



Jeff Davis Water Treatment Plant Improvement Projects

Legend
To be completed as part of the Lab Improvement Project
Recommended DWSRF Funded Project
To be completed as a Maintenance Project
Project to be removed

Project	Work Scope	Notes	Source Recommendation
0.5 MG Clearwell	Critical Repair - Repair structural roof beams in the tank	Tank Inspection report identified a broken structural I-beam component. The component supports the tank roof and additional failure would impact and potentially stop water production. Clearwell damage needs to be evaluated further to identify if the tank will need to be taken out of service to make necessary repairs.	Tank Inspection Report by Inland Potable Services 10/18/18
	Corrective/Regulatory - Install a screened airgap on the existing tank overflow	The State Inspection identified the need to redesign/reconfigure the current plumbing overflow system.	State inspection - regulatory corrective action
	Improvement - Replace or Rehabilitate piping and valves between the clearwell and WTP.	Replace 100' of the original 24" cement mortar lined and coated steel pipeline between the WTP and the Clearwell. This project will also replace aged valves and meters along this pipeline. This line is approximately 50 years old and failure would stop water production.	Staff Recommendation
	Improvement - Install a new mag meter at the outlet of the clearwell	This will allow for accurate flow measurements. It will also provide redundancy in metering the distributed water to better identify losses.	Staff Recommendation
	Improvement - Install automated valves at the clearwell	Instrumentation and integration at the Clearwell and Rail Road Flat Pump Station. This will improve operational efficiency.	Staff Recommendation
	Improvement - Install a pre-clearwell Chlorine Analyzer	This is a redundant measurement device in the event of chlorination failure.	Staff Recommendation.
	Improvement - Install tank baffle wall curtain	This was recommended to increase the contact time from 7 mins to 20 mins, further improving operational efficiency.	Water Master Plan - Peterson and Brustad 10/2008
	Maintenance - Blast and recoat tank (Interior & Exterior)	Tank inspection reports identified this as an upcoming maintenance item. The Clearwell will need to be taken out of service to perform this maintenance.	Tank Inspection Report by Inland Potable Services 10/18/18
Chemical Feed System Upgrade	Improvement - Replace the existing polymer LMI pump	Install a new peristaltic pump with automated flow pacing and dosage in the lab room to replace the existing LMI pump and the existing chemical feed pumps in the compressor room. Evaluate the existing feed system condition. Integrate new devices to SCADA. This will improve operational efficiency.	Mead & Hunt Evaluation Report 4/6/15
	Improvement - Install an inline static mixer on the raw waterline	This was recommended to improve polymer effectiveness.	Mead & Hunt Evaluation Report 4/6/15
	Improvement - Replace the existing zinc orthophosphate LMI pump	Replace the existing LMI pump with a new peristaltic pump with automated flow pacing and dosage. Evaluate the existing feed system condition. Integrate new devices to SCADA. This will improve operational efficiency.	Staff Recommendation
SCADA	Improvement - Upgrade SCADA control of Rail Road Flat Pump Station	There is currently a single conduit running between the WTP and the Rail Road Flat Pump Station and does not allow for additional control wiring to be installed per code. The previous SCADA contractor suggested replacing the existing PLC, upgrading the power supply, and installing an ethernet switch as an alternate to running new conduit.	Staff Recommendation
	Improvement - Integrate additional District sites with SCADA	This will include evaluating the alternatives for site communications at key water system facilities.	Staff Recommendation
	Improvement - Install level monitoring sensors	Level monitoring for the Jeff Davis Reservoir and recycle backwash pond and integrate into the SCADA system.	Staff Recommendation per 2019 SCADA RFP.
	Improvement - Install tank level monitors at all tank sites	Tank level monitors at all District tanks will greatly improve yearly and monthly water audits. Ideally tank level monitors would be integrated into the SCADA system however this is dependent on the project to integrate communications at other District Sites.	Staff Recommendation
Jeff Davis Reservoir	Improvement - Install additional aeration unit in Jeff Davis Reservoir	Install an additional floating solar aeration unit (SolarBee) in the reservoir. Active lake circulation can prevent and control algae blooms in the reservoir. Utilizing solar power and highly efficient motor / mixing drive systems, the SolarBee pulls in water at the desired depth from all corners of the basin providing effective mixing to a predetermined depth.	Staff Recommendation
Treatment Filters	Improvement - Install an inline strainer on the raw waterline	There is currently no strainer or screen before the filters to remove algae and to prevent media fouling at the filters. This will also address the current mud ball issues found on top of the media layer, improving efficiency of filter media.	Mead & Hunt Evaluation Report 4/6/15
	Improvement - Replace surface wash pump with a redundant two pump system	Currently there is only one (original) surface wash pump. A second backup pump to be added as this is a critical component to keep the filters clean.	Staff Recommendation
	Improvement - Replace existing filter valves and actuators (influent and effluent)	Staff has noted some of the existing valves are currently leaking.	Staff Recommendation
	Maintenance - Paint the exterior of the filters	Prevent further corrosion	Mead & Hunt Evaluation Report 4/6/15
	Maintenance - Install a new epoxy coating on interior of filters	Last completed in 2005	Staff Recommendation
	Maintenance - Replace hatch lids and install new gaskets		Staff Recommendation
Backwash System	Improvement - Install a new recycle backwash system	All backwash wastewater currently goes to the ponds to clarify and settle out the filter solids. Installation of a new recycle backwash system will improve water conservation of the treatment system and capacity of the backwash ponds.	Staff Recommendation/Mead & Hunt Evaluation Report 4/6/15
	Maintenance - Clean-out ponds (remove sludge)	Staff verified the pond capacity is currently sufficient. Monitoring of sludge impact on capacity will continue.	Maintenance
	Improvement - Install liner in Backwash Ponds	After further evaluation staff has decided to remove this project from the list	Future regulatory measure
WTP Building	Improvement - Correct chlorine carrier water plumbing	It was identified that chlorine carrier water plumbing is potentially the cross connected. The system needs to be evaluated and corrected.	Mead & Hunt Evaluation Report 4/6/15 (pg 9)
	Improvement - Install pump on the plant effluent sample line	There is currently not enough pressure to continuously feed the turbidity meter and the chlorine analyzer. This will allow for a constant water supply for continuously monitoring equipment	Staff Recommendation
Combined Filter Effluent (CFE) Valve	Replace existing butterfly valve with an actuator control globe style valve	Staff verified that the valve is functioning properly and does not need to be included on this current list.	Mead & Hunt Evaluation Report 4/6/15 (pg 5)