

2019 SWP Construction Project Updates

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CALIFORNIA DEPARTMENT OF
WATER RESOURCES

Projects to be Discussed

- Thermalito Restoration Project
- SWP Fire Modernization Project
- California Aqueduct Canal Liner and Embankment Repair Project
- SWP Pipeline Condition Assessment Project
- Gianelli Pump-Turbine, Generator, and Valve Refurbishment Project
- Chrisman Pumping Plant Apron Repair Project
- Tehachapi Crossing Inspection and Repair Project
- Pyramid Emergency and Concrete Spillways Investigation
- Cedar Springs Dam Spillway Under Drain Repairs and Access Road Improvements

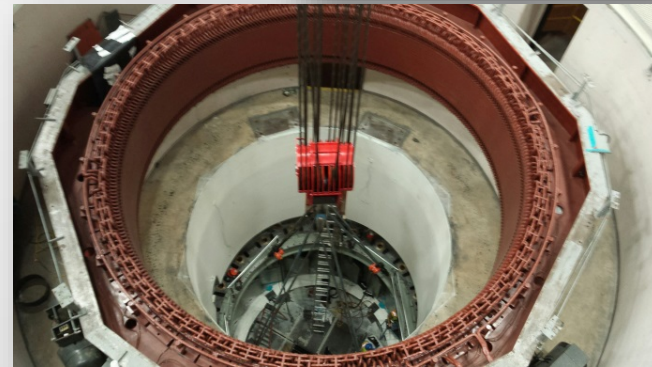


THERMALITO RESTORATION PROJECT

Thermalito Pumping-Generating Plant is a 115 MW hydro plant located in Oroville, CA. On Thanksgiving Day 2012, a fire occurred in the plant rendering it inoperable. Clean-up occurred during the span of 2013-2014, with Restoration beginning in 2015.

Project Scope:

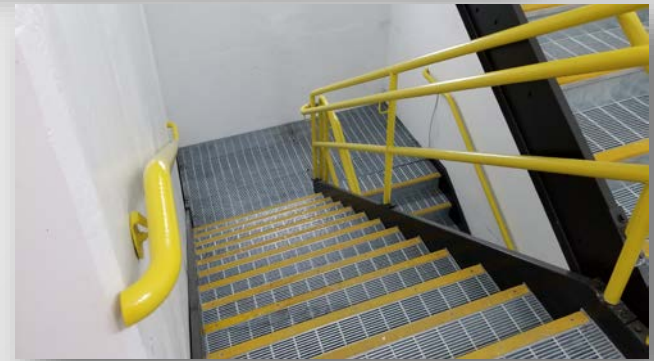
- Replace Plant Electrical Systems
- Mechanical Refurbishment – All units
- Power Transformer Refurbishment
- Roof Replacement
- Fire and Life Safety Modernization



THERMALITO RESTORATION PROJECT

Current Status:

- Roof Replacement – Complete
- Power Transformer Refurbishment – Complete
- Unit Mechanical Refurbishment – Complete
- Project is in Startup and Commissioning Phase



SWP FIRE & LIFE SAFETY MODERNIZATION

Program implemented in response to the Thanksgiving Day fire at Thermalito Pump-Generating Plant

Project Scope:

- Fire detection and alarms
- Fire suppression systems
- Protected egress routes
- HVAC modifications
- New domestic and water lines



SWP FIRE & LIFE SAFETY MODERNIZATION

Project Status:

Oroville Field Division

- Currently testing & commissioning
- Completion estimated December 2019

San Luis Field Division

- Design started January 2018 and currently under review by Office of the State Fire Marshal
- Construction start estimated May 2020

San Joaquin Field Division

- Project initiated August 2019
- Currently in 10% Design Review
- Construction start January 2022



California Aqueduct Canal Liner and Embankment Repairs

Governor Edmund G. Brown
California Aqueduct is approximately
700 miles in length and conveys and
stores water for 27 Million in
California

Repair sites were identified through
O&M's Condition Assessment
Program



California Aqueduct Canal Liner and Embankment Repairs

Project Scope:

- 30 Sites between 2016 and 2019
- Multiple panel replacement and repair methodologies
- Repairs scheduled based on operational constraints
- Project completed in March 2019



SWP Pipeline Condition Assessment

O&M investing in new technologies for performing Pipeline Condition Assessments that do not require dewatering

- SmartBall Technologies for Leak Detection
- PipeDiver Technologies for detecting broken prestressed wires in a Prestressed Concrete Cylinder Pipe



SWP Pipeline Condition Assessment

Project Scope:

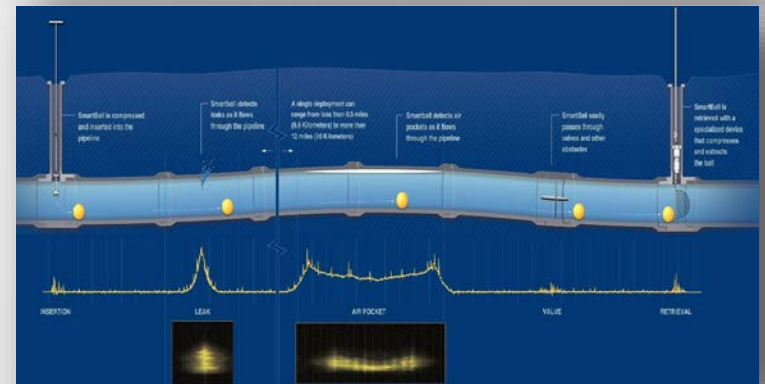
SmartBall

- South Bay Aqueduct Pipeline System
- North Bay Aqueduct Pipeline System
- Santa Ana Pipeline
- All leaks were validated and repaired or planned

PipeDiver

- Santa Ana Pipeline
 - Increase in wire breaks next steps to perform Structural Analysis on entire system

Inspections are complete



Gianelli Pump-Turbine, Generator, & Valve Refurbishment

The William R. Gianelli Pumping-Generating Plant is a joint use facility shared with the USBR and the CVP. It is used to pump up to 11,000 cfs of water from the California Aqueduct into the San Luis Reservoir for storage, and to generate electricity when water from San Luis is released back into the aqueduct.



Gianelli Pump-Turbine, Generator, & Valve Refurbishment

Project Scope:

The pump-turbine units have been repeatedly repaired since their installation in the 1960's. This is the first major refurbishment of the units and will ensure 50 additional years of service.



Chrisman Pumping Plant Apron Repair

The Ira J Chrisman Wind Gap Pumping Plant is located at the base of the Tehachapi mountains and pumps water, through four large diameter and above ground discharge lines, over a hill before the aqueduct returns to a gravity canal.

In November 2018, damage to the concrete apron under the discharge lines was observed.



Chrisman Pumping Plant Apron Repair



Project Scope:

- Remove and replace existing broken concrete panels
- Place reinforcing steel and backfill

Work Completed March 2019

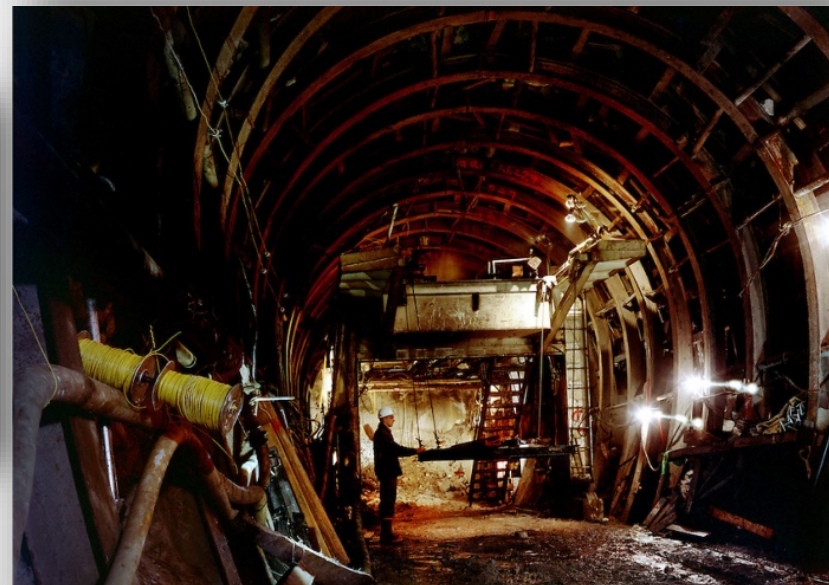
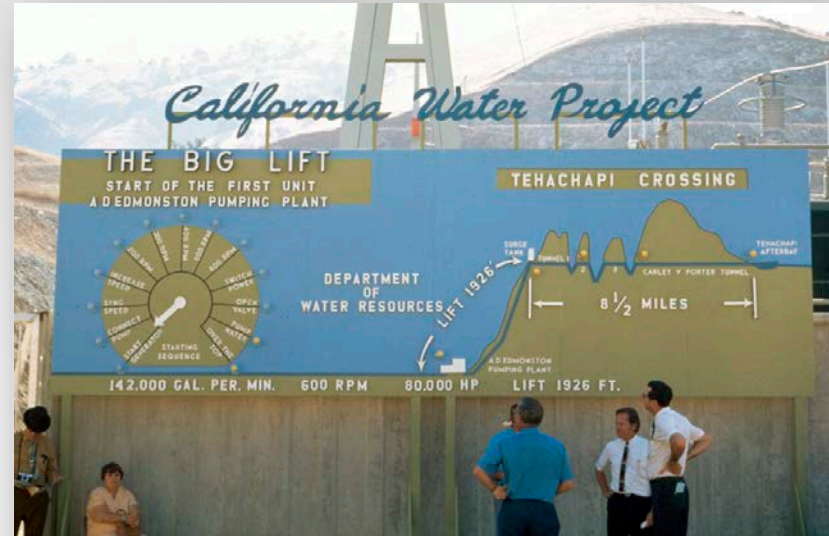


Tehachapi Crossing Inspection and Repair

Vital SWP conveyance artery through Tehachapi Mountains consisting of four concrete tunnels and a steel siphon from Edmonston Pumping Plant to Check 41

- Over 7 miles with 5,300 cfs capacity

This is the **first time the tunnels and siphon have been inspected since put into operation**, triggering a full comprehensive inspection for January 2019



Tehachapi Crossing Inspection and Repair



Project Scope:

- Surveyed and 3D Scanned Tunnels
- Visual Structural Inspection and Non-Destructive Testing
- Emergency concrete repair triggered by damage observed in Carley V Porter Tunnel

Project Complete



CALIFORNIA DEPARTMENT OF
WATER RESOURCES

Pyramid Dam

Gated and Emergency Spillway Investigation

Pyramid Dam and Lake are located in Los Angeles County near Castaic, California and provide water storage for the greater LA area

This project is Phase II of the Spillway Inspection and Condition Assessment effort, and follows 2018 Phase I investigation.



Pyramid Dam

Gated and Emergency Spillway Investigation



Emergency Spillway Project Scope:

- Subsurface geophysics (depth of weathering) – data collection
 - Completed in July 2019
- Rock coring – 33% complete
- Geologic mapping – 90% complete
- Laboratory testing of rock core samples for geotechnical properties
 - Start November 2019



Pyramid Dam

Gated and Emergency Spillway Investigation

Gated Spillway Project Scope:

- Concrete coring – 92% complete
 - Slab thickness - 25 to 76 inches (> design thickness of 18 inches)
 - Foundation-slab interface generally good
- Connectivity testing and instrument installation – Started October 2019
- Outfall drain cleaning and re-inspection – Started October 2019



Cedar Springs Dam Spillway Under Drain Repairs and Access Road Improvements

Cedar Springs Dam on Silverwood Lake, has an uncontrolled (ungated) spillway. The dam stores 75,000 AF of water on the SWP's East Branch, overlooking San Bernardino. This project is an outcome of the Phase I Spillway Inspection and Condition Assessment effort.



Cedar Springs Dam Spillway Under Drain Repairs and Access Road Improvements

Project Scope:

- Excavation of original Backfill and replace Longitudinal Drain
- Inspection and Cleaning of Underdrains
- New Construction of access roads and access to the spillway for long term monitoring and accessibility

