

### Engineering, Operations, & Technology Committee

Update on Jensen Reliability Projects

Item 7c April 10, 2023

### Outline



## Jensen Reliability Upgrades

### Operations

- Recent operations under extreme conditions
- Long-term system reliability improvements
- Key Projects
  - Bromate Control Upgrades
  - Electrical Upgrades Stage 3
  - Solids Mechanical Dewatering
- Schedule and Next Steps

### Jensen Water Treatment Plant



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### **Jensen Plant Overview**



### **Recent Operations under Extreme Conditions**

#### Saddle Ridge Fire – Oct. 2019

## 2023-01-18 Jensen ENT PLANT . I MAN

#### Wide Flow Range

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Castaic Lake – Jan. 2023

### System Reliability Improvement 1 – Rehabilitate Aging Infrastructure and Manage Chemical Costs

- Existing caustic tank farm
  - Original from 1972
  - Previous containment retrofit does not meet current Metropolitan standards



Existing Jensen Caustic Tank Farm

- Caustic soda price increasing
  - Project cost reduced by integrating ammonia-chlorine process for bromate control

### **Enhanced Bromate Control Process**



\*Ammonia-chlorine bromate control process has been effectively implemented at the Mills and Weymouth plants

Ammonia & Chlorine\*

## System Reliability Improvement 2 – Enhance Redundancy

- Additional power supply needed for key treatment processes
  - Chlorine
  - Coagulants
  - Flocculators
  - Finished Water Reservoirs
  - Administrative Building
- Standby 480V generators can power equipment during emergency
- Double-ending power completed at Diemer, Skinner, and Weymouth plants; underway at Mills plant



Original Plant Equipment from 1972

# System Reliability Improvement 3 – Increase Solids Handling Capacity

- Existing agreement with LADWP
  - Use of four lagoons at LAAFP
  - Return two lagoons in Oct. 2024
  - Construct two new lagoons
- Limited solids handling capacity
  - Four lagoons meet design criteria for 250 MGD plant capacity
  - Ability to operate at higher flows with favorable water quality



### **Upcoming Reliability Projects**

Mechanical Dewatering Facility

Bromate Control Upgrades

> Electrical System Reliability Upgrades Stage 3



### Bromate Control Upgrades Long-term process improvements

- Ammonia and chlorine added upstream of ozone contactor
  - Effectively controls bromate
  - Reduces chemical costs
- New caustic soda tank farm adjacent to plant outlet
- Removal of decommissioned
  tank farm



Bromate control ejector building at Weymouth

\*\$22M estimated construction contract

### Electrical Upgrades Multi-Stage Approach

- Stage 1: Enhanced medium-voltage switchgear & provided electrical infrastructure for the Solar & BESS Facilities (completed in 2018)
- Stage 2: Upgraded Uninterruptible Power Supply (UPS) units and associated Motor Control Centers (MCCs) supporting critical process equipment on western portion of the plant (completed in 2022)



New Unit Substation

Existing Cables in Vaults

New Cables & Cable Trays

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### Electrical Upgrades – Stage 3



### Electrical Upgrades – Stage 3 Multi-Stage Approach

- Stage 3 Scope
  - Upgrades to six existing UPCs
  - Addition of five new double-ended substations & associated MCCs
  - Improvements to backup capability of critical process equipment

\*\$50M estimated construction contract



New UPC – Electrical Upgrades Stage 2

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## Solids Mechanical Dewatering – Increased Capacity and Improved Reliability

- Long-term plan for Jensen solids handling includes both lagoons and mechanical dewatering
  - Inadequate space for lagoons to support 500 MGD and above
- Most cost-effective solution
  - Use of two existing lagoons
  - Addition of mechanical dewatering

### \*\$40M estimated construction contract



Mechanical Dewatering at Weymouth

### Amendment of Use Agreement with LADWP (in Progress)



### Solids Mechanical Dewatering - Proposed Location



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### **Project Schedule**



### Next Steps

- Proceed with Jensen reliability projects
- Upcoming May 2023 Board Action for solids handling facilities



2022 E&O Field Inspection Trip at Jensen

- Authorize consultant agreement for preliminary design of solids mechanical dewatering
- Amend lagoon Use Agreement with LADWP

