



UNITED WATER CONSERVATION DISTRICT  
"Conserving Water Since 1927"

**SANTA FELICIA PROJECT**  
**FERC LICENSE NO. 2153**

# **Santa Felicia Water Release Plan**

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## 1.0 INTRODUCTION

This document, “The Santa Felicia Water Release Plan” (Plan), presents the water release schedule that United Water Conservation District (United or Licensee) will implement for operations of the Santa Felicia Project (Project). The releases contained in the Plan replace the interim minimum flow releases established in article 403 of the license.

This plan has been prepared to comply with the reasonable and prudent alternative (RPA) 2 contained in article 401(a) of United Water Conservation District’s (United) license issued by the Federal Energy Regulatory Commission (FERC) for the Project (FERC Project No. 2153) and the associated biological opinion, dated May 5, 2008, issued by the National Marine Fisheries Service (NMFS), for the endangered southern California steelhead (*Oncorhynchus mykiss*). These require United to prepare and implement a water release plan that ensures the magnitude, timing, frequency, duration, and rate-of-change of releases from Santa Felicia Dam into Piru Creek to accomplish the following biological goals:

- 1) Provide unimpeded migration of adult and juvenile steelhead in Piru Creek downstream of Santa Felicia Dam and in the Santa Clara River from the confluence of Piru Creek downstream to the Freeman Diversion Structure.
- 2) Form and preserve freshwater rearing sites for steelhead throughout Piru Creek downstream of Santa Felicia Dam.
- 3) Create and maintain freshwater spawning sites (including incubation and emergence life stages of steelhead) for steelhead throughout Piru Creek downstream of Santa Felicia Dam.

The releases contained in the Plan were developed with the intention that they will accomplish these goals. RPA 2 also requires United to develop plans that describe how United will implement the water release schedule, monitor the effectiveness of the releases for accomplishing the biological goals, and adaptively manage its operations to address uncertainties. These three plans serve as companion documents to the Plan.

In addition, the Plan addresses ramping rates for periods when United is increasing or decreasing water releases. Reasonable and prudent measure (RPM) 1 in Appendix B of the license requires that United “implement a water-release ramping rate for the purpose of minimizing steelhead stranding in Piru Creek downstream of Santa Felicia Dam.” Term and condition 1(A) for RPM 1 prescribes that decreases in water releases shall not result in reductions in surface water elevations greater than two-inches per hour. United has also integrated the ramping rate into the implementation, monitoring, and adaptive management plans described above.

## 2.0 BACKGROUND

The Project is located in eastern Ventura County on Piru Creek, approximately five miles north of Piru, California, and is owned and operated by United. Santa Felicia Dam is located on Piru Creek approximately six miles upstream of its confluence with the Santa Clara River. Between September 12, 2008 and May 31, 2011, United implemented releases according to the flow releases established in Article 403 of the license. On June 1, 2011, United began implementing releases following the schedule contained in “Santa Felicia Water Release Plan September 2010”

(2010 Release Plan). United developed the 2010 Release Plan to comply with RPA 2. The 2010 Release Plan contains schedules for habitat and migration water releases. It also addresses ramping rates. The release schedule and ramping rates were established in consultation with National Marine Fisheries Service (NMFS). NMFS filed a letter with FERC constituting agreement with the 2010 Release Plan on September 27, 2010. United filed the 2010 Release Plan with FERC on September 29, 2010. United intends to continue to operate according to the 2010 Release Plan until it is replaced by a subsequent FERC-approved plan.

Article 401(b) of the license states that United cannot implement long-term changes to flow releases for steelhead “without prior Commission authorization after the filing of an application to amend the license.” At the same time, RPA 2 requires that United implement the releases upon receiving NMFS agreement on a release plan. Therefore, on April 6, 2011, and supplemented on April 15, 2011, United filed a request with FERC to temporarily waive the minimum streamflow requirements of article 403 and allow United to implement the 2010 Release Plan. On May 23, 2011, FERC issued an order granting this temporary waiver. In that order, FERC stipulated that United must file the final water release plan and an application to amend its license within a year (May 23, 2012) or request an extension to the waiver before that time.

United was not able to meet this May 23, 2012, deadline and requested an extension from FERC in a letter dated April 23, 2012. FERC issued an order on May 31, 2012, granting this request. Specifically, FERC extended the deadline for filing the license amendment application that would allow for implementation of a finalized water release plan to September 7, 2012. FERC also suspended the minimum flow requirements under article 403 until December 31, 2012, so that United can continue to implement flows contained in the 2010 Release Plan while the license amendment application is being processed.

After finalizing and initiating implementation of the 2010 Release Plan, United identified a number of omissions that, left unaddressed, would pose challenges with successful implementation of the water releases in the future. Thus, United made revisions to the 2010 Release Plan, as reflected in this Plan, to address these omissions as follows:

- The 2010 Release Plan does not allow for dam safety activities (e.g., inspections, maintenance, and repairs) that require interruption of water releases. All releases through the Santa Felicia Dam outlet works are controlled through the use of mechanical systems that need occasional and periodic inspection, maintenance, and repair to remain in operational condition. Activities such as inspections, maintenance, and repairs are required components of dam safety protocol and essential to prevent system failures that have the potential to result in emergency conditions, inability to meet project goals, and interruptions of required flows to support migration and downstream habitats. United has revised the Plan so that it contains a release schedule and associated ramping rate that allow for these activities to occur.
- The trigger for migration flows contained in the 2010 Release Plan requires that United monitor a forecast website operated by the National Oceanic and Atmospheric Administration (NOAA) at 8:00 a.m. During the 2012 rainy season, United observed that

the forecast website was routinely updated around 9:00 a.m. Forecasts available at 8:00 a.m. are from the previous day and so are not appropriate for determining if migration flows have been triggered. This situation would likely result in United being unable to implement the migration trigger as described in the 2010 Release Plan. Therefore, United has revised the Plan to remedy this discrepancy in a manner that will ensure that United is able to successfully monitor the migration trigger and implement required releases.

- Term and condition 1(A) for RPM 1 prescribes a ramping rate of two-inches per hour for both increasing and decreasing water releases. However, after receiving clarification from NMFS, FERC issued an order, dated November 22, 2011, modifying the license to eliminate the required two-inches per hour ramping rate for increasing releases. The ramping rate section of the Plan now reflects that the two-inches per hour requirement only applies to decreases in water releases into Piru Creek downstream of Santa Felicia Dam.

Aside from the above items, the primary components of the 2010 Release Plan remain intact.

### **3.0 WATER RELEASE SCHEDULES**

The water release schedule consists of three components:

- 1) Habitat Water Release Schedule
- 2) Migration Water Release Schedule
- 3) Alternative Operations Water Release Schedule

The standard operation for the facility will be according to habitat and migration water release schedules. However, under certain circumstances (e.g. during inspection, maintenance, and repair activities), United will need to deviate from these standard operations. In those situations, United will operate the facility according to the alternative operations water release schedule. The effectiveness monitoring and adaptive management plans address how United will determine if the schedules and biological goals are being successfully met and what will be done if they are not.

#### **3.1 Habitat Water Release Schedule**

Beginning each October 1, the Licensee shall release a minimum flow of 7 cubic feet per second (cfs) into Piru Creek below Santa Felicia Dam. The Licensee shall record daily rainfall at Ventura County Watershed Protection District's rainfall station #160 and maintain a running daily cumulative water-year-to-date total of said rainfall.

At the first day of each winter month (January through June), the cumulative rainfall shall be compared against the trigger values given in Table 1 (Column B). When the first-of-the-month rainfall exceeds the corresponding date's trigger value, the minimum release from Santa Felicia shall be raised to a value no less than the wet-normal flow (Table 1, Column C) and maintained over the ensuing month. If the cumulative rainfall at the first of any winter month (January through June) does not exceed the trigger value, the minimum discharge shall be reduced to, or

maintained at, the minimum of 7 cfs until a subsequent trigger is met. Adjustments for flow increases will be initiated no later than 10:00 a.m., and flow reductions will not be implemented prior to 8:00 a.m. on the first day of each winter month (January through June).

**Table 1 - Habitat Water Release Schedule**

<b>A. When the cumulative annual rainfall at Ventura County Gage #160 measured at 8:00 a.m. on:</b>	<b>B. Exceeds the following trigger values*:</b>	<b>C. Wet-normal year flow, Santa Felicia shall begin and continue releases for the ensuing period at a discharge no less than:</b>
January 1	4.80 inches	15 cfs
February 1	8.10 inches	20 cfs
March 1	12.00 inches	20 cfs
April 1	14.90 inches	20 cfs
May 1	16.30 inches	10 cfs
June 1	17.50 inches	9 cfs which shall be continued through the following September 30 (October 1 begins a new Water Year.)

\*All years - cumulative median value, NMFS February 3, 2010 email

### **3.2 Migration Water Release Schedule**

Between January 1 and May 31 each year, the Licensee shall release or bypass a minimum of 200 cfs during periods of time that fall between the below specified triggers.

#### **1) Flow Initiation Trigger**

If the instantaneous rainfall-induced discharge measured at USGS Station No. 11109000 (Santa Clara River near Piru, California) at 8:00 a.m. exceeds 200 cfs, AND the subsequent day's (midnight to midnight) mean daily discharge is predicted to exceed 200 cfs by the NOAA National Weather Service's "California – Nevada River Forecast Center" at River Guidance Point Piru SCPC1, then the Licensee shall begin increasing Santa Felicia discharges before 10:00 a.m., in accordance with the ramping criteria to a value of no less than 200 cfs. If the forecast website has not yet been updated at 8:00 a.m., the Licensee will check it on the hour, every hour, until it is updated, to determine if the trigger has been met. In this situation, if the trigger is met, the Licensee shall begin increasing Santa Felicia discharges within 2 hours of forecast issuance.

#### **2) Flow Cessation Trigger**

When the mean daily rainfall-induced discharge measured at USGS Station No. 11109000 falls below 200 cfs, the Licensee may begin decreasing Santa Felicia discharges, in accordance with the ramping criteria, to a flow no less than that dictated by the habitat water release schedule value.

### **3.3 Alternative Operations Water Release Schedule**

In order to conduct dam safety activities (e.g., inspections, maintenance and repairs) that require closure of the penstock, discharge through the Santa Felicia outlet works will be reduced to a minimum of 5 cfs. Ramping will be conducted in the manner described in Section 4.0 (Ramping Rates for Water Releases) for habitat flow scenarios. Dam safety activities requiring closure of the penstock will be scheduled to occur under the following conditions:

- During any period when the reservoir spillway discharge exceeds the prescribed minimum flow.
- Under habitat flow release periods when the minimum required flow is no greater than 9 cfs and no rain events that may result in initiation of migration flows are forecasted to occur.

Periods of reduced flow will be limited as follows:

- Reductions for scheduled inspections shall be limited to no more than 12 hours.
- Reductions for scheduled maintenance or repair shall be limited to no more than 10 days per water year.
- Periods of reduction will be minimized by expediting all scheduled activities to the fullest extent practicable and minimum habitat releases will be restored at the earliest possible time. Such expedition will include lighting and around-the-clock activity should such effort shorten the expected duration of the flow reduction.

Licensee will notify FERC and NMFS a minimum of 15 days prior to any such reduction of flow expected to exceed 12 hours and shall also notify FERC and NMFS within 24 hours should an intended 12 hour reduction period unexpectedly exceed 12 hours.

### **4.0 RAMPING RATES FOR WATER RELEASES**

During periods of decreasing flows, the Licensee is required to ensure that the flows are ramped down at a rate that does not decrease water surface elevations in lower Piru Creek by more than two-inches per hour. This requirement does not apply to increasing flows. During those periods, the Licensee will ramp up releases in incremental steps designed to avoid rapid increases in flows. The following ramping rates are intended to accomplish these goals.

#### **1) Habitat Flows**

Increasing Flows: Between January 1 and June 1 when increases in habitat flows are triggered, the Licensee will increase discharge such that flow no more than doubles in any two hour period.

Decreasing Flows: Between January 1 and June 1 when decreases in habitat flows are triggered, the Licensee will ramp discharge down at the rate that does not exceed 2.0 cfs every 30 minutes until the new target habitat flow is reached.

## 2) Migration and Water Conservation Flows

Increasing flows: The Licensee will increase discharge such that flow no more than doubles in any two hour period.

Decreasing flows: The Licensee will reduce discharge no more than 50% in any 24-hour period. The downward ramping shall stop, and discharges shall be stabilized, at flows no less than the appropriate habitat flow.

The effectiveness monitoring and adaptive management plans address how United will determine if the ramping rates and associated biological goals are being successfully met and what will be done if they are not.

Changes in flow governed herein are made through the operation of various valves and turbines. The Licensee may automate any of these devices, provided the minimum discharges and rates of flow changes remain consistent with the values provided herein.