



## Memorandum

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August 3, 2017

**TO:** City Council  
David M. Campbell, City Manager  
Jeff D. Cameron, Public Works Director

**FROM:** Amy N. Blain, Project Manager

**SUBJECT:** Mint Farm RWTP – Dissolved Oxygen Project

In November of last year, the City Council and Beacon Hill Water and Sewer District Board of Commissioners authorized installation of a dissolved oxygen injection treatment process to help control scale release in the distribution system and improve the taste and odor of our municipal water supply. When authorized, the construction cost for an air injection system was estimated in the range of \$200,000 to \$500,000. Total project cost including design, administration, project management, inspection and construction services was estimated at \$600,000.

As part of the design process, staff and the design consultant (CH2M) met with our treatment plant operators to review the site and discuss project scope and timing. Detailed discussions highlighted certain deficiencies at the plant not related to dissolved oxygen but which were deemed prudent to correct and to bundle with the scope of the project for timeliness, practicality and improved plant function. These additional items would be funded from the Filter Plant Construction Fund Miscellaneous Capital Repairs budget of \$50,000. Including direct costs, overhead and profit, those items not directly related to dissolved oxygen but included in the project scope, are estimated to cost a total of \$35,100 and identified as follows:

- Re-route an air release valve drain to prevent discharges inside the filter gallery
- Replace corroded 14-ft sample sink in lab; upgrade to chemically resistant resin
- Add compressed air to chemical loading station to eliminate 1-2 hour delays during bulk chemical off-loading
- Supplement lighting in upper and lower equipment building to improve visibility
- Add raw water and finished water isolation valves for emergency bypass operation

Additionally, several other items were identified during design which directly related to dissolved oxygen but had not been included in the original project concept. These changes were incorporated in order to be consistent with Department of Health cross-connection requirements and City of Longview construction standards, and improve operating parameters at the plant and finished water quality. The most significant change

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was the addition of a second oxygen injection vault to provide capability to aerate the water pre- and post-filter. Including direct costs, overhead and project, these design changes are estimated to total \$344,520 and include the following:

- Require onsite archaeologist training to satisfy cultural review requirements
- Add backflow preventers to isolate carrier water, air and chemical injection systems and prevent cross connection contamination
- Construct injectors in below grade vaults; do not direct bury injectors
- Added two dedicated DO pumps due to operational inability to use existing carrier water system and for operating redundancy
- Relocate raw water sample line to reduce lag time from sampling point to analyzer
- Use compressed air instead of ambient air to overcome system pressure and eliminate need for degassing unit; venturi system determined infeasible.
- Add electrical subpanel to support additional loads for DO pumps and air compressors
- Add pre-filter vault and oxygen injectors to promote biologically active filtration for ammonia and organic nitrogen removal

Including all changes, and attempting to adjust for the current bidding climate of higher costs, the engineer's estimate of construction cost was \$700,000. On July 19, four bids were opened as follows:

\$ 874,516.03 – Tapani Inc., Battle Ground WA  
\$ 924,730.64 – Stettler Supply Company, Salem OR  
\$ 999,925.00 – Stellar J Corporation, Woodland WA  
\$ 1,038,570.75 – PCR Inc., Beaver Creek, OR

The difference between low bid and engineer's estimate is largely attributed to the current bidding climate. A similar trend has been observed in other recent projects due to limited contractor and material availability. Based on the low bid amount, plus a 10% change order contingency, 7% construction management allowance, and actual expenditures to date, the total project cost is estimated at \$1.2M. Assuming \$50,000 in annual O&M, the annualized 20-year life cycle cost is \$155,500 which equates to a monthly cost of \$0.49/ERU for City of Longview and Beacon Hill water customers.

In February of this year, the Department of Health approved a 12-month extension of our 2007 Drinking Water State Revolving Fund loan to fund this project. All other loans obtained for the Mint Farm RWTP project have been fully expended and, in order to obtain the 12-month extension, the City had to agree to de-obligate \$1.5M in unused loan funds, leaving an available balance of \$530,891. However, until the state legislature approves a new capital budget, our 2007 loan has been suspended and program funding for the DWSRF remains uncertain. Project costs incurred during loan suspension may

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not be eligible for reimbursement; that will depend on the final capital budget legislation and whether retroactive reimbursement is authorized.

Tapani has completed several successful projects with the City in the past and was recently awarded the Hillcrest and Hillside Boost Pump Station project, which requires coordination with the dissolved oxygen project. Despite the budget overrun and loss of secure funding, I recommend the construction contract be awarded to Tapani. Dissolved oxygen injection will improve water quality for our customers. Rejecting bids and re-bidding the project will create delays and introduce the risk of bids coming in even higher. It is in the best interest of the City, Beacon Hill, and our water customers, to proceed with this project in a timely manner.