



May 10, 2016

Greg Thiel, PE
NW Engineers, LLC
3409 NW John Olsen Place
Hillsboro, OR 97124

Re: **New well and waterlines (PR#26-2016)**
Laurel Acres Water Co Inc (PWS ID#00217)
Site Plan Evaluation

Dear Mr. Thiel:

Thank you for your submittal to the Oregon Health Authority's Drinking Water Services (DWS) of plan review information for the well, waterline and reservoir project for Laurel Acres Water Co. On February 25, 2016, our office received a site plan, well drilling specifications, plans, land use compatibility statement and a plan review fee of \$825.

The well project includes drilling a new well to a proposed depth of 450-475' below ground surface (bgs) with a seal from ground surface to 5' to 35' bgs. It also includes rehabilitation of an existing reservoir, construction of a new well house and installation of new waterlines.

A regional geologist in our program reviewed the proposed well construction. He noted that the aquifer is likely to be confined. He also noted the following, which should be shared with the well driller:

- The proposed construction appears to meet Water Resources Department construction standards.
- Based on the well logs for the existing Laurel Acres Water Co well, the new well should be constructed so as to seal off any water-bearing zones within the silt, sand and gravel materials above the basalt. The well should also seal off any water associated with the fractured/rubbly upper surface of the basalt and instead target water from the lower (or deeper) water bearing zones identified as occurring at the depths of 260' and 445' in well log WASH10896.
- A continuous casing seal should be extended a minimum of 5' into the uncrevassed basalt layer directly above the first targeted water-bearing zone. Based on

WASH10896, the uncrevased basalt layer is estimated to occur at a depth of 180'. So the casing seal is estimated to extend to a minimum depth of 185'.

- As an added measure to help protect against e.coli contamination of the proposed well, it is recommended that Laurel Acres Water Co consider extending the continuous casing seal 10' into the uncrevased basalt layer directly above the first targeted water-bearing zone, an estimated depth of 190'.

The 100' radius of ownership/control requirement for the well does not appear to be met. Information on existing easements was not submitted. If easements do exist, please submit them to our office. The water system must have either an easement or some ownership of the area where the well is sited. A waiver for a reduction in the 100' radius of ownership/control cannot be approved prior to drilling a well. If the well is properly drilled into a confined aquifer, then OHA/DWS may be able to waive part (but not all) of the radius requirement. If the well is not properly drilled/constructed into a confining aquifer, then OHA/DWS may not be able to approve the well for use by the water system.

The original (2012/2014) submittal proposed a slightly different well drilling site that showed a 50' setback from drainfields. Note that a waiver for these sorts of setbacks also cannot be approved prior to drilling a well. Similar to above, if the well is properly drilled into a confined aquifer, then OHA/DWS may be able to waive the requirement. If the well is not properly drilled/constructed into a confining aquifer, then OHA/DWS may not be able to approve the well for use by the water system. I recommend determining the locations of any drain fields with respect to the 100' radius prior to drilling the well.

Due to a lack of 100' radius of control and possible setback issues, **the site plan/location cannot be approved at this time.** If a properly constructed confined aquifer well is drilled, please submit:

1. The well driller's report (well log).
2. A waiver request for the above noted setback issues, as appropriate.
3. Well pumping test information including static water level, pumping rate, drawdown and rate of recover.
4. Pump information.
5. Raw (Untreated) Water Quality Data including coliform bacteria, IOC's (including nitrate, nitrite and arsenic), SOC's, VOC's and radionuclides. These are to be taken from the new well's raw water sample tap at the wellhead.
6. A copy of the Water Right Permit from WRD, if a water right permit is required.

The above items should reference Plan Review #26-2016 and can be emailed to me at Carrie.L.Gentry@state.or.us or mailed to:

Attn: Carrie Gentry
OHA-Oregon Drinking Water Program
PO Box 14450
Portland, OR 97293-0450

Regarding the proposed waterlines, well house and rehabilitation of the reservoir:

Under a combination project plan review fee, only one conditional approval letter and one final approval letter will be written, so if the well is drilled and the well log submitted as above, the next step would be for me to review those submittals and issue a conditional approval letter if appropriate. The items below would be listed as conditions in the future conditional approval letter.

Well

- Provisions must be made for determining the depth to water surface in the well under pumping and static conditions.
- A raw water sample tap is required close to the well head, prior to any storage or treatment.
- Piping arrangements must include provisions for pumping the total flow from the well to waste.
- A method of determining the total output of the well must be provided (typically a flowmeter).
- If a casing vent is provided, the return bend must be fitted with a screen.

Waterlines

- All items in contact with potable water must meet NSF Standard 61.
- The design must allow for 20 psi to be maintained at all service meters.
- Non-metal water lines must be provided with a tracer wire. The distance between tracer wire lead access locations must not be more than 1,000 feet.
- Disinfection of the waterlines must be completed according to AWWA C651.
- Any sewer and water line crossings must conform to OAR 333-061-0050(9). Parallel separations must also conform to this rule.

Reservoir

- All items in contact with potable water must meet NSF Standard 61.
- Disinfection of the reservoir prior to use must be accomplished according to AWWA Standard C652.

If you have any questions, please feel free to call me at (971) 673-0191.

Sincerely,



Carrie Gentry, PE
Regional Engineer
Drinking Water Services

cc: Gregg Baird, OHA/DWS
Jeremy Long, Washington County Health Department

Karrie Thompson, Laurel Acres Water Co