

Technical Memorandum

CSO Sediment Quality Characterization SAP Addendum: Henderson St. Pump Station and Martin Luther King Jr. Way Overflows

July 2022

Prepared for:

King County Wastewater Treatment Division
Department of Natural Resources and Parks

Submitted by:

Jennifer Lanksbury
Science and Technical Support Section
King County Water and Land Resources Division
Department of Natural Resources and Parks

And

Debra Williston
Environmental and Community Services Section
King County Wastewater Treatment Division
Department of Natural Resources and Parks



King County

Department of
Natural Resources and Parks
Water and Land Resources Division

Introduction

King County will sample sediments in Lake Washington in the vicinity of the Henderson St. Pump Station / Martin Luther King (MLK) Jr. Way overflow discharge location in support of King County's Sediment Management Plan (SMP). Sampling is scheduled to occur in August of 2022. This memorandum is an addendum to the 2022 *Combined Sewer Overflow (CSO) Sediment Quality Characterization Sampling and Analysis Plan (SAP)* (King County, 2022) and addresses the sampling design and analytical requirements specific to this sampling event. All other aspects of the sampling and analysis are specified in the 2022 SAP.

Background

Sediment sampling in the vicinity of the outfall for both the Henderson St. Pump Station and MLK Jr. Way overflows is being conducted per King County's SMP update (King County, 2018a). This site was identified for additional monitoring in the SMP update. The sediments near the outfall were sampled in 1995 (one location) and in 2000 (two locations). Samples were above the freshwater benthic sediment cleanup objective for nickel, mercury, TBT, total PCBs, PAHs, dibenzofuran, dieldrin, sulfide, and BEHP and total PAHs at one or more locations.

This discharge pipe serves two King County CSOs, MLK Jr. Way (013) and Henderson St. Pump Station (045), as well as a City of Seattle storm drain and CSO. There have been no reported overflow events from the Henderson St. Pump Station and MLK Jr. Way CSOs since they were controlled in 2005. However, overflows were reported in years prior to 2005 with a total annual average discharge rate of 54 MG/yr¹ for both the Henderson St. Pump Station and MLK Jr. Way combined. Additional overflow information is presented in Table 1 below.

Table 1. Summary of CSO Overflow conditions since control (information from King County, 2018b)

CSO site (date controlled)	Overflow status since control	1981-1983 Baseline ¹ (MG)
Martin Luther King Way (1969)	No overflows since control ^{2,3}	60
Henderson St. Pump Station (2005)	No overflows since control ²	15

¹ Modeled CSO discharge volumes representing a baseline condition in years 1981 to 1983 before any CSO controls were implemented and flow monitoring began.

² King County CSO Control Program 2017 Annual Report using historical modeling to estimate the 20-year average when monitoring records do not go back far enough.

³ King County 2014, 2014A No Impact Release Rates.

The area of Lake Washington where these two King County CSOs discharge also receive discharges from the City of Seattle CSO #47, as well as stormwater from separated

¹ Compiled data from King County Annual CSO Control Reports from 1992-2006.

stormwater basins in the area. More details on these other discharges will be presented in a data report presenting results from this sampling. The SMP update (King County, 2018a) noted sediments in the area and adjacent pathways and potential sources warrant further evaluation to determine if a cluster of potential concern still exists. This sediment characterization is designed to conduct that determination.

Sample Design and Location of Sampling Stations

The sampling design uses the scaling analysis presented in Appendix B of the SAP (King County, 2022).² Using the outfall conditions characterized in the *CSO Sediment Quality Modeling for Lake Washington* report (King County, 2018b), the seven-sample pattern is appropriately scaled at a 70-foot separation based on historical discharge conditions. The station location array is presented in Figure 1. The sampling stations in relation to the Henderson St. Pump Station/MLK Jr Way CSO outfall are shown in Figure 2. One station in the array was moved slightly to reoccupy an historical station (Locator 4903A). In addition, two stations were added (Locators 4903 and 4903J) to the south end of the array pattern to help understand how other releases in the area may affect the model-predicted deposition pattern from the CSO. One of these added stations (Locator 4903) is also a reoccupation of another historical station. The reoccupied stations will help improve our understanding of natural recovery in the area. The sampling station locator names and associated coordinates are presented in Table 2.

Table 2. Station locators and associated coordinates

Locator ¹	Easting	Northing
4903D	1287260	194160
4903E	1287400	194160
4903A ^b	1287530	194170
4903F	1287330	194230
4903G	1287470	194230
4903H	1287330	194090
4903I	1287470	194090
4903 ²	1287443	194030
4903J	1287640	194030

Coordinates are in NAD93(HARN) / Washington North (ft US)

^a Locator names consider historical sampling location numbering.

^b Existing Station/Locator in King County Environmental Laboratory LIMS.

² This scaling analysis was first conducted in support of the *CSO Sediment Quality Characterization SAP* (King County, 2011) and is also included in the updated 2022 SAP for ease of reference.

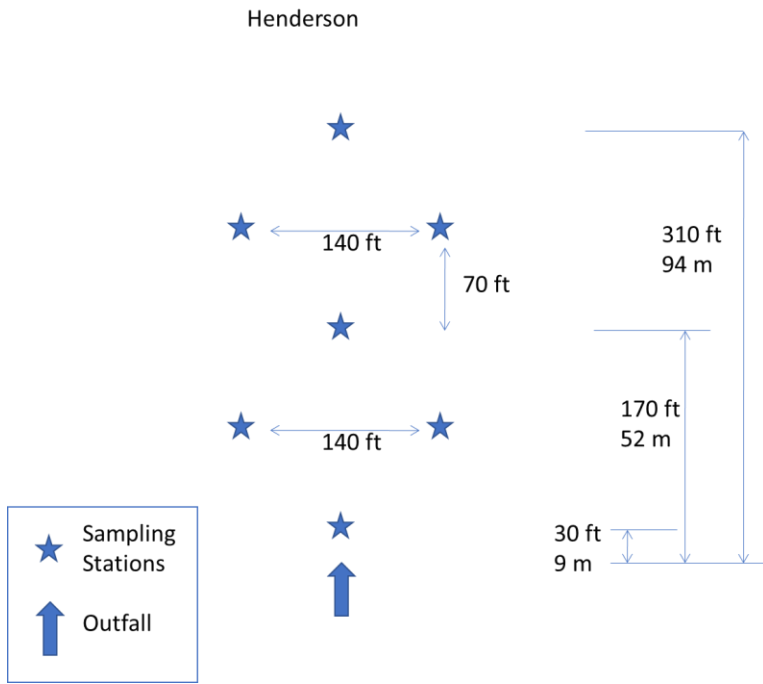


Figure 1. Sampling Array for Henderson St. Pump Station / MLK Jr. Way Overflow



Figure 2. Henderson St. Pump Station/MLK Jr. Way Overflow Sediment Sampling Locations

Parameters

The parameters to be analyzed will be the freshwater sediment analytes listed in Table 2 of the 2022 SAP (King County, 2022). These include metals, base/neutral/acid semivolatile organic compounds, polychlorinated biphenyls (PCBs) as Aroclors, pesticides, butyltins, total petroleum hydrocarbons and conventional parameters including ammonia and total sulfides. The specific list of parameters and analytical methods are available in Section 6.0 of the 2022 SAP.

Project Schedule

The filed sampling schedule and approximate timing of laboratory analysis and data reporting are summarized in Table 3.

Table 3. Target schedule for sampling, analysis, and data reporting

Work item	Target Date(s)
Field sampling	August 9 or 11, 2022
Laboratory analysis complete	October 17, 2022
Data reporting complete	December 2022

Responsibilities

The King County Environmental Laboratory will conduct the field sampling (Field Sciences Unit) and sample analysis. The task leads for the Henderson St Pump Station/MLK Jr. Way Overflow sediment sampling and reporting are the same task leads shown in Section 2.0 of the 2022 SAP (King County, 2022).

References

- King County. 2011. CSO Sediment Quality Characterization: Final Sampling and Analysis Plan. Prepared by Scott Mickelson, King County Department of Natural Resources and Parks, Marine and Sediment Assessment Group. Seattle, Washington
- King County. 2014. 2014A No Impact Release Rates. Memorandum from Bruce Crawford. July 10, 2014, King County Dept of Natural Resources and Parks, Wastewater Treatment Division.
- King County. 2018a. King County Sediment Management Plan 2018 Update. Prepared for King County Department of Natural Resources and Parks, Sediment Management Program. Prepared by Anchor QEA, LLC. Seattle, Washington.
- King County. 2018b. CSO Sediment Quality Modeling for Lake Washington, Seattle, WA. Prepared by King County Dept of Natural Resources and Parks for the Washington Department of Ecology.
- King County. 2022. CSO Sediment Quality Characterization: Sampling and Analysis Plan. Prepared by Jennifer Lanksbury and Debra Williston, Department of Natural Resources and Parks. Seattle, Washington.