SAN JOAQUIN RIVER RESTORATION PROGRAM

Bureau of Reclamation
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# 2016 Final Restoration Allocation & Default Flow Schedule

September 30, 2016

## Introduction

The following transmits the final 2016 Restoration Allocation and Default Flow Schedule to the Restoration Administrator for the San Joaquin River Restoration Program (SJRRP), consistent with the Restoration Flows Guidelines (RFG, December 2013). This Restoration Allocation and Default Flow Schedule provide the following:

- Forecasted Water Year Unimpaired Runoff: estimated flows that would occur absent regulation on the river. This runoff is utilized to identify the Restoration Year Type.
- Hydrograph Volumes: annual allocation hydrograph based on water year unimpaired inflow, utilizing the Method 3.1 with the Gamma pathway (RFG-Appendix C, Figure C-3) agreed to by the Parties in December 2008.
- Default Flow Schedule: the schedule of Restoration Flows in the absence of a recommendation from the Restoration Administrator.
- Additional Allocations: hypothetical Restoration Allocations that would result from 10%, 50%, 75%, and 90% probability of exceedance unimpaired runoff forecast.
- Unreleased Restoration Flows: amount of Restoration Flows not released due to channel capacity constraints and without delaying completion of Phase 1 improvements.
- Flow targets at Gravelly Ford: flows at the head of Reach 2, and estimated scheduled releases from Friant Dam adjusted for the assumed Holding Contract demands and losses in Exhibit B.
- Restoration Budget: volumes for the annual allocation, spring flexible flow, base flow, riparian recruitment, and fall flexible flow.
- Remaining Flexible Flow Volume: the volume of Restoration Flows released and the remaining volume available for flexible scheduling.
- Operational Constraints: flow release limitations based on downstream channel capacity, regulatory, or legal constraints.

Consistent with Paragraph 18 of the Settlement, the Restoration Administrator shall make recommendations to the Secretary of the Interior concerning the manner in which the hydrographs shall be implemented. As described in the RFGs, the Restoration Administrator is requested to recommend a flow schedule showing the use of the entire annual allocation during

the current Restoration Year (March 1 2016 – Feb 28, 2017), categorize all recommended flows by account, and recommend both an unconstrained and a capacity limited recommendation. If an unconstrained recommendation and a capacity limited recommendation are not provided by the Restoration Administrator, the Default Flow Schedule without constraints (Table 5a) and the Default Flow Schedule with constraints (Table 5b) will be used respectively.

## Forecast Unimpaired Runoff

Unimpaired runoff represents the natural water production of a river basin, unaltered by upstream diversions, storage, or by export or import of water to or from other watersheds. The forecast of the unimpaired runoff determines the volume of Restoration Flows available for the Restoration Year (i.e. the Restoration Allocation). Information for forecasting the unimpaired runoff primarily includes:

- Reclamation estimate of unimpaired runoff into Millerton Lake to support the water supply allocation[1];
- The Department of Water Resources (DWR) Bulletin 120 latest update for Water Year 2016 San Joaquin River inflow to Millerton Lake Unimpaired Flow[3, 4], and/or the most current DWR Bulletin Water Supply Index (WSI)[5];
- The National Weather Service (NWS) Ensemble Streamflow Prediction (ESP) Water Supply Forecast (Water Year 2016) for the San Joaquin River at Millerton Lake[6].

Table 1 shows the 2016 San Joaquin River Water Year observed runoff and runoff forecasts at Millerton Lake. This includes the DWR and NWS forecasts expressed for the full water year. Figure 1 plots these values over the entire water year.

The water year 2016 unimpaired runoff, also known as the Full Natural River at Friant Dam, is 1300.986 thousand acre-feet (TAF), which is 71% of average. The water year type is Normal-Dry.

**Table 1 — San Joaquin River Water Year Actuals and Forecasts at Millerton Lake**

| | Forecast Exceedance Percentile | | | |
|---|---|---|---|---|
| **Forecast Source** | **90**% | **75**% | **50**% | **10**% |
| Accumulated "Full Natural" Runoff, September 30, 2016 [1] | 1300.986 TAF | | | |
| DWR, June 7, 2016 [2] | 1220 TAF | 1260 TAF | 1305 TAF | 1365 TAF |
| NWS, September 30, 2016 (Daily Value [3]) | 1310 TAF | 1310 TAF | 1310 TAF | 1310 TAF |
| NWS, September 30, 2016 (7-day Smoothed Value [4]) | 1310 TAF | 1310 TAF | 1310 TAF | 1310 TAF |

[1] http://www.usbr.gov/mp/cvo/vungvari/milfln.pdf

[2] http://cdec.water.ca.gov/cgi-progs/iodir?s=b120

[3] http://www.cnrfc.noaa.gov/water_resources_update.php?stn_id=FRAC1&stn_id2=FRAC1&product=WaterYear

[4] The NWS smoothed data uses a 7-day weighted moving average, where the most recent day (n) is given greater weight than each previous forecast day (n-1, 2, 3, etc.); this reduces noise stemming from ESP model input. The following formula us used: $((Forecast_n * 1) + (Forecast_{n-1} * 0.857) + (Forecast_{n-2} * 0.714) + (Forecast_{n-3} * 0.571) + (Forecast_{n-4} * 0.429) + (Forecast_{n-5} * 0.286) + (Forecast_{n-6} * 0.143)) / 4$

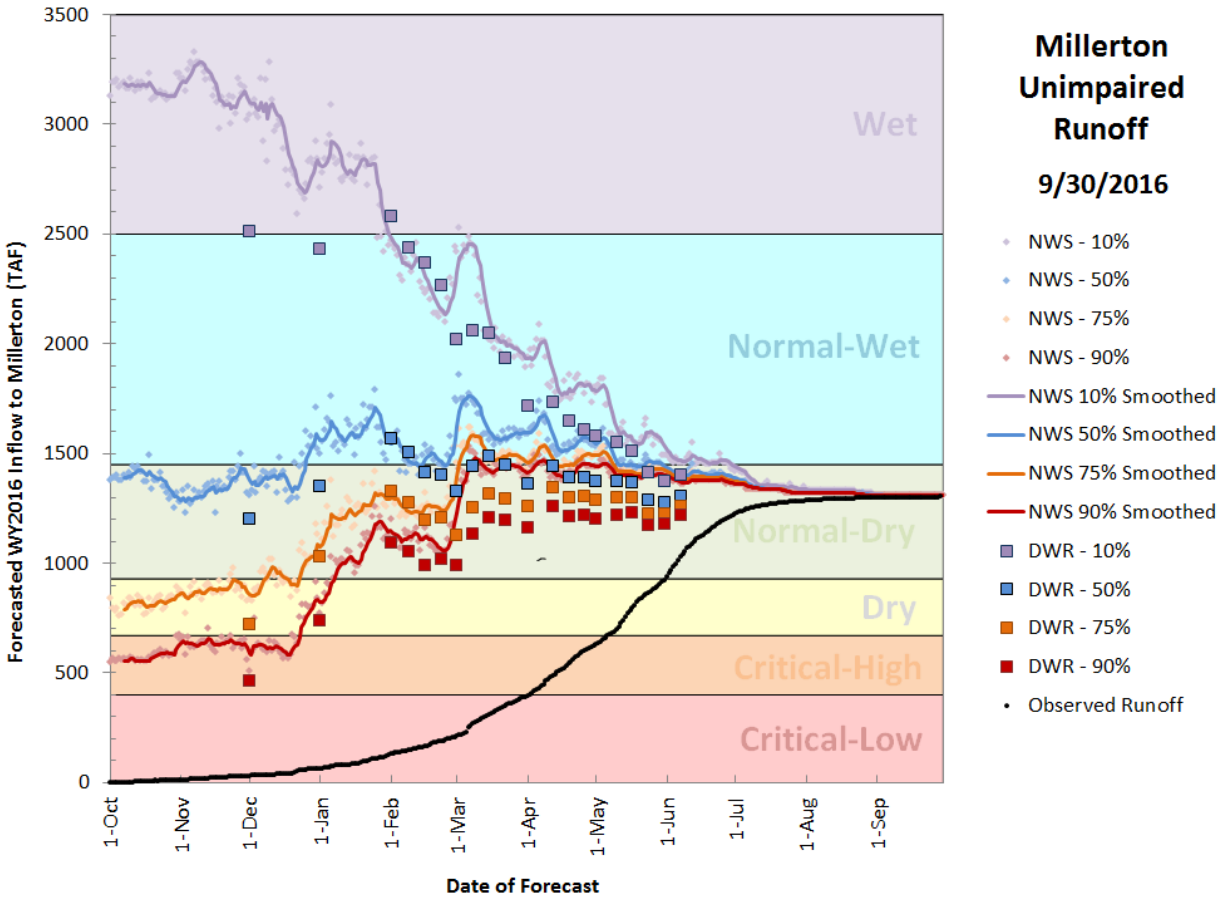


**Figure 1 — Plot of Water Year 2016 forecasts, including both NWS Ensemble Streamflow Prediction Forecast and DWR Forecast**

The final observed runoff of 1301 TAF was well forecast by the DWR 50% exceedance forecast issued in early June of 1305 TAF. The runoff tapered dramatically by mid-June, possibly due to extraordinarily low soil moisture in the watershed, or greater evapotranspiration. The NWS forecasts made in early June overestimated the runoff at every percent exceedance.

## Restoration Allocation

This final allocation made at the end of the 2016 water year which will cover Restoration Flows through February 28, 2017, relies solely on the actual unimpaired runoff into Millerton. The previous forecasts are ignored, as is the normal three-step process of determining the proper forecast to apply.

The actual water year runoff is 1300.986 TAF, therefore the Water Year Type for Restoration Flows is **Normal-Dry**. The **Restoration Allocation is 263.295 thousand acre-feet (TAF)** as measured at Gravelly Ford (GRF). Combined with Holding Contracts on the San Joaquin River, this equates to a **Friant Dam Release of 380.240 TAF**. This represents a decrease of 7.002 TAF from the previous allocation issued on July 7, 2016.

# Contractual Obligation Considerations

Consistent with Section 10004(j) of the San Joaquin River Restoration Settlement Act, the Settlement and the Settlement Act do not modify the rights and obligations of the United States under the Purchase Contract between Miller and Lux and the United States (Purchase Contract) and the Second Amended Exchange Contact between the United States, Department of the Interior, Bureau of Reclamation and Central California Irrigation District, San Luis Canal Company, Firebaugh Canal Water District, and Columbia Canal Company (Exchange Contract). Reclamation's obligations in the Purchase Contract and Exchange Contract remain unchanged. As a result, if a situation were to occur where the Restoration Flows conflicted with Reclamation making necessary deliveries under the Purchase Contract and Exchange Contract, Reclamation would make water available to meet the contractual requirements and/or refrain from making restoration releases under the Settlement.

# Default Flow Schedule

The Default Flow Schedule, known as Exhibit B in the Settlement, identifies how Reclamation will schedule the Restoration Allocation for the current water year type and runoff volume absent a recommendation from the Restoration Administrator, consistent with the Settlement. The RFG provides detail on how a Default Flow Schedule is derived from allocation volume. This approved method of distributing water throughout the year is referred to as "Method 3.1 with the gamma pathway."

## *Exhibit B Method 3.1 Default Hydrograph*

Table 5a shows the Exhibit B Method 3.1 default hydrograph flows and corresponding Restoration Allocation volumes for the entire year absent channel capacity constraints, including total releases from Friant Dam and Restoration Flows releases in excess of Holding Contracts.

Table 5b shows the Exhibit B Method 3.1 default hydrograph volumes with operational constraints, primarily controlled by a 1,120 cfs channel capacity constraint in Reach 2B. This default hydrograph depicted in Table 5b will be implemented in the absence of a specific recommendation by the Restoration Administrator. Due to levee stability related channel capacity constraints in Reach 2B that constrain Friant Dam releases, Restoration Flows of **36.516 TAF** are generated that are not scheduled in the constrained Default Flow Schedule and would become Unreleased Restoration Flows (URFs) under the default hydrograph. Actual URF volumes will depend on the Restoration Administrator Recommendation and a more complex calculation of channel constraints.

## Table 5a — Default Hydrograph

| Flow Period | Friant Dam Release (cfs) | Holding Contracts[8] (cfs) | Flow Target at GRF (cfs) | Restoration Flow at GRF (cfs) | Friant Dam Release Volume (TAF) | Restoration Flow Volume at GRF (TAF) |
|---|---|---|---|---|---|---|
| Mar 1 – Mar 15 | 500 | 130 | 375 | 370 | 14.876 | 11.008 |
| Mar 16 – Mar 31 | 1500 | 130 | 1375 | 1370 | 47.603 | 43.478 |
| Apr 1 – Apr 15 | 2500 | 150 | 2355 | 2350 | 74.380 | 69.917 |
| Apr 16 – Apr 30 | 854 | 150 | 709 | 704 | 25.397 | 20.935 |
| May 1 – Jun 30 | 350 | 190 | 165 | 160 | 42.347 | 19.359 |
| Jul 1 – Aug 31 | 350 | 230 | 125 | 120 | 43.041 | 14.757 |
| Sep 1 – Sep 30 | 350 | 210 | 145 | 140 | 20.826 | 8.331 |
| Oct 1 – Oct 31 | 350 | 160 | 195 | 190 | 21.521 | 11.683 |
| Nov 1 – Nov 6 | 700 | 130 | 575 | 570 | 8.331 | 6.783 |
| Nov 7 – Nov 10 | 700 | 130 | 575 | 570 | 5.554 | 4.522 |
| Nov 11 – Dec 31 | 350 | 120 | 235 | 230 | 35.405 | 23.266 |
| Jan 1 – Feb 28 | 350 | 100 | 255 | 250 | 40.959 | 29.256 |
| | | | | **Totals** | **380.240** | **263.295** |

**Table 5b — Default Hydrograph with Channel Constraints**

| Flow Period | Friant Dam Release (cfs) | Holding Contracts [8] (cfs) | Flow Target at GRF (cfs) | Restoration Flow at GRF (cfs) | Friant Dam Release Volume (TAF) | Restoration Flow Volume at GRF (TAF) | URF Volume [9] (TAF) |
|---|---|---|---|---|---|---|---|
| Mar 1 – Mar 15 | 500 | 130 | 375 | 370 | 14.876 | 11.008 | 0 |
| Mar 16 – Mar 31 | 1390 | 130 | 1265 | 1260 | 44.112 | 39.987 | 3.491 |
| Apr 1 – Apr 15 | 1390 | 150 | 1245 | 1240 | 41.355 | 36.893 | 33.025 |
| Apr 16 – Apr 30 | 1390 | 150 | 709 | 704 | 25.397 | 20.935 | 0 |
| May 1 – Jun 30 | 854 | 190 | 165 | 160 | 42.347 | 19.359 | 0 |
| Jul 1 – Aug 31 | 350 | 230 | 125 | 120 | 43.041 | 14.757 | 0 |
| Sep 1 – Sep 30 | 350 | 210 | 145 | 140 | 20.826 | 8.331 | 0 |
| Oct 1 – Oct 31 | 350 | 160 | 195 | 190 | 21.521 | 11.683 | 0 |
| Nov 1 – Nov 6 | 700 | 130 | 575 | 570 | 8.331 | 6.783 | 0 |
| Nov 7 – Nov 10 | 700 | 130 | 575 | 570 | 5.554 | 4.522 | 0 |
| Nov 11 – Dec 31 | 350 | 120 | 235 | 230 | 35.405 | 23.266 | 0 |
| Jan 1 – Feb 28 | 350 | 100 | 255 | 250 | 40.959 | 29.256 | 0 |
| | | | | **Totals** | **343.725** | **226.779** | **36.516** [9] |

[8] In recent years, Holding Contract demands have been higher than assumed under Exhibit B of the Settlement, in which case, flows at Friant are increased to achieve the Gravelly Ford Flow Target.

[9] This estimate of URF volume is based solely on Reach 2 channel capacity. Other flow and seepage constraints throughout the restoration area may result in higher actual URFs.

## *Exhibit B Restoration Flow Budget*

Table 6 shows the components of the restoration budget for March 1, 2016, through February 28, 2017 (i.e. the Restoration Year). The base flow allocation, spring flexible flow, and fall flexible flow reflect the Exhibit B hydrograph for the Restoration Allocation. The riparian recruitment component is without any balance because the restoration Water Year Type is Normal-Dry. The estimated total release at Friant Dam consists of 116.945 thousand acre-feet release for Holding Contracts in addition to the Restoration Flows as measured at Gravelly Ford. The volume for Restoration Flows as well as various accounting flow components will change with any subsequent Restoration Allocation.

## Table 6 — Restoration Budget with Flow Accounts

| Flow Period | Holding Contract Demand [10] (TAF) | Restoration Flow Accounting | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | **Spring Flexible Flow** (TAF) | **Summer Base Flow** (TAF) | **Fall Flexible Flow** (TAF) | **Winter Base Flow** (TAF) | **Riparian Recruit-ment Flow** (TAF) | **Buffer Flow** (TAF) | **Flexible Buffer Flow** (TAF) |
| Mar 1 – Mar 15 | 3.868 | 11.008 | – | – | – | -– | 1.488 | – |
| Mar 16 – Mar 31 | 4.126 | 43.478 | – | – | – | – | 4.760 | – |
| Apr 1 – Apr 15 | 4.463 | 69.917 | – | – | – | – | 7.438 | – |
| Apr 16 – Apr 30 | 4.463 | 20.935 | – | – | – | – | 2.540 | – |
| May 1 – May 28 | 10.552 | 0 | 8.886 | – | – | 0 (within 90 days of peak flow) | 1.944 | 5.000 (may be applied Feb 1-May 28, or Oct 1-Nov 30) |
| May 29 – Jun 30 | 12.436 | – | 10.473 | – | – | | 2.291 | |
| Jul 1 – Aug 31 | 28.284 | – | 14.757 | – | – | | 4.304 | |
| Sep 1 – Sep 30 | 12.496 | – | 8.331 | – | – | – | 2.083 | |
| Oct 1 – Oct 31 | 9.838 | – | 11.683 | 0 | – | – | 2.152 | 7.081 (may be applied Sep 2-Jan 28) |
| Nov 1 – Nov 6 | 1.547 | – | – | 6.783 | – | – | 0.833 | |
| Nov 7 – Nov 10 | 1.031 | – | – | 4.522 | – | – | 0.555 | |
| Nov 11 – Nov 30 | 4.760 | – | – | 0 | 9.124 | – | 1.388 | |
| Dec 1 – Dec 31 | 7.379 | – | – | – | 14.142 | – | 2.152 | |
| Jan 1 – Jan 31 | 6.149 | – | – | – | 15.372 | – | 2.152 | – |
| Feb 1 – Feb 28 | 5.554 | – | – | – | 13.884 | – | 1.944 | – |
| | **116.945** [10] | **145.338** | **54.129** | **11.306** | **52.522** | **0** | **38.024** | |
| | | **263.295** (Restoration Flow Volume) | | | | | | |
| | | **380.240** [10] (Friant Dam Release Volume) | | | | | | |

[10] In recent years, Holding Contract demands have been higher than assumed under Exhibit B of the Settlement, in which case, flows at Friant Dam are increased to achieve the Gravelly Ford Flow Target, and associated Friant Dam Release Volume is greater.

## Remaining Flexible Flow Volume

The amount of water remaining for flexible flow scheduling is the volume of flexible flow water released from Friant Dam in excess of releases required to meet Holding Contract demands, less past releases. Table 7 tracks these balances. The released to date volumes are derived from QA/QC daily average data when available, and partly from provisional data posted to CDEC, and thus may have future adjustments. This may affect the remaining flow volume as well.

**Table 7 — Estimated Flexible Flow Volume Remaining and Released to Date**

| Flow Account | Yearly Allocation [11] (TAF) | Released to Date [12] (TAF) | Remaining Flow Volume [13] (TAF) |
|---|---|---|---|
| Spring Pulse (Mar 1 – Apr 30) | 145.338 | **15.156** (2/15-5/10)[14] | 130.182 |
| Riparian Recruitment | 0 | 0 | 0 |
| Summer Base Flows (May 1 – Oct 31) | 54.129 | **46.770** (5/11-9/30) | 9.359 |
| Fall Pulse (Nov 1 – Nov 10) | 11.306 | 0 | 11.306 |
| Winter Base Flows (Nov 11 – Feb 28) | 52.522 | 0 | — |
| Buffer Flow | 38.724 | 0 | 38.724 |
| Purchased Water | 0 | 0 | 0 |
| | **Total:** | **61.926** | |

[11] Flow Volumes assume no channel constraints, as this is the volume available for flexible rescheduling as per the Restoration Flow Guidelines

[12] As of 9/30/2016 at 12:00 AM based on QA/QC data and provisional data at Gravelly Ford. Period of release may extend beyond spring and fall pulses in accordance with the Restoration Flow Guidelines.

[13] Restoration Flow Guidelines limit the application of the calculated Remaining Flow Volume to certain times, and thus all of this volume may not be available for use.

[14] Flows for the spring pulse were calculated through 5/10/2016 to include the final 24 hour 100 cfs pulse, which began on 5/2/2016.

## Operational Constraints

Operating criteria, such as channel conveyance capacity, ramping rate constraints, scheduled maintenance, reservoir storage, contractual obligations, and downstream seepage concerns, may restrict the release of Restoration Flows. Table 8 summarizes known 2016 operational constraints.

**Table 8 — Summary of Operational Constraints**

| Constraint | Period | Flow Limitation |
|---|---|---|
| Lower San Joaquin Levee District Maintenance (Chowchilla, Mariposa, and Eastside structures) | September 1 – October 31 | Approximately 100 cfs at structures |
| Mendota Pool maintenance and inspection | Tentatively November 24 – January 15 | 0 cfs into Mendota Pool |
| Red-Top pipeline crossing | November 24 – December 15 | 0 cfs at Sack Dam |
| Sack Dam maintenance | November 24 – December 15 | 0 cfs at Sack Dam |
| Channel Conveyance / Seepage Limitation | Currently in effect, expected easement week of October 17 to allow higher flows | 70 cfs below Sack Dam |

Several construction projects along the river are planned for the coming months, including; maintenance on the LSJLD structures, draining of Mendota Pool to inspect the dam and conduct maintenance, a water pipeline to be routed under the channel bed below Sack Dam, and maintenance at Sack Dam. Reclamation is working on coordinating additional channel maintenance activities with the goal of reducing time with river flow constraints. A more detailed schedule will be provided to the Restoration Administrator.

Aside from these maintenance efforts, flows are limited to 70 cfs below Sack Dam and through the Eastside Bypass due to seepage concerns. This is expected to be the limitation through the fall period, with the possibility of higher flows in winter. If flows must be reduced at Sack Dam, Reclamation will make arrangements to capture Restoration Flows at approved points of rediversion such as Mendota Pool upstream of Sack Dam.

Reclamation will complete a Flow Bench Evaluation prior to any increases below Sack Dam to verify the allowed flow increase is not anticipated to cause groundwater levels to rise above thresholds. Upon completion of an additional seepage easement, which is expected in October 2016, approximately 300 cfs will be allowable past Sack Dam. Only after groundwater levels have stabilized below thresholds will Reclamation will perform another Flow Bench Evaluation to evaluate an increase to 70 cfs (or 150 cfs if the seepage easement is acquired), if the Restoration Administrator requests such an increase. If the seepage easement is acquired, after two weeks at 150 cfs and groundwater stabilization, Reclamation will evaluate an increase to 300 cfs. After two weeks at 300 cfs and groundwater stabilization, Reclamation will complete another Flow Bench Evaluation to evaluate whether any additional increase can be made while maintaining groundwater levels below thresholds. These incremental releases allow groundwater levels in monitoring wells to respond to 6 inch changes in water surface elevation in the river, as based on one-dimensional hydraulic modeling shown in Figure 2, and avoid potential

groundwater seepage impacts. Future Restoration Allocations will provide updates to seepage limitations.

In addition, the 2016 Restoration Year Channel Capacity Report identifies a maximum flow in Reach 2B of 1,120 cfs. This results in a maximum release from Friant Dam between 1,360 cfs and 1,490 cfs depending on the time of year. Reclamation will coordinate with the Restoration Administrator through the biweekly Flow Scheduling Subgroup conference calls and on an as-needed basis to update these constraints.

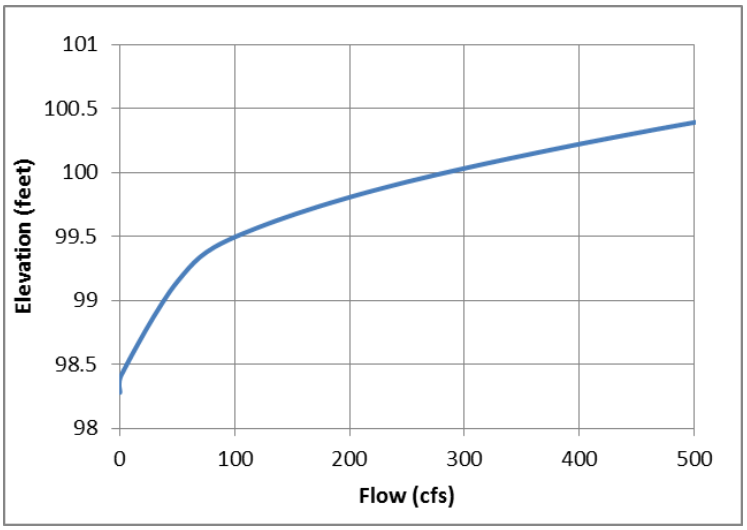


**Figure 4 — Rating Curve at El Nido Road in the Eastside Bypass**

# Appendix A: Abbreviations, Acronyms, and Glossary

| | |
|---|---|
| af | acre–feet |
| CALSIM | California Statewide Integrated Model |
| CCID | Central California Irrigation District |
| CDEC | California Data Exchange Center |
| cfs | cubic feet per second |
| CVP | Central Valley Project |
| Delta | Sacramento–San Joaquin Delta |
| DWR | California Department of Water Resources |
| ESP | Ensemble Streamflow Prediction |
| Exhibit B | Exhibit B of the Settlement depicting Default Flow Schedules |
| GRF | Gravelly Ford Flow Gauge |
| LSJLD | Lower San Joaquin Levee District |
| NWS | National Weather Service |
| QA/QC | Quality Assurance/Quality Control (i.e. finalized) |
| Reclamation | U.S. Department of the Interior, Bureau of Reclamation |
| Restoration Year | the cycle of Restoration Flows, March 1 through February 28/29 |
| RFG | Restoration Flow Guidelines |
| RWA | SJRRP Reclaimed Water Account |
| Secretary | U.S. Secretary of the Interior |
| Settlement | Stipulation of Settlement in *NRDC, et al., v. Kirk Rodgers, et al.* |
| SJREC | San Joaquin River Exchange Contractors |
| SJRRP | San Joaquin River Restoration Program |
| SLCC | San Luis Canal Company |
| TAF | thousand acre–feet |
| URF | Unreleased Restoration Flows |
| WSI | DWR Water Supply Index |
| WY | water year, October 1 through September 30 |

# Appendix B: History of Millerton Runoff

## Table B — Annual Runoff History, in Thousand Acre-Feet

| Water Year[1] | Unimpaired Natural Runoff[2] | SJRRP Water Year Type[3] |
|---|---|---|
| 1931 | 480.2 | Critical-High |
| 1932 | 2,047.4 | Normal-Wet |
| 1933 | 1,111.4 | Normal-Dry |
| 1934 | 691.5 | Dry |
| 1935 | 1,923.2 | Normal-Wet |
| 1936 | 1,853.3 | Normal-Wet |
| 1937 | 2,208.0 | Normal-Wet |
| 1938 | 3,688.4 | Wet |
| 1939 | 920.8 | Dry |
| 1940 | 1,880.6 | Normal-Wet |
| 1941 | 2,652.5 | Wet |
| 1942 | 2,254.0 | Normal-Wet |
| 1943 | 2,053.7 | Normal-Wet |
| 1944 | 1,265.4 | Normal-Dry |
| 1945 | 2,134.633 | Normal-Wet |
| 1946 | 1,727.115 | Normal-Wet |
| 1947 | 1,121.564 | Normal-Dry |
| 1948 | 1,201.390 | Normal-Dry |
| 1949 | 1,167.008 | Normal-Dry |
| 1950 | 1,317.457 | Normal-Dry |
| 1951 | 1,827.254 | Normal-Wet |
| 1952 | 2,840.854 | Wet |
| 1953 | 1,226.830 | Normal-Dry |
| 1954 | 1,313.993 | Normal-Dry |
| 1955 | 1,161.161 | Normal-Dry |
| 1956 | 2,959.812 | Wet |
| 1957 | 1,326.573 | Normal-Dry |
| 1958 | 2,631.392 | Wet |
| 1959 | 949.456 | Normal-Dry |
| 1960 | 826.021 | Dry |
| 1961 | 647.428 | Critical-High |
| 1962 | 1,924.066 | Normal-Wet |
| 1963 | 1,945.266 | Normal-Wet |
| 1964 | 922.351 | Dry |
| 1965 | 2,271.191 | Normal-Wet |
| 1966 | 1,298.792 | Normal-Dry |
| 1967 | 3,233.097 | Wet |
| 1968 | 861.894 | Dry |
| 1969 | 4,040.864 | Wet |
| 1970 | 1,445.837 | Normal-Dry |
| 1971 | 1,416.812 | Normal-Dry |
| 1972 | 1,039.249 | Normal-Dry |
| 1973 | 2,047.585 | Normal-Wet |
| 1974 | 2,190.308 | Normal-Wet |
| 1975 | 1,795.922 | Normal-Wet |
| 1976 | 629.234 | Critical-High |
| 1977 | 361.253 | Critical-Low |
| 1978 | 3,402.805 | Wet |
| 1979 | 1,829.988 | Normal-Wet |
| 1980 | 2,973.169 | Wet |
| 1981 | 1,067.757 | Normal-Dry |
| 1982 | 3,317.171 | Wet |
| 1983 | 4,643.090 | Wet |
| 1984 | 2,042.750 | Normal-Wet |
| 1985 | 1,135.975 | Normal-Dry |
| 1986 | 3,031.600 | Wet |
| 1987 | 756.853 | Dry |
| 1988 | 862.124 | Dry |
| 1989 | 939.168 | Normal-Dry |
| 1990 | 742.824 | Dry |
| 1991 | 1,027.209 | Normal-Dry |
| 1992 | 807.759 | Dry |
| 1993 | 2,672.322 | Wet |
| 1994 | 824.097 | Dry |
| 1995 | 3,876.370 | Wet |
| 1996 | 2,200.707 | Normal-Wet |
| 1997 | 2,817.670 | Wet |
| 1998 | 3,160.759 | Wet |
| 1999 | 1,527.040 | Normal-Wet |
| 2000 | 1,735.653 | Normal-Wet |
| 2001 | 1,065.318 | Normal-Dry |
| 2002 | 1,171.457 | Normal-Dry |
| 2003 | 1,449.954 | Normal-Dry |
| 2004 | 1,130.823 | Normal-Dry |
| 2005 | 2,826.872 | Wet |
| 2006 | 3,180.816 | Wet |
| 2007 | 684.333 | Dry |
| 2008 | 1,116.790 | Normal-Dry |
| 2009 | 1,455.379 | Normal-Wet |
| 2010 | 2,028.706 | Normal-Wet |
| 2011 | 3,304.824 | Wet |
| 2012 | 831.582 | Dry |
| 2013 | 856.626 | Dry |
| 2014 | 509.579 | Critical-High |
| 2015 | 327.410 | Critical-Low |
| 2016 | 1,300,986 | Normal-Dry |
| | | |
| | | |
| | | |
| | | |

[1] Water year is from Oct 1 through Sept 30, for example the 2010 water year began Oct 1, 2009.

[2] Also known as “Natural River” or “Unimpaired Inflow into Millerton” – This is the total runoff that would flow into Millerton Lake if there were no dams or diversions upstream. There was a lower level of precision prior to 1945.

[3] The six SJRRP Water Year Types are based on unimpaired inflow. Critical-Low= <400 TAF, Critical-High=400-669.999 TAF, Dry= 670-929.999 TAF, Normal-Dry 930-1449.999, Normal-Wet 1450-2500, Wet>2500