PUBLIC HEALTH DIVISION
Office OF Environmental Public Health, Drinking Water Services
Governor Kate Brown

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Revised 22 February 2019
19 February 2019

Arta Montero
PGE Beaver Generating Station
80997 Kallunki Road
Clatskanie Oregon 97016

Re: New UV Reactor – PR#165-2018
PGE Beaver Generating Station – WS ID# 05246
Conditional Approval

Dear Ms. Montero:

Thank you for your submittal to the Oregon Health Authority's Drinking Water Services (DWS) of plan review information for reviewing the new UV reactor at PGE Beaver Generating Station (PGE). Our office has received plans, and a review fee of $825 on 10 September 2018. More plans and a powerpoint presentation was received later in 2018. The project includes an ultraviolet light reactor – VIQUA Pro24-186.

The plans are approved with the following conditions {unless otherwise noted, rule references are from *OAR 333-061-0050…* }:

- Either install a flow restrictor or otherwise assure maximum flowrate is not exceeded; and identify what that specific flowrate is for your water system.

- Assure water is shut-off if intensity or dose falls below 11.7 $^{mW}/_{cm^2}$ or 186 $^{mJ}/_{cm^2}$, respectively.
    - And assure the water system will not depressurize or otherwise increase likelihood of contamination once water treatment ceases in this case.

- Identify the visual verification you will use to determine lamps are operating.

- Assure lamps and sensor(s) are accessible for replacement or checking calibration.

- The UV reactor was validated using the setpoint dose method at a minimum UV transmittance (UVT) of 90%. Assure UVT just upstream of the UV reactor exceeds 90%.

- Sample tap must be provided before the UV reactor for UVT sampling.

- After installation, assure performance testing can verify ability to accurately measure UVT, intensity, flowrate.
    - Also, determine what happens in the case of insufficient or discontinued power to the UV reactor.

REQUIREMENTS

Once the UV treatment system is operational, the following requirements must be met – See corresponding attached forms to use for UV monitoring:

- Sensor calibration must be checked monthly using a reference sensor. The sensor needs to be re-calibrated or replaced when the calibration is off by more than 20%.

- To avoid purchasing an inappropriate or ineffective reactor, it is strongly recommended to collect UVT data before purchasing a reactor.

PATHOGEN INACTIVATION CREDITS

The UV treatment will be granted the following log inactivation credits:

- According to the UV validation report, the VIQUA Pro24-186 has been granted the following inactivation credit by OHA-DWS as long as the UV reactor is operated within the operation diagram's boundaries:

Pathogen	log-inactivation credit
Giardia lamblia	5.0+
Cryptosporidium parvum	5.0+
Virus	4.0

- PGE achieves *Giardia, Cryptosporidium*, & viral inactivation compliance with this UV reactor. Also, at least 0.2 $^{mg}/_{L}$ chlorine is required at the entry point.

Until we receive verification that the project was completed with the conditions listed above and we have granted Final Approval for the project, the reactor and related improvements are not approved for use. Documentation demonstrating how the above conditions were met should reference Plan Review #165-2018 and can be e-mailed or mailed to the addresses above. I know some changes were made to the plans submitted, so please submit the final version of the water treatment schematic.

If you have any questions, contact me via email or phone using the information above.

Sincerely,

Pete Farrelly, PE
Regional Engineer
Drinking Water Services

enc: monthly reporting form