

# 2021 SWP Construction Project Updates

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CALIFORNIA DEPARTMENT OF  
WATER RESOURCES

# Projects to be Discussed

- SWP Fire and Life Safety Modernization
- California Aqueduct Canal Liner and Embankment Repairs
- South Bay Aqueduct Reliability Improvement Program Outage
- California Aqueduct Radial Gate Maintenance and Repairs
- Bethany Dams Restoration and Rodent Burrow Prevention
- Castaic Dam Outlet Tower Seismic Retrofit
- Oroville Dam River Valve Outlet System Rehabilitation
- Gianelli Pumping – Generating Plant Unit Refurbishment
- Dos Amigos Pumping Plant Unit Refurbishment and AVR Replacement
- SWP Control, Protection, and Regulatory Compliance Asset Replacement
- Emergency Drought Barrier – West False River
- SB 626 – New SWP Construction Delivery Authorization



# SWP Fire & Life Safety Modernization

Program implemented in response to the 2012 Thanksgiving Day fire at Thermalito (Robie) Pump-Generating Plant

## Project Scope:

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



# SWP Fire & Life Safety Modernization

## Project Status:

### Oroville Field Division

- Thermalito - completed.
- Hyatt - Final Office of the State Fire Marshal (OSFM) inspection December 2021

### San Luis Field Division

- OSFM approved 15 of 19 design packages. Approval of remaining four, November 2021
- Fire code updates required significant design changes
- Construction start estimated May 2022

### San Joaquin Field Division

- Full Design starting December 2021
- Construction start November 2023



# California Aqueduct Canal Liner and Embankment Repairs

Governor Edmund G. Brown  
California Aqueduct is approximately  
700 miles in length with over 400  
miles of canal

Repair sites were identified through  
SWP Condition Assessment Teams  
and were prioritized based upon  
risk.



# California Aqueduct Canal Liner and Embankment Repairs (cont.)

## Project Scope:

- 28 Sites completed 2021
- 60 to 80 sites planned 2022
- Multiple panel replacement and repair methodologies
- Repairs scheduled based on operational constraints
- Project planned completion 2025



# California Aqueduct Canal Liner and Embankment Repairs (cont.)

## Related work:

- MP 54.95 Emergency Repair August to October 2021
- Canal Liner Raise and Instrumentation-MP 173-213 which is part of the CASP mitigation portfolio of projects.



# South Bay Aqueduct Reliability Improvement Program Outage

Improvement projects to maintain and improve the reliability of water delivery via the South Bay Aqueduct.

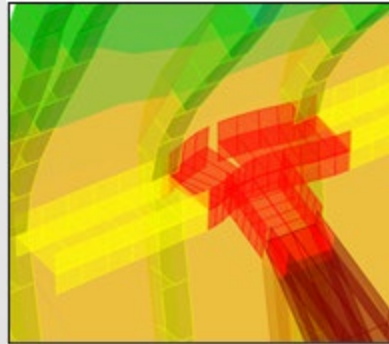
DWR performed inspection and preventative maintenance and designed repairs along the SBA pipelines and terminal tank to improve reliability.





# California Aqueduct Radial Gate Maintenance and Repairs

Ongoing improvements to condition assessment, maintenance, refurbishment and replacements to the radial gates along the CAAQ.



# Bethany Dams Restoration and Rodent Burrow Prevention

## Project Scope:

- Ensure dam safety and address Director's Safety Review Board recommendation by refacing dam with wire mesh and armoring with rip rap.
- Contractor has accomplished the majority of construction in 2021, specifically the armoring.
- Other small components of the project will continue into 2022.



# Castaic Dam Outlet Tower Seismic Retrofit

## Project Scope:

- Retrofit of tower piers with carbon-fiber wrapping and bridge hinge modifications
- This project represents one of the Department's first design and construction projects under the Castaic Dam Modernization Program.
- To date, the contractor has met or beat the project schedule.
- Reservoir drawdown coordinated with local stakeholders.



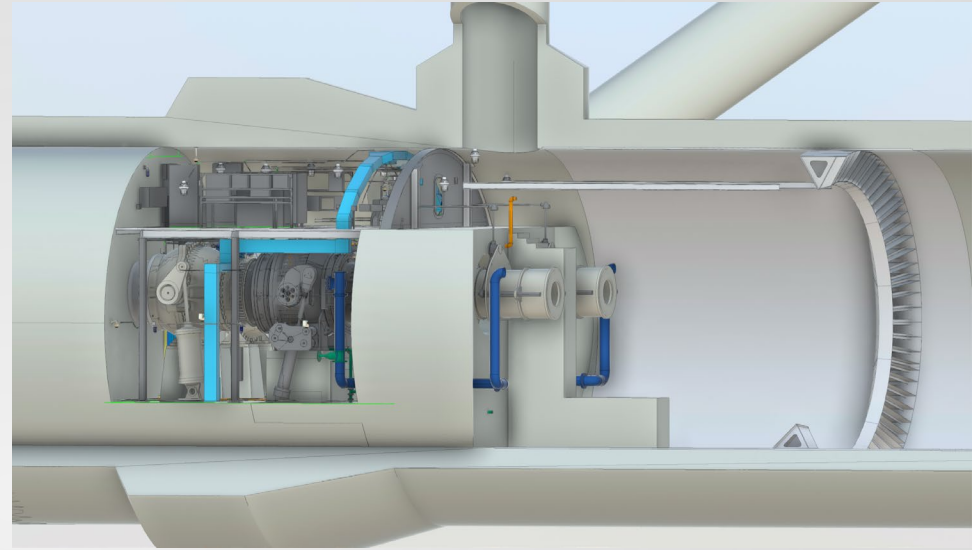
# Oroville Dam River Valve Outlet System Rehabilitation

## Project Scope:

- Procure two 72" Spherical Valves
- Install new spherical valves in a 12-month construction schedule.
- To include demolition & reconstruction of thrust block, pressure relief wall, and existing hydraulic & electrical equipment.
- Will include new hydraulic system, electrical system, ventilation system & seat water system.

## Timeline:

- Project is a multi-year planning effort requiring DSOD & FERC approval
- 100% Design complete by 11/17/2021
- Advertise & award contract by 6/15/2022\*
- \* Construction start dependent on favorable water year



# Gianelli Pumping-Generating Plant (PGP) Unit Refurbishment

## Project Scope:

- Redesigning, replacing, and refurbishing rotating and embedded components to Original Equipment Manufacturer (OEM) Design
- Components are at the end of their service life
- Completed six out of eight unit refurbishments to date

## Equipment:

- Pump-turbine embedded components, head cover, and impeller refurbished to OEM Design
- Install new packing box and equalizing lines
- Discharge valve refurbishment (156" butterfly valve)
- Stator cores unstack/restack with new laminations to address issues with the core clamping system
- Stator winding replacement
- Rotor field poles redesign and refurbishment

## Timeline:

- Project is a multi-year effort to complete the eight Units at Gianelli PGP. Scheduled to complete in 2024



# Dos Amigos Pumping Plant Unit Refurbishment and AVR Replacement

## Project Scope:

- Redesigning, replacing, and refurbishing rotating and embedded components to Original Equipment Manufacturer (OEM) Design
- Components are at the end of their service life

## Equipment:

- Refurbish Blade Trolley Cart, Impeller Stand, & other specialized maintenance equipment
- Deriaz variable pitch pump unit refurbishment
- Rotor field poles redesign and refurbishment
- Automatic Voltage Regulators (AVRs) replacement
- Completed Stator Platform for maintenance access

## Timeline:

Project is a multi-year effort to complete the six Units at Dos Amigos Pumping Plant, approximately one unit every two years



# SWP Control, Protection, and Regulatory Compliance Asset Replacement

## Project Scopes:

- Replacing end of life electrical protection and control equipment to keep compliant with increasing regulatory requirements
- Equipment has a life cycle of 15-20 years

## Equipment:

- Automatic Voltage Regulators (AVRs) – maintains unit voltage within specified limits
- Protective Relays – Protects electrical equipment from faults or system disturbances that could severely damage equipment
- Programmable Logic Controllers (PLCs) – interfaces equipment and instrumentation for local and remote monitoring & control for facilities

## Timeline:

- Projects are independent of one another but are multi-year efforts to complete the entirety of SWP facilities



# Emergency Drought Barrier, West False River

## Background/Need:

- Extreme drought conditions
- Governor declares drought emergency
- The WFR barrier mitigates negative impacts of drought emergency and slows salinity intrusion with the release of less fresh water

## Timeline:

- Decision to install barrier made on May 5, 2021
- Construct barrier June 3 to June 23, 2021
- Construct notch January 2022
- Refill notch April 2022
- Fully remove barrier by November 30, 2022

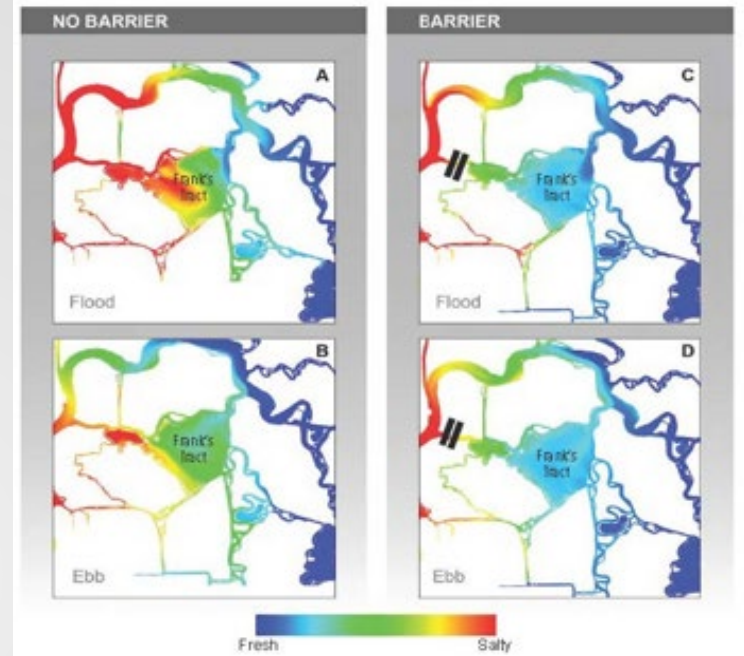


Figure 1-1  
Conceptual Illustration of Salinity Near Franks Tract (Center) On Flood and Ebb Tide for No Barrier and a West False River Barrier, Based on the Bay-Delta SCHISM Model for a Low Net Delta Outflow Index Forecast





# SB 626 – New SWP Construction Delivery Authorization

## Background/Need:

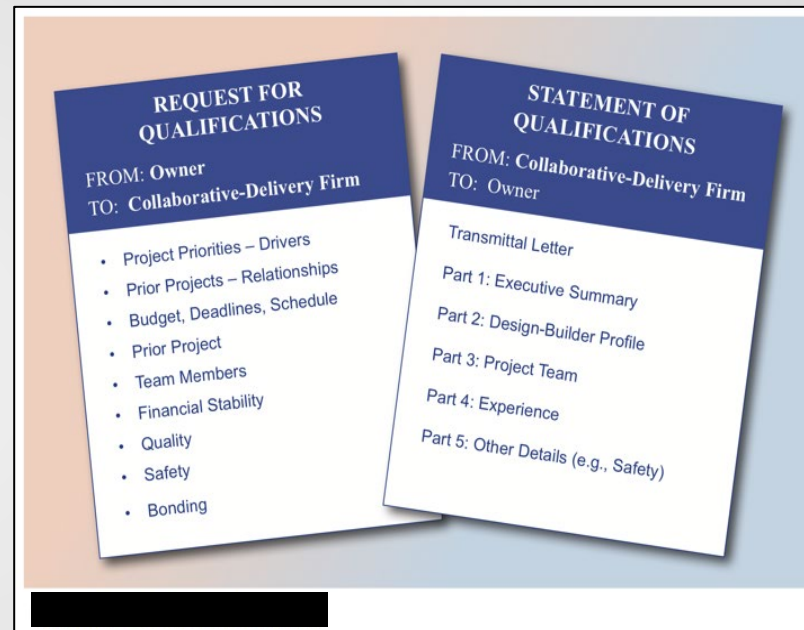
- Sponsored by Senator Dodd; signed by Governor on September 23, 2021
- 2 Additional Public Works Construction Procurement Methods
  - Construction Management/General Contractor (CM/GC)
  - Design – Build (DB)
- Effective: January 1, 2022
- Authorization ends: January 1, 2033
- Limited to projects necessary for the construction, maintenance, or operation of elements of State Water Facilities
- Not authorized for Delta Conveyance
- Limited to 7 projects under each procurement method



# SB 626 – New SWP Construction Delivery Authorization (con't.)

## Benefits

- Contractors selected on qualifications and not solely on cost
  - Contribution of contractor innovation
- Construction cost containment
  - Contractor becomes partner in development of project
  - Risks are reduced or transferred to contractor
- Reduction in project schedule
  - Construction phase can commence prior to completion of design



# QUESTIONS?

