

Town of Yacolt
General Sewer Plan Discussion
November 15, 2010

Meeting Notes

In attendance: Pete Roberts (Yacolt); Chuck McDonald and Stuart Childs (Kennedy Jenks); Greg Zentner, Dave Knight, and John Stormon (Ecology); Cathi Read (Commerce)

Groundwater discharge

- Greg asked if Kennedy Jenks (KJ) had noticed the groundwater flow reverses during the year? Stuart – KJ looked at monitoring wells (MW) 1, 2, and 3; MW 1 and 3 are on the north side of the groundwater ‘divide’ and MW 2 is on the south side. Stuart said all flow is S-SW.
- John said that he thought that the General Sewer Plan (GSP) included information that is not supported by the Hart Crowser report. Hart Crowser report states that groundwater reverses during the year in the vicinity of the ‘church property’.
- John said the two groundwater discharge sites included in the GSP are ‘difficult’. He thinks these are two high risk sites, but if the town does decide to use one of them, a higher level of sewage treatment would be required.
- Greg – there could be a concern on the part of the public or Clark Public Utilities (CPU) regarding the proximity of the proposed discharge sites to the CPU drinking water wells.
- Stuart – summer discharge might be ok, but not year-round (*Clarification from John: Due to uncertainty about the ground water flow direction, which appears to seasonally reverse beneath the church property, it is not clear that a summer only discharge to ground at the church property would resolve concerns related to the public water supply wells. Ground water rarely moves as quickly as a surface water stream, a discharge in the summer is likely to still be around as flow directions change. The uncertainty about the flow direction beneath the church property will only be resolved through onsite investigation that includes frequent water level monitoring from multiple wells.*

Water levels from a minimum of three properly located wells is required to determine the ground water flow direction. Existing wells MW-1 MW-2 and MW-3 alone are not properly located to resolve the questions about flow direction beneath the church property, though they may provide useful data in association with future onsite monitoring.)

- Chuck – we are open to other locations, but reluctant to abandon the west side (church) location.
- Greg – groundwater flow direction seems better in the south end of town (away from drinking water wells)
- Chuck – the concern is shallow bedrock and high groundwater in the south
- Dave – Figure 2 appears to show that bedrock is not a limiting factor
- John concerned that church property is high risk and would require more expensive treatment and could have additional unanticipated costs

- Pete has observed that in the winter, groundwater shoots out of the ground south of town
- John said according the maps he saw in the Hart Crowser report and GSP, there appears to be approximately 20 feet of unsaturated soil south of town, even in winter. However, John definitely does not want to disregard or discount the actual experience and observations that Pete has had south of town – that is very important information to consider.
- At this point, Stuart shared maps that show the locations of MW4 and domestic wells south of town (Witt wells), as well as data collected from those wells (by CPU) on static water level, which indicates that groundwater in winter is typically not less than 8-10 feet below the surface – this information had not previously been shared with Ecology or included in the GSP. Again, John thinks that Pete’s anecdotal information is important to consider.
- The conversation then went back to the two sites identified in the GSP. The railroad property doesn’t look promising to John. And at the church property he is concerned that groundwater flow reverses during the year. This site will need monitoring requirements at monitoring wells, plus the public water supply; John is concerned about public outcry late in the process against groundwater discharge near the public water supply wells.
- John said the combination of groundwater mounding (from discharge) and cone of depression (from existing CPU wells) could cause treated wastewater moving more quickly toward CPU wells.
- Chuck said that in recent conversations with Steve Praither of CPU, CPU might be becoming less enthusiastic about having a groundwater discharge site so close to their wells.
- John – we need to better determine flow direction and gradient at church property – would need multiple monitoring wells gathering data for more than a year.
- Cathi asked if there was anywhere else in the valley – north, east, or west – (even outside town limits) that could be used for an infiltration basin – the answer was no.
- Dave asked if MW4 is providing good data? Answer – all wells south of Yacolt indicate that groundwater is no less than 11 feet below surface, but human observation sees groundwater surfacing in some of this area in the winter.
- Ecology staff said that discharging to groundwater in a location south of town (but maybe not in winter) could still be better for several reasons:
 - Public perception regarding proximity of discharge location to drinking water wells (groundwater flow is definitely south, away from CPU wells)
 - CPU concerns addressed
 - Much less monitoring would be required before further planning could occur
 - Because much less monitoring would be required, better chance of being able to stay on schedule and finish the GSP and Facilities Plan before the end of 2011 (deadline for spending state appropriation)

Reclaimed water discussion

- Greg – have you discussed a reclaimed water plant?
- Chuck said they had discussed this internally but he was dissuaded from that option after Ecology said they are re-writing the rules regarding reclaimed water.
- Greg said he doesn’t think that is an issue.

- Pete asked what's the difference between reclaimed water plants and other types of plants that have been discussed. Answer - Reclaimed water plants have coagulation/filtration systems, a redundant disinfection system, and provisions for storing "off-spec" water for reprocessing. Ecology and Dept of Health issues re-use permits jointly. John stated that Nitrogen requirements are less with drinking water standards ~10 ppm. (*Clarification from John:* The draft new reclaimed water rule includes an end of pipe average discharge limit for surface percolation of total Nitrogen: 10 mg/L as N. If I said 'less,' that was an error.)
- Stuart asked a question about anti-degradation standards in the new rule. Ecology said they are really the same as existing standards;
- Drinking water standards don't meet anti-degradation standards; anti-degradation is not the same as non-degradation
- Greg re-stated that the reason they brought up reclaimed water is that it might help with public perception and with the CPU; or, it might not help
- Reverse osmosis could be the end result for reclaimed water if the discharge becomes saturated and could be cost-prohibitive
- Reclaimed water rules – Ecology will propose new rules in 2011, but the Governor may issue a moratorium on new rules
- John said the new rules are essentially the same as current policies.

Surface water discharge

- Dave – we want analysis at best times, not worst times (temperature) for the river; the temperature analysis will need to be re-done in the GSP.
- Dave/Greg stated that the temperature criteria is 16 C and that the definition of natural conditions does not apply to water that is currently over this temperature. Chuck said this isn't the way he reads the WAC (173-201A-200 (1)ci.
- Greg – town could only discharge at the temperature standard itself. Greg asked if a cooling tower had been considered to help meet temperature standards in the summer?
- Dave thinks a cooling tower could help meet standards.
- Pete asked why you can't mix well water with treated effluent to meet temperature standards before discharging to river? This would not be considered a 'beneficial or permitted use' under water rights.
- Dave said a cooling tower is not the only way to cool water, but it is probably our best bet and lowest cost option in this situation.
- Dave will send data from the cooling tower at the Larch Correctional Facility to Chuck and Stuart
- Dave said phosphorus could also still be problematic.

Additional comment on GSP as submitted

- Dave said that a Biolac plant would need two tanks (not one) for redundancy – be sure to include this in the cost comparison of alternatives.

Possible viable options

- Dave said he sees four possible options:
 - Groundwater discharge at church property – IF ok with CPU and Dept of Health; additional monitoring would be required
 - Groundwater discharge south part of town – could be local landowner concerns, also concern about high groundwater in winter
 - Discharge to surface water - Membrane bioreactor (MBR) with nutrient removal/cooling tower for summer discharges
 - Combination of discharge to groundwater and surface water (seasonally) with Biolac system (Dave can accept analysis in Section 9.6.3.4 from GSP, if Biolac can do it)
- See table on page 5 for a comparison of additional monitoring that would be required under different scenarios.

Property ownership

- Would town need to own property south of town before completing the planning phase? Greg is not inclined to making the town own the property before Ecology would approve the GSP.
- The possibility of speculation/ increase to land costs is another reason to have options in the GSP

Timing

- Cathi asked, given the Ecology input today, can the GSP and Facilities Plan be done by end of 2011? Chuck – KJ and town need to discuss further, but probably.
- Cathi will schedule a conference call during the week of November 29 with attendees of today's meeting to further discuss.

Next steps/ To do list

- Dave will send cooling tower data from Larch facility to Stuart and Chuck
- KJ should re-do temperature analysis for surface water discharge
- Dave will re-send temperature requirements from WACs
- KJ should include cost for two tanks in Biolac plant for alternative comparison
- Cathi will distribute draft notes from today's meeting; please reply to all if you have corrections or additions
- Once notes are finalized, Cathi will send to Doug Quinn, John Peterson, and Tom Gonzales
- Cathi will schedule a conference call during the week of November 29 with attendees of today's meeting to further discuss

Discharge Locations	Additional monitoring required to finish GSP	Additional monitoring required to finish Facilities Plan
Groundwater discharge at church property	<ul style="list-style-type: none"> • 1-year flow direction monitoring (not required if CPU and DOH say it's ok) • Public perception could be a problem in future 	<ul style="list-style-type: none"> • Perc tests to correctly size the facility • Describe what the plan is for monitoring wells (location and parameter); • <i>[Note: 1-year of monitoring will be needed before plant start-up/ discharge, but this information does not have to be included in the Facilities Plan]</i>
Groundwater discharge south side of town	<ul style="list-style-type: none"> • Identify discharge site • Evaluate relevance of well data to that site • Decide if more data is needed • Anecdotal info leads to concern 	<ul style="list-style-type: none"> • Perc tests to correctly size the facility • Describe what the plan is for monitoring wells (location and parameter); • <i>[Note: 1-year of monitoring will be needed before plant start-up/ discharge, but this information does not have to be included in the Facilities Plan]</i>
Surface water discharge – Summer	<ul style="list-style-type: none"> • Temperature criteria • Would a cooling tower get temperature down? • Nutrients • It wasn't clear in GSP that summer discharge would work for Biolac 	
Surface water discharge – Winter	<ul style="list-style-type: none"> • Analysis in GSP was complete 	