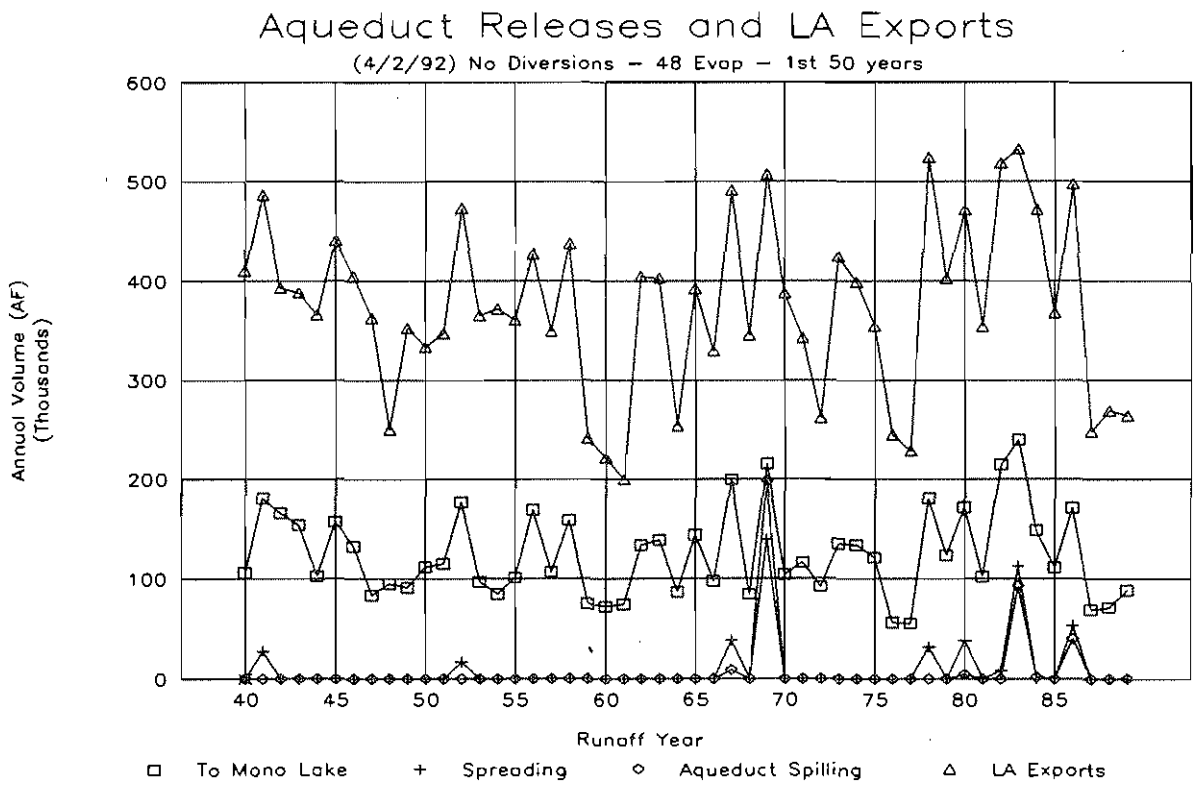
(4/2/92) No Diversions – 48 Evap – 1st 50 yeors

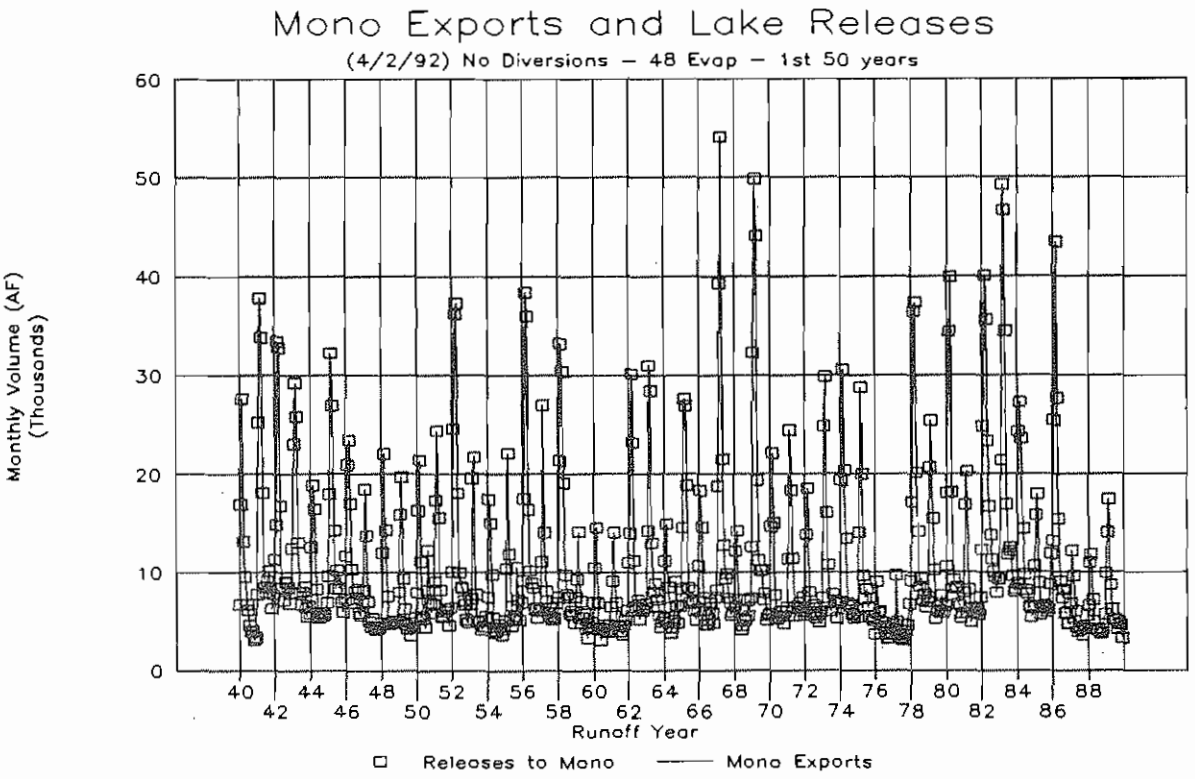


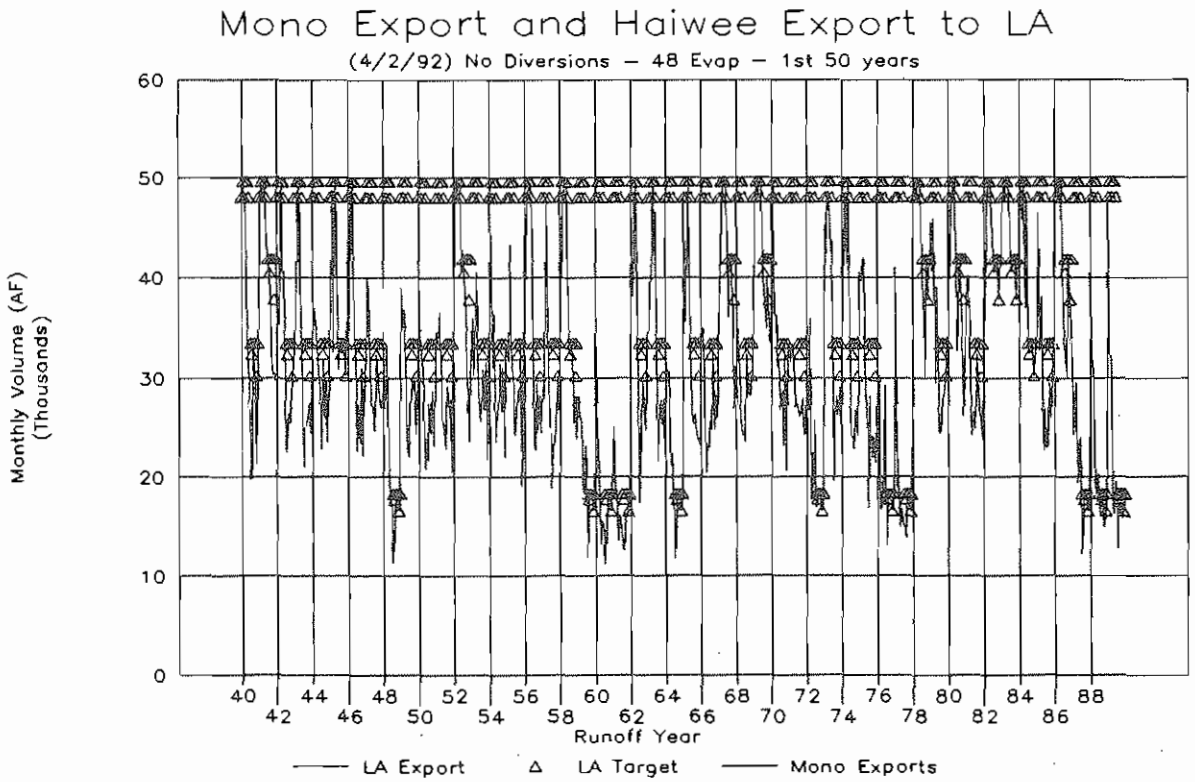

Mono Exports and Lake Releases
(4/2/92) No Diversions – 48 Evap – 1st 50 years
Annual Volume (AF)
(Thousands)
260
240
220
200
180
160
140
120
100
80
60
40
20
0
40
60
80
Runoff Year
Exparts
Releases


Mono and LA Exports and Owens Pumping
(4/2/92) No Diversians – 48 Evap – 1st 50 yeors
Annual Volume (AF)
(Thousands)
600
500
400
300
200
100
0
40
45
50
55
60
65
70
75
80
85
Runoff Year
LA Export
Owens Pumping
Mono Exports


Sources for LA Exports
(4/2/92) No Diversions – 48 Evap – 1st 50 years
Annual Volume (AF)
(Thousands)
700
600
500
400
300
200
100
0
40
45
50
55
60
65
70
75
80
85
Runoff Year
Mono
Pleasant Valley
Tinemoho
LA Exports


Aqueduct Releases and LA Exports
(4/2/92) No Diversions – 48 Evap – 1st 50 years
Annual Volume (AF)
(Thousands)
600
500
400
300
200
100
0
40
45
50
55
60
65
70
75
80
85
Runoff Year
To Mono Lake
Spreading
Aqueduct Spilling
LA Exports


Mono Exports and Lake Releases
(4/2/92) No Diversions – 48 Evap – 1st 50 years
Monthly Volume (AF)
(Thousands)
0
10
20
30
40
50
60
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Releases to Mono
Mono Exports


Mono Export and Haiwee Export to LA
(4/2/92) No Diversions – 48 Evap – 1st 50 years
Monthly Volume (AF)
(Thousands)
0
10
20
30
40
50
60
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
LA Export
LA Target
Mono Exports

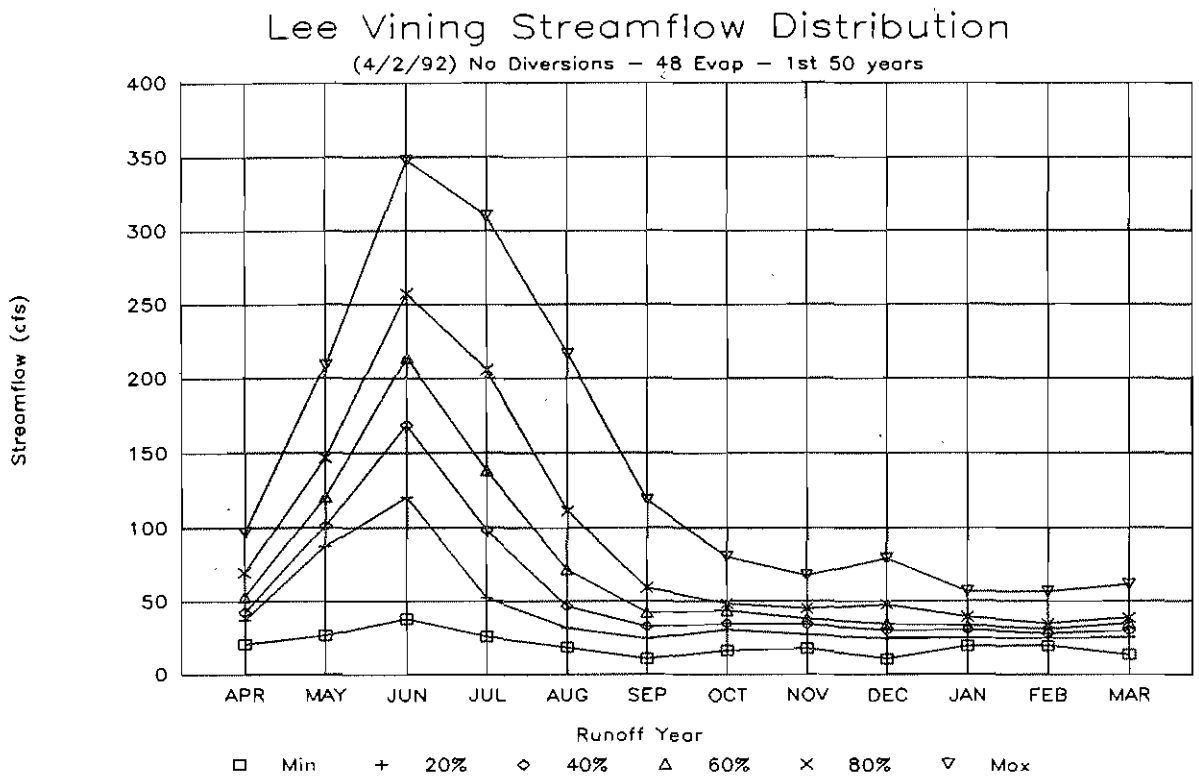
Mono Lake Tributary Streamflows
04/02/92
Mono EIR Alternatives
Initial Alternatives - 1st 50 years:
(4/2/92) No Diversions - 48 Evap - 1st 50 years

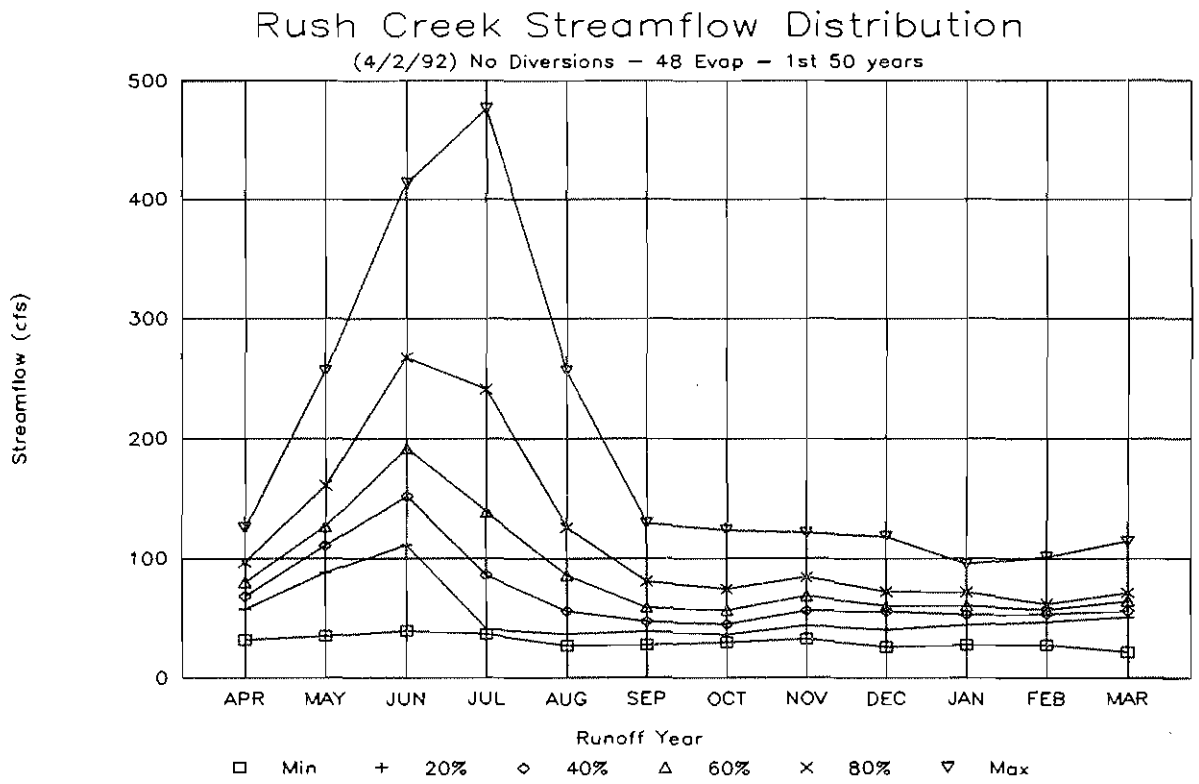
	Lee Vining Runoff (AF)	Lee Vining Min Flow (AF)	Lee Vining Lakeflow (AF)	Lee Vining Irrigate (AF)	Lee Vining Conduit (AF)	Lee Vining Spill (AF)	Walker Creek Runoff (AF)	Walker Creek Min Flow (AF)	Walker Creek Irrigate (AF)	Walker Creek Conduit (AF)	Walker Creek Spill (AF)	Parker Creek Runoff (AF)	Parker Creek Min Flow (AF)	Parker Creek Irrigate (AF)	Parker Creek Conduit (AF)	Parker Creek Spill (AF)
Minimum:	645	645	0	0	0	0	22	22	0	0	0	94	94	0	0	0
Average:	4107	4004	0	62	0	41	450	450	0	0	0	760	760	0	0	0
Maximum:	20828	17329	0	180	0	3329	2722	2722	0	0	0	4369	4369	0	0	0
Total (TAF/yr):	49.3	48.0	0.0	0.7	0.0	0.5	5.4	5.4	0.0	0.0	0.0	9.1	9.1	0.0	0.0	0.0
Annual Values																
Minimum:	19852	19104	0	748	0	0	2410	2410	0	0	0	4690	4690	0	0	0
Average:	49287	48043	0	748	0	496	5401	5401	0	0	0	9126	9126	0	0	0
Maximum:	92303	85721	0	748	0	5835	12132	12132	0	0	0	16759	16759	0	0	0

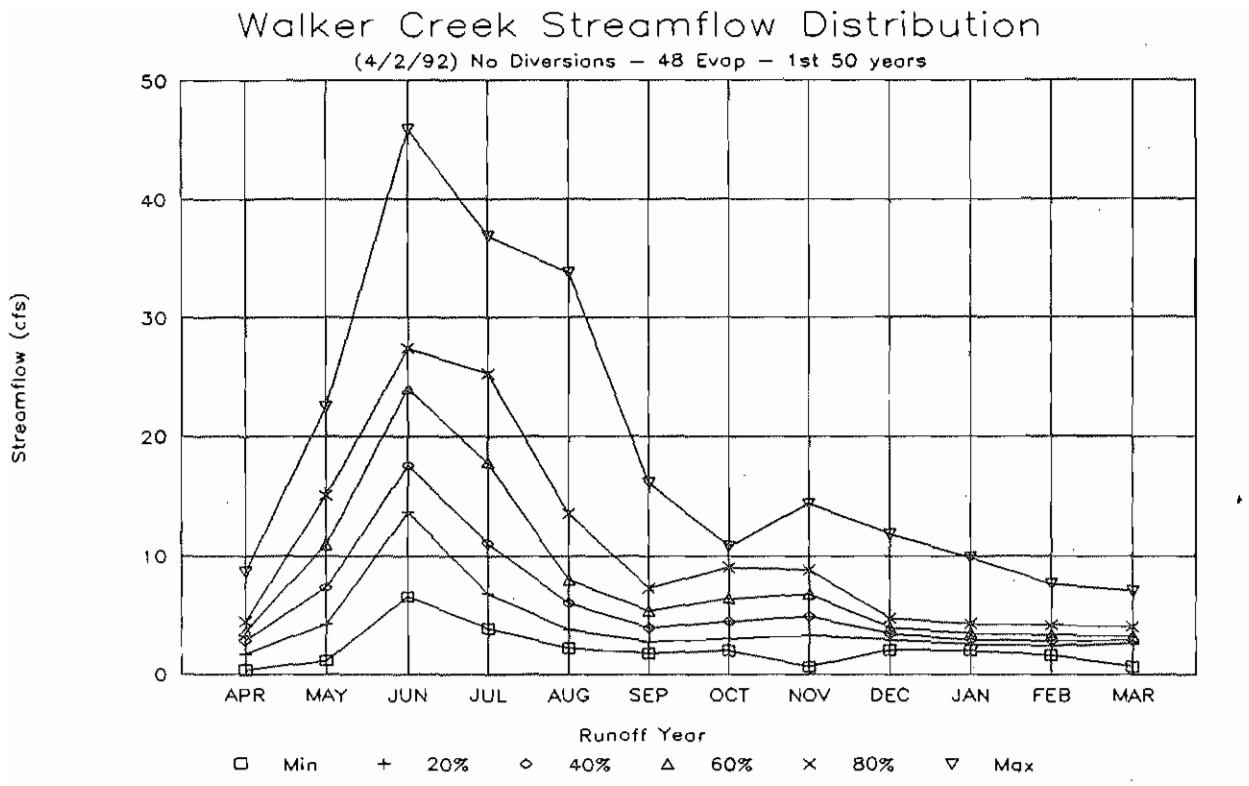
	Rush Creek Runoff (AF)	Conduit Inflow to Grant (AF)	Mono Basin Gains (AF)	Mono Gate #1 Min Flow (AF)	Rush Creek Lakeflow (AF)	Grant Storage Lakeflow (AF)	Rush Creek Storage (AF)	Grant Evap - Rain (AF)	West Portal Export (AF)	Grant Storage Spill (AF)	Lee Vining Flow (cfs)	Walker Flow (cfs)	Parker Flow (cfs)	Rush Flow (cfs)
Minimum:	1264	0	-127	1304	0	0	22357	-924	0	0	10.5	0.4	1.7	21.2
Average:	4973	0	422	2455	0	0	49651	247	0	2643	67.0	7.5	12.6	84.5
Maximum:	29989	0	868	9467	0	0	50000	640	0	26769	347.8	45.8	71.2	476.6
Total (TAF/yr):	59.7	0.0	5.1	29.5	0.0	0.0		3.0	0.0	31.7				
Annual Values														
Minimum:	24610	0	5060	22376	0	0		1852	0	0	26.4	3.3	6.5	30.9
Average:	59681	0	5060	29459	0	0		2967	0	31715	67.1	7.5	12.6	40.7
Maximum:	117750	0	5060	30755	0	0		3655	0	89159	126.6	16.8	23.2	42.5

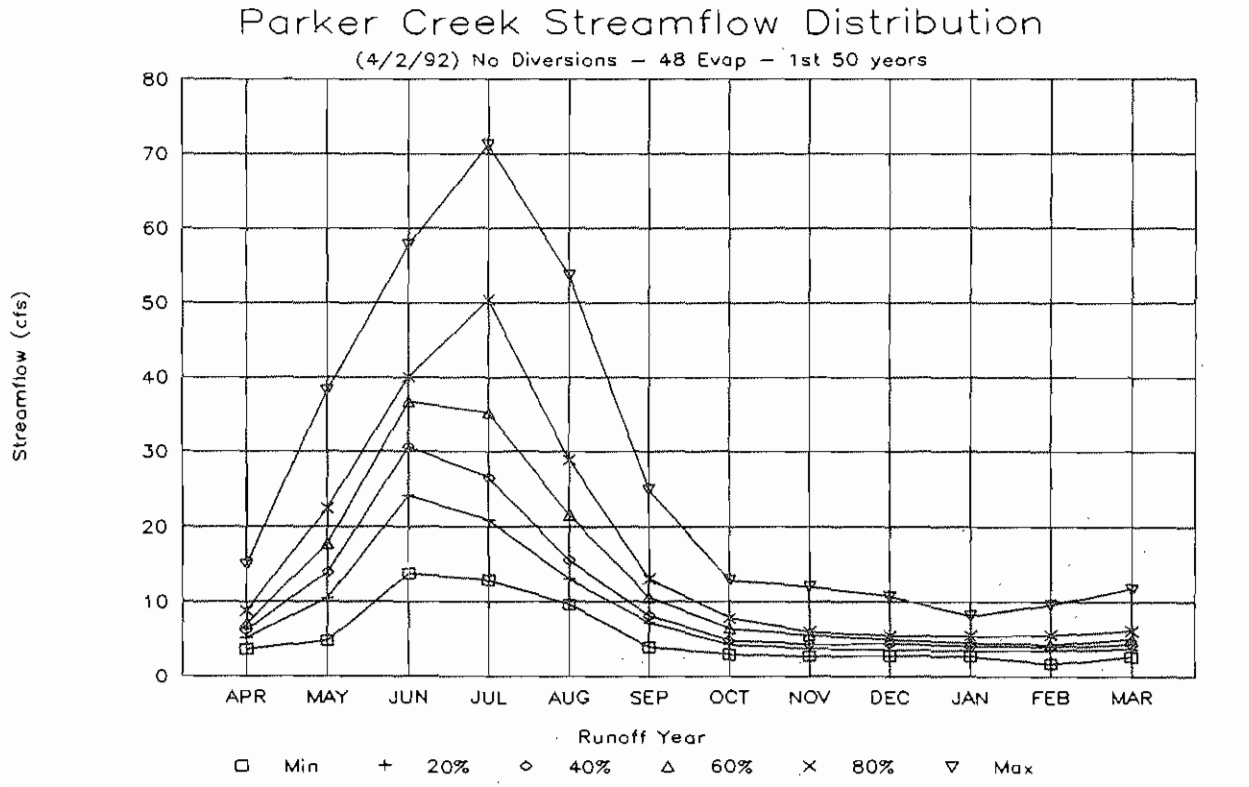
Mono Lake Tributary Streamflows Monthly Percentiles
04/02/92
Mono EIR Alternatives
Initial Alternatives - 1st 50 years:
(4/2/92) No Diversions - 48 Evap - 1st 50 years

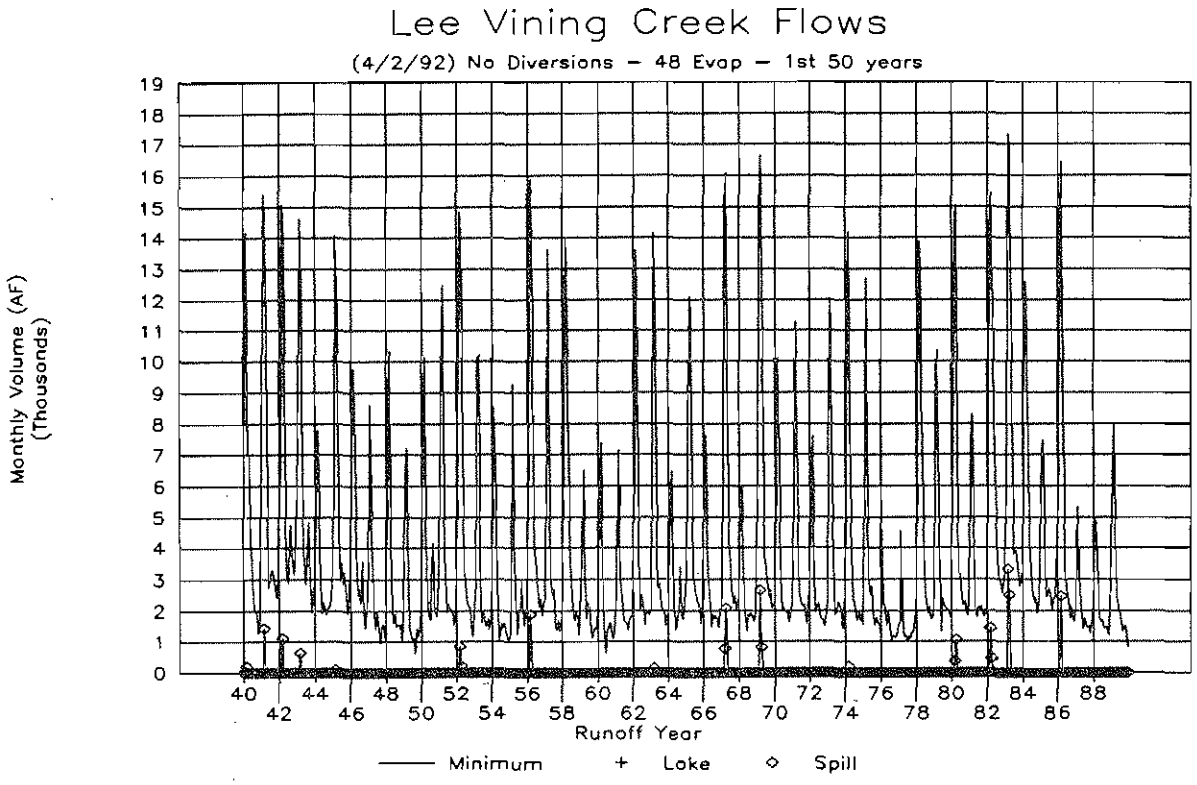
	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
Lee Vining Creek:												
0%	20.8	26.5	37.9	26.0	18.6	10.9	16.4	17.6	10.5	19.4	19.5	13.6
10%	30.5	74.9	95.4	49.1	29.0	22.4	27.4	23.8	21.7	23.3	22.6	19.2
20%	37.2	86.7	120.4	51.9	31.9	24.4	30.4	27.0	24.4	24.9	25.1	25.5
30%	40.1	94.4	131.0	70.4	39.6	30.8	32.3	29.5	26.3	28.2	26.7	28.6
40%	42.3	101.0	168.6	97.9	46.6	32.9	34.7	33.9	29.9	30.5	27.8	29.9
50%	45.4	114.1	189.9	114.4	55.1	38.2	36.9	35.0	32.7	32.3	29.1	31.8
60%	52.8	120.5	213.9	138.3	71.3	42.1	43.5	37.8	34.5	33.4	30.8	34.6
70%	59.1	138.4	239.4	180.2	98.6	54.1	46.1	39.2	35.8	35.1	32.9	36.7
80%	69.1	146.9	257.2	205.6	111.3	59.0	48.2	44.7	47.5	39.1	34.8	38.6
90%	77.9	180.3	283.9	243.3	122.9	71.6	57.5	55.8	58.1	46.8	43.1	45.9
100%	97.1	208.8	347.8	309.6	216.7	118.6	80.0	67.1	78.5	56.5	56.4	61.3
Walker Creek:												
0%	0.4	1.1	6.6	3.9	2.2	1.8	2.0	0.6	2.1	2.0	1.6	0.6
10%	1.2	2.6	10.5	4.9	3.2	2.2	2.4	2.6	2.5	2.3	2.3	2.2
20%	1.7	4.3	13.7	6.8	3.8	2.8	3.0	3.3	2.9	2.5	2.4	2.6
30%	2.1	5.9	14.4	7.6	4.4	3.5	4.0	4.1	3.3	2.8	2.6	2.7
40%	2.8	7.3	17.6	11.1	6.0	3.9	4.5	4.9	3.4	2.9	2.8	2.9
50%	3.1	8.0	21.2	14.4	7.2	4.4	5.3	5.4	3.6	3.1	3.0	3.0
60%	3.6	10.9	24.0	17.8	8.0	5.4	6.4	6.7	3.9	3.4	3.3	3.2
70%	3.9	14.3	26.1	22.4	11.5	6.5	7.6	7.8	4.1	3.8	3.8	3.4
80%	4.4	15.1	27.4	25.2	13.6	7.3	9.0	8.8	4.7	4.2	4.2	4.0
90%	6.1	18.1	30.5	29.6	17.2	9.5	9.6	10.2	6.2	5.0	4.8	4.3
100%	8.6	22.5	45.8	36.9	33.7	16.1	10.8	14.4	11.8	9.8	7.6	7.0
Parker Creek:												
0%	3.6	4.7	13.7	12.9	9.6	3.9	2.9	2.7	2.8	2.7	1.7	2.6
10%	4.5	8.6	21.3	19.4	11.5	6.1	3.9	3.2	3.4	3.2	3.0	3.3
20%	5.2	10.4	24.1	20.9	13.0	7.2	4.2	3.7	3.5	3.5	3.4	3.6
30%	5.5	11.9	27.1	23.8	14.1	7.7	4.4	4.1	4.3	3.8	3.7	4.0
40%	6.2	13.8	30.7	26.5	15.5	8.1	4.8	4.3	4.4	4.0	4.0	4.2
50%	6.5	15.7	31.9	33.0	17.8	9.7	5.4	4.7	4.7	4.2	4.1	4.5
60%	7.0	17.7	36.8	35.2	21.5	10.5	6.4	5.5	4.9	4.5	4.2	5.0
70%	8.0	20.9	38.7	42.2	24.8	11.9	6.7	5.8	5.2	5.2	4.6	5.3
80%	8.8	22.3	40.1	50.4	28.9	13.0	7.8	6.0	5.5	5.4	5.5	6.1
90%	10.6	24.6	43.2	54.4	34.7	17.0	8.6	7.1	7.3	6.2	6.2	7.1
100%	14.8	38.2	57.7	71.2	53.6	24.9	12.8	12.0	10.6	8.1	9.6	11.7
Rush Creek:												
0%	31.6	34.7	39.4	36.2	26.9	27.5	29.5	32.0	25.9	27.5	27.5	21.2
10%	51.2	70.8	89.1	40.7	33.2	33.5	34.9	32.7	30.2	39.1	45.1	45.3
20%	57.6	88.2	111.2	40.7	36.6	38.5	35.8	43.6	40.2	43.8	47.0	50.5
30%	62.0	99.1	134.8	51.2	45.8	44.1	41.6	50.7	50.6	50.0	51.6	52.7
40%	68.2	110.8	151.6	85.7	55.5	46.6	44.6	55.8	55.2	52.6	53.2	55.8
50%	73.3	118.1	165.0	112.5	63.0	51.1	50.9	59.0	57.9	55.3	55.1	60.8
60%	79.7	126.3	191.8	139.2	85.8	58.6	56.2	68.3	59.9	60.2	56.8	64.1
70%	86.1	147.6	221.3	184.7	107.4	67.4	65.3	75.6	67.1	63.2	58.5	66.5
80%	96.3	161.0	267.9	241.7	125.9	80.6	74.1	84.1	71.9	71.4	61.8	71.1
90%	103.0	186.1	322.3	294.9	142.5	103.7	82.7	100.9	99.8	77.4	72.7	77.3
100%	125.6	256.5	413.8	476.6	256.9	129.2	123.5	121.1	118.3	95.2	101.0	114.0

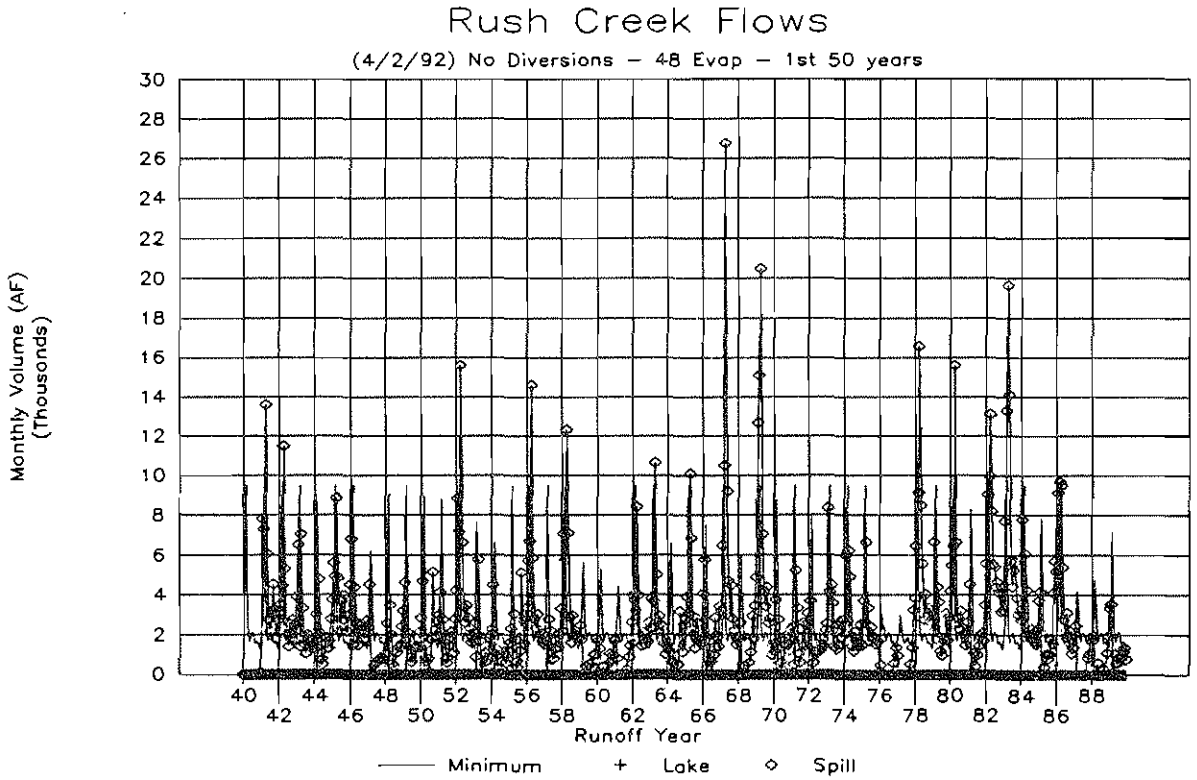

Lee Vining Streamflow Distribution
(4/2/92) No Diversions – 48 Evap – 1st 50 years
Streamflow (cfs)
400
350
300
250
200
150
100
50
0
APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR
Runoff Year
Min 20% 40% 60% 80% Mox

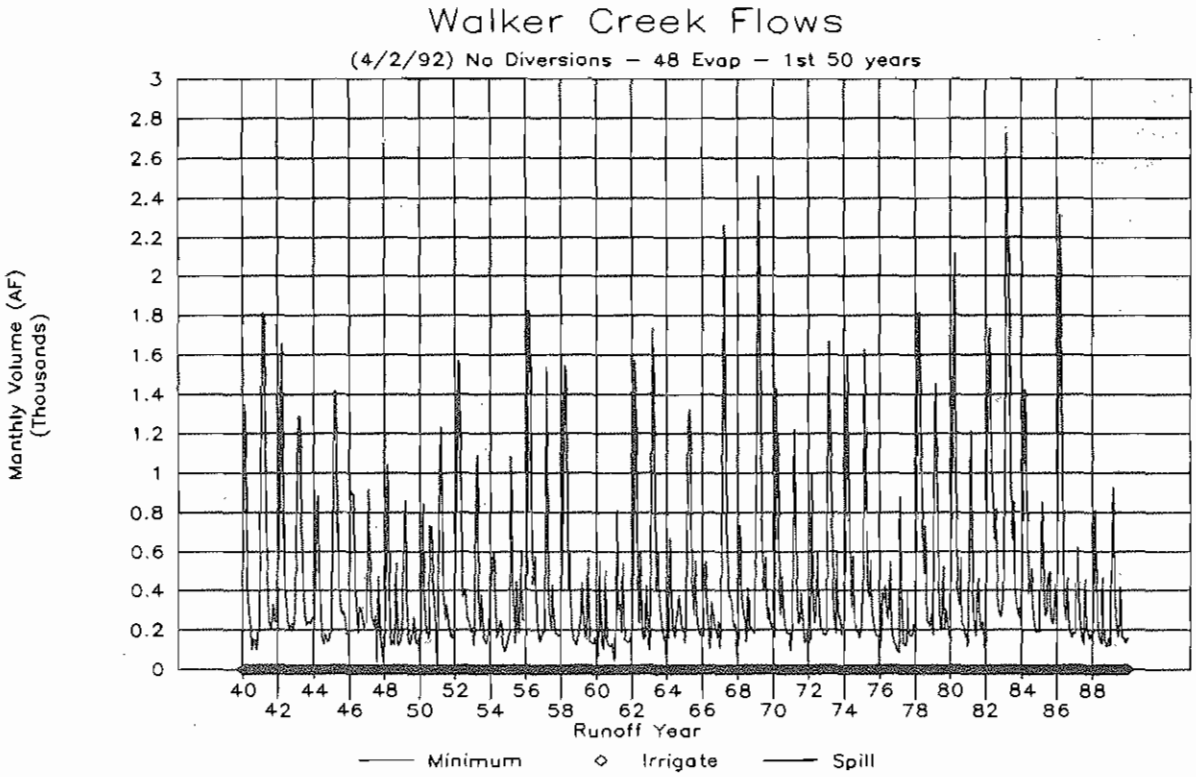

Rush Creek Streamflow Distribution
(4/2/92) No Diversions – 48 Evap – 1st 50 years
Streamflow (cfs)
500
400
300
200
100
0
APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR
Runoff Year
Min 20% 40% 60% 80% Max

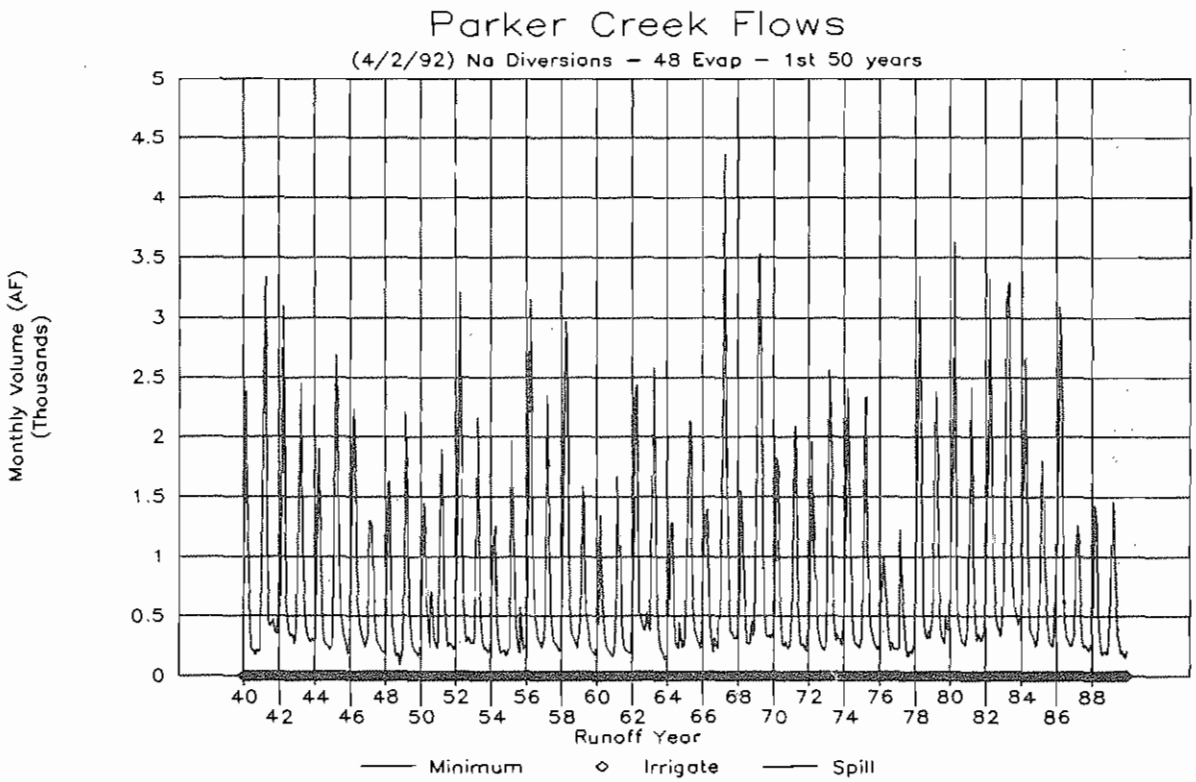

Walker Creek Streamflow Distribution
(4/2/92) No Diversions – 48 Evap – 1st 50 years
Streamflow (cfs)
50
40
30
20
10
0
APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR
Runoff Year
Min
20%
40%
60%
80%
Max


Parker Creek Streamflow Distribution
(4/2/92) No Diversions – 48 Evap – 1st 50 years
Streamflow (cfs)
80
70
60
50
40
30
20
10
0
APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR
Runoff Year
Min
20%
40%
60%
80%
Max


Lee Vining Creek Flows
(4/2/92) No Diversions – 48 Evap – 1st 50 years
Monthly Volume (AF)
(Thousands)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Minimum
Lake
Spill


Rush Creek Flows
(4/2/92) No Diversions – 48 Evap – 1st 50 years
Monthly Volume (AF)
(Thousands)
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Minimum
Lake
Spill


Walker Creek Flows
(4/2/92) No Diversions – 48 Evap – 1st 50 years
Monthly Volume (AF)
(Thousands)
3
2.8
2.6
2.4
2.2
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Minimum
Irrigate
Spill

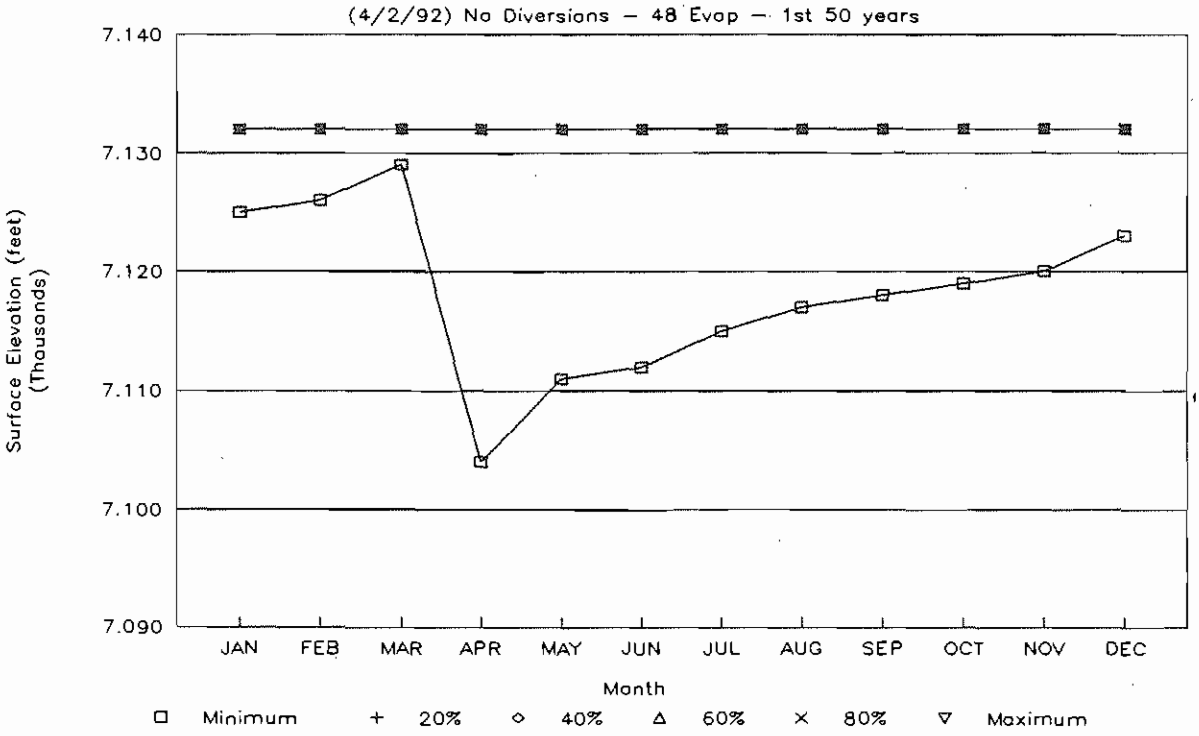

Parker Creek Flows
(4/2/92) No Diversions – 48 Evap – 1st 50 years
Monthly Volume (AF)
(Thousands)
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Minimum
Irrigate
Spill

Monthly Distribution of Lake Elevations
04/02/92
Mono EIR Alternatives
Initial Alternatives - 1st 50 years:
(4/2/92) No Diversions - 48 Evap - 1st 50 years

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Grant Lake:												
Minimum	7125	7126	7129	7104	7111	7112	7115	7117	7118	7119	7120	7123
10%	7132	7132	7132	7132	7132	7132	7131	7132	7132	7132	7132	7132
20%	7132	7132	7132	7132	7132	7132	7132	7132	7132	7132	7132	7132
30%	7132	7132	7132	7132	7132	7132	7132	7132	7132	7132	7132	7132
40%	7132	7132	7132	7132	7132	7132	7132	7132	7132	7132	7132	7132
50%	7132	7132	7132	7132	7132	7132	7132	7132	7132	7132	7132	7132
60%	7132	7132	7132	7132	7132	7132	7132	7132	7132	7132	7132	7132
70%	7132	7132	7132	7132	7132	7132	7132	7132	7132	7132	7132	7132
80%	7132	7132	7132	7132	7132	7132	7132	7132	7132	7132	7132	7132
90%	7132	7132	7132	7132	7132	7132	7132	7132	7132	7132	7132	7132
Maximum	7132	7132	7132	7132	7132	7132	7132	7132	7132	7132	7132	7132
Lake Crowley:												
Minimum	6767	6767	6767	6767	6767	6767	6766	6766	6765	6766	6767	6767
10%	6767	6767	6767	6767	6767	6767	6767	6767	6767	6767	6767	6767
20%	6767	6767	6767	6767	6767	6767	6767	6767	6767	6767	6767	6767
30%	6767	6768	6767	6767	6767	6767	6767	6767	6767	6767	6767	6767
40%	6768	6768	6767	6767	6767	6767	6767	6767	6767	6768	6768	6767
50%	6768	6768	6768	6767	6767	6768	6767	6767	6767	6768	6768	6768
60%	6768	6769	6768	6767	6767	6770	6768	6767	6767	6769	6768	6768
70%	6768	6769	6769	6767	6768	6773	6774	6771	6767	6769	6769	6768
80%	6769	6770	6770	6768	6771	6774	6777	6774	6771	6769	6769	6769
90%	6771	6772	6772	6768	6772	6778	6780	6778	6774	6774	6773	6772
Maximum	6777	6777	6776	6774	6777	6780	6781	6780	6780	6779	6779	6778

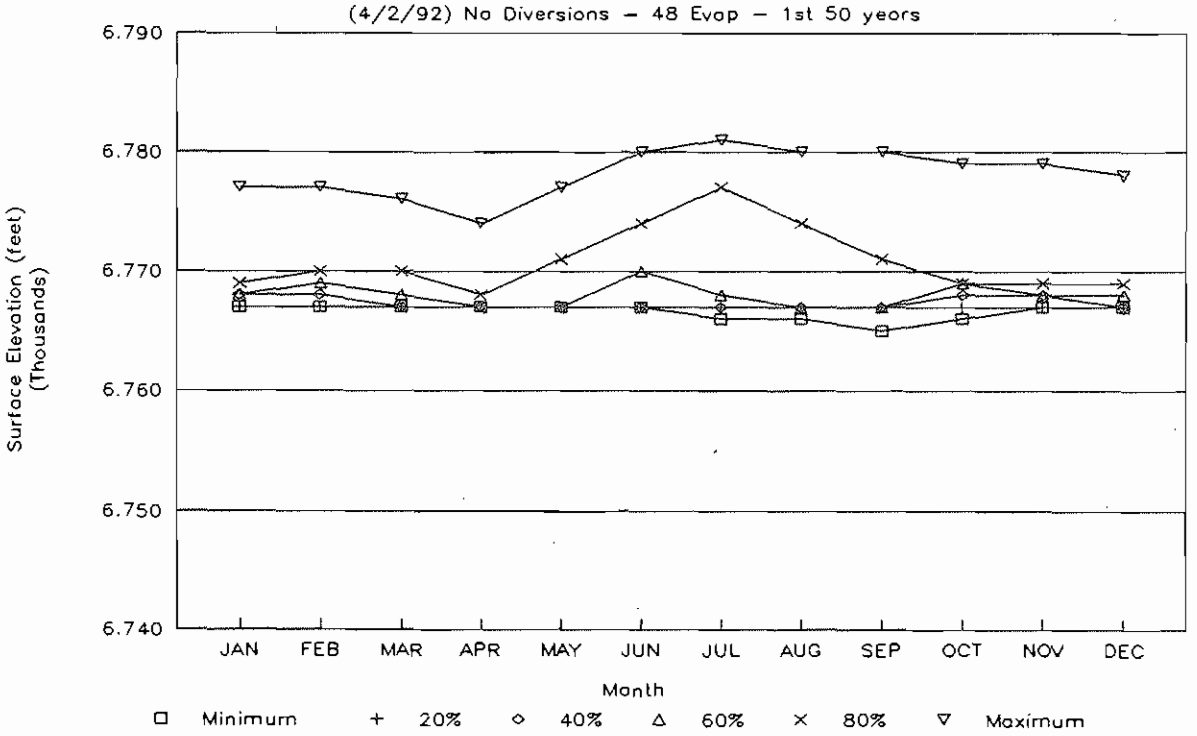
Grant Surface Elevation Distribution

(4/2/92) No Diversions – 48 Evap – 1st 50 years



Crowley Surface Elevation Distribution

(4/2/92) No Diversions – 48 Evap – 1st 50 yeors

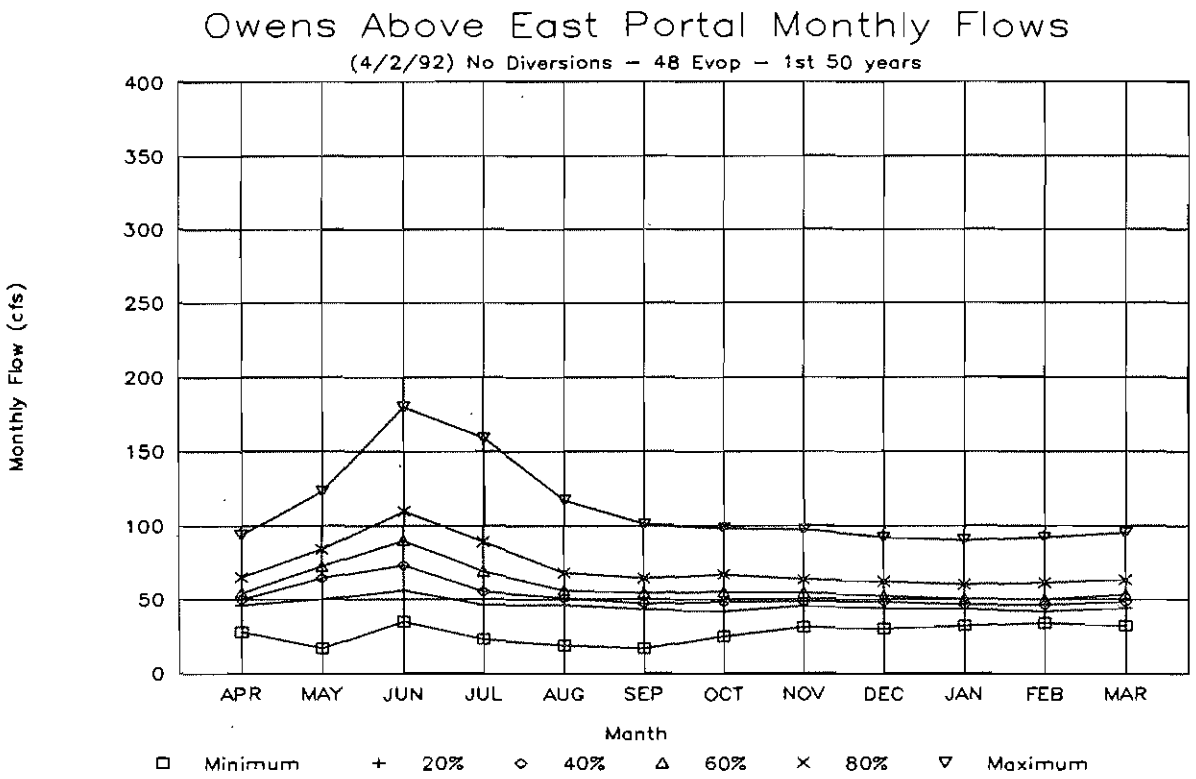


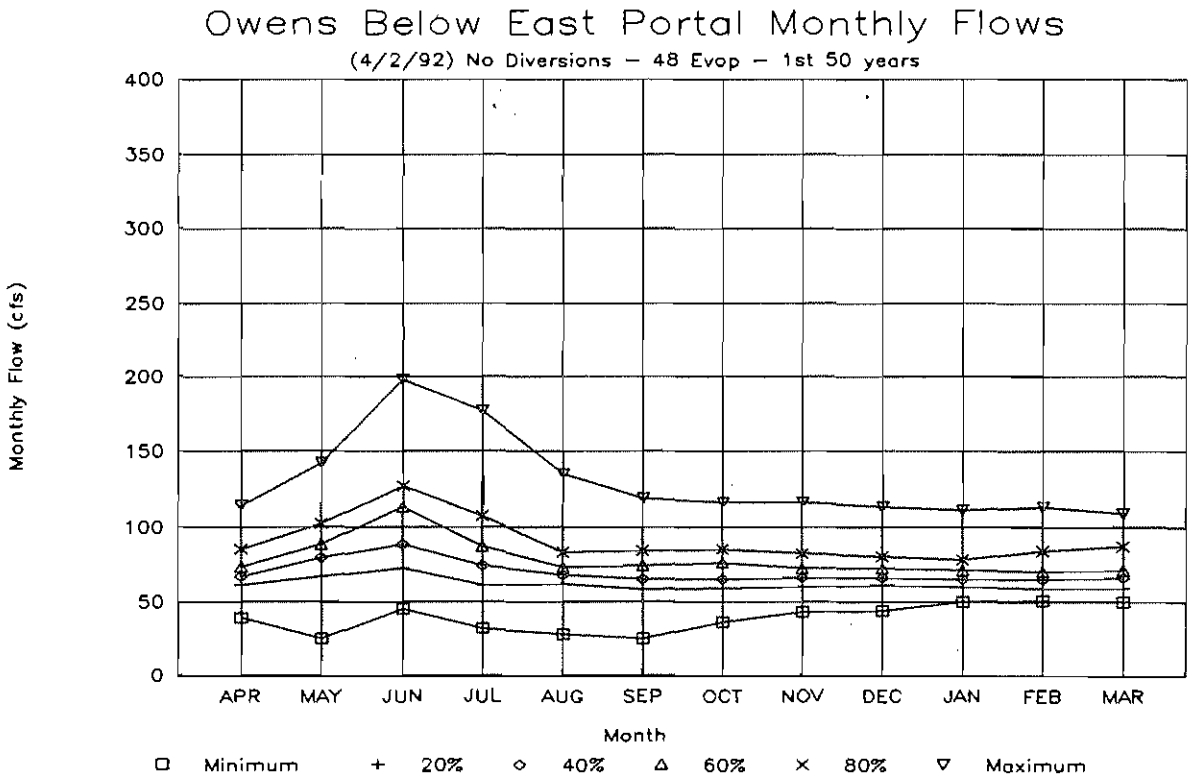
Owens River Streamflows – Monthly Cumulative Percentiles
04/02/92
Mono EIR Alternatives
Initial Alternatives – 1st 50 years:
(4/2/92) No Diversions – 48 Evap – 1st 50 years

	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
Owens above East Portal:												
0%	28	17	35	23	19	17	25	31	30	32	34	32
10%	41	47	53	40	40	39	36	39	40	39	40	41
20%	46	50	56	46	46	43	42	45	44	43	42	44
30%	47	56	63	52	49	45	44	47	46	45	44	45
40%	50	64	73	55	51	47	48	48	48	46	46	48
50%	52	66	79	62	54	53	51	51	49	50	49	50
60%	54	72	90	69	56	54	55	54	52	50	50	53
70%	62	79	103	77	60	59	58	56	58	54	54	56
80%	65	84	110	89	68	64	67	63	62	60	61	63
90%	72	98	126	102	79	70	72	73	72	72	72	75
100%	94	123	180	159	117	101	98	97	92	90	92	95
Owens below East Portal:												
0%	39	25	45	32	28	25	36	43	44	50	51	50
10%	58	61	66	59	57	52	51	56	58	56	54	56
20%	61	67	72	61	62	58	59	60	61	60	59	59
30%	63	72	79	70	64	63	62	63	62	62	60	63
40%	67	79	88	74	68	65	65	66	66	65	65	66
50%	70	84	95	77	71	69	71	70	68	68	67	67
60%	73	88	113	87	73	74	76	72	72	71	70	71
70%	77	95	122	100	80	78	79	75	76	75	73	75
80%	85	102	127	107	83	84	85	82	80	78	84	87
90%	90	115	143	121	95	94	91	92	92	90	86	93
100%	114	142	198	177	135	119	116	116	113	111	113	109
Pleasant Valley Outflow:												
0%	186	123	122	125	124	125	118	119	163	118	116	119
10%	217	156	160	128	129	158	120	141	188	174	145	201
20%	230	185	193	162	153	167	121	218	192	198	176	218
30%	243	210	231	240	161	180	127	235	206	223	193	231
40%	264	218	247	310	216	196	179	250	218	245	217	246
50%	284	260	290	433	231	214	220	271	235	257	250	256
60%	293	280	364	482	396	260	241	291	261	278	289	298
70%	380	305	402	520	492	471	275	314	279	286	305	321
80%	465	349	428	563	609	566	315	358	322	342	332	338
90%	501	412	520	664	643	636	486	407	360	401	362	355
100%	600	605	904	968	859	722	583	440	497	505	489	439
Owens at Horton Creek:												
0%	188	126	126	126	126	126	126	126	169	126	125	126
10%	220	163	179	126	129	160	126	147	197	180	154	207
20%	235	192	220	164	154	171	126	225	199	205	183	224
30%	247	216	243	245	162	183	132	242	214	231	201	237
40%	270	224	265	319	221	201	184	258	226	253	225	253
50%	287	270	312	455	236	218	225	278	242	264	257	263
60%	298	287	371	496	407	264	248	298	269	286	296	304
70%	384	315	414	534	497	474	284	324	288	295	314	329
80%	471	359	441	579	631	573	325	367	333	352	340	346
90%	508	424	538	691	651	642	496	416	370	410	370	363
100%	604	614	955	1010	891	733	592	450	507	514	497	448

Owens River Streamflows – Monthly Cumulative Percentiles
04/02/92
Mono EIR Alternatives
Initial Alternatives – 1st 50 years:
(4/2/92) No Diversions – 48 Evap – 1st 50 years

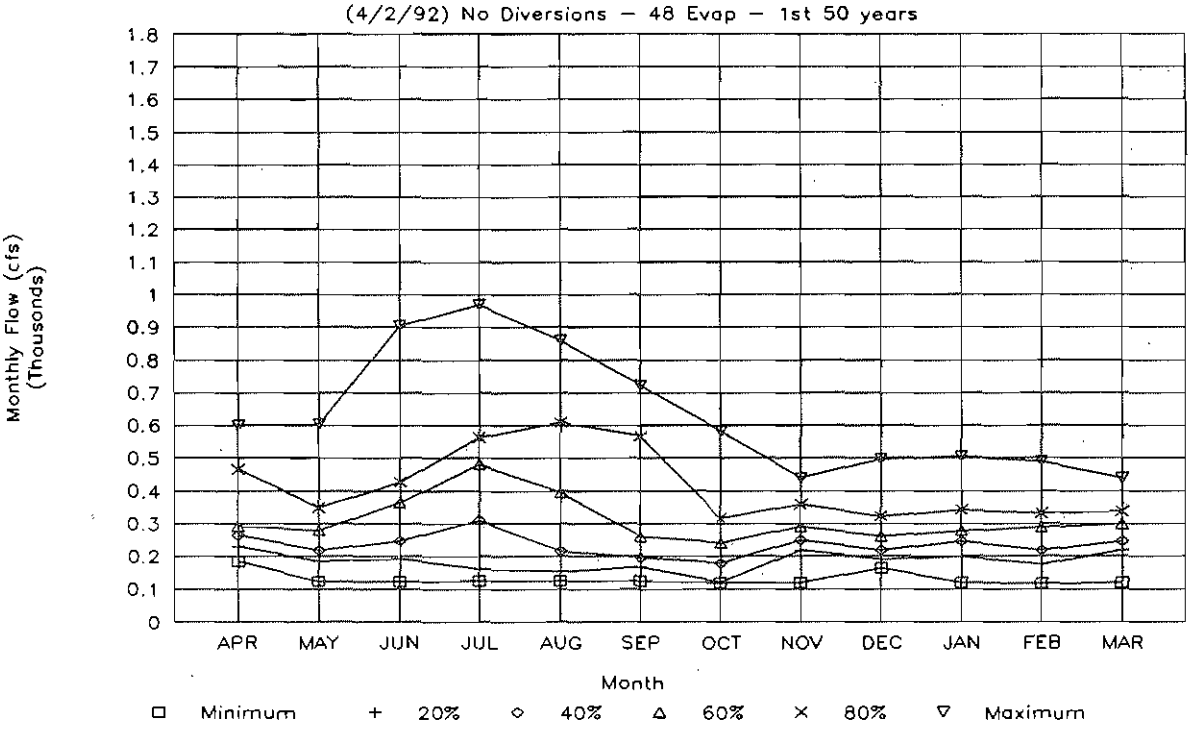
	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
Owens at Bishop Diversion:												
0%	188	102	68	126	126	126	126	126	169	126	125	126
10%	220	126	126	126	129	160	126	147	197	180	154	207
20%	235	181	174	164	154	171	126	225	199	205	183	224
30%	247	206	216	245	162	183	132	242	214	231	201	237
40%	270	219	244	319	221	201	184	258	226	253	225	253
50%	287	234	287	368	236	218	225	278	242	264	257	263
60%	298	287	344	438	354	264	248	298	259	286	296	304
70%	384	315	400	460	481	469	284	324	285	295	314	329
80%	437	334	420	495	527	495	310	344	333	352	337	346
90%	506	412	505	566	563	548	465	409	370	410	370	363
100%	604	614	762	814	698	638	560	427	507	499	497	442
Owens at Laws Diversion:												
0%	188	126	126	126	126	126	126	126	169	126	125	126
10%	220	163	170	126	129	160	126	147	197	180	154	207
20%	235	189	206	164	154	171	126	225	199	205	183	224
30%	247	215	232	245	162	183	132	242	214	231	201	237
40%	270	223	262	319	221	201	184	258	226	253	225	253
50%	287	270	300	443	236	218	225	278	242	264	257	263
60%	298	287	367	481	395	264	248	298	268	286	296	304
70%	384	315	414	501	486	474	284	324	285	295	314	329
80%	464	359	437	542	608	545	318	354	333	352	340	346
90%	506	416	538	597	635	613	481	416	370	410	370	363
100%	604	614	842	899	779	704	577	436	507	507	497	446
Owens at Laws Return:												
0%	235	113	74	159	159	155	129	138	200	133	133	136
10%	280	166	158	169	168	194	154	186	207	189	160	214
20%	291	196	181	205	197	211	181	230	222	211	194	232
30%	304	248	248	286	207	220	195	248	249	259	208	245
40%	321	266	280	359	269	249	211	279	265	269	240	265
50%	333	288	303	386	304	280	242	306	275	289	287	296
60%	354	321	369	440	410	320	257	327	287	302	309	322
70%	433	338	404	463	492	473	285	352	294	308	327	337
80%	474	366	441	504	542	509	312	375	343	363	347	356
90%	549	421	510	569	567	578	470	417	379	418	378	382
100%	637	623	769	818	704	656	568	437	514	514	511	456
Owens at Bishop Return:												
0%	283	198	113	164	168	204	186	199	252	229	238	255
10%	345	281	206	171	199	252	227	279	286	275	261	280
20%	383	300	265	194	218	269	255	311	296	290	267	293
30%	394	315	288	269	231	286	283	365	335	363	296	336
40%	406	329	328	334	267	306	294	384	349	373	339	357
50%	427	359	359	401	306	350	329	421	370	391	375	388
60%	456	395	409	451	439	388	364	440	390	403	404	411
70%	518	419	436	491	527	541	390	457	422	418	444	427
80%	557	449	459	507	542	596	439	481	459	470	461	463
90%	638	518	526	610	645	670	580	554	499	544	486	493
100%	722	708	1027	822	742	725	679	585	619	628	613	588


Owens Above East Portal Monthly Flows
(4/2/92) No Diversions – 48 Evop – 1st 50 years
Monthly Flow (cfs)
400
350
300
250
200
150
100
50
0
APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR
Month
Minimum
20%
40%
60%
80%
Maximum


Owens Below East Portal Monthly Flows
(4/2/92) No Diversions – 48 Evop – 1st 50 years
Monthly Flow (cfs)
400
350
300
250
200
150
100
50
0
APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR
Month
Minimum
20%
40%
60%
80%
Maximum

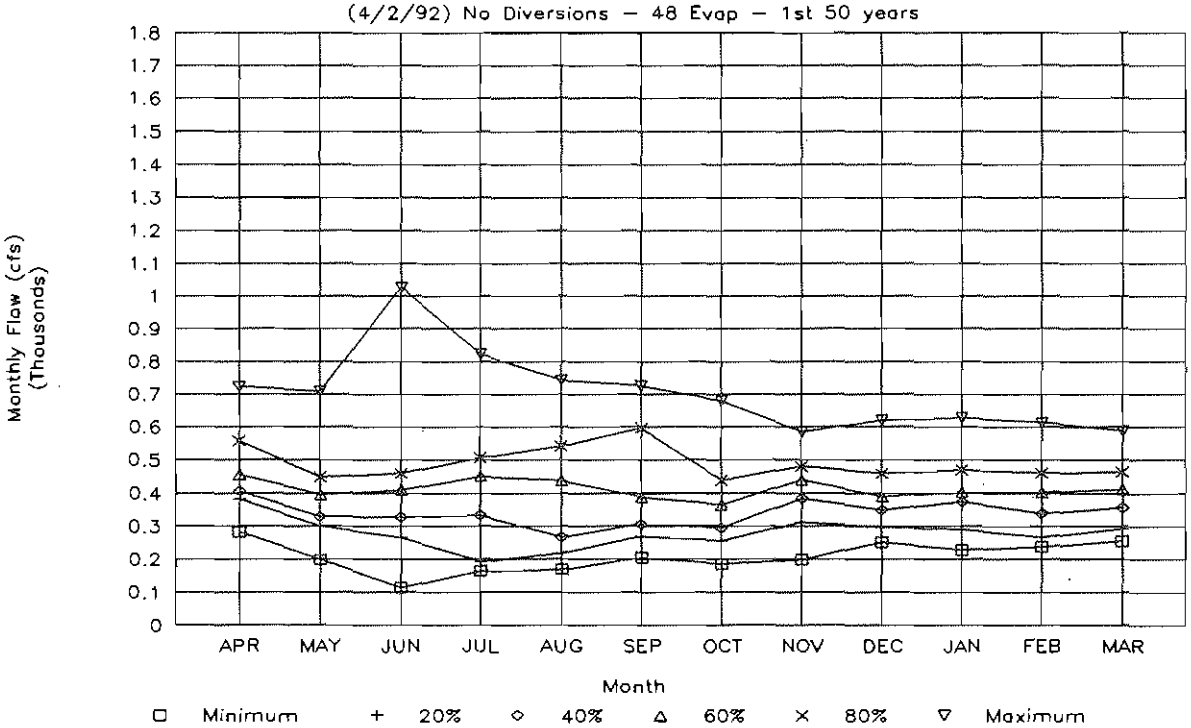
Owens @ Pleasant Valley Monthly Flows

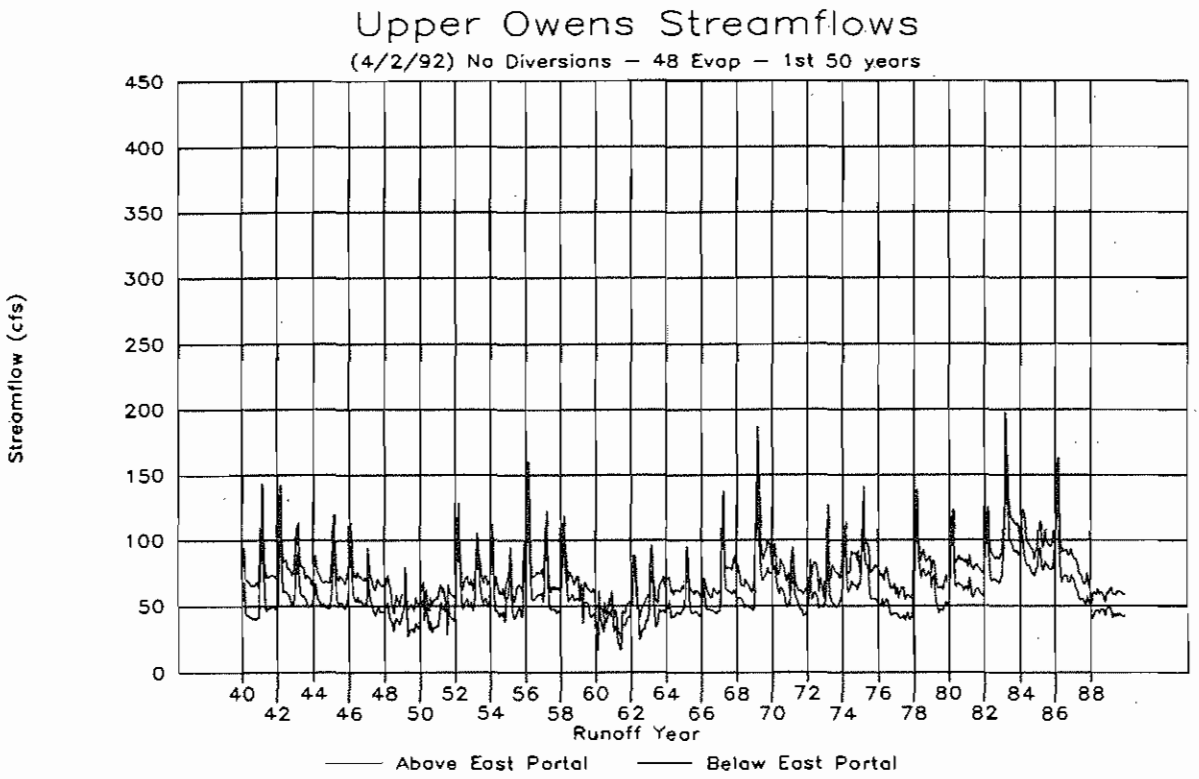
(4/2/92) No Diversions – 48 Evap – 1st 50 years

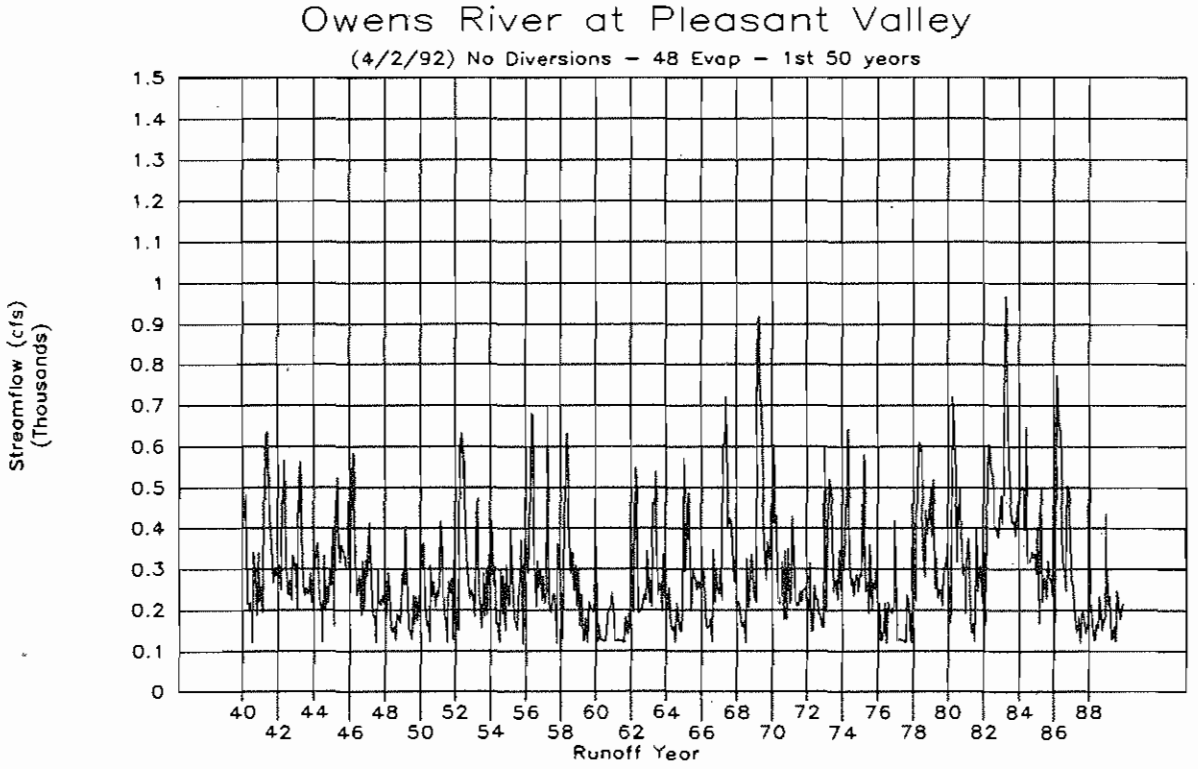


Owens @ Big Pine Canal Monthly Flows

(4/2/92) No Diversions – 48 Evap – 1st 50 years




Upper Owens Streamflows
(4/2/92) No Diversions – 48 Evap – 1st 50 years
Streamflow (cfs)
450
400
350
300
250
200
150
100
50
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Year
Above East Portal
Below East Portal

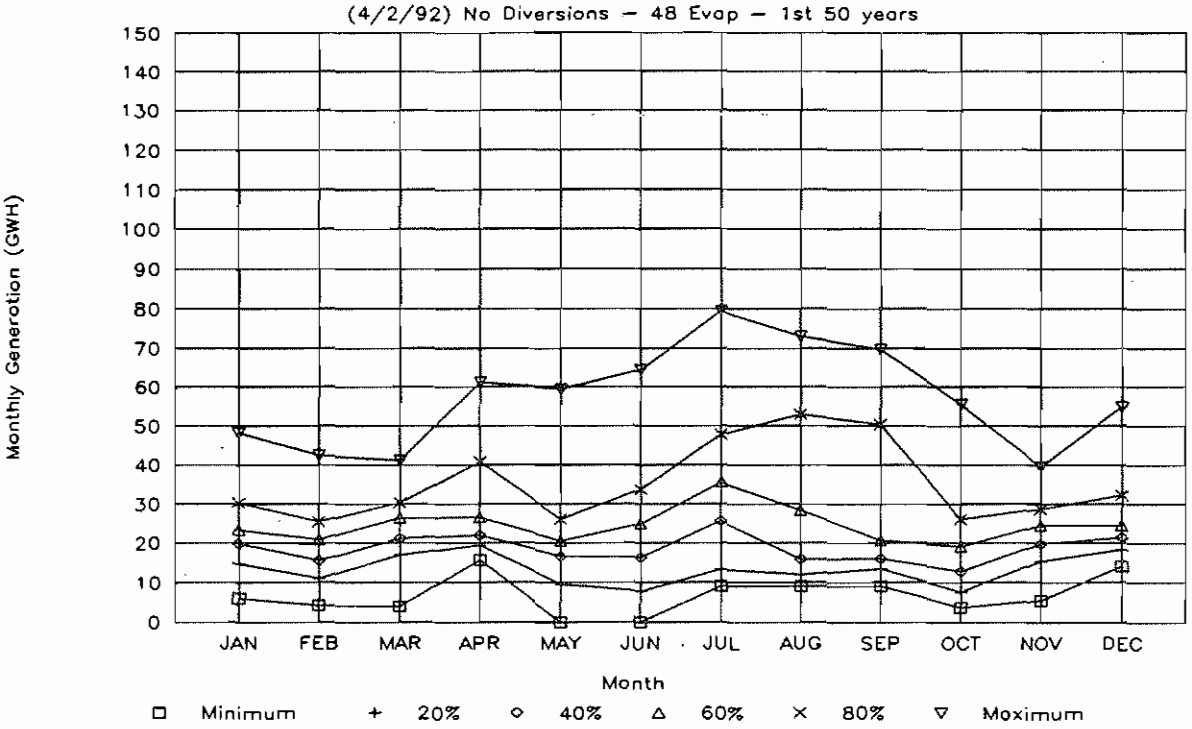

Owens River at Pleasant Valley
(4/2/92) No Diversions – 48 Evap – 1st 50 years
Streamflow (cfs)
(Thousands)
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88
Runoff Yeor

Cumulative Monthly Distribution of LADWP Aqueduct Power Generation
04/02/92
Mono EIR Alternatives
Initial Alternatives - 1st 50 years:
(4/2/92) No Diversions - 48 Evap - 1st 50 years Annual Average: 814.5 GWH/yr

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Gorge Power Plants:												
0%	6.0	4.2	4.0	15.7	0.0	0.0	9.1	9.1	9.1	3.7	5.5	14.1
10%	11.8	7.9	14.4	17.9	0.0	0.1	11.6	10.4	12.0	6.6	8.6	15.5
20%	14.8	10.9	16.9	19.4	9.5	7.8	13.3	12.0	13.5	7.6	15.3	18.2
30%	17.1	13.6	18.8	20.4	14.4	12.0	15.8	12.6	14.7	9.2	17.6	20.5
40%	19.9	15.5	21.2	21.9	16.6	16.2	25.5	15.9	16.0	12.8	19.8	21.5
50%	21.5	18.2	21.9	23.1	18.7	18.7	32.5	18.6	16.9	17.6	22.0	22.8
60%	23.3	20.9	26.4	26.6	20.5	24.8	35.5	28.3	20.7	19.0	24.5	24.5
70%	24.7	23.9	28.6	34.5	23.2	29.4	40.4	47.8	31.4	22.0	27.3	27.6
80%	30.2	25.5	30.2	40.8	26.1	33.6	47.8	52.9	50.3	26.1	28.7	32.2
90%	33.8	28.6	32.4	47.1	33.0	41.1	54.7	60.8	58.0	43.4	36.2	35.4
100%	48.3	42.4	41.1	61.3	59.4	64.5	79.4	73.0	69.6	55.5	39.5	54.9
Los Angeles Power Plants:												
0%	18.1	20.7	23.5	30.8	22.7	20.6	15.7	19.0	18.7	13.4	15.1	20.1
10%	22.6	20.7	23.5	36.6	33.6	32.2	20.8	22.7	22.8	14.7	21.8	22.9
20%	22.6	20.7	23.5	39.1	37.7	38.3	25.4	25.9	29.5	20.1	21.8	22.9
30%	31.2	27.0	30.7	42.0	40.3	40.2	34.5	29.2	31.4	24.3	29.0	29.6
40%	32.6	29.3	32.4	43.7	42.7	43.7	39.1	33.8	34.0	28.3	31.3	33.4
50%	34.1	30.9	35.7	45.3	45.1	46.7	45.9	35.8	34.8	29.3	32.9	34.2
60%	35.1	34.0	37.6	47.0	47.9	50.2	56.5	44.7	37.6	31.4	35.8	35.4
70%	36.7	35.6	40.1	49.1	49.0	57.0	58.6	49.5	43.6	33.5	39.1	37.1
80%	40.2	37.7	41.3	54.1	55.3	57.0	58.6	58.6	51.7	41.0	39.7	40.3
90%	48.1	38.0	41.7	56.0	58.8	57.0	58.6	58.6	57.3	50.2	48.7	42.8
100%	50.1	46.1	50.9	57.2	58.8	57.0	58.6	58.6	57.3	50.2	48.7	50.4
Owens Valley Power Plants:												
0%	2.7	2.8	3.2	4.2	3.8	4.4	3.9	4.1	3.3	2.5	2.4	3.0
10%	3.2	3.0	3.4	4.6	5.4	5.5	4.6	4.6	4.0	2.7	3.1	3.2
20%	3.4	3.1	3.5	4.9	5.8	6.1	5.2	5.0	4.6	3.5	3.6	3.5
30%	4.4	3.7	4.3	5.0	6.0	6.4	6.1	5.3	4.9	4.0	4.3	4.2
40%	4.6	3.8	4.5	5.2	6.3	6.5	6.4	5.6	5.3	4.1	4.5	4.4
50%	4.7	4.3	4.8	5.5	6.4	6.6	6.8	6.2	5.6	4.3	4.8	4.6
60%	4.8	4.6	5.0	5.6	6.5	6.7	7.2	6.5	5.9	4.5	4.8	4.8
70%	4.8	4.9	5.1	5.7	6.6	6.9	7.4	7.1	6.2	5.0	5.0	5.0
80%	5.1	5.0	5.3	5.9	6.8	7.0	7.5	7.3	7.0	5.6	5.2	5.2
90%	5.6	5.1	5.4	6.1	7.0	7.1	7.6	7.6	7.3	6.2	5.7	5.5
100%	6.3	5.8	6.2	6.7	7.4	7.4	7.8	7.8	7.7	7.1	6.7	6.6
Total Aqueduct Power Plants:												
0%	29.1	28.8	31.3	52.8	36.9	35.7	32.0	33.6	31.4	23.2	24.5	38.5
10%	35.4	31.9	41.8	63.5	51.5	46.5	35.2	36.4	38.7	24.4	33.8	44.6
20%	41.6	37.2	46.9	64.7	59.6	59.3	43.9	43.1	48.9	33.0	42.5	49.6
30%	54.4	40.9	53.9	68.3	61.5	63.5	56.5	48.1	49.8	40.5	48.0	53.2
40%	57.2	48.7	58.9	69.3	63.6	64.9	71.9	54.1	56.4	45.4	56.9	56.9
50%	59.2	53.2	62.4	72.3	65.7	72.1	92.7	61.3	58.5	47.6	59.1	60.9
60%	62.8	58.6	67.2	74.7	71.8	76.9	99.4	81.9	63.0	54.3	67.9	63.2
70%	66.1	64.7	73.1	89.7	76.3	82.4	103.5	106.3	78.2	56.0	69.7	68.3
80%	74.0	67.6	75.7	101.8	83.8	88.7	112.1	116.5	111.3	72.4	74.7	76.9
90%	85.2	74.0	78.8	108.5	96.5	104.1	115.3	127.1	118.6	100.5	90.5	82.4
100%	103.9	93.7	96.9	121.4	125.0	128.7	145.5	139.3	134.6	112.4	93.6	111.2

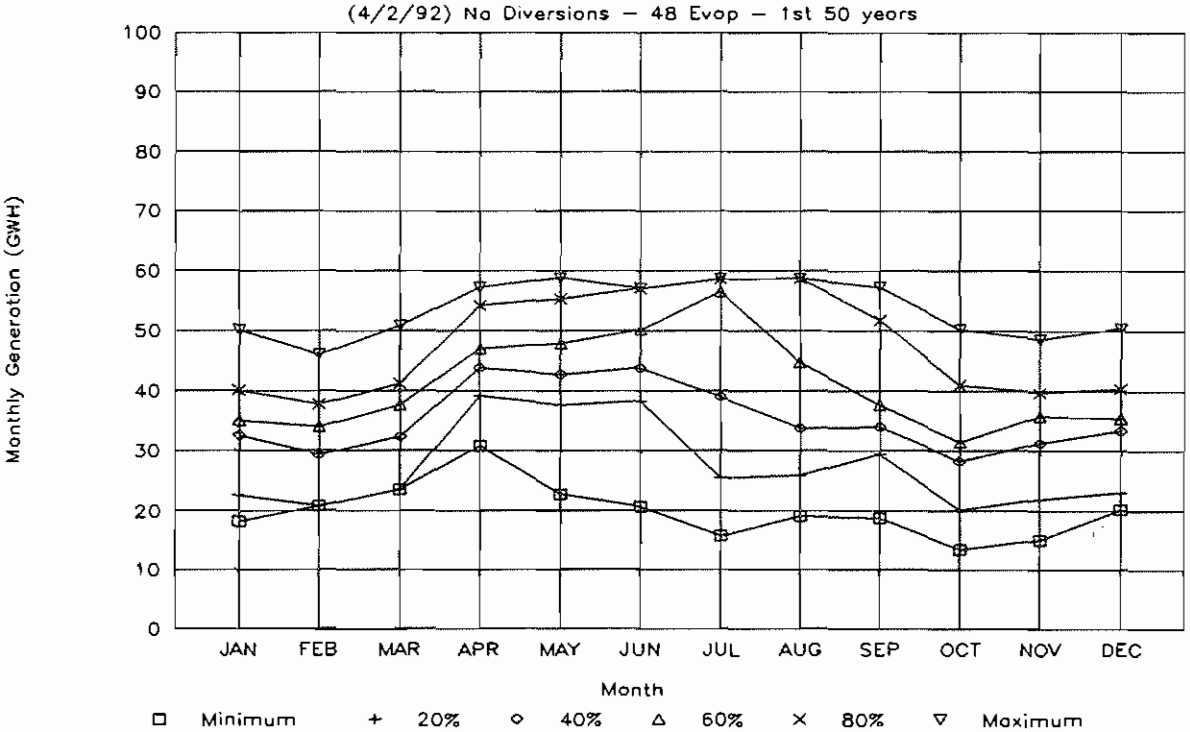
Owens Gorge Power Distribution

(4/2/92) No Diversions – 48 Evap – 1st 50 years



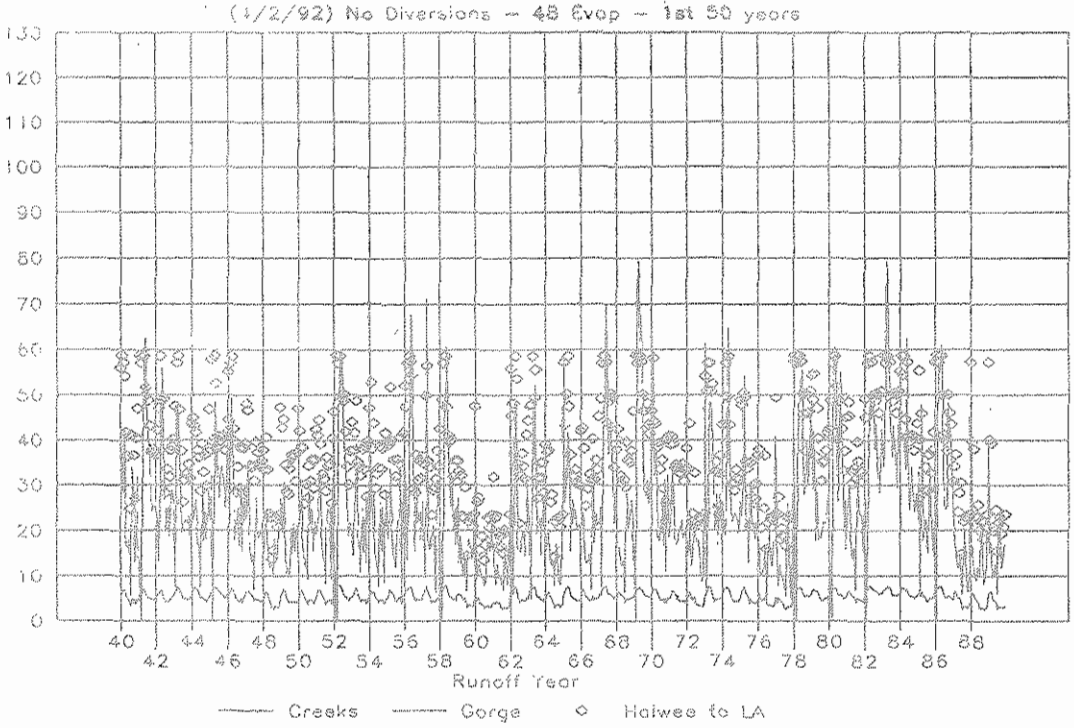
Haiwee to LA Power Distribution

(4/2/92) No Diversions – 48 Evap – 1st 50 years



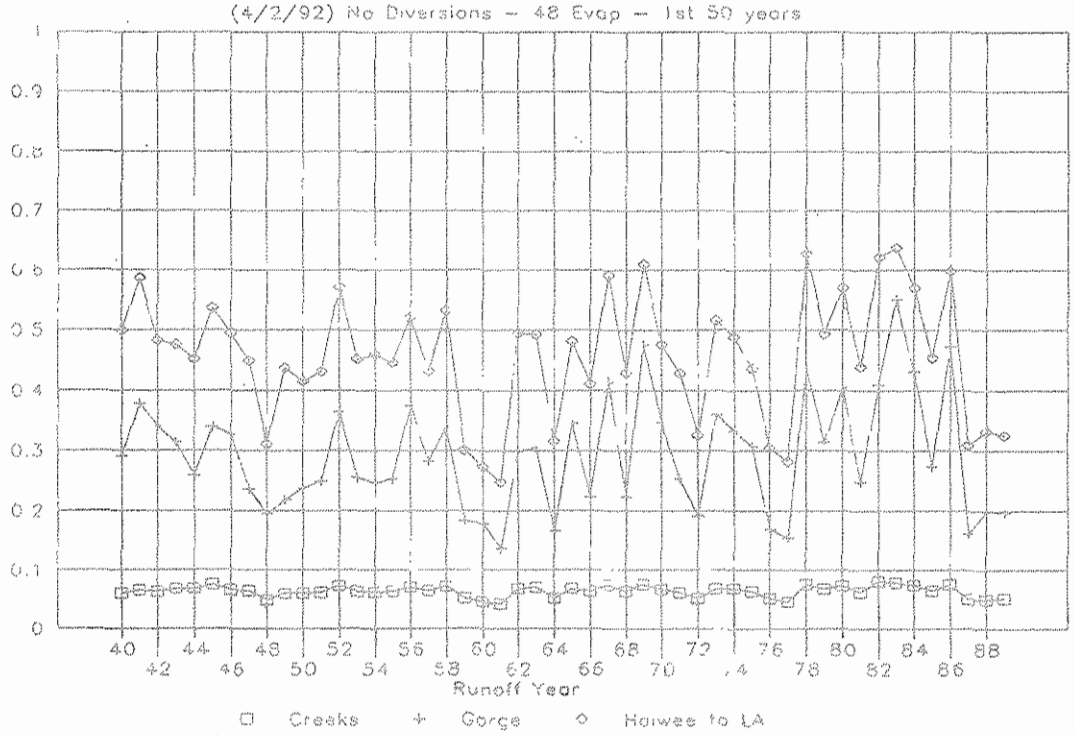
POWER GENERATION FROM LADWP AQUEDUCT

(4/2/92) No Diversions – 48 Evap – 1st 50 years



POWER GENERATION FROM LADWP AQUEDUCT

(4/2/92) No Diversions – 48 Evap – 1st 50 years



Appendix 1. General Description of LAAMP Model

Reprinted Article Describing LAAMP Model from:

"Hydraulic Engineering", Proceedings of the Hydraulic Engineering Sessions at Water Forum 1992, pages 1042-1048 in Amer. Soc. Civil Engineers, M. Jennings and N.G. Bhowmick (eds.), New York, NY.

APPLICATION OF MONTHLY MODEL OF LOS ANGELES AQUEDUCT SYSTEM TO INVESTIGATE IMPACTS FROM MONO LAKE TRIBUTARY DIVERSIONS

Russ T. Brown[1], William R. Hutchison[2]

Abstract

A monthly simulation model of the Los Angeles Department of Water and Power (LADWP) aqueduct system was developed and applied to investigate environmental impacts associated with modifying water rights for Mono Lake tributary streams. The hydrology, physical capacities, and operational rules for the aqueduct system were translated into a FORTRAN code that uses spreadsheets to input hydrology data, operational rules, minimum streamflows, and Mono Lake level targets. Historical monthly hydrology from runoff years 1940-1989 (April-March) for each tributary stream or basin were used for most applications. The monthly model was successfully used to evaluate the effects of alternative Mono lake level and tributary fish flow requirements, while at the same time satisfying agreements to limit groundwater pumping in the Owens Valley. The aqueduct model results provided useful information for impact assessments of fisheries, riparian vegetation, wildlife, Mono Lake ecology, water quality, recreation, power generation, and water supply topics.

Introduction

Several court case decisions have required that water rights to divert Mono Lake tributaries into the Los Angeles Aqueduct system be re-examined by the California State Water Resources Control Board (SWRCB) to consider public trust values associated with Mono Lake ecologic and scenic features and minimum flows for fish in the four diverted streams. The evaluation of

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possible environmental impacts from alternative water right decisions on Mono Lake levels, streamflows, and aqueduct deliveries to Los Angeles required the development and application of a monthly simulation model for the entire LADWP aqueduct system (Jones & Stokes Associates 1990).

Most of the water supply for the LADWP aqueduct is snowmelt runoff in the May-July period. Groundwater pumping in the Owens Valley is an important component of the system that has been limited in recent years to protect meadow and bottomland vegetation that is dependent on shallow groundwater zones. A significant portion of the available water is used for irrigation and other uses within the Mono Basin and Owens Valley.

The historical practice has been to fill the aqueduct to capacity when possible, relying on the seasonal sequence of direct runoff, storage releases, and groundwater pumping (Los Angeles Department of Water and Power 1990). The original aqueduct system was constructed to the Owens River in 1913, extended into the Mono Basin in 1940, and expanded with a second aqueduct barrel that was completed in 1970. Environmental litigation over both Owens Valley groundwater pumping and Mono Lake tributary diversions during the 1970s and 1980s has greatly increased the operating constraints. A simulation model can be helpful for determining the effects of possible operating rules and constraints with variable hydrologic conditions.

LAAMP Model Development

The monthly simulation model of the LADWP aqueduct system, called LAAMP (Los Angeles Aqueduct Monthly Program), attempts to match the available water from runoff, reservoir storage, and groundwater pumping with the diversion and export targets as specified by the user in the input file. The LAAMP model has been developed for SWRCB staff by Jones & Stokes Associates and Luhdorff and Scalmanini Consulting Engineers (LSCE), based on initial work of LADWP staff (Luhdorff and Scalmanini Consulting Engineers 1992).

Figure 1 shows the LADWP aqueduct system schematic. A monthly water balance was calculated for each of the seven basins. Historical monthly average streamflow, measured by the extensive streamgage network operated by LADWP, for runoff years 1940-1989 were used as inputs. Reservoir storage capacities, monthly storage targets, conduit capacities, minimum streamflows, monthly and annual groundwater pumping limits, irrigation diversions, spreading capacities, and estimated basin losses to seepage and evapotranspiration were specified in a spreadsheet that was incorporated into the model input file.

LAAMP logic is relatively simple. The annual runoff is assumed to be known from the snowpack measurements at the beginning of each runoff year. Wet, normal, and dry runoff year types are classified based on percentage of normal by the model user. The specified minimum storage targets and uses in each basin are satisfied each month, if possible, with a combination of runoff, river diversions, and groundwater pumping. Some of these targets depend on the runoff year type. The remaining water is considered available for export to the City of Los Angeles.

The available water is compared with monthly export targets that are specified by the user for each runoff year type. If excess water is available, the LAAMP model will sequentially attempt to store excess water in Haiwee and Tinemaha reservoirs, reduce pumping to minimum limits, store in Crowley Lake, and reduce exports from Grant Lake. If these operations have not eliminated excess water, the aqueduct is filled to capacity. Finally, remaining excess water is spread on the alluvial fans for groundwater recharge or spilled from the aqueduct system.

If available water is less than the monthly export target, storage water in Haiwee and Tinemaha reservoirs is withdrawn, Grant Lake storage is reduced by exporting from the Mono Basin, Crowley Lake storage is reduced to the specified monthly minimum, and groundwater pumping is increased to the monthly limits. If a water deficit still exists during a dry year, the monthly use targets are reduced by a specified percentage. There may still be a reduced monthly export to the City of Los Angeles.

A monthly water balance between inflows and evaporation from Mono Lake is used to estimate lake level fluctuations. A specified annual evaporation is distributed monthly and balanced with monthly streamflow from the four tributary streams, monthly rainfall, and unmeasured inflows estimated as a fraction of monthly runoff plus a constant monthly base flow. These water balance terms were estimated from regressions of the historical monthly lake volume changes with the measured quantities of rainfall, runoff, and tributary releases to Mono Lake.

LAAMP Model Results

The LAAMP model results can be analyzed with statistical and graphical methods in a series of output spreadsheets. Each output spreadsheet is designed to summarize model results for a particular basin or topic such as hydropower generation.

Several of the graphs from these spreadsheets are shown as examples of the available model output. The most basic results are monthly time series of the modeled variables. Figure 2 shows simulated Mono Lake elevations

for continued operation of the LADWP aqueduct system as it has been historically managed. The lake level will decline to a level where lake evaporation balances lake inflows that are reduced by the exported water. Hydrologic variations will continue to produce fluctuations in the lake level.

Figure 3 shows the monthly storage volumes in Grant and Crowley Lakes. The seasonal storage of spring snowmelt runoff and the fluctuations caused by low and high runoff years are evident in the simulation results.

Annual totals provide a useful summary for other variables. Figure 4 shows the annual split between Mono Basin exports and releases to Mono Lake. All available runoff would be exported in some years, while releases to Mono Lake would occur in wet years when the Mono Basin water was not needed for the aqueduct water supply.

Another type of graphical summary is cumulative distributions of the simulated flows for each month. Figure 5 shows the distribution of monthly flows in the Owens River at Pleasant Valley, downstream of Round Valley inflows and upstream of diversions to Laws and Bishop. These monthly distributions of flows are useful for determining potential impacts on fish habitat in the Owens River.

The LAAMP model has great flexibility for specifying inputs and displaying results. It is expected that LAAMP results will be used in impact assessments of direct effects from tributary diversions and Mono Lake level fluctuations, and of potential indirect effects from changes in aqueduct system flows, storages, and exports to Los Angeles. The potential environmental impacts of these changes in aqueduct flows will be evaluated with various assessment methods that may require time series or statistical summaries from LAAMP.

References

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Jones & Stokes Associates. 1990. Revised work plans for preparation of environmental impact report for amendment of appropriative water rights for water diversions in the Mono Lake Basin. (JSA 90-171.) Sacramento, CA.

Los Angeles Department of Water and Power. 1990. Development of a computer simulation model of the Los Angeles aqueduct system initial work plan and draft report. Los Angeles, CA.

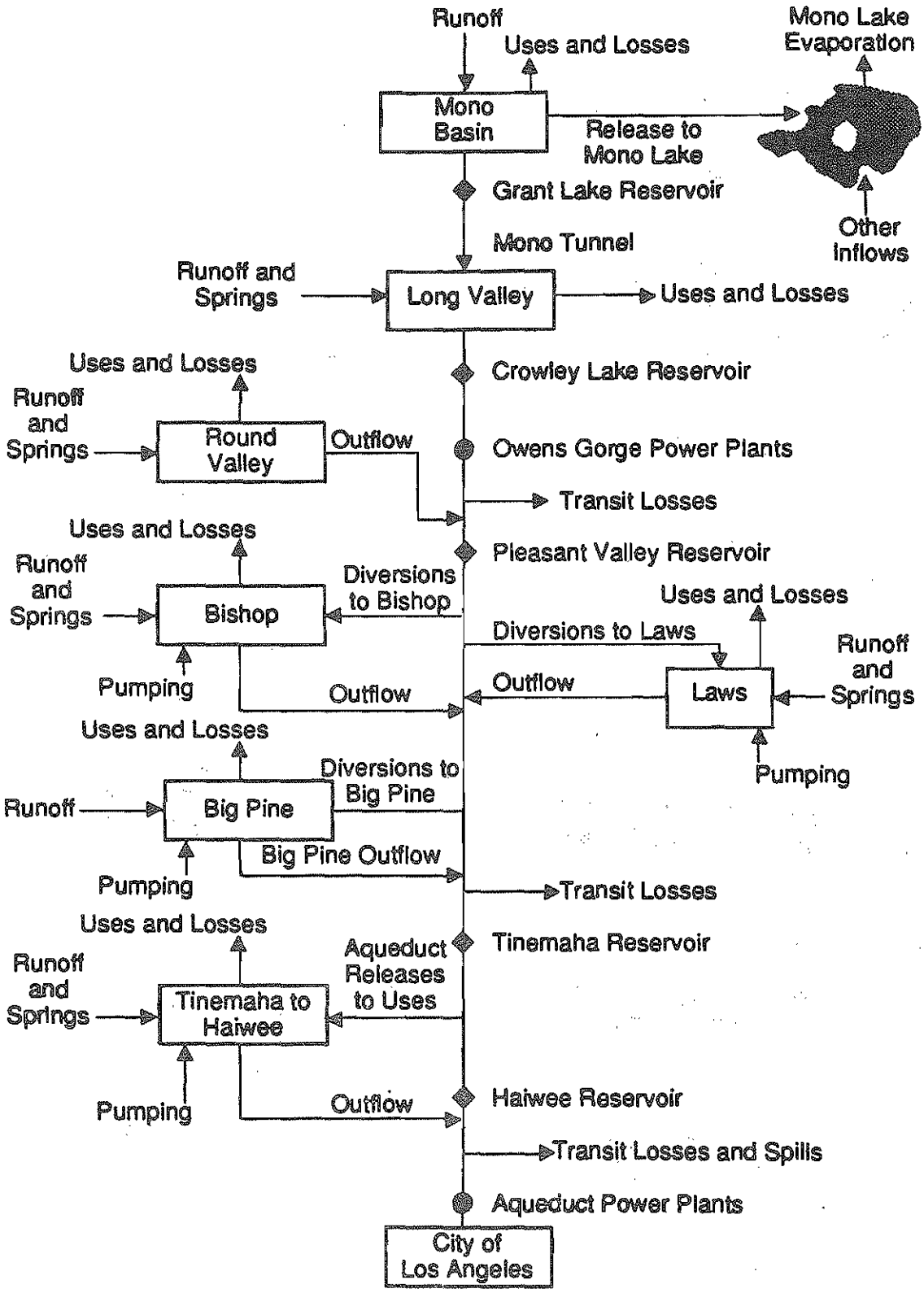

Figure 1. Schematic of LADWP Aqueduct System

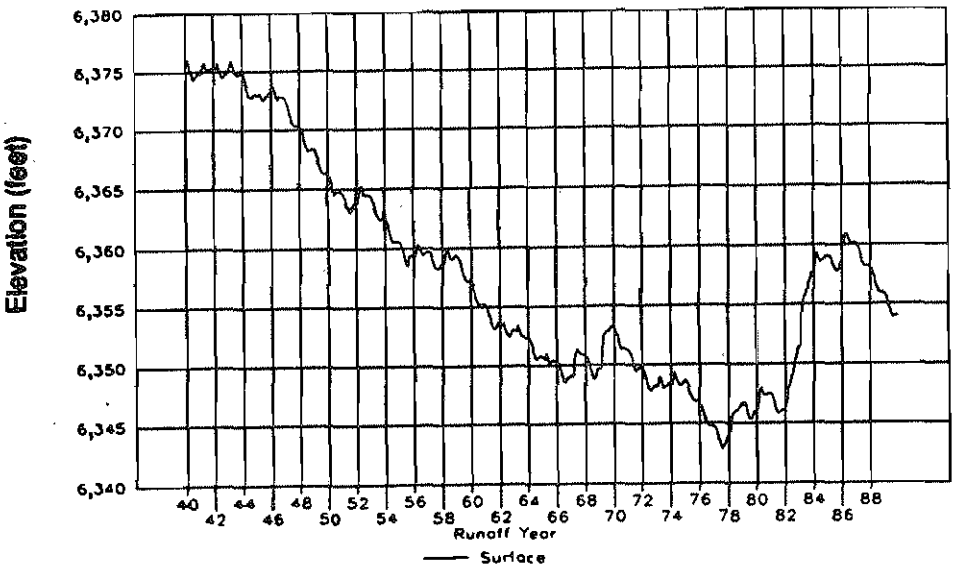

Figure 2. Simulated Mono Lake Surface Elevation

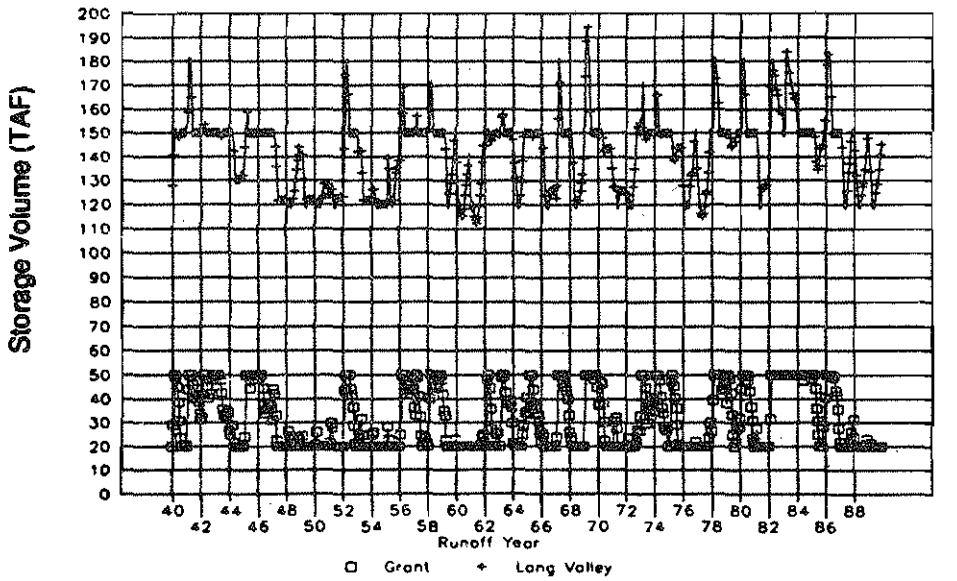

Figure 3. Simulated Grant and Crowley Lake Storage Volume

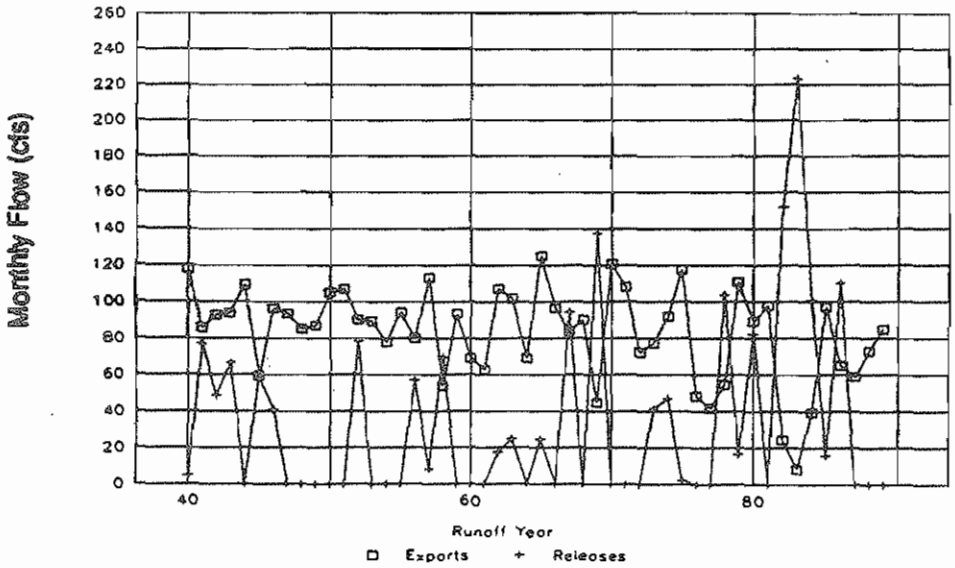

Figure 4. Simulated Mono Basin Exports and Mono Lake Releases

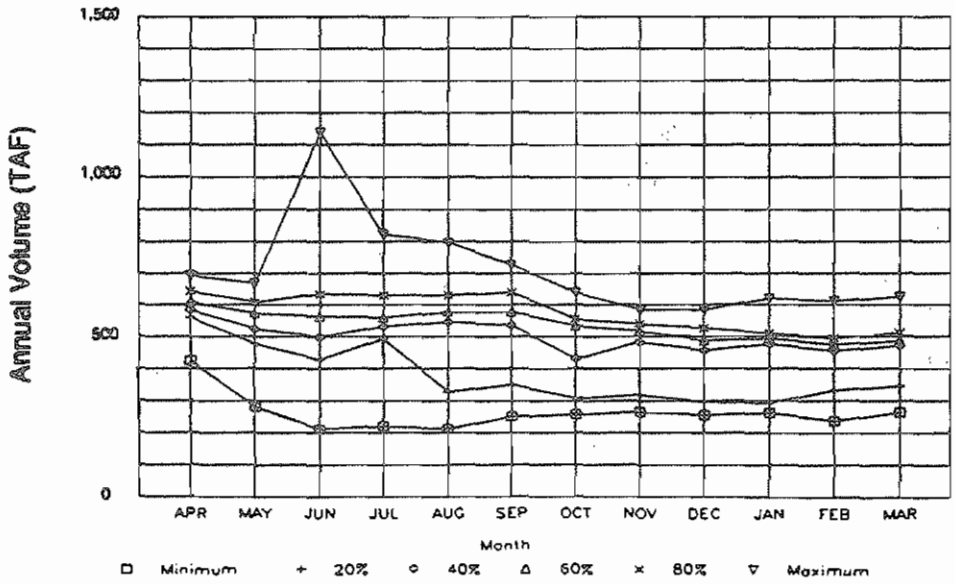

Figure 5. Simulated Monthly Distribution of Owens River Flows at Pleasant Valley

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