



Engineering, Operations, & Technology Committee

Lake Skinner Outlet Tower Seismic Evaluation and Valves Replacement

Item 7-3

April 10, 2023

Lake Skinner Outlet Tower

Seismic
Evaluation and
Valve
Replacement

Current Action

- Authorize an agreement with Stantec Consulting Services, Inc. in an amount not to exceed \$900,000 for a detailed seismic analysis of the Lake Skinner outlet tower
- Award a \$1,174,475 procurement contract to B&K Valves and Equipment, Inc. for the replacement of two valves at the Lake Skinner outlet tower

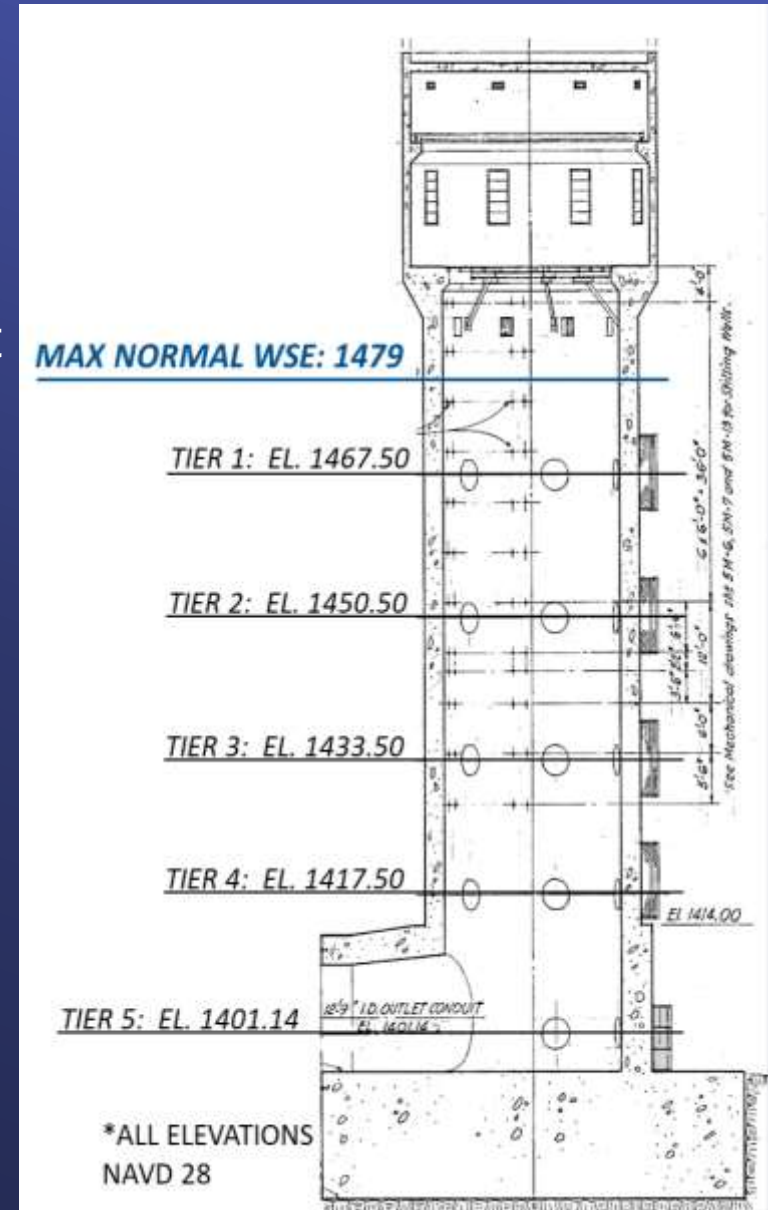
Distribution System



Lake Skinner Outlet Tower Seismic Evaluation and Valves Replacement

1. Background

- Lake Skinner
 - Capacity 43,800 AF
 - Receives Colorado River Aqueduct (CRA) and State Water Project (SWP) supplies
 - Supplies Skinner Plant and untreated water to San Diego County Water Authority (SDCWA)
- Outlet Tower
 - Constructed in 1973
 - Reinforced Concrete
 - Outlet valves:
 - 5 Tiers, 42" diameter
 - Only means of releasing water from lake



Skinner Tower Elevation

Lake Skinner Outlet Tower Seismic Evaluation

1. Previous Studies

- State-mandated spillway study
 - Minor improvements recommended
 - Submitted report to California Division of Safety of Dams (DSOD)
- Preliminary seismic analysis of outlet tower
 - In-house reconnaissance study
 - High stresses at lower tiers
 - Potential for damage from major earthquake

Lake Skinner Outlet Tower Seismic Evaluation

1. Recommendation

- Conduct detailed seismic analysis of tower
 - Better define potential impact to tower from seismic event
 - Define impact to operations if tower is damaged
 - Define potential scope of work to mitigate seismic risk

Lake Skinner Outlet Tower Seismic Evaluation

1. Alternatives Considered

- Rely on in-house staff
 - Metropolitan does not have resources and specialized software
- Selected alternative
 - Utilize consultant for specialized detailed seismic analysis

Lake Skinner
Outlet Tower
Seismic
Evaluation

1. Stantec Consulting Services, Inc. – Agreement

- Selected based on experience with similar structures via RFQ No. 1215
- Scope of Work
 - Development of structural model
 - Advanced seismic analysis of tower
 - Development of conceptual risk mitigation options and cost estimates
- Not to exceed amount: \$900,000

Lake Skinner Outlet Tower Seismic Evaluation

1. Metropolitan Scope of Work

- Consultant review and technical oversight
- Project management and project controls



Lake Skinner (outlet tower lower right in photo)

1. Allocation of Funds

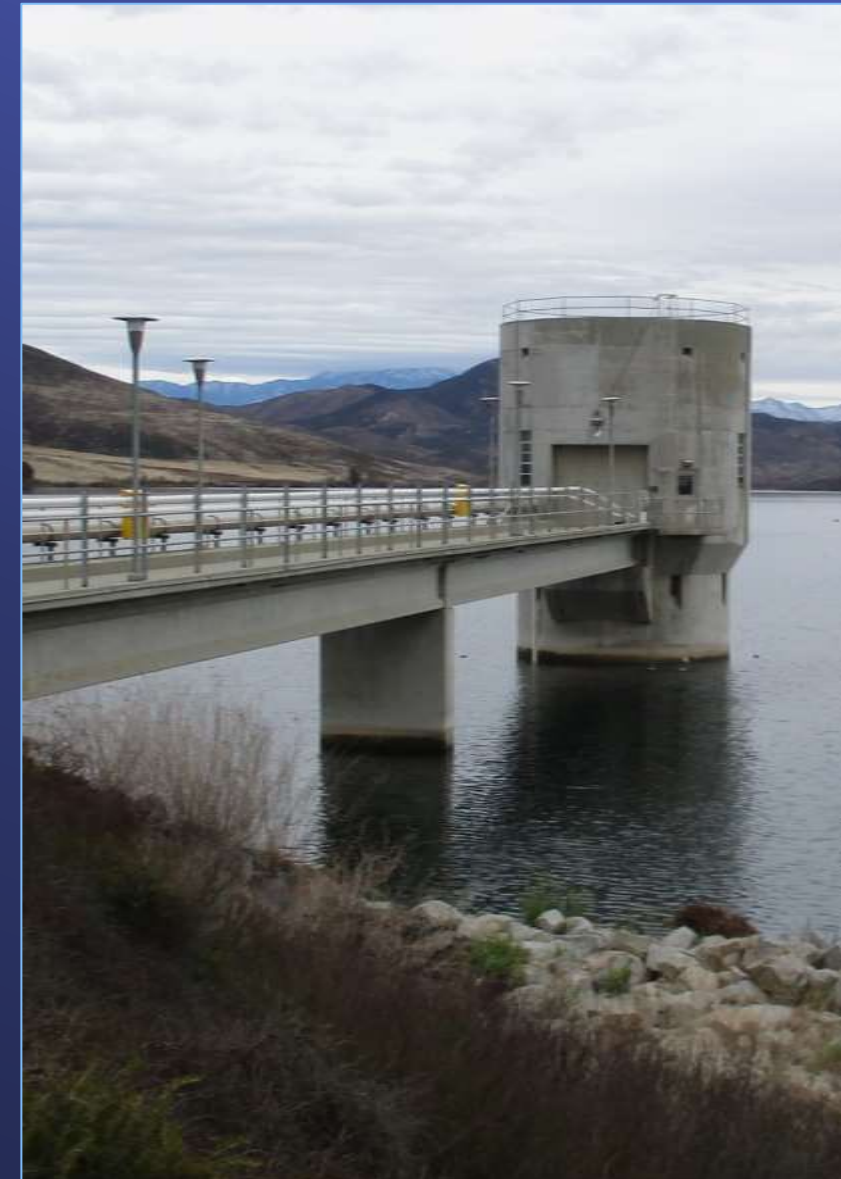
Lake Skinner Outlet Tower Seismic Analysis

Metropolitan Labor	
Studies & Investigations	\$ 180,000
Owners Costs (Proj. Mgmt., Contract Admin., Envir. Support)	89,000
Professional/Technical Services	
Stantec Consulting Services, Inc.	900,000
Independent Reviewer	60,000
Remaining Budget	61,000
Total	\$ 1,290,000

Lake Skinner Outlet Tower Valve Replacement

2. Background

- Tier 5 valves refurbishment
 - Low level outlet
- Hairline fractures found and repaired actuator of two valves
- Working valves necessary
 - For emergency dewatering
 - To comply with DSOD requirements
 - Replacement of two valves is recommended



Lake Skinner Outlet Tower

Lake Skinner Outlet Tower Valve Replacement

2. Alternatives Considered

- Combine with potential seismic risk mitigation work
 - Defers valve replacement
- Selected alternative – purchase and install valves now
 - Maintains compliance with DSOD dewatering requirements

Lake Skinner Outlet Tower Valve Replacement

2. Scope of Work

- Contract
 - Furnish two butterfly valves and actuators
- Metropolitan
 - Fabrication Support
 - Submittal review
 - Inspection and testing
 - Design
 - Installation drawings
 - Procurement/construction technical support
 - Force Construction
 - Removal of existing valves and actuators
 - Installation of new valves and actuators
 - Project management and project controls

2. Bid Results

Specifications No. RFB-KK-411322

Bids Received	October 29, 2022
No. of Bidders	3
Lowest Responsible Bidder	B&K Valves and Equipment, Inc.
Low Bid	\$1,174,475
Range of Other Bids	\$484,358* to \$1,875,893
Bid Survey Estimate	\$1,000,000 to \$1,250,000

*Low bid of \$484,358 was non-responsive

NOTE: As a procurement contract, there are no subcontracting opportunities

2. Allocation of Funds

Lake Skinner Outlet Tower Valve Replacement

Metropolitan Labor

Studies & Investigations	\$ 40,000
Final Design	168,000
Owner Costs (Proj. Mgmt., Contract Admin., Envir. Support)	98,000
Construction Inspection & Support	126,000
Force Construction	271,000
Submittals Review, Tech. Support, Record Dwgs.	59,000

Contracts

B&K Valves and Equipment, Inc.	1,174,475
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Remaining Budget	233,525
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Total	\$ 2,170,000
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Project Schedules



Board Options

- Option #1
 - a. Authorize an agreement with Stantec Consulting Services, Inc., for a not-to-exceed amount of \$900,000, for detailed seismic analysis of the Lake Skinner outlet tower.
 - b. Award a \$1,174,475 procurement contract to B&K Valves and Equipment, Inc. for the replacement of two valves at the Lake Skinner outlet tower.
- Option #2
 - Do not proceed with the projects at this time.

Staff Recommendation

- Option #1

