



PUBLIC HEALTH DIVISION
Drinking Water Services

Kate Brown, Governor

Oregon
Health
Authority

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April 20, 2022

Bryan Black, PE
Stantec
601 SW 2nd Ave Suite 1400
Portland, OR 97204
via email

**Re: Willamette River Water Treatment Plant Expansion (PR#38-2022)
City of Wilsonville (PWS ID#00954)
Preliminary Approval**

Dear Bryan:

Thank you for your submittal to the Oregon Health Authority's Drinking Water Services (DWS) of plan review information for the Willamette River Water Treatment Plant Expansion for the City of Wilsonville. On February 3, 2022, our office received land use compatibility statements, 90% specifications, a 90% drawing package, and background information. On March 14, 2022, our office received a plan review fee of \$3,300.

The project includes increasing the capacity of the treatment plant by increasing pump capacity. The 4 MGD, 100 hp raw water pump will be replaced with a 5 MGD, 150 hp vertical turbine single stage VFD pump. Two additional finished water pumps will also be installed: a 7.5 MGD, 500 hp vertical turbine two stage pump and a 5 MGD, 400 hp vertical turbine two stage pump. The three existing vertical turbine constant speed wash water pumps will be replaced with vertical turbine VFD pumps of the same capacity.

The new pumps will increase the overall plant capacity from 15 MGD to 20 MGD. The increased flow will increase the flow to each basin in the clarification process from 7.5 MGD to 10 MGD. This flow increase will reduce hydraulic residence time from 2.9 minutes to 2.2 minutes in the coagulation chamber, from 3.1 minutes to 2.3 minutes in the injection chamber, and from 9.1 minutes to 6.8 minutes in the maturation chamber. Settling hydraulic residence time will be reduced from 10.9 minutes to 8.2 minutes with the surface loading rate increasing from 20 gpm/ft² to 27 gpm/ft².

Increased flows through the ozone system will decrease contact time of ozone from 14.9 minutes to 11.2 minutes. The maximum applied ozone dose will also be decreased from 2.4

mg/L to 1.8 mg/L.

Filter loading rates will increase from 6 gpm/ft² to 7.6 gpm/ft² with all filters online and from 8 gpm/ft² to 10.1 gpm/ft² with one filter offline. The maximum capacity for each filter remains the same at 12 gpm/ft².

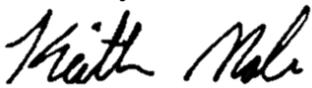
The overall removal rating for the water treatment plant remains the same at 2.5 log for *Giardia* and 2.0 for *Cryptosporidium*.

Two new ozone generators with cooling water skids and two new ozone destruct units will be installed. A dry polymer feed system will be installed in the chemical storage room to double the capacity of dry polymer feed. A third caustic soda diaphragm metering pump will be installed. New 1" PVC chemical piping will be installed within PE chemical containment piping.

The Willamette River Water Treatment Plant Expansion is granted preliminary approval for use. Upon completion of the project, the engineer must verify in writing that construction was completed according to the submitted plans. If substantial changes are made, a set of as-built drawings must be submitted.

If you have any questions, please feel free to call me at (503) 939-1322 or email me at keith.male@dhsosha.state.or.us.

Sincerely,



Keith Male, EIT
Regional Engineer
Drinking Water Services

ec: Julie Wray, DWS
Carrie Gentry, PE, OHA/DWS
Delora Kerber, City of Wilsonville
Howard Hamilton, Veolia