Longview Drinking Water Improvement Study

Council/Board Communications

Response to Request for Information – August 18, 2015

The following information was sent as an email to Longview City Council members by Longview Public Works Director, Jeff Cameron, on August 18, 2015.

I have received Councilor requests for information on our past rate increases and consumption.

Council approved rate increases to address a new water supply beginning with the 2008 water rates. Attached is a summary of the rate increases from 2008 through the current rate, along with the projected rate increases shown during the October 2014 utility rate workshop. You'll notice that for five years, we did not fund depreciation to help mitigate the rate impacts, then in 2013 we began to phase depreciation funding back into the rates. Also notice that rate increases were smaller toward the end of the project because we successfully obtained low interest DWSRF and PWTF loans rather than needing to issue revenue bonds for the new water supply. As you consider rate impacts, and as is depicted in the 2016 to 2019 projected rate increases, there are other pressures on rates besides a new water source. Inflationary cost increases for labor, consumables, utilities, etc. along with capital improvement needs such as main replacements, pump station replacements, reservoir replacements, and other projects, all create a need to raise rates. I also recommend continuing to fund depreciation; without depreciation funding, we do not accumulate funds to pay cash for capital improvements and instead need to issue revenue bonds to pay for the projects.

Regarding consumption, the average single family residential consumption during the winter has remained flat since prior to the Mint Farm plant startup. We did not analyze consumption in the year immediately preceding the MFRWTP startup (January 31, 2013), but we previously analyzed consumption in 2009 to accomplish the rate structure change. In 2009, average single family residential consumption in the winter was 6 units (600 cubic feet), and the average winter consumption remained 6 units when we analyzed 2014 consumption.

Longview Water Rate Increase Summary

(Based on a monthly consumption of 600 cf)

Year	Monthly Rate	$ Incr.	% Incr.	Depreciation Funding
2008	$17.43	$2.19	14.5%	100%
2009	$19.70	$2.27	13.0%	0%
2010	$21.66	$1.96	10.0%	0%
Rate Structure Change – December 2010				
2010	$20.15	($1.51)	(7.0%)	0%
2011	$22.18	$2.03	10.0%	0%
2012	$23.14	$0.96	4.3%	0%
2013	$23.58	$0.44	2.0%	25%
2014	$24.29	$0.71	3.0%	50%
2015	$25.91	$1.62	6.5%	75%
Projected Future Rates without New Source (October 2014 Rate Workshop)				
2016	$27.85	$1.94	7.5%	100%
2017	$30.22	$2.37	8.5%	100%
2018	$32.03	$1.81	6.0%	100%
2019	$33.63	$1.60	5.0%	100%

Response to Request for Information – August 25, 2015

The following are questions from Longview City Councilor Melink and responses from Longview Public Works Director, Jeff Cameron. Responses were emailed to Longview City Council on August 25, 2015.

Q: Is it possible to verify the silica levels in Vancouver's water? Also, it would be interesting to see if there are other communities with silica levels similar to the Mint Farm and what the long term impacts on their communities have been.

A: We recently asked Vancouver staff to confirm the silica levels in their Ellsworth wells, a water source and treatment system similar to our Mint Farm supply. The Ellsworth wells were drilled in the early 1990s and placed into regular production in 1996. Vancouver staff indicates the silica levels in those wells have remained consistent throughout their use and they provided recent test results from July 2012 by Water Systems Engineering to evaluate the wells for rehabilitation to maintain productivity. Those tests results show silica levels in the wells ranging from 49 mg/l to 60 mg/l; the information we provided previously was 56 mg/l based on testing in 1993. These are the only three wells that have notable levels of silica amongst the 40 wells Vancouver uses to supply water to its customers, and this water is blended in transmission mains with water from other sources as it is pumped to a higher pressure zone before consumption. Thus, issues with silica may not result due to the blending.

We have not made an extensive effort to find other water suppliers with silica levels similar or higher than Mint Farm levels, but it was difficult to find that information during the limited efforts we previously made because many water suppliers do not routinely test for silica. We have found the Nob Hill water system near Yakima has silica levels from 70 mg/l to 77 mg/l, without any removal treatment.

Q. The CAC eliminated the existing wells as a water source due to concerns about potential contamination. Is there any data to support that decision/concern about potential contamination? Potential contamination does not appear to be a major concern to the survey participants. The CAC survey (unprompted responses) indicates that only 4% of the public surveyed has a concern about industrial chemicals / contamination (p.17). Other prompted questions list safety as the 4th of 7 concerns (p. 21)

A: There is no data to support the concerns about contamination. Water quality data and history actually demonstrate that concerns about contamination are unfounded. Pollutants of concern – whether regulated, related to Weyerhaeuser or Reynolds Aluminum, related to Willamette River pollution, related to the Hanford Nuclear site, or emerging contaminants of concern such as pharmaceutical products, etc. – were either non-detect or detected at very low levels in either the Columbia River surface water or source aquifer groundwater from Reynolds wells, Puget Sound Energy wells, or the City's MFRWTP wells. The testing did not detect any contaminants at levels of concern, and the human health risk assessment task included in the feasibility study contract was not performed because there were no risks to assess. Additionally, testing by Anchor QEA to prepare the Remedial Investigation and Feasibility Study for contamination cleanup at the Reynolds Aluminum site (Alcoa property) verified that pollutants at the site remained very shallow and did not migrate downward in the groundwater; in fact, the groundwater migrates upward. Furthermore, the water supply at Reynolds

Aluminum was regulated and monitored by DOH as a potable water supply for decades, with no pollutants from the site detected in the water supply. Complaints about the Reynolds water were caused because they did not treat to remove iron and manganese.

Much of the pollutants of concern from industrial activities were dumped, spilled, discharged, or placed over many years prior to environmental regulations implemented beginning in the 1970s and continually tightened up through the 1990s. Pollutants from those activities would have been detected in either the Columbia River surface water or the Mint Farm aquifer groundwater by now. Dumping activities that occurred in the past would be illicit and illegal under today's regulations, and industry is not likely to succeed in conducting such activities today without being noticed, subjected to enforcement actions, and required to clean-up their pollutants.

Concern about Willamette River pollutants has also been expressed because of reports about superfund listing. The pollutants of concern in the Willamette River are in the river bottom sediments near the industrial areas, and are not dissolved and carried downriver. Another concern expressed is sewage overflow during high storm runoff events, although Portland is constructing facilities to contain overflows. Such overflows are diluted in the Willamette River, then further diluted in the Columbia River, and due to that dilution and the high volume and velocity in the Columbia River, will be carried past the aquifer recharge zones near Longview. The minuscule amounts of diluted sewage that might enter the recharge zone will be filtered out by the aquifer. Furthermore, the Cowlitz River has been subjected to periodic sewage overflows from municipal treatment plants upriver from Longview's surface water intake, along with agricultural runoff from the upriver watershed. Those pollutants were more likely to be drawn into the Fishers Lane treatment plant than pollutants are to travel through the aquifer to the Mint Farm wells. Recent toxic algae blooms in Willamette River slack water areas may also cause concern, but any such toxins carried downstream will be diluted and flushed past the aquifer recharge zones.

Both the Dept. of Health and the Dept. of Ecology evaluated water quality and hydrology tests and modelling to determine current levels of contamination and the potential for future contamination, including the potential for pumping at the Mint Farm wells to cause contamination at Weyerhaeuser and Alcoa to migrate toward the wells and expand the extent of contamination. Both agencies concluded the groundwater is safe and there is little potential for future contamination. The Dept. of Health and the EPA consider groundwater to generally be more protected and safe than surface water, and the Dept. of Health has approved the Mint Farm wells as a drinking water supply.

Q. Are the existing sentry wells adequate to identify potential contamination and allow the city to maintain a safe water supply. Have they ever failed?

A: No system of sentry wells is fail safe, but we believe we have an adequate number and location of wells to detect pollutants in the source aquifer in a timely manner to protect our water supply. Also, the Dept. of Ecology recently notified staff they support our request for Alcoa to install a sentry well in the NE corner of their property and will include that requirement in the cleanup plan for Alcoa's property. Because our sentry wells are only pumped for a very short period every 6-months to collect

samples, they will need to be periodically re-developed to prevent plugging of the well casing and ensure the water samples are representative of the aquifer and not the material clinging to the well casing.

None of the City's sentry wells have failed, either physically or their water quality tests. However, periodic positive test results have been reported for herbicides and bis (2-ethylhexyl) Phthalate (a chemical in plastic). After re-testing and obtaining negative results, and consulting with the EPA-certified laboratory, the positive results have been attributed to poor sampling technique or lab error allowing the sample to be contaminated. For example, most of the positive samples for both constituents had the laboratory control blank and/or method control blank also test positive for the same constituent. When conducting our sampling, the laboratory prepares a laboratory control blank and a method control blank for quality control purposes. The method control blank is transported by the sampling technician into the field along with the actual sample bottles, while the laboratory control blank remains at the laboratory. Both control blanks have tested positive, indicating a sampling or laboratory error.

Q. At the recent workshop a member of the public suggested that pesticides had been found in one of the sentry wells. Is that accurate?

A: See above.

Q. Have the number of complaints related to taste, smell and color dropped as distribution issues have been tackled and new water mains installed?

A: Yes, the number of complaints we've received have diminished. We still receive periodic complaints related to iron and manganese, but these have diminished significantly with our plant optimization to maintain a higher oxidation reduction potential (ORP), main replacements, and automatic flushing to reduce stagnation in the mains. These complaints should be further alleviated with implementation of DO injection. We also receive sulfide odor complaints, and chlorine taste and odor related to the chloramines generated as a result of the organic nitrogen reacting with chlorine. Mitigating the chloramine issue will be evaluated by the Confluence Engineering testing of coagulant and hydrogen peroxide addition.

Q. If the recommended new source needs a new treatment plant (not the Mint Farm) would the existing Mint Farm facility be shuttered or maintained as back up? Are the costs associated with either option included in the cost outlined in the CAC report?

A: What to do with the Mint Farm plant is a council decision and no recommendation has been made. The CAC seemed to favor the idea of retaining it as an emergency supply, but no analysis was performed on that issue. It makes sense to keep it as a backup supply, but there are costs associated with regularly running the plant and storing fresh chemicals on site to maintain its functional capability. If it is used as a backup supply, there will be water quality transition issues and complaints when we switch from the Cowlitz River water to the Mint Farm water, similar to those we've experienced with the Mint Farm startup. It may be possible to use the Mint Farm plant to supply process water to an industry, but I'm not aware of any current need in the community. The Port of Longview has begun master planning

for their Barlow Point property, but it's too early to know what type of industry will locate there and what their water demands and water quality requirements might be. The costs of abandoning or maintaining the Mint Farm plant are not included in the CH2M estimates.

Q. If the existing wells/treatment facility is shuttered will there still be costs associated with it?

A: See above. Also, if the Mint Farm plant is not used, the City may be required to repay the EPA grants received to construct the Mint Farm, because the facility would no longer be used for the purpose the grants were awarded. We have asked the question of EPA but have not yet received an answer.

Q. Do the costs/alternatives identified in the CAC report include depreciation for the recommended new wells and/or treatment facility?

A: No.

Q. How much money is currently in the water depreciation fund? Were these funds used to help build the Mint Farm?

A: The City currently does not maintain any funds in the Water Depreciation Fund; all depreciation revenue is deposited in the Water Construction Fund and used to construct new and replacement capital facilities, such as water main replacement. Due to the substantial water and sewer rate increases occurring simultaneously, water depreciation revenue was not funded during the years 2009 through 2012. Therefore, depreciation funding was not used to build the Mint Farm water supply. Since 2013, council has approved rates that restore depreciation revenue in 25% phases; thus, depreciation revenue has been phased back in as follows: 2013 at 25% ≈ $141,000; 2014 at 50% ≈ $309,000; 2015 at 75% ≈ $504,000.

Q. I know I have asked this before, but is there any data to support failed appliances as a direct result of dissolved silica?

A: No. There are anecdotal stories circulating about failed appliances, but we have no data or evidence to verify the appliances failed. We suspect appliances that failed plugged up from sediment from the dissolving iron and manganese scale, either plugging inlet valves or filters. We do not expect silica will have caused any appliance failures, though it may have resulted in scale buildup and unsightly spotting and staining; some of the spotting and staining, though, may be from calcium and magnesium in the hardness.

Q. Based on what we learned at our workshop last week, how likely is it that water from a Ranney well will have Iron and Manganese? I thought I heard one of the consultants say that iron and manganese have been found in all wells in the Cowlitz River in our area.

A: It is likely that water from a new Ranney collector will contain iron and manganese, but the levels are not predictable. The City of Kelso Ranney collector has experienced varying levels of iron over time, but at levels they can readily treat. A recent test well they drilled near Mill Street contained iron at high enough levels they have abandoned that location as a possible water source. Even if the Ranney collector water was determined to be groundwater not under the influence of surface water, it is likely that iron removal treatment processes will be necessary to produce satisfactory water quality. This would require pumping the water to the Mint Farm for treatment, or constructing a new groundwater treatment plant near the Ranney collector.

Q. Residential: The CAC survey indicates that 50% of the public is willing to support a $5.00 increase and that number drops to 40% for a $10.00 increase. All the proposals and treatments are higher than $5.00. Did the CAC consider the public opposition to a cost increase of more $5.00 when they developed their recommendation?

A: I am not going to speak for the CAC and their thoughts and consideration. Our observations during the meetings were: some CAC members were concerned about the impact to low income residents; some CAC members were concerned about the opinions of the majority of customers since the CAC and City were hearing from a small percentage of customers; some CAC members did not trust the telephone survey accurately reflects the willingness of the community to support rate increases for a new water supply; some CAC members thought the matter should be put to a public vote, and some CAC members focused on the estimated rate increases being less than some citizens claim they are spending on bottled water and cleaning products.

Q. Business: 65% of the businesses included in the CAC survey are willing to support a 10% increase. The least expensive water option is a 21% increase. Did the CAC consider the financial impacts on businesses when developing their recommendation?

A: I am not going to speak for the CAC and their thoughts and consideration. Our observations during the meetings were that the CAC members considered water quality impacts to businesses, but focused primarily on the rate impact for single family residences (cost per ERU).

Q. Did city staff review the cost estimates developed by the consultant? Thoughts?

A: No. CH2M has a proprietary cost estimating model they use not only for their engineering group, but also for the construction group – they have a contracting group that actually builds plants and infrastructure. Staff discussed with CH2M what input parameters and factors were used in the cost model, and verified they considered cost influences such as pipeline construction through bare ground versus a concrete street. However, due to the +50% to -30% budget level accuracy of these early estimates and the lack of specific water quality, hydrogeology, and project information at this time, and due to the time constraints for completing the CAC work, we have not reviewed their estimates. In our judgement, CH2M's estimates are reasonable at this level of planning for the types of options being considered.

Q. Survey results indicate that spotting is the major concern. Is the city going to test silica removal equipment recommended by a local resident and developed overseas? If so, what is the timeframe?

A: We have contacted Mr. McCrary to obtain the equipment but do not have a schedule yet. Based on ongoing conversations with him, the pilot equipment he is proposing to supply is an reverse osmosis (RO) unit. We will pilot test it, but RO has already been presented as one of the technologies available to remove silica, and we're aware that local plumbers have installed premise RO systems in the community – some before the switch to the Mint Farm water supply. Feasibility is not the issue, it is the cost of full scale treatment plant RO construction and operation.

Q. Does staff have other knowledge of options to reduce the silica levels in the existing wells that might be cost effective (under the $5.00 ECU threshold)?

A: We are not aware of less costly treatment plant process options – chemical addition/coagulation/filtration, and reverse osmosis are the two reliable methods to remove silica at the treatment plant level. If there is a desire to stay at the Mint Farm, we could drill a test well to determine if there are silica lenses in the aquifer that could be blanked off in the wells so water drawn from the well may have less silica content. Groundwater mixes in the aquifer to some extent, so the results of blanking off silica lenses is hard to predict, and we don't know if there are identifiable silica lenses or if it is generally homogeneously distributed throughout the aquifer.

One consideration eliminated by the CAC would be premise treatment. Premise RO treatment systems could be installed at customer locations to remove silica and other objectionable constituents. This option would be less costly than treatment plant modification if the City paid to purchase and install the systems, provided the long term maintenance and operation of the premise system became the responsibility of the customer. Under this scenario, we believe some customers would decline to install a system because the current water quality is acceptable and they would not want to assume the long term maintenance and operation costs, thus reducing the cost to the City.