Seattle Public Utilities

Protecting Seattle's Waterways

Update on the Combined Sewer Operation and System Optimization Plan (Joint Plan)

July 17, 2012

Today

- SPU and WTD independently operate their wastewater collection, interceptor, and treatment systems, although both systems are hydraulically connected and function as one integrated system.

- The West Point Treatment Plant is dedicated almost completely to the treatment of Seattle's wastewater, including all flows from the combined portion of the system.

Today

- Each agency uses its own separate supervisory control and data acquisition (SCADA) system to perform monitoring and control functions independently.

- No real-time operations information is shared, and operations staffs from each agency do not necessarily share the same operating objectives and constraints.

Goal

The goal of this effort is to develop a Plan that is consistent with both agencies' operational objectives and optimizes the capacity of both systems, while balancing risks to both agencies.

Background

- Part of larger City & KC negotiations and omnibus agreement
- Required by both City and KC Consent Decrees
- Consent Decree requires annual updates to EPA & Ecology on progress, and completed Joint Plan by Q1 2016

Background

- Foundational effort to define the connecting points where joint operations and/or system optimization may be possible over time
- Understand current operations
- First phase of a paradigm shift from operating two systems to jointly operating as one system – a culture of joint operation

Outcomes

- Where and how joint operations can occur
- Communication plan
- Ways to share real-time monitoring data
- Identification of points where procedures and settings might be altered to optimize performance
- Incorporate joint operations in current capital projects

Opportunity

Operational coordination between the agencies could yield significant benefits:

- reduce operating costs, and better manage risk and uncertainty in terms of regulatory compliance.

- operational coordination during the capital project planning and design phases will lead to more cost-effective projects in the future.

Examples of Potential Benefits

1. Optimizing wet weather treatment capacity at West Point Treatment Plant through coordinated operational changes.

Examples of Potential Benefits

2. Making operational changes near SPU's CSO NPDES 60 which flow into the Old Fort Lawton tunnel near WTD's West Point.
   - convey peak flows to West Point instead of building additional storage, eliminating SPU's need to build a 185,000 gallon CSO storage tank at an estimated project cost of $2.4M (2010 dollars).

Examples of Potential Benefits

3. Using SPU's existing 3.9 MG Madison Valley storm water detention facility for CSO reduction in WTD's Montlake CSO basin.

   - potential to reduce the size of the storage volume required in Montlake, thereby reducing the cost of the WTD's 6.6 MG Montlake CSO control project, which has an estimated project cost of $102M.

Examples of Potential Benefits

4. Establishing real-time data sharing capabilities for SPU's existing and future Windermere CSO facilities and WTD's Belvoir pump station and associated emergency bypass/CSO.

Deliverables in Charter

- Joint Operations and System Optimization Plan for existing system and facilities
- Investment and Enhancement Strategy for Improved Operational Coordination – this will outline recommended capital investments (such as connecting our SCADA systems)
- Process for incorporating Joint Operations and System Optimization Plan guidance into the design of new capital projects.
- Estimates of benefits, costs, and resources to implement the options

CSO Operating Objectives (Draft)

- Maximize use of treatment capacity at West Point
- Protect and maintain plant equipment and biological system
- Meet plant NPDES permit requirements
- Prevent SSOs and DWOs

- Prevent CSO's by capturing and conveying the maximum volume of wet weather flow giving priority to environmentally sensitive needs
- Minimize stormwater surface flooding to ensure public safety

Current and Future System Education and Overview

- Operation Assumption Review
- Identify Connection Points
- Characterize System Operations
- Existing Real-time Controls
- Identify Tools (e.g., Models)

Current and Future System Education and Overview

- Review existing system operations during historical storm events

- Participate in County's storm planning at West Point WWTP

What's Possible

- (Louisville MSD) The operations plan predicted a significant savings of $160M (64%) on the estimated CSO Program costs if fully implemented. The first phase of implementation exceeded expectations and provided a system-wide average annual overflow volume reduction of 10 to 20%