



KING COUNTY AUDITOR'S OFFICE

APRIL 1, 2021



West Point Treatment Plant Follow-up: It Will Take Many Years until Spill Risks Are Mitigated

The Wastewater Treatment Division (WTD) received preliminary approval from the state to replace its large raw sewage pumps at the West Point Treatment Plant (WPTP); however, this project is complex and WTD shifted its expected completion date from 2027 to 2030. The replacement of large pumps is a considerable undertaking and is estimated to cost \$176 million. The logistics of completing this work while keeping the plant in full-time operation will be challenging since equipment will need to be custom built. WPTP is one of the largest plants with custom equipment needs in North America and WTD will need to work closely with manufacturers of pumps, engines, and related power equipment and controls to ensure each yearly phase is staged for success.

WTD completed key safety recommendations. First, it developed an interim system to track life safety management activities while a planned enterprise asset management system (EAMS) is implemented. Second, WTD made several improvements in its training program. Implementing these recommendations reduces risk and addresses employee input.

WTD's Clean Water Plan (CWP) and combined sewer overflow (CSO) plan remain in development. The consultant's (AECOM) 2017 report suggested that WTD investigate storage opportunities or collection system ideas to truncate instantaneous peak flow events to WPTP. WTD initiated the CWP in 2018, which is a periodic, extensive 40-year look at its entire system of assets to meet growth and regulatory requirements into the future. Based on our recent interviews with WTD, the CWP is taking longer than expected. WTD still intends to transmit a plan for County Council review and approval by the end of 2021, with council deliberations planned to occur in 2022. Further, the CSO assessment and related implications which need to be captured in a formal 2023 long-term control plan (LTCP) update may not be ready for council review and approval until late 2023 or early 2024.

Of the four audit recommendations:

	3 DONE		1 PROGRESS		0 OPEN
Fully implemented Auditor will no longer monitor.		Partially implemented Auditor will continue to monitor.		Remain unresolved Auditor will continue to monitor.	

Please see below for details on the implementation status of these recommendations.

Recommendation 1

DONE



The Wastewater Treatment Division should gain conceptual approval from the state Department of Ecology no later than January 2020 for its passive weir and raw sewage pump capital investments to alleviate the risk of future flooding events at West Point.

STATUS UPDATE: WTD accomplished important immediate milestones following our last report:

- submitted technical planning report to state Department of Ecology (ECOLOGY), October 2019
- received conceptual approval from ECOLOGY for both projects, December 2019
- ECOLOGY comments received in December 18, 2019 letter will help refine design approaches for both projects

WTD has subsequently updated timelines for each project, as reflected below:

Milestone	Passive Weir	Raw sewage pump replacement
Alternative analysis phase	Q1 2021	Q3 2021
Engineering report	Q1 2021	Q3 2021
Baseline (30% design)	May 2021	Q1 2022
Completion	January 2023	March 2030

IMPACT: By implementing this recommendation, WTD has gained critical early review by the state regulatory agency for both these important WPTP capacity projects. Obtaining such vital feedback helps WTD begin near-term decisions critical to starting design and construction as early as possible.

Recommendation 2

DONE



The Wastewater Treatment Division should adopt formal mechanisms to track its life safety management activities, until the planned enterprise asset management system is fully implemented.

STATUS UPDATE: WTD is using a life safety management (LSM) program SharePoint site as a formal mechanism to track its LSM activities until the planned EAMS is fully implemented. The EAMS project is in the early design phase. The scheduled implementation time frame for EAMS is projected to be 2023-2024. WTD has budgeted \$5.6 million to implement EAMS across its entire portfolio of assets, not just at WPTP. Via the initial LSM program and subsequent staff training implemented in 2019, plant personnel are actively entering actionable items and risks into the database to actively track routine activities needed to improve life safety.

IMPACT: By implementing this recommendation, WTD has firmly instituted its LSM program within the WPTP organization, and is actively monitoring capital work, repair actions, system upgrades, and process improvements in a formal system that is transparent to all staff on site.

Recommendation 3

PROGRESS



As part of its comprehensive planning process, the Wastewater Treatment Division should reevaluate its combined sewer overflow program to determine whether there are opportunities to manage or reduce flows to the West Point Treatment Plant within the broader collection system and to document the results of its evaluation.

STATUS UPDATE: WTD is continuing to reassess its CSO program as part of the larger wastewater collection and treatment system. WTD began negotiations with the U.S. Environmental Protection Agency, State Ecology Department, and U.S. Department of Justice to modify the consent decree requiring completion of CSO control by 2030. WTD is looking at different CSO control schedules and approaches as part of its CWP process. To support development of the CWP and the next update to the county's CSO LTCP, a technical memorandum is being prepared that identifies options for optimizing use of the conveyance and CSO system for managing flows and overflows.

The CWP is currently scheduled to be delivered to the Council as soon as early 2022, and is expected to include program investment and policy recommendations regarding CSO control and flow management at WPTP. An updated CSO LTCP will be developed following completion of the CWP. WTD anticipates the CSO LTCP will be sent to Council for review and approval in 2023 or 2024.

WHAT REMAINS: The CWP is a significant endeavor and represents a minimum 30-year forecast of growth and operational factors which influence capital capacity and repair investments which need to be made throughout the entire WTD portfolio of treatment plants and extensive collection system. Started in 2018, it is imperative that WTD complete this comprehensive plan by early 2024, along with its detailed financial impact analysis.

Recommendation 4

DONE



The Wastewater Treatment Division should develop, document, and implement a training plan that provides information on frequency of recurring training and includes provisions to continuously update trainings to reflect new systems and related procedures as they are implemented.

STATUS UPDATE: WTD has made significant strides in training program refinements since February 2017, and as of our last report in June 2019. WTD has created and documented a formal training plan that is continuously updated as conditions change at the treatment plant via capital upgrades. Within this training plan, reoccurring training and the frequency of recurrence has been built into the formal plan. Further, WTD is tracking employee training records to ensure all WPTP employees are current in all required training and certifications.

IMPACT: By implementing this recommendation, WTD has created a multifaceted, formally documented training program for the entire operations and maintenance staff at WPTP, along with ensuring employee training and certification records are kept current. This program was created based on employee input, failure scenarios, and risk analysis of various potential failures at WPTP.

Michael Bowers conducted this review. If you have any questions or would like more information, please contact the King County Auditor's Office at KCAO@KingCounty.gov or 206-477-1033.