



16 February 2024

Steve Stewart

City of Newport

169 SW Coast Hwy

Newport Oregon 97365

*via email*

**Re: City of Newport – WS ID# 00566  
Excess Recirculation  
Conditional Approval – PR# 4-2024**

Dear Mr. Stewart:

Thank you for your submittal to the Oregon Health Authority's Drinking Water Services (DWS) of plan review information regarding the operation modification of the membrane filters at the City of Newport. On 24 January 2024 we received plans describing the recirculation plumbing at the plant, and a check for \$825.

The Oregon Health Authority grants **Conditional Approval** for the project with the following conditions that will need to be met prior to granting Final Approval:

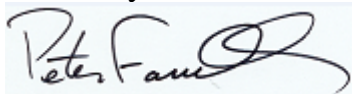
1. Flowmeter or flow-restrictor to prevent recirculation rates above the proposed 3 gpm limit.
  - If flowmeters are used explain how the limit will not be exceeded.
2. Direct integrity testing parameters will need to be verified and programmed into the SCADA system. These parameters include:
  - a. A **direct integrity test (DIT) pressure**, which is likely to be set above the minimum recommended by the membrane manufacturer.
  - b. An **upper pressure decay control limit** in  $\text{psi}/\text{min}$  is determined that indicates a failure of the direct integrity test and prompts an automatic shut-down of the filtration skid; and
  - c. A **log removal value ( $\text{LRV}_{\text{ambient}}$ )** reflective of particle and pathogen removal in the 3 micron or less size range that is calculated every 15 minutes based on current ambient operating conditions (a metric commonly referred to as  $\text{LRV}_{\text{ambient}}$ ) and the most recent direct integrity test result. In summary,  $\text{LRV}_{\text{ambient}}$  is the metric for demonstrating 4.0-log (99.99%) *Cryptosporidium* removal credited for the membrane filters.
3. Alarm set points are updated to reflect the following operating limits which, if exceeded, prompt an automatic shut-down of the filter skid:

- a. Maximum flux
  - b. Maximum transmembrane pressure (TMP).
  - c. Minimum  $LRV_{\text{ambient}}$  of 4.0-log (calculated every 15 minutes and visible in SCADA)
  - d. Maximum direct integrity test pressure decay rate.
  - e. An alarm set point established to trigger individual filter trains to shut down and run a DIT when the individual filter effluent turbidity exceeds 0.15 NTU for more than 15 minutes. And complete the Turbidity-Triggered DIT Reporting form. (p. 4 in the enclosed spreadsheet version of the form.)
4. SCADA programming should ensure that the variables and constants used to determine the pressure decay rate and  $LRV_{\text{ambient}}$  are viewable to the operator for verification purposes.
  5. The operation and maintenance manual is updated, or an addendum added to incorporate the any new specifications, including any necessary changes to the membrane testing and module fiber repair/pinning procedures.

Lastly, I recommend Newport works with the membrane manufacturer or engineer to explicitly determine parameters to track both the performance of this excess recirculation, and the long-term health of the membrane modules. (Regarding the latter, whether it is resistance, TMP, or just number of pinned fibers, Newport needs parameters to track now to assess the durability and reliability of the membranes into the 2030s.)

Thank you for your cooperation during this process and if you have any questions please contact me using the information above.

Sincerely,



Pete Farrelly, PE  
Regional Engineer  
Drinking Water Services

cc: [Adam Odell, PE, Stantec](#)  
[Baxter Call, PE, OHA-DWS](#)

enc: August Letter to Membrane WTPs in Oregon  
August Memo to Membrane WTPs in Oregon  
Current [Monthly Membrane Monitoring Form](#) (PDF & XLS)