

# Investing in Recreation, Flood Risk Management, and Emergency Supplies for California

*California Water Commission: Water Storage Investment Program*



Agency Information Exchange on Contracts for the  
Administration of Public Benefits

May 30, 2019

Michael Mierzwa – DWR Executive

Jessica Boyt – Northern Region Office

California Department of Water Resources

## DWR's Role Administering Public Benefits for WSIP

Project	Type	Recreation	Flood Management	Emergency Supplies
Chino Basin	Groundwater			✓
Kern Fan	Groundwater			✓
Los Vaqueros	Surface Storage	✓		✓
Pacheco	Surface Storage			✓
Sites	Surface Storage	✓	✓	
Temperance Flat	Surface Storage		✓	✓
Willow Spring	Groundwater			✓

**Note:** DWR established as administering agency by CA Water Code section 79754.



WENGER

MPTEC

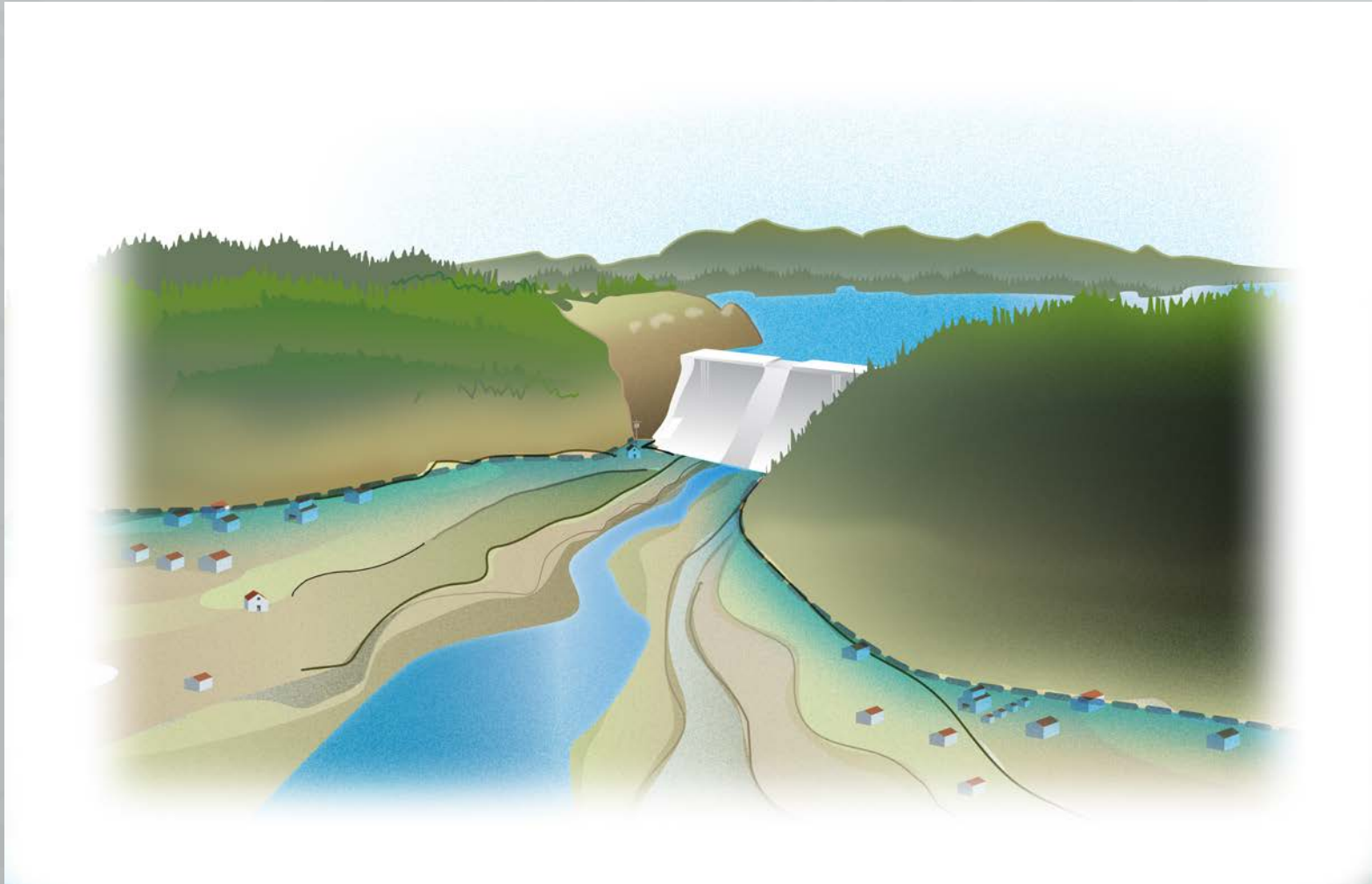


# Flood Risk Management: Recognizing Protection Provided by Surface Storage Facilities



**Note:** Reservoirs without a dedicated flood pool provide “**incidental**” storage by limiting runoff from existing water bodies to existing downstream communities.

# Flood Risk Management: Recognizing Protection Provided by Surface Storage Facilities



**Note:** Reservoirs without a dedicated flood pool provide “**incidental**” storage by limiting runoff from existing water bodies to existing downstream communities.

# Flood Risk Management: Addressing Residual Risk

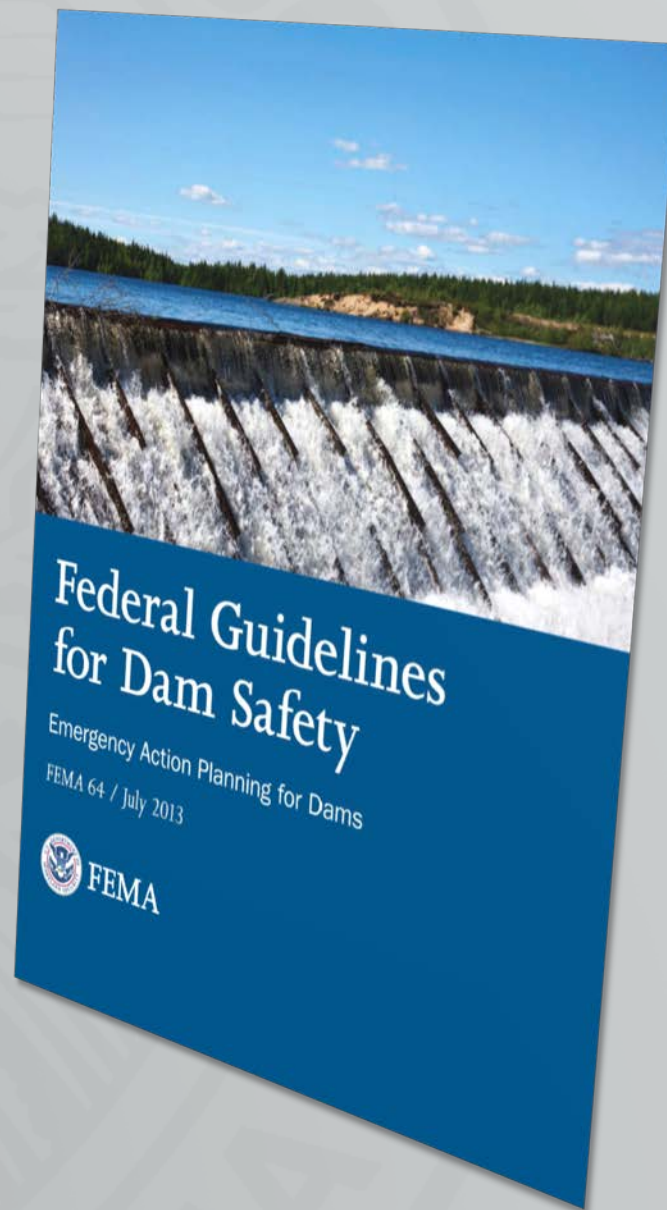
---

## ***Risk Exposure:***

*The population, infrastructure, and other assets and valued resources that would be adversely impacted by a dam failure. (USACE, 2014)*

## ***Residual Risk:***

*The risk remaining after prudent actions have been taken to address risk exposure.*



**Note:** In California dams are either regulated by the Federal government or DWR's Division of Safety of Dams. State regulated dams are required to have Emergency Action Plans to address residual risk.

# Flood Risk Management: Communicating Residual Risk

A key component of a dam emergency action plan is communicating residual risk and exercising the emergency action plan.

The following is a nice example of how a dam in Alaska communicates dam safety residual risk to the public.

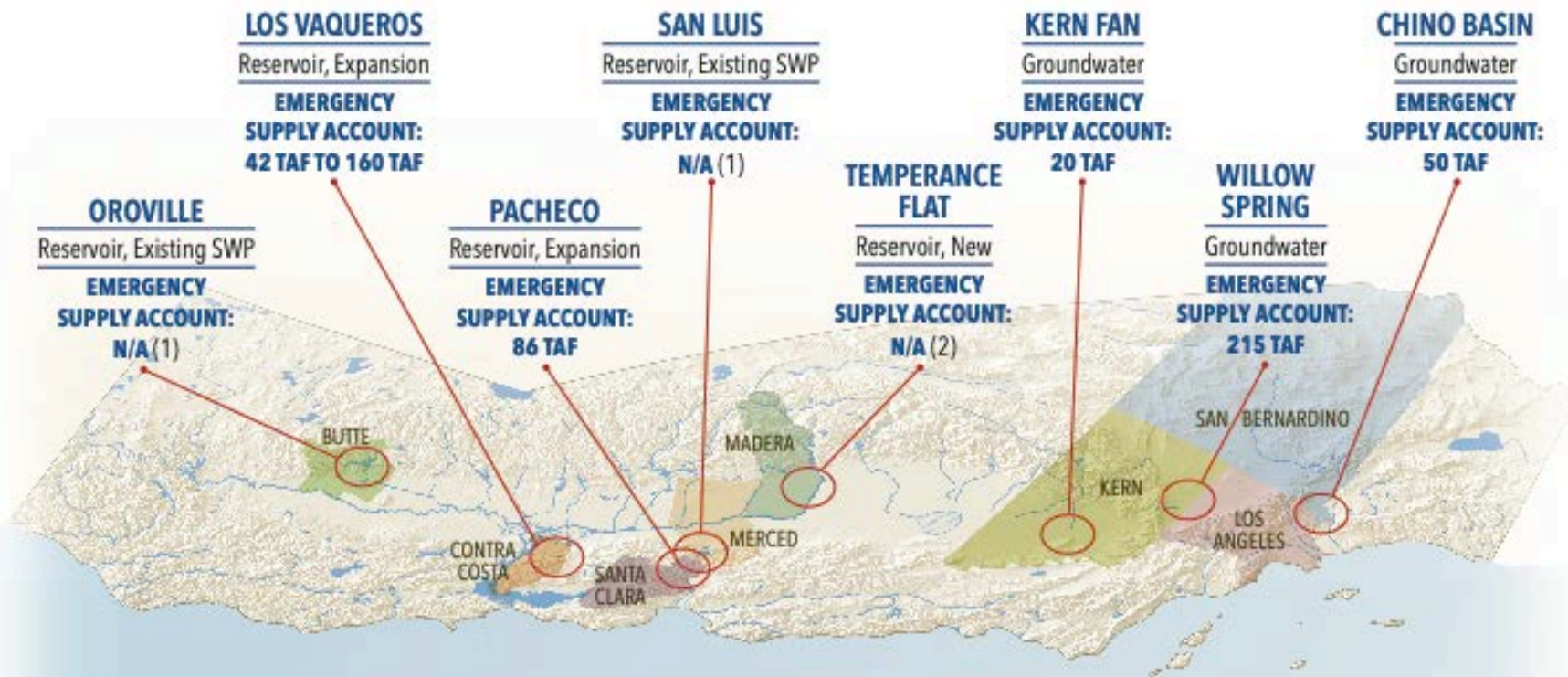


The image displays a brochure for the Salmon Creek Flood Plain Emergency Action Plan. The brochure is divided into several sections:

- Background:** Describes the Salmon Creek Dam as a concrete arch dam constructed in 1914 to provide water for hydroelectric power generation. The reservoir also provides drinking water to Juneau, Alaska. Located about three miles up the Salmon Creek valley, the dam is 47 feet thick at the base and six feet thick at the top. It is regulated by the Federal Energy Commission (FERC), which has very specific requirements for public safety and dams.
- Dam Safety Measures:** AEL&P monitors the level of Salmon Creek from the dam in the penstock, and of Salmon Creek in real time. AEL&P's main control room if any normal values. Monthly inspections include reservoir level and visual inspection, seepage, or other deteriorations. In addition to FERC's annual inspection and independent engineer every two years, AEL&P performs inspections as soon as felt in the Juneau area.
- Know Where To Go During an Emergency:** See detailed map inside this brochure.
  - BARTLETT HOSPITAL** • Persons located between Valley Medical Care and Bartlett Regional Hospital should immediately evacuate the area by foot and proceed to the hospital.
  - DIPAC HATCHERY** • Persons located at the KJND radio station and south toward town should immediately evacuate the area and proceed to the DIPAC Hatchery.
  - JACKS PLUMBING & HEATING** • Persons located north of the Salmon Creek Bridge to Jack's Plumbing and Heating should immediately go to Jack's Plumbing.
- The Flood Plain:** The flood plain shown on the opposite side of this brochure represents the approximate highwater line under the worst possible conditions. Assumptions used in the flood study include a reservoir elevation of 1167 (its level during a 10,000 year flood), and a disaster that would cause the complete and immediate failure of the dam. AEL&P maintains an Emergency Action Plan for Salmon Creek Dam. For more information about what to do in an emergency, or about the Emergency Plan, contact our Consumer Affairs department at 907.780.2222.
- Salmon Creek Dam & Reservoir:** Logo for Salmon Creek Dam & Reservoir.
- Salmon Creek Dam Emergency Action Plan:** for Residences & Businesses.
- Evacuation Areas:** Yellow, Purple and Red sections will evacuate to the respective locations:
  - J** Jacks Plumbing & Heating (3500 Glacier Hwy)
  - H** Bartlett Regional Hospital (3260 Hospital Dr)
  - D** DIPAC Fish Hatchery (2697 Channel Dr)
- In the Event of an Emergency:** A Siren Will Sound. Evacuate the Area as Indicated.
- Flood Zone:** worst-case scenario.
- AEL&P:** ALASKA ELECTRIC LIGHT & POWER CO. www.AELP.com



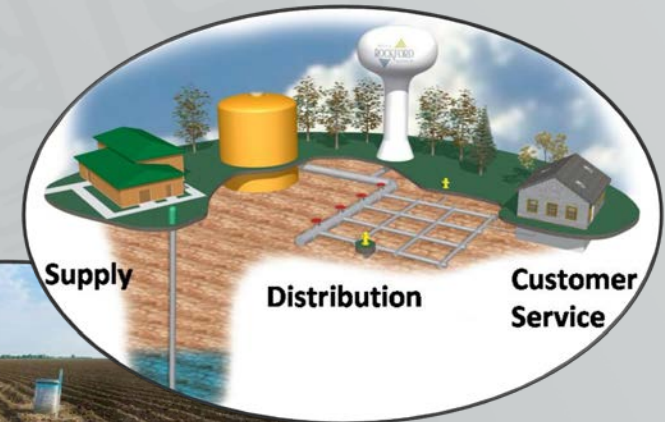
# Emergency Supplies: Preparing for the Next Water Supply Shortage



1. These are SWP or SWP-shared facilities, and the Governor may be able to make use of these supplies under an Emergency Proclamation
2. This WSIP facility was estimated to provide up to half of available supplies under a Governor Emergency Proclamation. The exact details will be refined later.

# Emergency Supplies: Examples of How to Move Water In Statewide Emergencies

I. Utilize existing service area conveyance systems



II. Facilitate transfers / exchanges through distributed systems



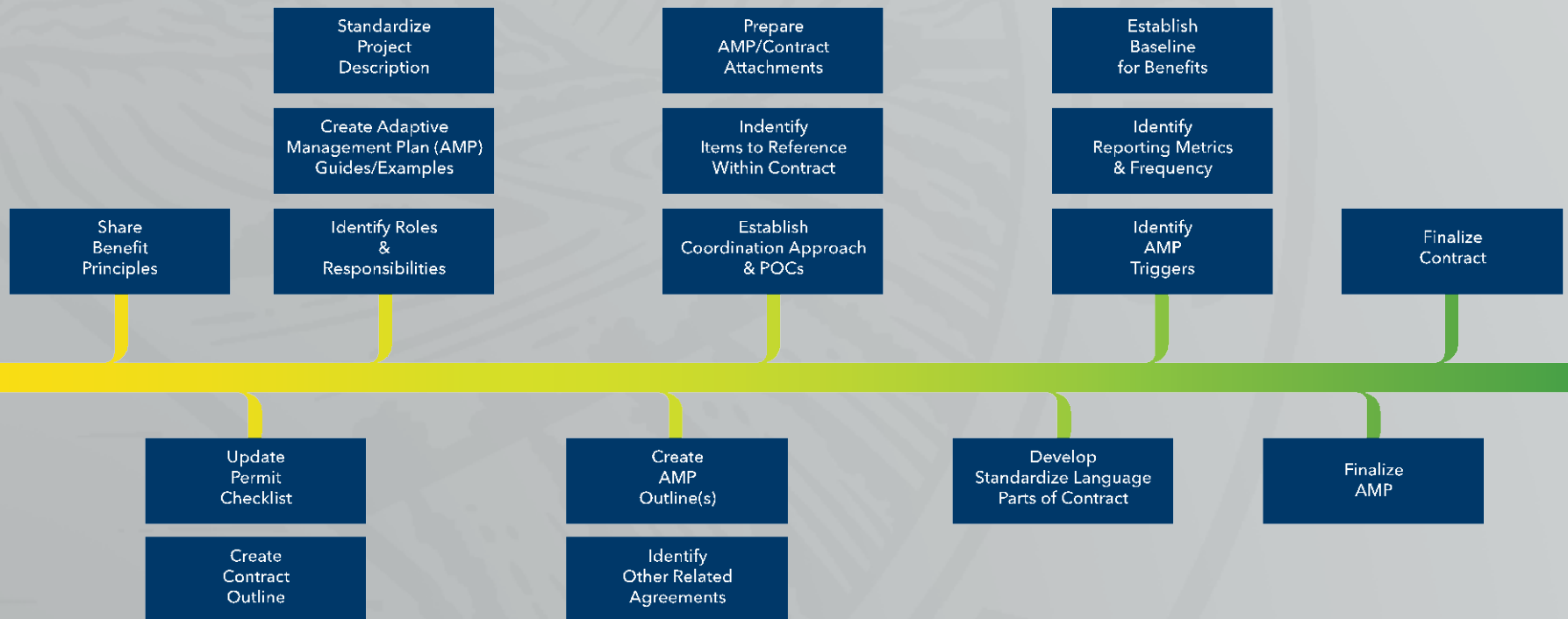
III. Ship (truck / air) water or construct emergency pipelines and interties



**Note:** Use of the WSIP emergency supplies will require a Governor's Emergency Proclamation consistent with existing State emergency authorities. The Governor and Cal OES will play a key role in transferring and conveying any of the WSIP emergency supplies.

# DWR's Approach to Developing WSIP Public Benefit Contracts

## WSIP: Contracts for Administration of Public Benefits DWR Contract Development Engagement Process



# Types of Adaptive Management Plans in DWR WSIP Contracts

- *Adaptive Management of Recreation Benefits*
- *Dam Emergency Action Plan*
- *Emergency Operations Plan Supplement for Emergency Water Supplies*

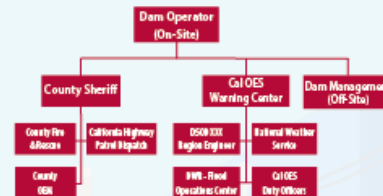


## Dam Emergency Action Plan (EAP)

### What is an EAP?



#### 1 Emergency Notification Flowcharts



#### 2 Response Process

Four Steps of the Response Process

- Step 1:** Incident Detection, Evaluation, and Emergency Level Determination
- Step 2:** Notification and Communication Evacuation
- Step 3:** Emergency Actions
- Step 4:** Termination and Follow-up

#### 3 Responsibilities

Description of agencies' roles and their actions in response to an emergency incident

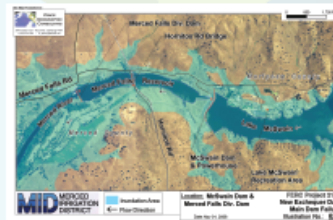


#### 4 Preparedness Activities

Description of actions to be taken in advance of an emergency, such as surveillance and monitoring at the dam, educating the community, etc.



#### 5 Inundation Maps



#### 6 Additional Information in Appendices

Revision Record, Distribution List, Forms, Log Sheets, etc.



(Government Code Section 8589.5)

# WSIP Adaptive Management Plan Elements

- *Monitoring metric(s)*
- *Monitoring locations, frequencies, & timing*
- *Metric evaluation methodology – i.e. a description how the metric will be assessed*
- *Triggers to initiate adaptive management actions*
- *Decision making process including DWR's role*
- *Funding sources*

# DWR WSIP Adaptive Management Plan Concept as Applied to Dam Safety

Adaptive Management Plan Type	Dam Emergency Action Plan
Monitoring metric(s)	Annual Dam inspections (owner and DSOD or Federal govt.); Periodic EAP exercises; 10-yr Emergency Action Plan update including inundation map updates
Monitoring locations, frequencies, & timing	Dam, upstream, and downstream; Annual dam inspections, downstream levee inspections & patrols (if applicable); Under wet & dry conditions
Metric evaluation methodology	DWR-DSOD dam and mapping criteria; Consistency with California's Fourth Climate Change Assessment or its successor
Triggers to adaptive management plan actions	Linked to existing DSOD or Federal dam safety regulatory process
Decision making process w/in DWR	DWR will review dam inspection results annually; DWR and OES will review inundation maps and EAPs every 10-years
Funding sources	Project applicant / dam owner; Dam owner fees to DWR-DSOD

# For Additional Information

*CA Dept. Water Resources*

<https://water.ca.gov/>

*Michael Mierzwa, P.E.*

*CA Dept. Water Resources, Executive Division*

[Michael.Mierzwa@water.ca.gov](mailto:Michael.Mierzwa@water.ca.gov)

*Jessica Boyt*

*CA Dept. Water Resources, Northern Region Office*

[Jessica.Boyt@water.ca.gov](mailto:Jessica.Boyt@water.ca.gov)

*Statewide Infrastructure Investigations Program*

<https://water.ca.gov/Programs/All-Programs/Surface-Storage-Investigations>