

# SWEETWATER AUTHORITY

Water Quality Committee

June 16, 2025



**REVISED**

## Consideration to Authorize Procurement and Installation of a Pump for San Diego Formation Well 11

### RECOMMENDATION

Staff recommends that the Governing Board award a contract for procurement and installation of a pump for San Diego Formation Well 11 to Layne Christensen Company of Redlands, CA for \$152,069.05 and allocate a ten percent contingency fund in the amount of \$15,206.91.

### OVERVIEW

The Richard A. Reynolds Desalination Facility (Desal) treats brackish groundwater from the San Diego Formation (SDF). Brackish groundwater is pumped to the surface by vertical turbine pumps in ten SDF Wells and brought to the treatment facility by a raw water conveyance system (Attachment 1). Two wells are located at the Desal (#1, #6 with #2 recently decommissioned), three are located along the Sweetwater River (#3, #4, and #5), and the remainder of the wells (#7, #8, #9, #10, and #11) are located in northwestern Chula Vista. The range of production from the individual wells varies from approximately 600 gallons per minute (gpm) up to 1,400 gpm. The facility does not treat water from all 10 wells concurrently, rather, an operational matrix of wells is selected for production based on system demands and water quality. Routine inspections, maintenance, and water quality sampling are performed at all wells on a regular basis. The SDF is a deep aquifer, most of a well pump is submerged below the surface (approximately 300 feet), making complete inspection of the well on a regular basis impractical.

### SDF 11 Mechanical Failure

Between June and July 2024, elevated copper concentrations were detected in the facility's brine discharge. While SDF 11 was suspected to be a contributing factor, no operational anomalies were observed at the time.

On December 10, 2024, SDF 11 failed completely. Post-disassembly inspection at Brax Company revealed extensive damage to the pump, including the complete loss of bronze wear rings, which are believed to have contributed to the elevated copper levels. No abnormal vibration data was observed prior to the failure, even with pre-failure testing. Further analysis indicated that SDF 11 had been operating below its designated pump curve, particularly when SDF 9 was concurrently in service. This condition likely caused internal cavitation (micro explosions occurring within the pump as tiny bubbles form and quickly collapse), leading to premature wear and failure.

To prevent future issues, several protective measures are being implemented to SDF Wells, including:

- Low and high flow alarms set within SCADA conservatively at the pump curve boundaries to alert operators of cavitation (complete).
- Automatic low and high flow condition shutdown alarms to be programmed by the Authority's On-call SCADA Integrator by the end of the current fiscal year (pending).
- Install pump control valve pilot controls on select wells to allow the ability to control production flow as necessary to ensure wells stay within the pump curve (complete).

### **SDF 11 Request for Quote**

Based on inspection and findings upon the pump removal, the following scope of work was defined for the project.

#### Scope of Work

- Mobilization and Demobilization
- Procure a new Goulds 13CHC or SIMFLOW 11H stainless steel vertical turbine bowl assembly
- Cut and re-thread column pipe and shafting to match the new column lengths
- Replace 17 couplings with phenolic lining
- Recondition and phenolic line 15 couplings
- Replace the head nipple in the discharge head
- Replace 32 shaft retainers and inserts
- Recondition the mechanical seal and seal gland
- Install the pump equipment.

The contract documents were prepared in-house by staff. On May 9, 2025, a request for quotes (RFQ) was issued on Planet Bids for the Procurement and Installation of a Pump for San Diego Formation Well # 11 (Attachment 2). A mandatory pre-bid meeting was held on site at Brax Company on May 15, 2025, with the three bidders in attendance that submitted quotes.

#### Bid Results

The bid opening took place on June 6, 2025. Three quotes were received in response to the RFQ summarized in Table 1 below. The bid results are included in Attachment 3.

Table 1

<b>Vendor</b>	<b>Quoted Cost</b>	<b>Responsive to the RFQ</b>
Layne Christensen Company	\$152,069.05	YES
Brax Company, Inc.	\$166,602.27	YES
Hydrocurrent Well Services	\$212,155.00	YES

**FISCAL IMPACT**

The lowest responsive quote was received from Layne Christensen Company of Redlands, CA for \$152,069.05. Funding in the amount of \$1,300,000 was requested in the FY 2025-26 Budget for a Well Rehabilitation Program which can be used towards the repair of SDF-11.

The fiscal impact of the project is detailed in Table 2:

Table 2

Procurement and Installation of Pump for SDF Well #11	
Expensed to Date (Pump Removal and Disassembly)	\$26,422.85
Layne Christensen Company Quote	\$152,069.05
Project Contingency, (10% of Quote)	\$15,206.91
Total Project Cost	<u>\$193,698.81</u>

The following estimated savings will be achieved with the repair of SDF 11, creating the ability for the Desalination Facility to produce an additional 1,533 acre-feet of water per year:

Annual Estimated Savings Achieved by the SDF 11 Repair	
Annual cost to purchase 1,533 acre-feet of San Diego County Water Authority at current wholesale rate (\$1,496/acre-feet) plus Perdue Plant treatment costs (approximately \$60/acre-feet) <b>(A)</b>	\$2,385,348
Alternative annual production cost for 1,533 acre-feet at the Desalination Facility (approximately \$369/acre-foot) <b>(B)</b>	\$565,677
Annual Savings <b>(A-B)</b>	\$1,819,671
* Project cost of \$193,698.81 for the SDF 11 repair project would be recovered in approximately 39 days.	

**OPTIONS**

1. Award a contract for procurement and installation of a pump for San Diego Formation Well 11 to Layne Christensen Company of Redlands, CA for \$152,069.05, and allocate a ten percent contingency fund in the amount of \$15,206.91.
2. Other direction as determined by the Governing Board.

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**SUPPORTING INFORMATION**

**Attachments**

1. San Diego Formation Well Map
2. Request for Quote 2025-002
3. Bid Results
4. Staff Presentation

**Strategic Plan**

Strategic Plan Goal #1: Water Quality (WQ) – Provide high quality water that meets regulatory requirements

Strategic Plan Goal #2: System and Water Supply Reliability (SR) – Achieve an uninterrupted, long-term water supply through investment, maintenance, innovation and developing local water resources

*FY 2025-26 Strategic Plan*

The FY 2025-26 Strategic Workplan includes two objectives to assist staff with assessing and maintaining groundwater production wells.

Strategic Plan Goal #2: System and Water Supply Reliability (SR) – Achieve an uninterrupted, long-term water supply through investment, maintenance, innovation and developing local water resources

- Objective SR2: Cost-effectively maintain facilities and infrastructure to optimize their useful life and performance
  - (21) Create a well maintenance and rehabilitation plan
  - (22) Competitively select on-call well/pump maintenance contractors for implementation of the maintenance and rehabilitation

**Past Board Actions**

June 11, 2025            The Governing Board recommended changes to the detailed work plan, and approved the FY 2025-26 Strategic Plan Detailed Work Plan.

June 11, 2025            The Governing Board recommended a name change to the Environment task for floating solar panels and corrections to the resolutions; adopted Resolution 25-04, Approving the FY 2025-26 Budget; and adopted Resolution 25-05, Approving the updated Financial Policies (Board Policy 517).