

PUBLIC HEALTH DIVISION

Office OF Environmental Public Health, Drinking Water Services

Governor Kate Brown



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3 October 2017

Jesten Brenner, PE
Boeger & Associates, LLC
PO Box 21623
Eugene Oregon 97402

**Re: New Slow Sand Filtration Plant & Storage (PR #107-2017)
Butte Creek Scout Ranch (WS #94191)
Conditional Approval**

Mr. Brenner,

Thank you for your submittal of plan review information for the new slow sand filters and storage tank(s) for Butte Creek Scout Ranch to the Oregon Health Authority's Drinking Water Services (DWS). On 29 August 2017 our office received plans, rationale, initial sampling regime plan to assure effectiveness. We received a \$825 plan review fee.

The project involves adding a full scale treatment train next to an existing treatment train of cartridge filters and UV disinfection. The old membrane filter will be removed. The following unit processes will be added to run prior to, or independently of, the existing water treatment train:

- One 1,500 gallon sedimentation tank, 118" x 75"
- 1,000 gallon flow control tank, 99" x 63"
- Two slow sand filters, each with the capacity to supply the camp individually, followed by weir structures/leveling basins.
- Two 6,000 gallon polyurethane finished water storage tanks
- Finished water pumps to pressurize the distribution

The project is approved subject to the following conditions {All rule citations are from construction standards, *OAR 333-061-0050...*} :

1. The storage tank's overflow must be protected by a flapvalve, or equivalent.
{ (b)(a)(M) }

2. The roof access hatch must have curbing around the opening and a lockable watertight cover that overlaps the curbing, or equivalent. { (6)(a)(I) }
3. A silt stop must be provided at the outlet pipe. { (6)(a)(N) }
4. Assure there is a screened vent. { (6)(a)(L) }
5. Disinfect tank and sample bacteriologicals as per AWWA C652. { (10) }
6. All chemical storage tanks, pumps and chemicals must be NSF 61/60 approved or equivalent. { (1)(e) }
7. The residual disinfectant concentration of the water entering the distribution system must be monitored continuously. { (5) }
8. While UV reactor can disinfect most pathogens, it cannot disinfect viruses effectively. Once the clearwells are installed and operational, a tracer study must be completed to determine actual contact time available from the clearwells in parallel. Until then, use a baffling factor of 0.1 and an appropriate maximum flow rate to try to calculate a CT. Find enclosed worksheet and procedure. The goal is calculating at minimum 4.0-log viral inactivation using the existing chlorination system.
9. A flow meter is required after the clearwell and contact chamber, before the first customer to measure demand flow.

In addition, I have the following comments:

Recommendations for slow sand filtration

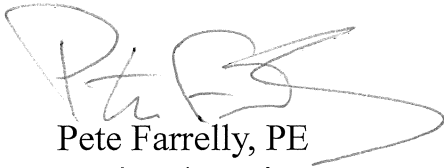
1. Use only certified sand within design specifications.
2. Splash plate or other energy dissipating measure under the influent pipe to prevent unequal filtering.
3. Use unchlorinated water for washing or other maintenance of the filter.
4. Assure freeze protection. Or otherwise adjust operation to account for degradation

of performance in cold weather, *e.g.*, reduce influent rate.

Until we receive verification that the project was completed with the conditions listed above and we have granted Final Approval for the project, the water treatment project is not approved for use.

If you have any questions please feel free to call me at 971.673.0462. Reference Plan Review #107-2017.

Sincerely,

A handwritten signature in black ink, appearing to read 'Pete Farrelly', written over a faint, larger signature.

Pete Farrelly, PE
Regional Engineer
Drinking Water Services
healthoregon.org/pwsplanreview

cc: Bill Hood, Ranger
Butte Creek Scout Ranch
13462 South Butte Creek Road
Scotts Mills, Oregon 97375

enc: Tracer Study Procedure
Tracer Study Worksheet
Draft Optimization Goals (also online)