Advanced Water Treatment Demonstration Plant

Engineering & Operations Committee
Item 8-3
July 10, 2017
Program Timeline (2016-2019)

2016
- Demo Plant Design
- Feasibility Study
- Regulatory Coordination

2017
- Construction
- Facilities Planning & Eng.
- Institutional Arrangements

2018
- Operations
- CEQA
- Conceptual/Prelim Design

2019
- Public Outreach

Legend:
- Board Action
- Feasibility Phase
- Planning Phase
- Design Phase
Current Action

- Appropriate $2,000,000
- Award $13,856,000 contract to Kiewit Infrastructure West Co. to construct an advanced water treatment (AWT) demonstration plant
- Authorize increase of $300,000 to agreement with Stantec Consulting, Inc., for a new not-to-exceed total of $1,500,000
Background

November 2015 – Board action
- Appropriated $15,000,000
- Authorized recycled water demonstration project
- Authorized agreement with LA County Sanitation District No. 2 for development of potential regional recycled water program

March 2016 – Board action
- Authorized agreement with MWH Americas, Inc. (now Stantec Consulting, Inc.) to design the AWT demonstration plant
Location of AWT Demonstration Plant
AWT Demonstration Plant Objectives

- Test effectiveness of various advanced water treatment processes
- Confirm treatment costs
- Assist with regulatory approval of the proposed advanced treatment process
- Provide basis for technical recommendations for design, operation, & optimization of full-scale regional recycled water program
- Provide vehicle for public outreach & acceptance
AWT Process Train

Non-Nitrified Secondary Effluent from JWPCP

Aerobic and Anoxic Tanks for MBR

Membrane System for MBR

Reverse Osmosis

UV/AOP

Return to JWPCP

Waste Activated Sludge to JWPCP

RO Brine to JWPCP
Need for Demonstration Testing

- Unique nature of source water
- Process optimization
  - Potential to eliminate one treatment process
  - Reduce capital/O&M costs of full-scale facility
  - Address scale-up issues
- Regulatory approval of proposed process train
- Public acceptance
<table>
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<th>Bid Results</th>
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<td>Specifications No. 1879</td>
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| Bids received      | May 10, 2017         |
| No. of bidders     | 5                    |
| Low bidder         | Kiewit Infrastructure West Co. |
| Low bid            | $13,856,000          |
| Range of other bids| $15.3M to $16.6M     |
| Engineer’s estimate| $11.8M               |
| SBE participation* | 26.7%                |

* SBE participation level set at 5%
Difference Between Low Bid and Engineer’s Estimate

- Low bid is $2M over allocated budget
- Possible reasons for difference
  - Expectation of competitive eqpt. prices not realized in bids
  - High demand of subcontractors in specialized areas
  - Complexity of instrumentation & controls to allow remote monitoring
  - Limited economy of scale on eqpt.
  - Assessment of risk relative to magnitude of contract
  - Limited opportunity for contractor to propose alternates
Scope of Contract

- Site work & utility connections
- Membrane bioreactors
  - Biological treatment basins
  - Membrane modules
- Reverse osmosis system
- Advanced oxidation system
- Chemical storage & handling facilities
- Electrical building
- System start-up & commissioning
Construction Support Activities

- Metropolitan
  - Construction management
  - Field inspection & survey
  - Program management

- Stantec Consulting, Inc.
  - Submittal reviews
  - Technical input & responses to RFIs

- LA County Sanitation Districts
  - Construction of utility extension to AWT demonstration plant
  - On-site assistance as needed
Performed design of AWT demonstration plant
Increase of $300,000 for technical support during construction
New not-to-exceed total - $1,500,000
10% SBE/DVBE participation

Subconsultants
- Trussell Tech, Inc.
- Carollo Engineers, Inc.
- DDB Engineering, Inc.
- Katz & Associates
- William R. Mills & Associates
Requested Funds

- Funds previously appropriated: $15,000,000
- Current funds requested: $2,000,000
- Total amount to complete AWT demonstration plant: $17,000,000

- $1 M in grant funds pending from SWRCB’s Water Recycling Funding Program
- Staff will continue to pursue grant funding
## Schedule

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<th>Project</th>
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- **Design**
- **Construction**
- **Testing/Studies**
- **Board Action**
- **Completion of Construction**
Board Options

Option #1

- Adopt CEQA determination that the proposed action has been previously addressed in the 2015 NOE, & that no further envir. analysis or documentation is required
- Appropriate $2,000,000
- Award $13,856,000 contract to Kiewit Infrastructure West Co. to construct an AWT demonstration plant
- Authorize increase of $300,000 to agreement with Stantec Consulting, Inc., for new NTE total of $1,500,000

Option #2

- Do not proceed with the AWT demonstration plant at this time
Staff Recommendation

Option #1