

**SACWSD – Water Hardness Advisory Committee (HAC)
November 14, 2017**

Members of the South Adams County Water and Sanitation District (SACWSD) Water Hardness Advisory Committee (HAC) convened for their sixth meeting to learn about the results of the pellet softening treatment system pilot study and to build agreement on what option to present to and get feedback from the public at the HAC public meetings (November 28 and 29). (*See appendix A for a list of attendees and appendix B for the agenda*).

I. Pilot Study Results

Vincent Hart, Carollo Engineering and John Ennis, SACWSD, presented the results of the pellet softening treatment pilot study:

- **Hardness level** – The study achieved the hardness goal of 115 mg/L - between Denver water’s hardness level (94mg/L) and Aurora’s hardness level (135 mg/L).
- **Radioactivity** –
 - *TENORM* - Results showed no noticeable amounts, therefore no TENORM impacts for disposal options.
 - *Radium* – Still waiting for the test results, but not expected to be very much.
- **pH Levels** – To meet the hardness goal the pH levels needed to be higher (more caustic chemical was added), therefore an extra step is needed to bring the pH levels down.
- **Waste/Pellet disposal or resale options** – The pellets are calcium carbonate. Calcium carbonate is used to whiten things like drywall, concrete, porcelain, fixtures. Most companies who purchase calcium carbonate want it in powder form; the most valuable form. Speaking with a large distributor (Specialty Minerals), SACWSD pellets would be more valuable if they were less than 0.8mm (although less valuable than powder, 0.8mm doesn’t require grinding; Specialty Minerals would need to invest approximately \$7 million to build a grinding mill if we produced pellets of a size greater than 0.8mm). The impact on SACWSD’s of producing a smaller pellet is a minimal cost increase due to the need for more seed in the process. The study started with a 0.3mm seed that went to a 0.9mm sized pellet through the process.
 - *Question:* Could the resulting pellets be used for fertilizer?
Answer: Yes, and because there is no water it is easier to ship.
 - *Question:* What is the value of calcium carbonate; how much could SACWSD expect?
Answer: The Chino, CA facility (Carollo designed and built) sells their calcium carbonate for approximately \$10 a ton. If SACWSD’s pellet were smaller than 0.8mm, it may have a slightly higher value. The expected pellet production, once fully operational, is 26 tons a day (a semi-truck typically carries about 20 tons). At the beginning of operation, it may be only 7 tons a day.
 - *Question:* Who is responsible for shipment?
Answer: The buyer will come pick it up.

- **Sodium** – There is a slight increase in sodium, but less than the sodium from in-home systems; the treatment system will add approximately 100 mg/L of sodium system wide.
- **Cost** – The current and more detailed estimate is \$51 million capital investment and \$2.1 million for operations and maintenance (O&M) costs. This results in an \$11 or \$16 rate increase (13% or 18% increase) for an average SACWSD bill - currently, the average bill in SACWSD is \$79 monthly. The different rate increases are contingent on the bond approved – a 20 year bond or a 30 year bond. The cost estimate assumes landfill costs, not reselling of the residual pellet waste. If the residual pellets could be sold, the O&M costs may decrease an approximate \$125,000-150,000 a year.
- **Taste** – Overall the taste was better than the current water. In early October, 38 people taste tested water over three days (Oct 9-11). People tasted four waters and rated them on a 1-5 scale (1 is good, 5 is bad). Results were that Denver water and the pellet softened water were the best (1.7, 1.9 rating, respectively) and the current water and carbonate soften water were the worst (2.4 rating for both).
- **Magnesium** – None was removed, but the impact of magnesium on homes and home appliances is negligible.
- **Construction Timing** – If the Board decides to move forward with implementation of a pellet softening system it would take 3 years to become operational (1 year for design and 2 years for construction).
- **Impacts of Growth** – Growth would change the ratio of SACWSD water and Denver water - more SACWSD source water and the same amount of Denver water (this amount is constant, cannot get more). Hardness level would remain constant (whatever level the treatment facility reaches), but there may be more TDS (total dissolved solids).
 - *Question:* Could TDS be lowered?
Answer: Yes, but the treatment option for this would add capital cost and impact taste (would add some lime in the system). The current pellet softening treatment showed that TDS would decrease by 100 mg/L.
- **Corrosive Levels** – The study showed pellet treatment did not negatively affect the corrosivity of the treated water ; results were similar to current water corrosivity to copper and lead. SACWSD will be required to follow the state requirements for corrosivity.
- **Decalcification of pipes (sloughing)** – Since the chemistry of the treated water is not corrosive, no sloughing or decalcification of the coating in distribution system pipes is expected.

Other Questions and Answers

- *Question:* What about removal of VOCs (volatile organic compounds)?
Answer: The study looked at a one-filter system for non-VOC stream and a two-filter system for VOC streams. VOCs are less of a concern than in the past. The VOC plumes have been cleaned up therefore the VOC levels of the water coming into the system are now below drinking water standards.

- *Question:* Currently glass films, with the pellet softening system will there be any filming on glass (e.g., cleaning glasses or cars)?
Answer: The pellet system will dramatically lower the levels of calcium carbonate which is the major cause of film on glass from the current water, so significantly less residual film is expected. There will still be some magnesium in the water that could cause minimal film..
- *Question:* Once pellet softened, what possible health issues remain in the water?
- *Answer:* There will be more sodium, but less than in-home water softener systems. The levels of sodium do not have impacts for lawn irrigation. The study tested a worst-case scenario (testing for treatment of SACWSD's hardest water). Treating the hardest water required a higher level of sodium, the sodium level, during average operation of the treatment plant, will be lower than the level obtained during the pilot study.
- *Question:* Pellet softening is a less known/newer system in the US; how many are there and has the State approved the system?
Answer: There are three in the US – two old ones in Florida and a new one in Chino, CA (Carrollo helped design and build it 2 years ago). Although the system is newer in the US, it is well known and commonly used in other parts of the world. The state has not approved the system yet (this was only a study), but they are aware that SACWSD was conducting a pilot study on it.

II. Options Matrix

Several elements in the options matrix were updated. In particular:

- Costs
 - Capital cost estimates for all central treatment options were raised \$8 million to pipe water from northern wells to the Klein treatment facility and back to the reservoirs.
 - RO cost was revised using the real-life East Cherry Creek Valley Water And Sanitation District (ECCV) example (southeast of Aurora). They are constructing a second phase of their RO system, which is a 10 million gallon addition to their current RO system that has been operational since 2011. They use deep well injection for disposal of the RO brine waste.
 - RO cost was also revised to include \$10.5 million in lost water cost (water for injection wells)
 - Lime soda and ion exchange costs were revised based on the parts of the systems that were similar to other central treatment options with real-life examples.
- What is required to pass (type of decision needed) – In all instances, the Board could issue bonds rather than a voter approved increase. This was the preference in the Survey (more preferred rate increase than property tax increase).

Discussion:

- *Question:* Would pump capacity need to be increased?
Answer: Yes, but not for 20-30 years, so no increase is included in cost estimates.

- *Concern:* There will be too big a rate increase with an increase for treatment and the increase for inflation (already anticipated). This would be approximately a \$22-\$28 monthly increase for an average bill.
- *Concern:* We need to address the belief that those in the District pay the highest water rates, therefore the belief they pay enough and the District should cover the cost for building the treatment without an increase.

III. What option best balances the HAC criteria/interests (see Appendix B)? Which should be presented at the public meeting for comments?

Discussion:

- Pellet treatment option – It is the best balance of: managing costs to ratepayers – a moderate rate increase (using 30 year bond increase); managing impacts of the waste; and addressing hardness. The other treatment options have more concerns about water quality, cost, and environmental impacts of waste management.
- Pellet treatment option – It is the best balance of HAC criteria. Other treatment options are too expensive and/or have greater environmental impacts related to waste management (e.g., RO's deep injection wells). The one option (calcium carbonate removal) that is less expensive, does not improve the taste from current conditions.
- Pellet treatment option – Understand this option balances many criteria, but still very concerned about the impact of the rate increase (particularly when coupled with the inflation increase) – too much for some to take on.
- When considering the impact of the rate increase factor for the cost saving from not having DIY costs (no or less in-home treatment and/or no bottle water needs); one HAC member said the rate increase would easily be covered by the cost savings of not having to buy bottled water.

AGREEMENT: Get feedback from the public on the option the HAC is leaning towards the pellet softening treatment option.

IV. HAC Public Meeting: Review draft agenda, draft presentation, and discuss how HAC members will be engaged

The HAC members reviewed the draft presentation/data to be presented – is it the right balance of key data points and not too much data:

- Remind the public of the two-systems set up for SACWSD water – in-home and irrigation.
- Comparison water rates slide – add a dashed “if pellet treatment” line to the SACWSD bar.
- Tax dollar slide – too much on the slide, find a way to highlight the SACWSD portion.
- Survey result slides – need to source BBC Research on all survey data slides.

- Matrix slide – too much on there (too much data), it is ok if the point of the slide is the HAC looked at lot of things, and if participants have a copy of the slides to refer back to.
- Missing slides:
 - HAC recommendation slide, including the criteria
 - Pellet treatment outcome – positive and negative health impacts (what is left in the water that might be a problem)

The HAC also discussed the process for the meeting – presentation and questions in a large group, then small groups with at least one HAC member and one SACWSD technical person. Comments will be written down on post-it notes and put on a flip chart so all can see the comment has been heard and can easily see all comments made (both in their own small group and could look at other small groups' post-its).

- The number of small groups depends on: a. the number of HAC members present and willing to run a small group; b. the number of technical staff present; and c. the number of public that attend.
- Concern: What if the meeting is extremely large (150) and small groups are too big for good discussion? Suggestion: Ask members in each small group to write their own post-it notes (positives or concerns) and put them on the flip chart themselves, then Committee and staff could quickly organize the post-its and discuss the results, asking for any additional thoughts.
- Suggestion: Have a bilingual staff person present.
- Suggestion: Provide copies of the slide – it will help during discussions.
- Suggestion: Print the FAQs on hardness from the SACWSD website.

V. Next Steps

- **Recommendation Report** – HAC will review the recommendation report - at this point, just process steps already taken, the recommendation language will be added/reviewed after the December 5th meeting.
- **Public meetings** – Please arrive at least 30 minutes early to gather tips for running a small group, and helps the planning team knows in advance how many groups there could be
 - **Nov. 28, 6:00-8:00pm – HAC Public Meeting (south):** Commerce City Recreation Center 6060 E. Parkway Dr., Commerce City
 - **Nov. 29, 6:00-8:00 – HAC Public Meeting (north):** Second Creek Elementary School, 9950 Laredo Dr. Commerce City
- **HAC Final Meeting - Dec. 5, 6:00-8:30:** to build agreement on a recommendation to the SACWSD Board
- **SACWSD Board meeting to decide - Dec 13:** review the HAC recommendation, public comments, and approve 2018 budget (with or without an option to address water hardness)

APPENDIX A: Attendance

HAC Members Present:

- Brett Burrough, Business-North
- Danny Thomas, Resident-South
- Elaine Hassinger, Tri-County
- Glenn Murray, Resident-North
- Jack Hagaman, Business
- Jessica Monahan, Resident-North
- Jim Jones, District General Manager
- Pamela Sprattler, Resident-South
- Robyn Jeffords, Resident-North
- Steven Erwin, Resident-North
- Tina Dorf, Business
- William Frew, Business-North

Observers:

- Betty Thomas, Resident

Staff & Consultants:

- Kipp Scott, SACWSD, Water Systems Manager
- John Ennis, SACWSD, Project Manager for Pilot Study
- Byron Jefferson, SACWSD, Administrative Services Manager
- Theresa DeMouy, SACWSD, Communications
- Greg Chol, SACWSD,
- Vincent Hart, Carollo Engineers, Inc., Inc., Project Manager
- Jody Erikson, JSE Associates (Facilitator)

APPENDIX B: Agenda

SACWSD – Water Hardness Advisory Committee (HAC) August 22, 2017

District Office, 6595 E 70th Ave, Commerce City, CO 80022

Objectives:

- Results of pilot study and tests
- Initial possible recommendation for public feedback at HAC Public Meetings (11/28, 29)

6:00 Dinner

6:15 Welcome & Introductions

6:20 Pilot Study Results

- *Process and Results – John Ennis, SACWSD & Vinnie Hart, Carollo*
- *Alternate treatment technology results – carbonate softening, John Ennis SACWSD*

6:45 Discussion: What option best balances the HAC criteria/interests (see Apdx A)?

Result: Which option(s) does HAC see as most promising and want to gather public comments/input on?

7:45 HAC public Meeting: Review draft agenda and how HAC members will be engaged

8:25 Next Steps

- **Draft Recommendation Report** – HAC will review a recommendation report (at this point, just text regarding the process steps up to/through November)
- **Nov. 28, 6:00-8:00pm – HAC Public Meeting** (south): Commerce City Recreation Center 6060 E. Parkway Dr, Commerce City
- **Nov. 29, 6:00-8:00 – HAC Public Meeting** (north): Second Creek Elementary School, 9950 Laredo Dr. Commerce City
- **Dec. 5, 6:00-8:30 – HAC Meeting:** final meeting to review public comment and build agreement on a recommendation to the board
- **Dec 13, - SACWSD Board meeting:** review the HAC recommendation, public comments, and approve 2018 budget (with or without an option to address water hardness)

8:30 Adjourn

AGENDA, APPENDIX A: HAC Criteria/Interests

Any solution must balance (address to the extent possible) the following criteria:

- ❖ Address water hardness in the district (added following 4/4/17)
- ❖ Equitable – good for all, fair (added following 4/4/17, mentioned most often in the meeting)
- ❖ Manage costs to rate payers (costs to consumers via rates)
- ❖ Protect the environment (decrease impacts)
- ❖ Diminish costs to consumers for doing it themselves (DIY)
 - Costs for customers to treat water themselves
 - Cost from impacts of deposits (e.g., appliance replacement & fixing, pipes etc.)
- ❖ Provide good tasting/drinkable water
- ❖ Minimize negative impacts to human skin
- ❖ Be affordable to scale for growth
- ❖ Protect or improve property value for resale

- ❖ Ensure stable water sources
- ❖ Explainable
- ❖ Legal

Approved: April 4, 2017, Revised: May 2, 2017