METROPOLITAN WATER POLLUTION ABATEMENT ADVISORY COMMITTEE

Engineering and Planning Subcommittee
Meeting Summary – February 18, 2009
King Street Center, 9:00 am – Noon

MWPAAC members in attendance:
Walt Canter, Cedar River Water & Sewer
Dennis Cheung, City of Issaquah
Dave Christensen, City of Renton
Wes Jorgenson, City of Bellevue [Subcommittee Chair]
Arne Lind, Ronald Wastewater District
Ron Little, Sammamish Plateau Water & Sewer District
Steve Moye, Coal Creek Utility District
Ron Nowick, Lakehaven Utility District
Trish Rhay, Seattle Public Utilities
Mary Schuster, Sammamish Plateau Water & Sewer District
Laura Szentes, Northeast Sammamish Sewer & Water District
Art Wadekamper, Ronald Wastewater District
Margaret Wiggins, Northshore Utility District

Others:
Vicky Henderson, Roth Hill Engineering Partners

Facilitator: Tamie Kellogg, Consultant

Staff:
Mark Buscher, DNRP/WTD/PAM – Comprehensive Planning
Karen Huber, DNRP/WTD/PAM – Comprehensive Planning
Shaun O'Neil, DNRP/WTD – Finance & Administration
Debra Ross, DNRP/WTD/PAM – Comprehensive Planning
Suzanne Schweitzer, DNRP/WTD – Resource Recovery Section
John Smyth, DNRP/WTD – Resource Recovery Section
Becky Spithill, DNRP/WTD
Steve Tolzman, DNRP/WTD/PAM – Comprehensive Planning

1. Opening Remarks

Members and staff made introductions. Members accepted the minutes of the last meeting. Tami alerted the group to a demanding agenda that would make possible only a few brief break (see Agenda).

2. Combined Sewer Overflow (CSO) Treatment Technology Project – John Smyth, Resource Recovery Section

John provided background on the CSO treatment technology evaluation and detailed the division process for deciding to undertake pilot testing of the technology (see King County CSO Treatment Technology Evaluation). Pilot testing is not used to select a technology; rather, it allows for control of conditions relevant to future operations, so it is most useful in determining design parameters. The pilot will not be used to develop cost projections.

The use of wastewater treatment technology for CSO handling varies from standard uses because of the need for stand-alone systems that operate intermittently at relatively remote sites. The planning process resulted in the following conclusions:

- Operation of ballasted sedimentation systems is well-understood;
- Several technologies cannot be considered because they will fail to meet suspended solids standards;
- Other technologies cannot be considered because they are not capable of handling large volumes of CSO;
- Chemically enhanced primary clarification (CEPC) with and without Lamella Plates (LP) have potential, although their use treating CSO flows is limited

CEPC and CEPC-LP will be pilot tested under controlled conditions that will replicate CSO flow and composition, with sampling and analysis of several factors. Subcommittee members asked whether more comprehensive sampling would be needed to determine whether these technologies would be effective in removing nutrients. John said that removing nutrients is not a consideration in this case; it requires a biological process that is not possible in a remote, stand-alone, intermittently-used site.

King County's consideration of technologies anticipates future regulations that may set higher standards for treatment of stormwater and CSO. As a result, the pilot project will analyze more parameters than other pilot studies. Handling of the volume of CSO flows is the primary issue in implementing this technology, because the county currently treats approximately the first 40 percent of the stormwater, which is the most contaminated of the flow. It is likely that the state will increase limits on metals and this pilot takes that into account.

The project is on a schedule to conduct variable flow testing from February to April. The final report will be completed in the third quarter of 2009.

Subcommittee members asked how the process would compensate for more dilute conditions in the field. John said that pilot will replicate and model those conditions in the course of testing.

In addition, members raised concerns about the effects of polymer on the environment and how much of those chemicals were removed as part of the process relative to the amounts that will be discharged to the environment. John said that the chemicals are

biodegradable, but that most of the chemical will bind to solids and become part of the solids waste.

Karen said that the county planned to size the facility as small as possible in order to be cost effective. Along the Duwamish, the county currently operates four CSO treatment facilities. Another four are planned.

This technology is seen as among the CSO treatment alternatives in addition to storing CSO flows. Ideally, the treatment facility will both store and treat these CSO; that is, when storage is exceeded, the facility will shift into treatment mode.

3. Reclaimed Water Comprehensive Plan (RWCP) – Mark Buscher, Project Manager, RWCP

Mark presented the Purpose and Need Statement – Working Draft for MWPAAC's E&P Subcommittee to the subcommittee, which was prepared as a response to comments and concerns voiced by regional workshop participants in October 2008. Mark noted the document states that the purpose of the RWCP is to determine if, how, and when over the next 30 years the county's existing reclaimed water program should expand. The plan is needed now to help the county effectively manage its wastewater utility.

Mark highlighted the following information that is included in the working draft of the purpose and need statement:

The plan was developed for the following reasons:

1. to fulfill King County WTD's responsibility to plan
2. to make beneficial use of effluent
3. to anticipate system needs
4. to comply with state law that requires consideration of opportunities to utilize reclaimed water
5. to consider and mitigate the impacts of effluent discharge on the quality of Puget Sound
6. to protect the region's water resources in the face of future changes and uncertainties (population growth, increased development, climate change, etc.)

Subcommittee members had several comments, concerns and recommendations, which included the following:

- Section 2.1 (p. 4), remove the fourth bullet referencing the Columbia River, since it does not apply to King County. [Staff indicated that this section references Washington's Reclaimed Water Act, which is applicable statewide.]
- Water discharged to the Puget Sound currently meets permit requirements, so looking to a reclaimed water program to improve King County's ability to meet state standards is moot. [Staff responded that King County must consider option to

meet higher levels of treatment in the future, as well as anticipate new restrictions to discharged water of decreasing volume.]

- Given that the use of reclaimed water is seasonal and its need is inversely related to its availability, this program will not reduce the volume of discharged water in high-flow months. [Staff pointed out that there are variations in the quality of reclaimed water and its uses. The RWCP could consider satellite plants and the possibility of locating plants closer to those areas that reclaimed water would serve.]
- The quantity of reclaimed water currently produced at the South Plant is less than one percent. [Staff pointed out that the largest user of reclaimed water at the South Plant is the plant itself.]
- Can reclaimed water be used more for stream flow augmentation? [Staff said that the Carnation Treatment Plant uses reclaimed water to augment flows in the Snoqualmie River, but only after it has moved through a wetland. Direct discharge to streams is not the most desired due to variations in temperature between the reclaimed water and the receiving stream.]
- There was a question about the ability and legality to discharge reclaimed water into the Lake Washington drainage basin.
- Section 4.1.2 (p. 14), in drawing conclusions about the condition of aquifers in the region, the county should include more information from current studies.
- The document could benefit from a better balance of statements that provides information more objectively.
- Instead of using existing policies as the reason to develop the reclaimed water comprehensive plan, it may be better to review the policies first.
- The document conveys the message that the county has the answer even before it makes the plan. For example, Section 2.2 (p. 7), the statement about comprehensive planning in order "to prevent costly retrofits in the future" presumes the conclusion that retrofits are costly and should be prevented. Similarly, Section 2.1 (p. 4) stating that the comprehensive plan "notes the important role that reclaimed water can play," presents this as a fact.
- The document provides information about why the county wants to pursue a reclaimed water program, but not the problem that the plan is supposed to address.

Mark provided additional information about the purpose of the plan. He emphasized that there are no predetermined conclusions, the planning effort is designed to determine if, how, when, and where the reclaimed water program should be expanded. It is very possible that the plan will conclude that it doesn't make sense to expand the county's reclaimed water program. The plan seeks to identify opportunities and problems that reclaimed water could address and determine whether addressing these problems and/or taking advantage of these opportunities provides enough potential to justify further movement on reclaimed water.

One subcommittee member characterized the plan as a tool that would complement development of larger projects, in order to consider additional options for water treatment.

One subcommittee member asked whether the 30-year planning horizon might not be too long. Mark said that there would be greater levels of details for projects that would be recommended in the shorter term versus the longer term. He noted that the 30-year planning horizon is typical for utilities..

Several subcommittee members commented that reclaimed water could be in direct competition with water purveyors and have a negative impact on local providers' sales and revenues. They referred to Section 2.2 (p. 7) which describes to reclaimed water as a "competitive resource." King County staff said the text should read "cost-effective resource." Members also brought up the response to the RWQC question about whether King County intends to compete with water utilities (see Responses to questions asked at the Regional Water Quality Committee). They felt the statement that "If a utility does not want to serve as a retailer, then King County will consider being a retailer of last resort to supply reclaimed water to a potential user." could be interpreted to contradict the county's position it does not intend to compete with water utilities. Members asked for additional language that makes to county's position clear.

One subcommittee member asked if decreasing the volume of the water from the treatment plants reduces dilution to the point where pollution levels increase. Mark said that total volumes discharged are reduced.

In response to one member's comment that he was hoping the document would provide a roadmap of the RWCP Plan, Mark said that the Purpose and Needs Statement is intended to explain why the RWCP is being developed at this time. An explanation of how the RWCP will be developed can be presented to the subcommittee at the next meeting. Mark also reiterated the objectives of the RWCP:

- To look forward from this point to identify if, how, and when over the next 30 years the county's existing reclaimed water program should expand
- To identify through the planning process those problems or opportunities that reclaimed water might address
- To explore details of potential implementation, such as capital investment and prospective financing plans; identify alternatives to reclaimed water; and develop a framework for future comparative analyses of those alternatives
- To consider revisions to adopted RWSP reclaimed water policies.

4. WTD Vulnerable Facilities Inventory – Shaun O'Neil, Finance and Administration Unit

The vulnerabilities assessment was developed as part of the county's Climate Action Plan – 2007. The plan looks not only at how King County can reduce its reliance on and use of fossil fuels, but also how it will adapt to climate change now and in the future. The county has worked closely with the Climate Impacts Group at the University of Washington.

Shaun presented an overview of the Vulnerable Facilities Inventory (see Vulnerability of Major Wastewater Facilities to Flooding from Sea-Level Rise). It identifies a total of 40 major wastewater facilities that are located in areas that are tidally influenced. These include treatment plants, pump stations and regulator stations. Factors considered in determining vulnerability to onsite flooding from sea level rise included the following:

- Facility Elevation in NAVD88 (this measurement is not relative to tide levels);
- Current Seattle Tide Gauge Data for mean higher high water [MHHW] converted to NAVD88;
- Sea level trends based on global data that factors in local variability (vertical land movement and atmospheric dynamics); Puget Sound 6-50 inch increase by 2100;
- Storm surge heights above predicted tides (100-year storm = 3.19'); and
- Speed of ice cap melt (rapid ice sheet melt scenario) – 20' sea level rise

The analysis showed that three sites are vulnerable during a 100-year event for by 2100 in the medium scenario. The same three sites and two additional sites are vulnerable in a 2050 low-probability/high-impact sea level rise scenario, with increasingly more sites identified as vulnerable in a 2100 low-probability/high-impact sea level rise scenario.

Recommendations:
- Detailed site analysis of the five lowest sites and WPTP;
- Planning to deal with vulnerability of the facilities; and
- Continuous monitoring of research in order to adjust plans.

King County developed an Asset Vulnerability Tool (GIS) to evaluate scenarios, but it as a tool that can be used in any geographic region. It is available on the King County website. King County has applied for a $225,000 grant for modeling and operations review of system hydraulics. This will be a two-year project looking at energy usage and hydraulic impacts.

Materials

1. Agenda for MWPAAC Engineering and Planning Subcommittee Meeting, February 18, 2009.
2. King County CSO Treatment Technology Evaluation
3. Responses to questions asked at the Regional Water Quality Committee meeting on Dec. 3, 2008 regarding the Reclaimed Water Comprehensive Plan
4. Vulnerability of Major Wastewater Facilities to Flooding from Sea-Level Rise