



# STAFF REPORT

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**Meeting Type:** Board of Directors  
**Title:** Purchase of SCADA Replacement Equipment to Replace Outdated Equipment at the Bon Tempe Treatment Plant  
**From:** Darren Machado, Director of Operations  
**Through:** Ben Horenstein, General Manager  
**Meeting Date:** November 6, 2024

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**TYPE OF ACTION:**      X      Action                      Information                      Review and Refer

**RECOMMENDATION:** Authorize the General Manager to execute a purchase order for replacement SCADA Equipment from Graybar to replace the outdated SCADA Equipment at the Bon Tempe Treatment Plant in the amount of \$159,576

**SUMMARY:** As water treatment plant automated control technology advances, equipment must be upgraded to maintain functionality, efficiency and availability. Most controls upgrades are in the form of electrical components which must be replaced more often than traditional water components like pipes and valves due to shorter lifecycles and becoming functionally obsolete. The Supervisory Control and Data Acquisition (SCADA) system that District Operators use to run the Bon Tempe Treatment Plant is hosted on numerous Programmable Logic Controllers and support equipment. To perpetuate reliability, planned replacement of existing controls equipment was implemented using a phased approach. The first phase, which included purchase of replacement Programmable Logic Controls, was carried out in July of this year. This second phase of replacement includes remote Input-Outputs, and other appurtenant devices.

**DISCUSSION:** Bon Tempe Treatment Plant is a conventional surface water treatment plant that uses staged clarification, flocculation, and sedimentation processes. While these treatment processes are widely known to reliably produce high quality finished water, advances in water treatment technologies and monitoring requirements have changed notably since Bon Tempe Treatment Plant was first brought online in 1954.

While operation of the treatment process was once done completely by Treatment Plant Operators, technology developed over the last 40 years has reduced the manual operations processes by using programmable equipment and remote monitoring. Currently, processes can be automated using sensors that monitor flow, pressure, voltage, current, electrical charge, chemical residual or other

water quality characteristics. Operators interact with the Bon Tempe Treatment Plant through a SCADA system, which is customized software that allows operators to interface with the remote sensors.

The SCADA software is implemented through the installation of Programmable Logic Controller (PLC) and Input-Output (I/O) equipment that are utilized to provide communication between the Operator and the remote equipment. Programming was introduced to the Bon Tempe Treatment Plant in 1982 with the first version of PLCs. Since then, various components have been upgraded through maintenance, and once with a planned overhaul. Currently, Bon Tempe Treatment Plant is running on its' second generation of PLCs installed around 2005. The PLCs, including appurtenant hardware like controllers, hot standby units, remote I/Os, and Ethernet cards, were discontinued in 2022 and new installations can no longer be purchased. According to the manufacturer, replacement parts for the existing units will soon become unavailable.



In July of 2024, Operations purchased replacement PLCs for the Bon Tempe Treatment Plant under a first phase of an overall controls program upgrade. To complete the upgrade, parts included in this purchase will allow for completion of the second phase of planned improvements. Installation will be completed by District staff over several days during planned treatment plant shutdowns.

Staff is recommending the Board authorize the General Manager to purchase replacement Input-Outputs in support of the SCADA X80 Upgrade Phase 2 project from Graybar for the Bon Tempe Treatment Plant in the amount of \$159,576.

**ENVIRONMENTAL REVIEW:** Not applicable.

**FISCAL IMPACT:** Funding for this operational maintenance item was identified in the adopted 2024/25 Capital Budget. The cost of the equipment purchase is \$159,576.

**ATTACHMENT(S):** None.

DEPARTMENT OR DIVISION	DIVISION MANAGER	APPROVED
Operations Division		
	<b>Darren Machado</b> Director of Operations	<b>Ben Horenstein</b> General Manager