



800 NE Oregon Street, Suite #640
Portland, OR 97232-2162
(971) 673-0462
(971) 673-0694 – FAX
<http://healthoregon.org/dwp>
peter.r.farrelly@state.or.us

31 March 2016

David Jacob
Rhododendron Water Association
P.O. Box 163
Rhododendron Oregon 97049

Re: **Water Treatment Plant - PR# 213-2015**
Rhododendron WD - WS ID# 00702
Conditional Approval

Dear Mr. Jacob:

Thank you for your submittal of plan review information for the water treatment plant for Rhododendron Water Association to the Oregon Health Authority's Drinking Water Services (DWS). On 31 December 2015, our office received plans for the slow sand treatment plant, the two new verified, Harmsco cartridges, pump station, and Woodlands Tank. A pilot plan for the slow sand plant was received and reviewed in spring 2015. A plan review fee of \$750 was also received.

The project is approved with the following conditions:

1. Provide information on the pump station. For example, details of suction line, the station location vis-à-vis the 100-year flood plain, security, etc.
2. Assure any treatment bypass piping is physically disconnected.
3. Assure both Harmsco cartridge filters are used simultaneously in order to prevent exceeding the 100 ^{gpm}/_{filter} maximum. (4)(c)(J)(v)
4. Disinfection of the reservoir prior to use must be accomplished according to AWWA Standard C652.
5. If reservoir is steel it must meet AWWA standards D100 and D103; if concrete, it must be sufficiently reinforced.
6. All components and chemicals must be NSF 61 & 60 certified, respectively.

Documentation demonstrating how the above conditions were met should reference Plan Review #213-2015 and can be e-mailed or mailed to the addresses above.

Recommendations for slow sand filtration.

1. Use only certified sand within design specifications.
(For example, AWWA Design Criteria suggests a $d_{10} = 0.2 - 0.3$ mm, and a uniformity coefficient (UC) = 1.5 – 2.0)
2. Splash plate or other energy dissipating measure to prevent unequal filtering
3. Use unchlorinated water for “cross-flow washing,” or other maintenance.
4. Assure no pumping directly from filter effluent. Or otherwise prevent air-binding. I am unclear if specified “vent pipe” will suffice.
5. Assure freeze protection. Or otherwise adjust operation to account for degradation of performance in cold weather, *e.g.*, reduce influent rate.

For more design and operation information, visit our website for Recommended References:

<http://public.health.oregon.gov/HealthyEnvironments/DrinkingWater/Operations/Treatment/Pages/sw-slowsand.aspx#materials>

Sincerely,

Pete Farrelly, PE
Regional Engineer
Drinking Water Services

cc: Steve Graeper, President Rhododendron WA