



- Board of Directors
Engineering and Operations Committee

7/9/2019 Board Meeting

8-3

Subject

Award \$14,784,000 contract to Helix Electric, Inc. for Stage 2 Electrical Upgrades at the Joseph Jensen Water Treatment Plant; the proposed action is in furtherance of a project that was previously determined to be exempt from CEQA

Executive Summary

This action awards a construction contract for electrical upgrades at the Joseph Jensen Water Treatment Plant. The upgrades will replace aging equipment and provide needed redundancy for critical components of the plant's electrical system.

Timing and Urgency

The electrical equipment at the Jensen plant has deteriorated through long-term use, is difficult to maintain and repair, and needs improved backup capability. Failure of a single electrical device could impact the entire treatment process. Upgrades to the existing electrical system at the Jensen plant have been planned to proceed in three stages. The initial stage of upgrades was completed in 2018, and the Stage 2 upgrades need to proceed at this time to further improve plant reliability and enhance worker safety.

This project has been reviewed with Metropolitan's Capital Investment Plan (CIP) prioritization criteria and is included in the Treatment Plant Reliability Program. Funds for the work to be performed pursuant to this contract during the biennium are available within the CIP Appropriation for Fiscal Years 2018/19 and 2019/20. Funds required for work performed after fiscal year 2019/20 will be appropriated after the adoption of the next biennial budget.

Details

Background

The Jensen plant was placed into service in 1972 with an initial capacity of 400 million gallons per day (mgd). The plant was expanded to its current capacity of 750 mgd in the early 1990s. The Jensen plant treats water from the West Branch of the State Water Project and delivers it to Metropolitan's Central Pool and to an exclusive service area on the west side of the distribution system. The facility is located in Granada Hills.

Principal components of the Jensen plant's electrical system date to the plant's original construction in 1972. With each major upgrade to the plant, the on-site electrical system was expanded or modified to accommodate the increased electrical loads. The modifications were made without changing the overall architecture of the electrical system or its principal components. Many critical electrical components at the plant are nearly 50 years old, and their performance has begun to deteriorate. As the equipment continues to age, its ability to operate in a safe and reliable manner diminishes. The upgrade and reconfiguration of key electrical equipment will enhance plant reliability and reduce the risk of unplanned outages.

The Jensen electrical system was initially designed as a radial system, with power running through a single path to each local unit power center (UPC) for distribution to power equipment. This practice of powering all the components of a critical system from a single electrical source does not provide backup or reliability and leaves the plant vulnerable to an unplanned outage caused by a single failure in the power system. Unplanned outages

are disruptive to plant operations and can impact the reliability of the treatment process. In July 2013, Metropolitan's Board authorized design work to upgrade the Jensen plant electrical system.

In mid-2014, a key circuit breaker in UPC-7 was found to be damaged and near failure. To mitigate the risk of a single electrical failure that could jeopardize the plant's treatment and disinfection capability, Metropolitan's Board authorized repairs to the circuit breaker and to UPC-7, which were completed in late 2014. The repairs maintain the plant's reliability until the full-scale electrical upgrades are complete.

To expedite completion of the most critical electrical upgrades while minimizing impacts to plant operations, the upgrade work has been prioritized into several stages. Stage 1 improvements enhanced the medium voltage switchgear on the western portion of the plant and provided electrical infrastructure for the Jensen Solar Power Plant. This work was completed in 2018 and the Jensen solar facility is now connected to the plant's electrical distribution system.

Stage 2 improvements will upgrade two UPCs, UPC-7 and UPC-9, and their associated motor control centers (MCCs). These two UPCs support critical process equipment such as the washwater pumps, service water pumps, washwater return pumps, filters, thickeners, sludge pumps, and ammonia facilities for Module Nos. 2 and 3. Although the plant continues to perform reliably today, the electrical equipment has deteriorated through use and needs to be replaced.

Staff is in the process of assessing the merits of reducing the maximum treatment capacity of the Jensen plant. Module No.1 of the Jensen plant would be affected by a potential future capacity reduction. Staff anticipates Module Nos. 2 and 3, which are powered by UPC-7 and UPC-9, will remain in service even under reduced capacity scenarios. As a result, staff recommends awarding a contract for the Stage 2 construction at this time. Staff will return to the Board in the future to award the Stage 3 construction contract once final design is completed in 2022.

Jensen Electrical Upgrades, Stage 2 – Construction

The scope of the Stage 2 contract includes: reconfiguration of the power feed to the chemical feed and water treatment systems and pumps so that critical equipment is powered from two different sources; replacement of existing washwater return pump motors; installation of new unit substations, MCCs, variable speed drives, transfer switches, and uninterruptable power supplies; and replacement of existing UPCs and MCCs. All of the work will be sequenced in coordination with plant operations and outage schedules.

The project's comprehensive scope and diverse work areas require that the contract work include milestones and constraints to minimize disruption to the operating treatment facilities during construction. Two full-plant shutdowns and more than 40 partial outages of UPCs, MCCs, and electrical panels are needed to switch over to the new electrical equipment. During these outages, Metropolitan staff will de-energize some electrical equipment while the contractor reconfigures the power feed to chemical feed equipment, water treatment systems, and pumps.

A total of \$25,000,000 is required to perform this work. In addition to the amount of the contract described below, other funds to be allocated include: \$2,653,000 for Metropolitan force activities to perform Supervisory Control and Data Acquisition (SCADA) system integration, equipment start-up and testing, and electrical system shutdowns and switchovers; \$500,000 for materials used for Metropolitan force activities, such as the remote terminal units for the SCADA system integration; \$2,500,000 for construction management and inspection; \$1,547,000 for submittals review, technical support during construction, responding to requests for information, and preparation of record drawings; \$739,000 for environmental compliance monitoring, hazardous materials management, contract administration, and project management; \$691,000 for Metropolitan engineering support during construction and testing; and \$1,586,000 for remaining budget.

Attachment 1 provides the Allocation of Funds. The total estimated cost to complete all three stages of the Jensen electrical upgrades, including the amount appropriated to date, funds allocated for the work described in this letter, and future construction costs, is anticipated to range from \$60 million to \$65 million. Approximately \$28.5 million has been expended on these projects to date.

Award of Construction Contract (Helix Electric, Inc.)

Specifications No. 1914 for Stage 2 electrical upgrades at the Jensen plant was advertised for bids on April 17, 2019. As shown in **Attachment 2**, five bids were received and opened on June 4, 2019. The low bid from Helix Electric, Inc. in the amount of \$14,784,000 complies with the requirements of the specifications. The other bids ranged from approximately \$15.4 million to \$20.7 million, while the engineer's estimate for this project was \$21.6 million. Staff investigated the difference between the low bid and the engineer's estimate, and this is attributed to the bidder's ability to negotiate lower electrical equipment costs. In addition, the bidder quoted lower-than-expected overhead and profit rates in light of the high number of potential bidders for this large project. For this contract, Metropolitan established a Small Business Enterprise participation level of at least 25 percent of the bid amount. Helix Electric, Inc. has committed to meet this level of participation. The subcontractors for this contract are listed in **Attachment 3**.

This action awards a \$14,784,000 contract to Helix Electric, Inc. for Stage 2 electrical upgrades at the Jensen plant.

As described above, construction management and inspection will be performed by Metropolitan staff. Engineering Services' performance metric target range for inspection of projects with construction greater than \$3 million is 9 to 12 percent. Based on historical experience with electrical upgrade projects at Metropolitan's other water treatment plants, planning and execution of plant shutdowns requires extensive interaction and close coordination between Metropolitan inspectors, operations staff, and the contractor. As two around-the-clock full-plant shutdowns and more than 40 long-duration partial shutdowns are required to complete this construction, the performance metric goal for inspection for this project is approximately 13.9 percent of the total construction cost. The total cost of construction for this project is \$18 million, which includes the amount of the contract (\$14.8 million) and Metropolitan force activities (\$3.2 million).

Summary

This action awards a \$14,784,000 contract to Helix Electric, Inc. for the Stage 2 electrical upgrades at the Jensen plant. See **Attachment 1** for the Allocation of Funds, **Attachment 2** for the Abstract of Bids, **Attachment 3** for the listing of Subcontractors for Low Bidder, and **Attachment 4** for the Location Map.

A total of \$25,000,000 is required for this work. This project has been reviewed and approved by Metropolitan's CIP Evaluation Team. Funds for the work to be performed pursuant to this contract during the current biennium are available within the CIP Appropriation for Fiscal Years 2018/19 and 2019/20 (Appropriation No. 15509). Funds required for work performed after fiscal year 2019/20 will be appropriated after the adoption of the next biennial budget.

Project Milestone

June 2022 – Completion of Jensen Stage 2 electrical upgrades

Policy

Metropolitan Water District Administrative Code Section 8121: General Authority of the General Manager to Enter Contracts

Metropolitan Water District Administrative Code Section 11104: Delegation of Responsibilities

By Minute Item 49480, dated July 9, 2013, the Board authorized final design of the first stage of electrical upgrades at the Jensen plant.

By Minute Item 49857, dated August 19, 2014, the Board authorized three rehabilitation projects at the Jensen plant.

By Minute Item 50325, dated December 8, 2015, the Board awarded the contract for Stage 1 electrical upgrades at the Jensen plant.

By Minute Item 51353, dated October 9, 2018, the Board appropriated a total of \$290 million for projects identified in the Capital Investment Plan for Fiscal Years 2018/19 and 2019/20

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

The proposed action is in furtherance of a project that was previously determined by the Board to be categorically exempt under Classes 1, 3, and 4 (Sections 15301, 15303, and 15304 of the State CEQA Guidelines) on August 14, 2014. With the current board action, there is no substantial change proposed since the original project was first approved in 2014. Hence, the previous environmental documentation, in conjunction with the project fully complies with CEQA and the State CEQA Guidelines. Accordingly, no further CEQA documentation is necessary for the Board to act with regards to the proposed action.

CEQA determination for Option #2:

None required

Board Options

Option #1

Award \$14,784,000 contract to Helix Electric, Inc. for the Stage 2 electrical upgrades at the Jensen plant.

Fiscal Impact: \$25 million in capital funds

Business Analysis: This option will enhance the reliability and operating efficiency of the Jensen plant, and will reduce the risk that a single electrical failure could lead to an unplanned outage.

Option #2

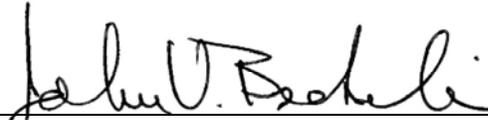
Do not award a contract for the Jensen plant electrical upgrades at this time.

Fiscal Impact: None

Business Analysis: This option would forego the opportunity to enhance Jensen plant reliability, enhance worker safety, and reduce the risk of unplanned outages.

Staff Recommendation

Option #1

	6/21/2019
John V. Bednarski Manager/Chief Engineer Engineering Services	Date
	6/27/2019
Jeffrey Lightlinger General Manager	Date

Attachment 1 – Allocation of Funds

Attachment 2 – Abstract of Bids

Attachment 3 – Subcontractors for Low Bidder

Attachment 4 – Location Map

Ref# 12668500

Allocation of Funds for Jensen Electrical Upgrades, Stage 2

	Current Board Action (July 2019)
Labor	
Studies & Investigations	\$ -
Final Design	-
Owner Costs (Program mgmt., haz. materials mgmt., permitting)	739,000 -
Support during construction & testing	691,000
Submittals Review & Record Drwgs.	1,547,000
Construction Inspection	2,500,000
Metropolitan Force Construction	2,503,000
Materials & Supplies	500,000
Incidental Expenses	150,000
Professional/Technical Services	-
Right-of-Way	-
Equipment Use	-
Contracts	
Helix Electric, Inc.	14,784,000
Remaining Budget	1,586,000
Total	\$ 25,000,000

The amount expended to date on the electrical upgrades is approximately \$28.5 million. The total estimated cost to complete the Jensen electrical upgrades, including the amount appropriated to date, funds allocated for the work described in this action, and future construction costs, is anticipated to range from \$60 million to \$65 million.

The Metropolitan Water District of Southern California

Abstract of Bids Received on June 4, 2019, at 2:00 P.M.

**Specifications No. 1914
Jensen Electrical Upgrades, Stage 2**

The work consists of redistribution of the power feed to chemical feed and water treatment systems and pumps so that critical equipment is powered from two different sources; replacement of existing washwater return pump motors; installation of new unit substations, motor control centers (MCCs), variable speed drives, transfer switches, uninterruptable power supplies; replacement of existing Unit Power Centers (UPCs) and MCCs; and sequencing work in coordination with plant operations and outage schedules.

Engineer's estimate: \$21,600,000

Bidder and Location	Total	SBE \$	SBE %	Met SBE¹
Helix Electric, Inc. San Diego, CA	\$ 14,784,000	\$ 3,794,000	25.7%	Yes
CSI Electrical Contractors, Inc. Santa Fe Springs, CA	\$ 15,400,000	-	-	-
Morrow-Meadows Corporation City of Industry, CA	\$ 18,722,200	-	-	-
Taft Electric Company Ventura, CA	\$ 19,000,000	-	-	-
Stronghold Engineering, Inc. Riverside, CA	\$ 20,717,701	-	-	-

¹ Small Business Enterprise (SBE) participation level established at 25% for this contract.

The Metropolitan Water District of Southern California

Subcontractors for Low Bidder

**Specifications No. 1914
Jensen Electrical Upgrades, Stage 2**

Low bidder: Helix Electric, Inc.

Subcontractor and Location
Karcher Environmental, Inc. Anaheim, CA
United Paving Co. Corona, CA
Technical Systems, Inc. Lynnwood, CA
Granitex Construction Co., Inc. Costa Mesa, CA

Distribution System

