Appendix A:

Description of business inspection, source tracing, and line cleaning programs in the Lower Duwamish Waterway

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1. Business Inspections

1.1. INSPECTION PROGRAM HISTORY

In 2003, SPU and King Co started business inspections in the Diagonal Ave S CSO/SD basin to support cleanup efforts in the Diagonal/Duwamish Early Action Area. These inspections targeted stormwater quality, industrial wastewater and hazardous waste management. The joint inspection program lasted for three years, at which point King County withdrew to focus on businesses that are permitted under the King County Industrial Waste program.

SPU has continued in the subsequent years to develop a robust inspection program. In 2007, SPU was one of the distinguished programs selected to be supported by the Department of Ecology Local Source Control (LSC) grant and training assistance program. In the years since SPU has continued to support LSC as a leadership program providing training and mentoring to new inspectors across western Washington. The modern business inspection program encompasses the entire City of Seattle separated drainage basin, but special emphasis is placed on the LDW. SPU currently carries out comprehensive inspections at businesses in the LDW to evaluate compliance with both City and County, State and Federal regulations regarding stormwater, industrial wastewater, spill containment, and hazardous waste management practices.

1.2. CROSS PROGRAM REFERRALS AND COLLABORATION

Business inspectors primarily verify compliance with the City of Seattle Stormwater code but are also trained to perform multi-media inspections beyond stormwater compliance. Through internal training and collaboration meetings with external partners, inspectors have sufficient expertise to refer issues to our regulatory partners for targeted follow-up. Areas of concern include hazardous waste management, industrial wastewater discharges to the sanitary sewer, volatile or particulate releases affecting air quality, safety concerns, fire risk, construction and permitting, and business licensing. SPU Source Control has an effective working relationship for referrals with King County Industrial Waste, King County Hazardous Waste Program, Department of Ecology Hazards Waste and Water Quality Programs, Seattle Department of Construction and Inspections, Puget Sound Clean Air Agency for independent follow-up. Likewise, our partner agencies refer stormwater-related issues to SPU staff when encountered during their inspections. Section 3.1.2 of the SCIP contains additional information on referrals.

If SPU is aware that the business has an NPDES Stormwater Permit from Ecology or an Industrial Waste permit/authorization from King County, the Inspector may call the respective agency to coordinate a joint inspection. These joint inspections are often coordinated through the Duwamish Inspectors Group, a partnership of inspectors from EPA, Ecology, King County, and Seattle that meets regularly to discuss inspection activities. SPU periodically updates its database with permitting information from other agencies so that Inspectors are aware when a joint inspection should be arranged.

1.3. INSPECTION PROCESS CONTINUOUS IMPROVEMENT

Since its inception in 2003, SPU source control has operated under a culture of continuous improvement of our processes to increase inspector efficiency, business efficacy, our collaboration, and record keeping. Over the years these improvements have included routine updates of our inspection procedures manual and inspection forms, development of an Access database to store and retrieve historic inspection records, and development of communication aids and reference documents for inspectors.

In spring of 2017, SPU undertook a process evaluation under LEAN program management principles. As a result of this effort significant improvements were made to our enforcement process which resulted in a concise

process which is faster and easier to implement. An additional goal developed from the LEAN process and initiated mid-year 2018, SPU conducted an extensive update of our inspection records database. This effort transitioned the team to all electronic record keeping, mobile data entry, and primarily paperless communication with our partner businesses. This culture of continuous improvement ensures program relevance with changing technology, culture, economy and regulatory environment.

1.4. BUSINESS INSPECTION PROCESS AND PROGRESSIVE ENFORCEMENT

SPU conducts both unscheduled and scheduled inspections. The decision to schedule or conduct an unannounced inspection is done at inspector discretion, with the inspector seeking to balance the desire for a candid evaluation of a business, inconvenience to the business owner or manager, and inspector efficiency. The inspection process is summarized in Figure A-1.

At the initial inspection, the inspector gathers information on stormwater source control practices, industrial wastewater discharges, and hazardous waste management practices. A typical inspection includes both an interview with staff and a tour of the facility. Inspection notes and photographs are entered directly into the database either through a field tablet or a cell phone application. At the conclusion of the inspection, the Inspector reviews the required corrective actions, if any, and the compliance process with the owner and/or operator. Post inspection, the inspector selects appropriate violations of the stormwater code for inclusion in a 'Corrective Action' letter. The letter and supplemental drainage map, contractor list, guidance sheets, or best management practice (BMP) information is sent with the corrective action letter. This information is typically sent via email, but paper copies may be sent on request. The business is provided 30 days to comply with the required corrective actions. Business may be provided a compliance extension if requested in writing and accompanied by supporting information.

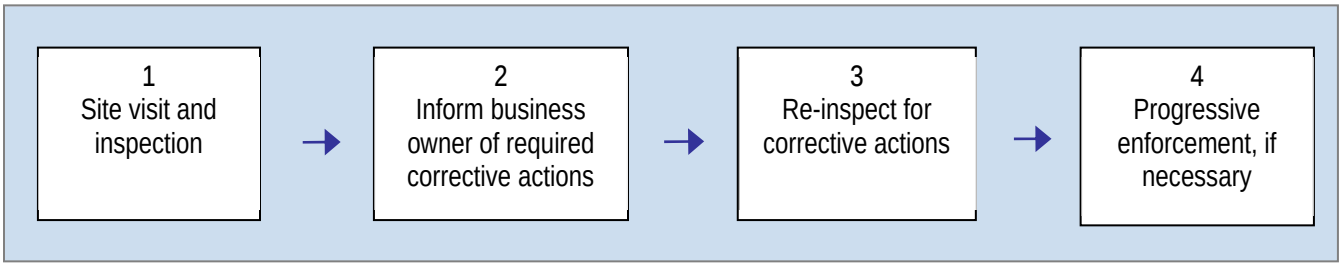


Figure A-1: SPU stormwater inspection process.

After 30 days, the Inspector re-inspects the site to evaluate the compliance status and affirm the corrective actions have been implemented. If the business is compliant, a 'Closure' letter is sent to document the end of the inspection cycle. If the corrective actions have not been implemented, SPU uses a "progressive enforcement process" to achieve compliance.

Under the guidance of progressive enforcement, the business is typically issued a Notice of Violation (NOV) however with a suspended penalty. The potential penalty amount is based on a point system matrix of eight elements including:

- Public health risk
- Environmental damage or adversely affecting infrastructure
- Willful or knowing violation
- Unresponsive in correcting action
- Improper operation or maintenance
- Failure to obtain necessary permits and approval

- Economic benefit to non-compliance
- Repeat violation

NOV's are drafted by the lead inspector but reviewed by the business inspection lead, City attorney's office, and the Source Control program manager.

The business is usually provided 2 weeks to comply upon receipt of the NOV. Unlike regular corrective action letters, NOV's are typically sent through registered mail in addition to email. If the violation involves an illicit discharge or is an otherwise egregious violation, the financial penalty aspect of the NOV may be issued immediately, and the compliance window shortened. The inspection team has flow charts and guidance documents detailing enforcement criteria for source control implementation and illicit discharges/connections. These documents and NOV review process ensure that there is consistency and transparency in the enforcement process. For complex sites, such as those that may require an engineered solution to comply, the responsible party and the City may choose to enter into a Voluntary Compliance Agreement, which identifies milestones for compliance and acts as a contract between the parties. The City also has an administrative appeal process as part of its progressive enforcement process. The progressive enforcement process for inspections is outlined in Figure A-2.

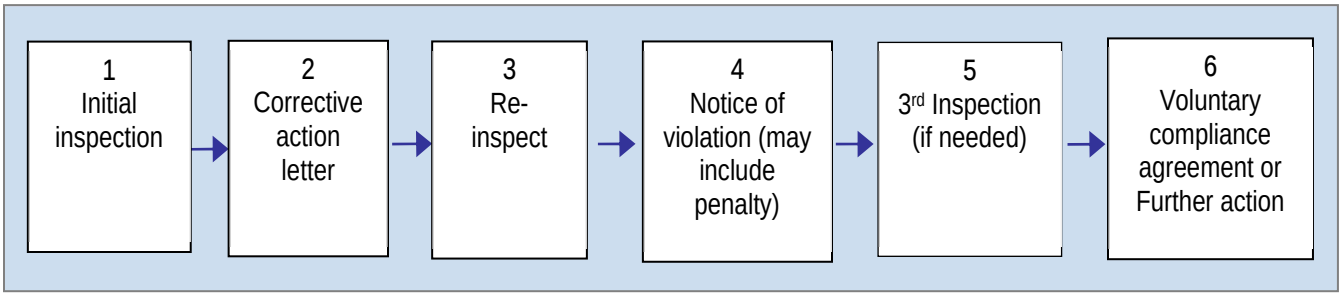


Figure A-2: SPU stormwater enforcement process.

1.5. PROGRAM PROGRESS

The joint SPU-King County business inspection program continued from 2003 to 2006. During that time, 1,100 inspections were completed at approximately 625 businesses, mostly in the Diagonal Ave S CSO/SD basin. In 2006, SPU took over the business inspection program while King County continued to inspect those businesses in the LDW that are permitted under its Industrial Waste Program. King County also provides technical assistance to SPU as needed on issues related to industrial waste and hazardous waste.

In 2010, the City completed the first round of inspections at the approximately 1,166 pollution-generating businesses in the Lower Duwamish drainage basin. Between 2003 and December 31, 2019, approximately 3,421 inspections were conducted in the Duwamish basin (1,620 initial inspections, 1,801 follow-up inspections). Businesses inspected between July 1, 2014 and June 30, 2019 are shown on Maps 31-54 and are listed in Appendix G.

1.5.1. Corrective Actions

When inspectors find problems, they require businesses to implement corrective actions. SPU tracked 26 different corrective actions in the original Business Inspection Database (Table A-1). The expanded and improved 2018 database has the ability to cite 131 unique corrective action conditions (see Appendix L). Eight of the corrective actions are violations of conditions under the jurisdiction of a partner agency and are used to generate and track referrals, 34 are specialized stormwater infrastructure maintenance actions, while 7 are related to maintenance of stormwater treatment infrastructure. The 123 remaining corrective actions pertain to implementation of best management practices outlined in the Stormwater Manual. However, many of these

corrective actions are rather specialized (examples include airplane deicing procedures or log handling and sorting) which are rarely cited. Approximately 30 corrective action conditions are routinely cited by business inspectors in the modern program configuration. Over the life of the program, business inspectors have shifted a focus onto citation of corrective actions directly enforceable under the City of Seattle Stormwater Code and referral of hazardous waste or industrial waste violations to our partner agencies as described previously.

Table A-1: Corrective actions tracked in SPU's original business inspection database.

Hazardous Waste	Spill Control	Industrial Waste
Repair or replace degraded open chemical containers	Clean and eliminate leaks and spills from storage areas	Implement pretreatment for discharge
Properly designate waste	Properly educate employees	Maintain pretreatment system
Properly dispose of waste	Improve or purchase adequate spill response materials	Obtain proper permit for facility discharge
Properly document waste disposal	Develop and implement spill response procedures	
Properly label containers		
Properly store product/waste		
Stormwater		
Don't discharge process wastewater to storm drain	Implement proper fueling operations	Obtain NPDES permit for discharge
Implement proper material transfer practices	Implement proper washing practices	Make storm drain facility parts accessible
Properly perform maintenance of vehicles and equipment	Properly store containerized materials	Storm drain facility needs to be cleaned
Implement proper housekeeping	Properly store non-containerized materials	Missing or damaged components to storm drain facility need replacement
		Correct illicit connection

As of December 31, 2019, inspectors have required 7,175 corrective actions at 1,042 different businesses or business sites from inspections conducted within the LDW.[1] The most common problems encountered during inspections are listed in Table A-2.

[1] Inspection counts exceed number of businesses inspected because businesses may need to be inspected more than once during an inspection cycle to achieve compliance with the City Stormwater Code.

Table A-2: Corrective actions required of businesses in LDW (2003 - 2019).

Corrective Action	Number of Violation	% of Total Violations
Spill plan	1,039	14%
Clean stormwater catch basins and components	823	11%
Spill kit	804	11%
Stormwater and spill Response training	801	11%
Referral to partner agency (e.g., King County, Department of Ecology)	781	11%
Illicit connections, prohibited discharges, and spill cleanup	767	11%
Container storage	495	7%
Perform routine site maintenance	474	7%
Solid waste storage	307	4%
Repair, map or install drainage infrastructure	284	4%
Cleaning and washing	218	3%
Storage of leachable or erodible materials	212	3%
Equipment and vehicle repair	77	1%
Material transfer or loading/ unloading	50	1%
Vehicle and equipment fueling	43	1%

2. Source Tracing

2.1. SAMPLING METHODS

No single sampling methodology exists to effectively trace potential sources of contaminants to LDW sediment. Therefore, a variety of sampling techniques are used. Sediment (or solids) samples, rather than whole water samples, are generally preferred because:

- Storm drain solids samples provide a more direct measure of potential contaminant contributions to waterway sediment, because many contaminants of concern are relatively insoluble and tend to attach to the particles present in stormwater/wastewater. Consequently, they are transported to the waterway primarily as particulates.
- Storm drain solids samples can be collected relatively quickly using simple tools and equipment. By comparison, stormwater sampling requires fairly expensive automatic samplers, which may require structural modifications to install, as well as considerable staff resources to operate and maintain.
- Storm drain solids that accumulate in the stormwater/wastewater systems provide a measure of pollutant contributions over a longer time period (generally what has been deposited since the system was last cleaned), whereas water samples provide only a snapshot of a single event.
- Unlike whole water samples, storm solids samples do not usually present detection limit problems for the analytical laboratory. Contaminants present in storm drain solids can usually be quantified, which makes it easier to evaluate and interpret the sample results.

Samples of solids are collected from various locations within the stormwater/wastewater collection systems. Sampling solids enables the source tracing efforts to maximize coverage of the LDW stormwater/wastewater

systems and to gather information on the extent and location of contaminants within the systems. Because active City CSOs represent only 436 acres of the approximately 20,000 acres of combined sewer service area in the LDW, SPU has focused its efforts on the City-owned MS4.

Each type of sample represents a different geographic scale and a different component of the sediment in the stormwater/wastewater systems. SPU uses the following four types of samples to track and identify potential pollutant sources in the LDW:

1. Inline Sediment Traps. Sediment traps consist of a device mounted inside the conveyance system that passively collects suspended particulate material that passes by the sampling station. SPU has primarily used the modified-Norton style trap which consists of 1 L Teflon® bottle held in sleeve held in a stainless-steel sleeve/bracket that attaches to the pipe or vault structure where they are typically deployed (Figure 3). The bottle is approximately 8 inches tall. As a result, these traps are only used in pipes that are 18-inches or larger in diameter[2]. Using a grant from Ecology, SPU developed a lower profile, bowl-style trap that could be installed in smaller diameter pipe (Figure 4).

   Traps are generally left in place for 12 months to collect enough material for chemical analysis. Sediment traps typically represent the suspended solids that are transported in the system. Sampling stations are selected to isolate specific drainage sub-basins or capture contributions from the entire drainage basin (e.g., generally greater than 50 acres for separated storm basin). Sediment traps are typically installed to identify potential problem areas within a drainage system and are followed up with more intensive sampling to identify potential specific contaminant sources (e.g., inline grabs and private onsite catch basin samples).

2. Inline Sediment Grab Samples. Inline sediment samples are grab samples collected from maintenance holes or other structures located on the SD line where sediment may accumulate. Like sediment traps, inline grab samples also represent contributions on a basin-wide or sub-basin scale. However, inline grabs typically represent the heavier material that accumulates and is transported in the bedload material that moves along the bottom of the pipe. These samples are collected using a long-handled scoop from areas where sufficient sediment is present for chemical analysis (Figure 5). Inline sediment samples are usually collected prior to installing a sediment trap or prior to cleaning the drain to characterize the chemical quality of sediment in the SD or combined sewer system and are useful in tracing sources in systems that are not large enough to install a sediment trap.

3. Catch Basin Solids. Catch basin samples are grab samples of solids that have accumulated in the catch basin. Catch basins are part of the stormwater collection system and collect runoff from a small catchment area (less than 0.5 acres). These structures are equipped with a small sump to capture solids and other large debris before it can enter the stormwater conveyance system (or before it can enter the combined sewer system). Because many pollutants present in urban stormwater runoff tend to adhere to solids, catch basins can also trap pollutants. The solids that accumulate in catch basins provides a measure of the quality of storm drain solids discharged from a specific location. Catch basin samples are collected either from a specific site or property (private onsite) or from the public ROW. .

4. Soil/Street Dust. Soil and street dust samples are collected to confirm offsite transport of contaminants from adjacent properties to the City right-of-way and in areas where there is no formal storm drain system to collect/convey street runoff. Like catch basin samples, soil and street dust samples represent contributions from a small local area. SPU refers to these samples as “outside the drainage system” or ODS because samples are not collected from within the stormwater collection/conveyance system.

[2] To obtain representative samples, the water level in the pipe needs to overtop the sample bottle during most storm events. In smaller diameter pipes, the sediment traps are only effective during larger storms.

Figure 3: Modified-Norton style trap that has been used by SPU.

Figure 4: New bowl-style trap.

Figure 5: Inline grab sampling

2.2. DATA INTERPRETATION

There are no regulatory standards for catch basin solids, inline solids, and sediment trap samples. SPU typically compares results to the state sediment management standards (SMS) and the Washington State Model Toxics Control Act (MTCA) Method A cleanup standards[3]. Although these standards do not apply to storm drain solids, SPU, Ecology, and other members of the LDW Source Control Work Group commonly use the SMS as screening levels to provide a rough indication of storm drain solids quality. The SMS establish two levels:

- Sediment cleanup objective (SCO): Ecology's goal for protection of human health and the environment.
- Cleanup screening level (CSL): Maximum allowed concentration of any contaminant and level of biological effects permissible at a site or site cleanup unit after completion of a cleanup action.

Because storm drain solids samples typically contain fairly high concentrations of total organic carbon (TOC), the dry-weight equivalent SMS values (i.e., LAET and 2LAET) are used for the organic compounds where SCO/CSL values are based on TOC-normalized concentrations.[4]

[3] MTCA Method A cleanup standards are used only to evaluate contaminants for which there are no sediment management standards (e.g. total petroleum hydrocarbons).

[4] TOC concentrations in storm drain sediment samples ranges from 0.3 to 42 percent with average and median concentrations of 6.3 and 5.6, respectively.

SPU uses the CSL/2LAET to trigger source tracing activities. To date, SPU has focused on looking for sources of metals, PAHs, and PCBs, because they exceed the CSL/2LAET screening levels more often than other chemicals.[5] Source tracing screening levels are used to focus City activities on areas where the highest levels of contaminants are present that may be affecting the City's-owned MS4 (i.e., a "worst first" approach). To date, these levels have been effective in informing the City's actions. Screening levels may change over time to reflect overall improvements in source concentrations and/or regulatory requirements.

Comparison of storm drain sediment collected from catch basins, maintenance holes, and sediment traps to SMS criteria is considered conservative. If storm drain solids samples are below the SCO criteria, there is little chance of stormwater causing sediment offshore of the outfalls to become re-contaminated above these levels. However, a concentration above the SCO does not necessarily indicate that the sediment offshore of the outfall will exceed standards, because sediment discharged from storm drain disperses in the receiving environment and mixes with sediment from other sources before depositing.

When specific sources of contaminants are identified, SPU inspectors work with the discharger to control sources by requiring the discharger to comply with the City Stormwater Code to eliminate or modify the practice that generates the problem chemical or by moving a particular activity inside where contaminants can be effectively contained or by isolating outdoor activities to prevent contaminants from coming in contact with stormwater. In most cases, SPU has been able to effect the necessary changes using City code authority. When problems extend beyond what the City has legal authority to require, the situations are referred to partner agencies that have the appropriate authority:

- Sites with industrial waste management issues (e.g., process waste being discharged to the sanitary of combined sewer without a permit) are referred to King County Industrial Waste
- Sites with hazardous waste handling, labelling, or disposal issues are referred to King County Local Hazardous Waste Program (small quantity generators) or Ecology Hazardous Waste and Toxics Reduction (large quantity generators)
- Sites that should have an industrial stormwater general permit and do not, or sites with a permit that are not in compliance with permit requirements are referred to the Ecology Water Quality Program.
- Sites where releases of hazardous materials have occurred that require onsite cleanup are referred to EPA and/or Ecology.

3. Line Cleaning

Cleaning is not conducted until source tracing efforts have been exhausted in a given location or system. Depending on the situation, cleaning may be limited to a specific area where problems were identified, or the entire City-owned MS4 drainage system may be cleaned. In cases where specific sources are identified, line cleaning occurs after SPU inspectors have worked with the responsible party, verified that appropriate controls have been put in place, and the property owner has removed any contaminated sediment from the private onsite drainage system. Where no source(s) can be identified, City lines are scheduled to be cleaned after the SPU source control team has inspected all of the businesses that are considered to be potential sources and when sufficient samples have been collected upstream and downstream of a problem area to identify the pipes where sediments containing elevated levels of contaminants have accumulated. In these cases, it is assumed that there is no longer an ongoing source and cleaning is performed to remove what is considered to be legacy contaminants that may interfere with future source tracing efforts. The SPU source control team meets weekly to discuss overall progress and issues encountered by the inspectors. Information exchanged during these

[5] The one exception is BEHP, which is frequently above the 2LAET in storm drain solids samples. See Section **Error! Reference source not found.**for a discussion of phthalates.

meetings helps to determine when source tracing has been completed. Pipe cleaning activities are prioritized based on the following criteria:

- Severity of contamination as determined by source tracing sampling (e.g., number and magnitude of exceedance of sediment management standard CSL/2LAET screening levels)
- Length of pipe affected (it is easier to schedule and implement cleaning when only a short section of line is involved)
- Depth of solids (heavy solid accumulation can reduce pipe capacity and contribute to flooding problems)
- Need for video inspection to evaluate pipe condition or support other investigations
- Availability of a suitable site to install the necessary decant/dewatering/treatment facility. Sites must have access to a sanitary sewer, access for vactor trucks and equipment, and ideally be near the area being cleaned to minimize travel time.
- Available resources. Existing budget is limited; therefore, SPU has aggressively sought outside funding to expand its line cleaning efforts.

Lines are re-sampled after sufficient material has accumulated in the system to evaluate whether sources are adequately controlled. If chemical concentrations following cleaning exceed the CSL/2LAET triggers, the source tracing/cleaning cycle begins again until confirmation samples show that concentrations remain below the CSL/2LAET.

Line cleaning work in the LDW is typically conducted by a contractor that has experience conducting similar work for the City. Line cleaning operations include installing and operating a temporary decant/treatment facility to dewater the solids removed by cleaning, jetting and cleaning lines/structures, disposing of all solids removed from the system, and video-inspecting the lines after cleaning to confirm that cleaning was successful and to assess the condition of the pipes. Sediment removed during storm drain cleaning operations typically must be dewatered prior to disposal. Excess water is removed, treated, and discharged to the local wastewater collection system under a discharge authorization with King County. Decant/treatment facilities generally include two 20,000-gallon storage tanks to remove solids by settling and a third tank to hold treated water for testing. In some cases, additional filtering using bag or sand filter systems is needed to remove solids. In addition, a granular activate carbon (GAC) filter may also be required to remove PCBs and other organic chemicals that could interfere with treatment plant operations or biosolids disposal. The remaining solids are then shipped offsite for disposal, typically a Subtitle D landfill.

Appendix B:

Box Plots and Near End-of-Pipe Heat Tables

Storm Drain Solids Samples

Figure B-1: Arsenic (As) Box Plots

Storm drain solids samples collected in Seattle's MS4 between August 13, 2003 and June 30, 2019

* Blue line = SCO (57 mg/kg dw), and Red line= CSL (93 mg/kg dw)
* Median concentrations by outfall are shown in bolded text.
* SCIP 1 = August 18, 2003 - June 30, 2014 (all samples).
* SCIP 2 = July 1, 2014 - June 30, 2019. If the storm drain has been cleaned, only the most recent post-cleaning samples are included.

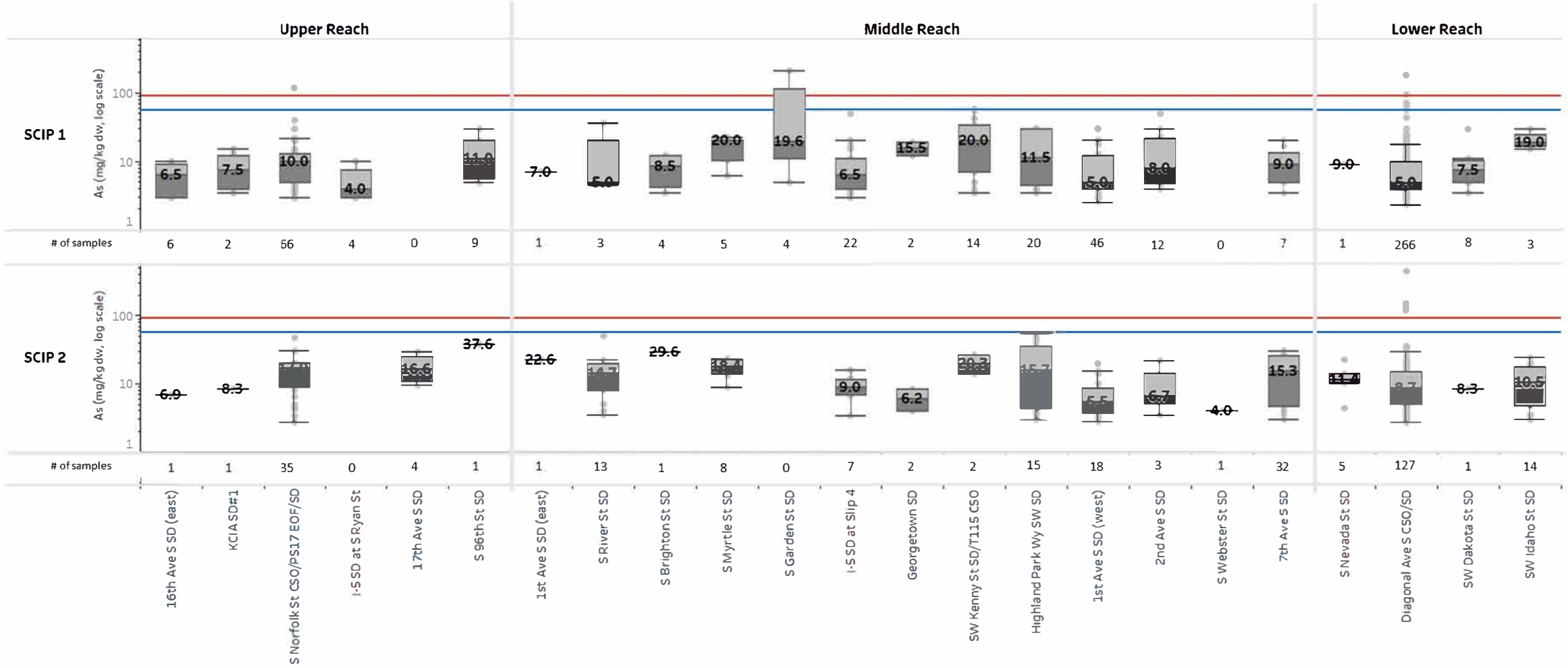


Figure B-2: Copper (Cu) Box Plots

Storm drain solids samples collected in Seattle's MS4 between August 13, 2003 and June 30, 2019

* Red line= SCO/CSL (390 mg/kg dw)
* Median concentrations by outfall are shown in bolded text.
* SCIP 1 = August 18, 2003 - June 30, 2014 (all samples).
* SCIP 2 = July 1, 2014 - June 30, 2019. If the storm drain has been cleaned, only the most recent post-cleaning samples are included.

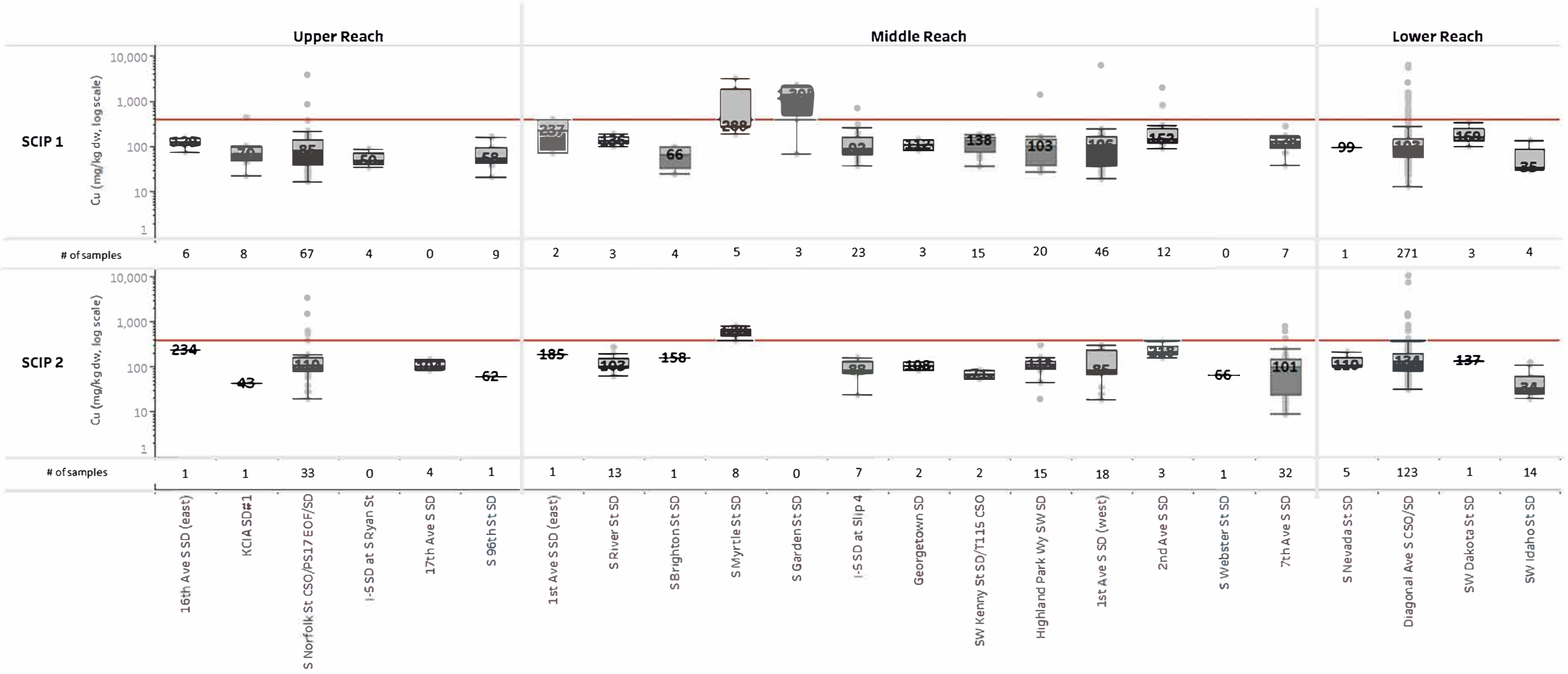


Figure B-3: Lead (Pb) Box Plots

Storm drain solids samples collected in Seattle's MS4 between August 13, 2003 and June 30, 2019

* Blue line = SCO (450 mg/kg), Red line= CSL (530 mg/kg dw)
* Median concentrations by outfall are shown in bolded text.
* SCIP 1 = August 18, 2003 - June 30, 2014 (all samples).
* SCIP 2 = July 1, 2014 - June 30, 2019. If the storm drain has been cleaned, only the most recent post-cleaning samples are included.

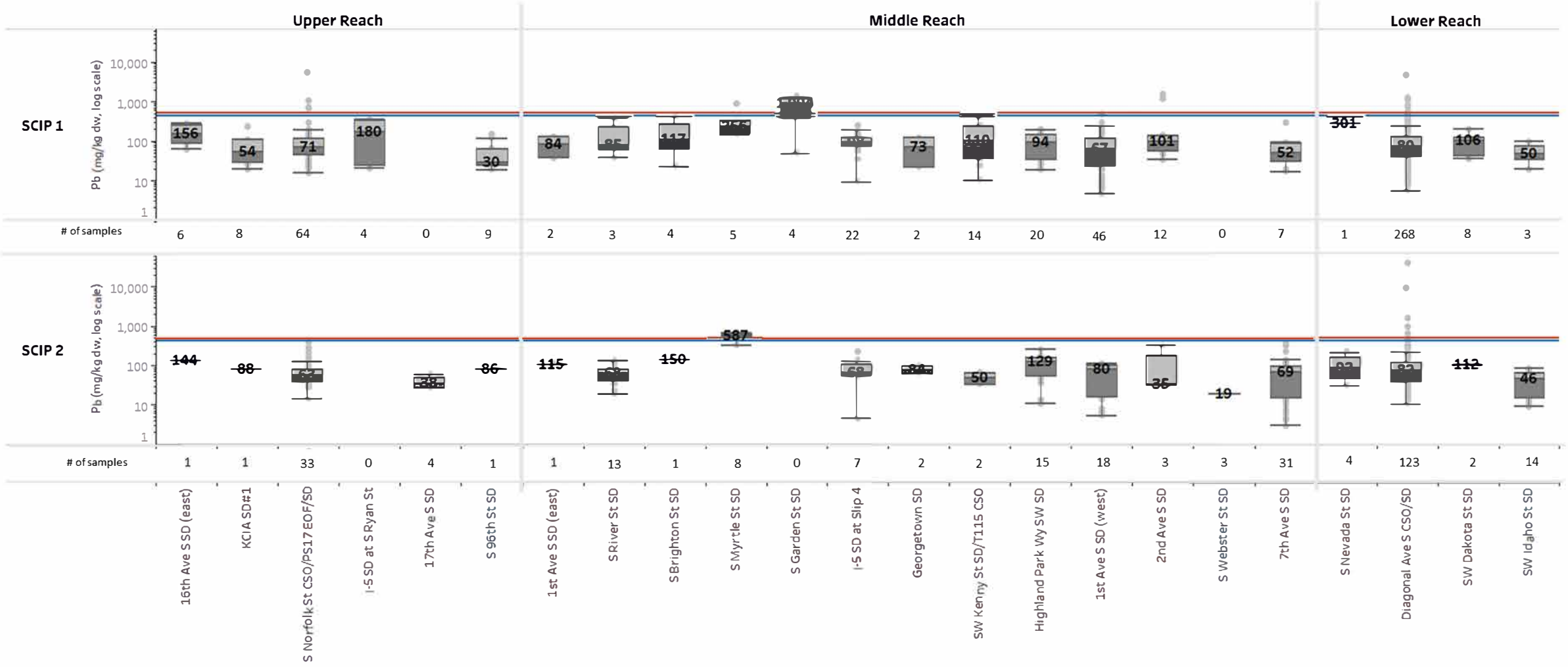


Figure B-4: Mercury (Hg) Box Plots

Storm drain solids samples collected in Seattle's MS4 between August 13, 2003 and June 30, 2019

* Blue line = SCO (0.41 mg/kg), Red line= CSL (0.59 mg/kg dw)
* Median concentrations by outfall are shown in bolded text.
* SCIP 1 = August 18, 2003 - June 30, 2014 (all samples).
* SCIP 2 = July 1, 2014 - June 30, 2019. If the storm drain has been cleaned, only the most recent post-cleaning samples are included.

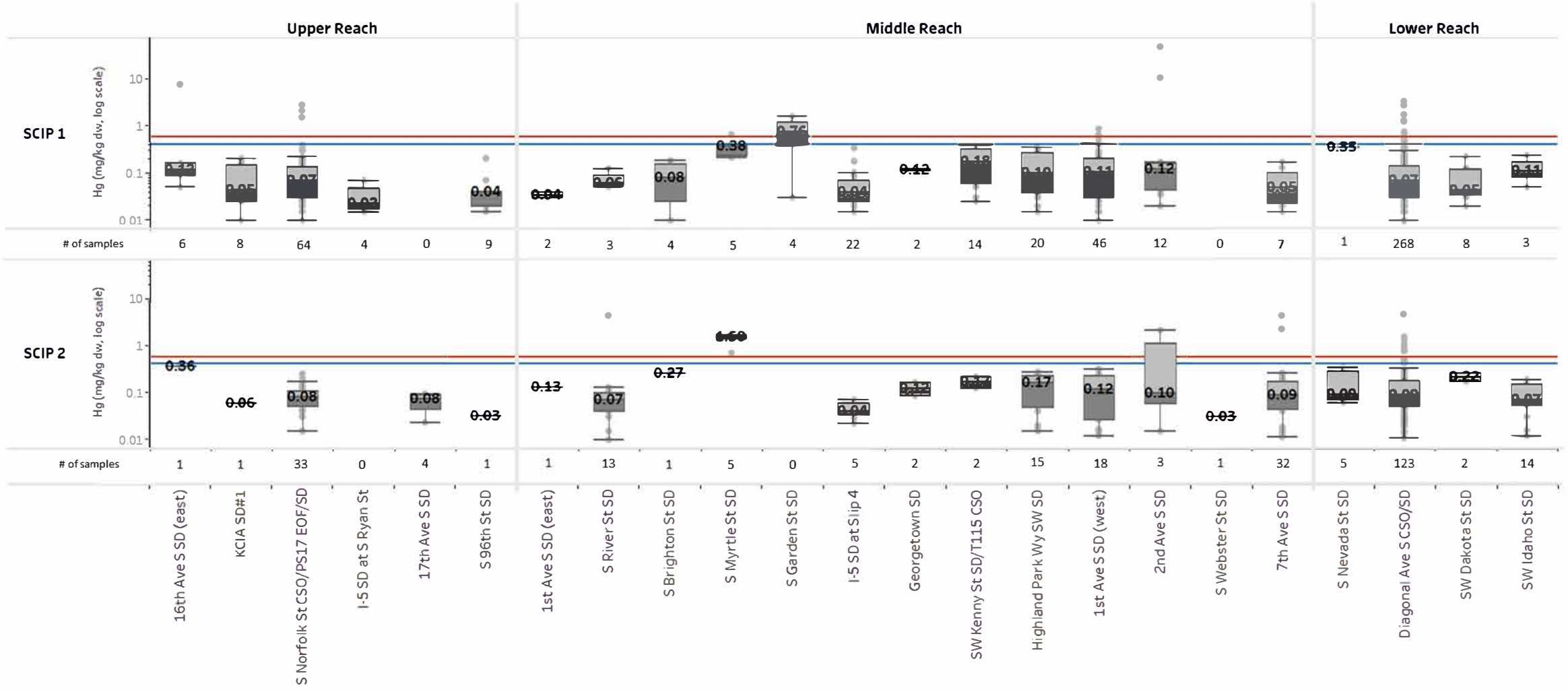


Figure B-5: Zinc (Zn) Box Plots

Storm drain solids samples collected in Seattle's MS4 between August 13, 2003 and June 30, 2019

* Blue line = SCO (410 mg/kg), Red line= CSL (960 mg/kg dw)
* Median concentrations by outfall are shown in bolded text.
* SCIP 1 = August 18, 2003 - June 30, 2014 (all samples).
* SCIP 2 = July 1, 2014 - June 30, 2019. If the storm drain has been cleaned, only the most recent post-cleaning samples are included.

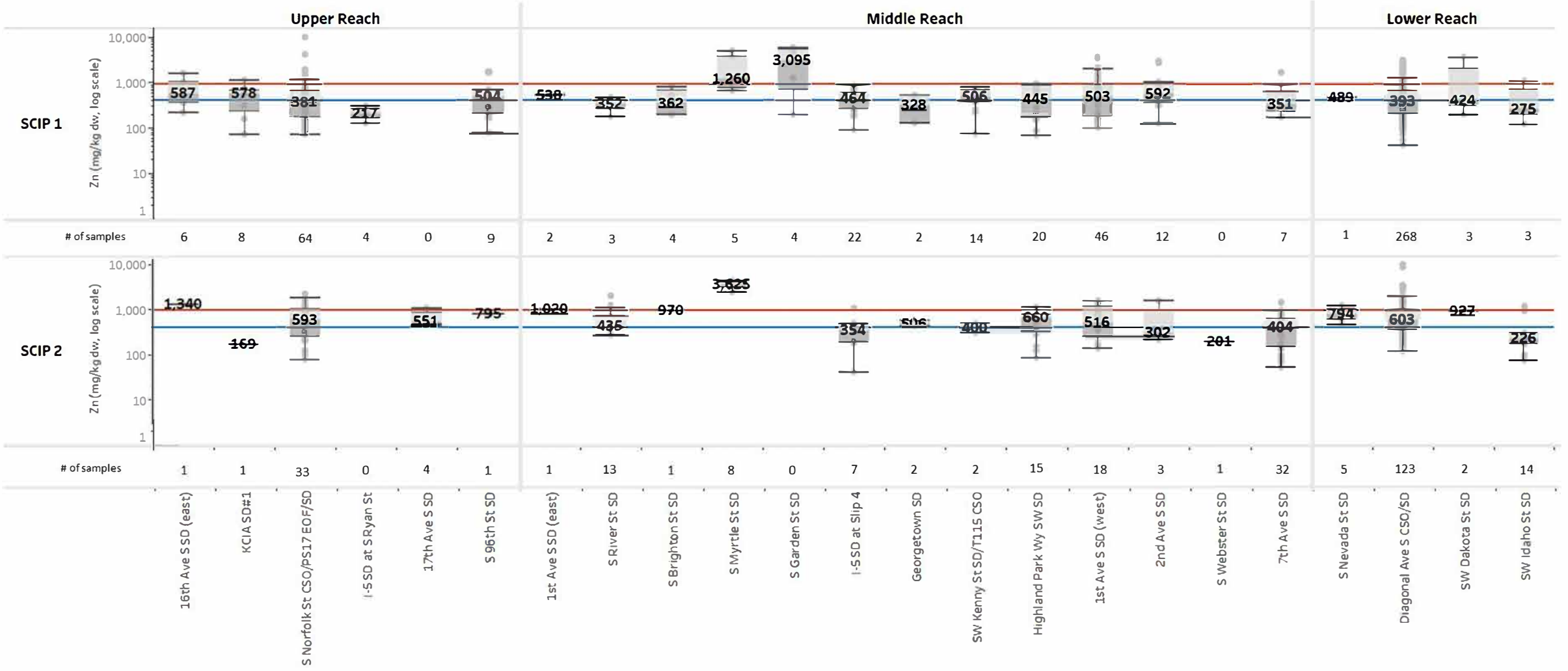


Figure B-6: LPAH Box Plots

Storm drain solids samples collected in Seattle's MS4 between August 13, 2003 and June 30, 2019

* Red line= LAET/2LAET (5,200 ug/kg dw)
* Median concentrations by outfall are shown in bolded text.
* SCIP 1 = August 18, 2003 - June 30, 2014 (**all samples**).
* SCIP 2 = July 1, 2014 - June 30, 2019. If the storm drain has been cleaned, only the most recent post-cleaning samples are included.

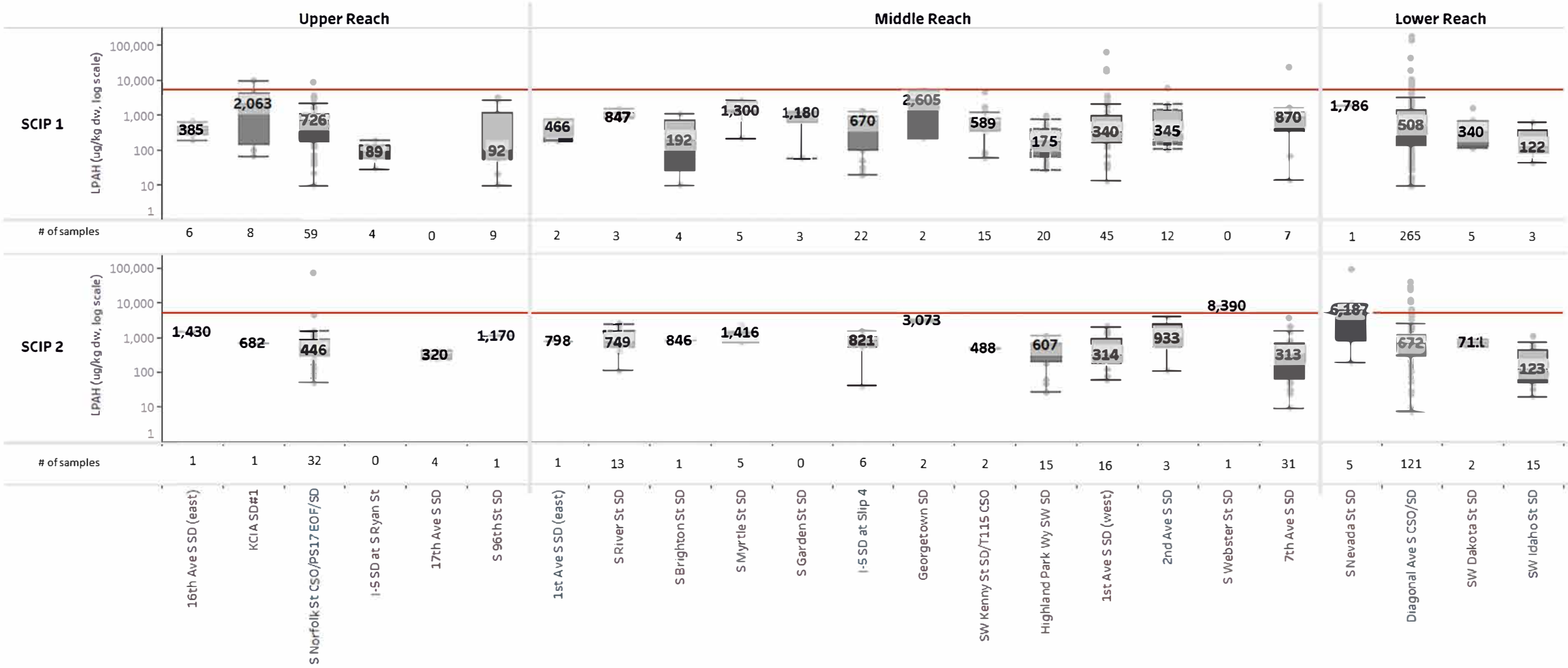


Figure B-7: HPAH Box Plots

Storm drain solids samples collected in Seattle's MS4 between August 13, 2003 and June 30, 2019

* Blue line = LAET (12,000 ug/kg), Red line= 2LAET (17,000 ug/kg dw)
* Median concentrations by outfall are shown in bolded text.
* SCIP 1 = August 18, 2003 - June 30, 2014 (all samples)
* SCIP 2 = July 1, 2014 - June 30, 2019. If the storm drain has been cleaned, only the most recent post-cleaning samples are included.

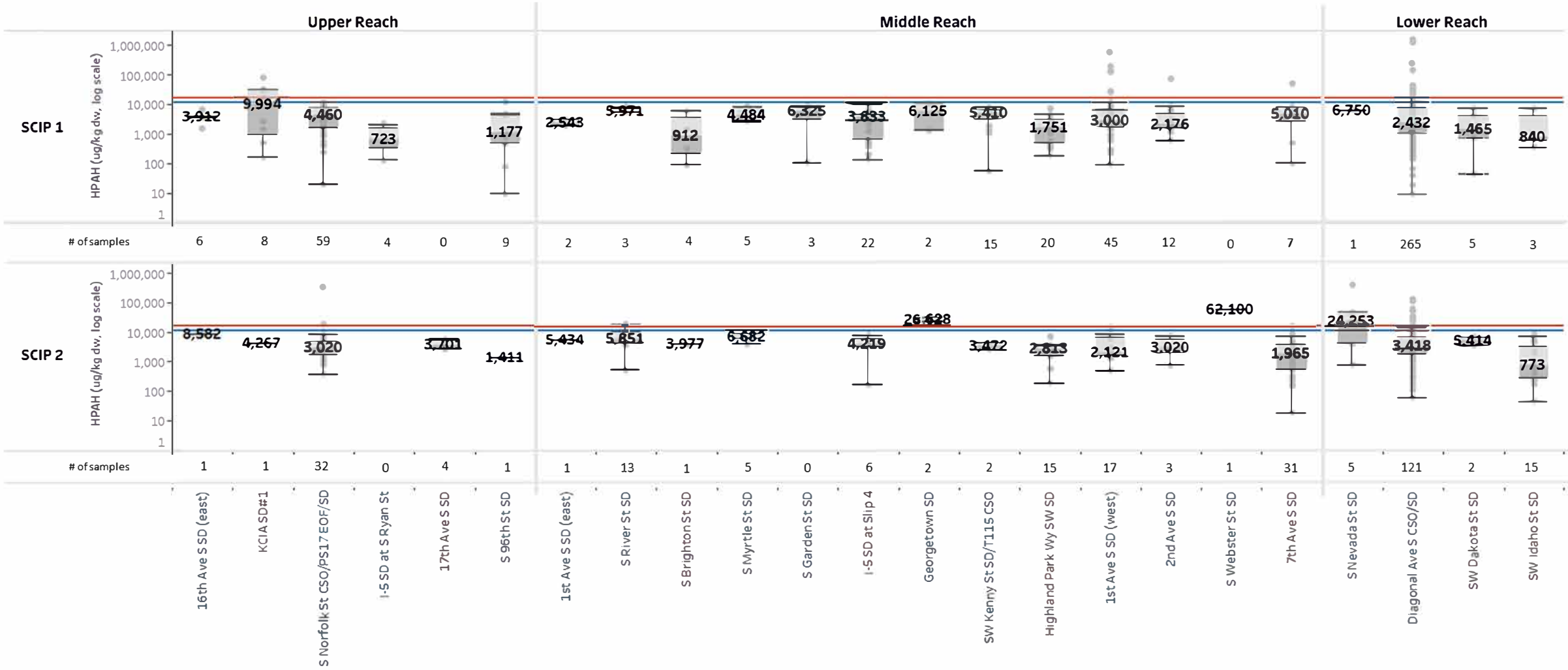


Figure B-8: Polychlorinated Biphenyls (PCBs) Box Plots

Storm drain solids samples collected in Seattle's MS4 between August 18, 2003 and June 30, 2019

* Blue line = LAET (130 ug/kg dw), and Red line= 2LAET (1,000 ug/kg dw)
* Median concentrations by outfall are shown in bolded text.
* SCIP 1 = August 18, 2003 - June 30, 2014 (all samples)
* SCIP 2 = July 1, 2014 - June 30, 2019. If the storm drain has been cleaned, only the most recent post-cleaning samples are included.

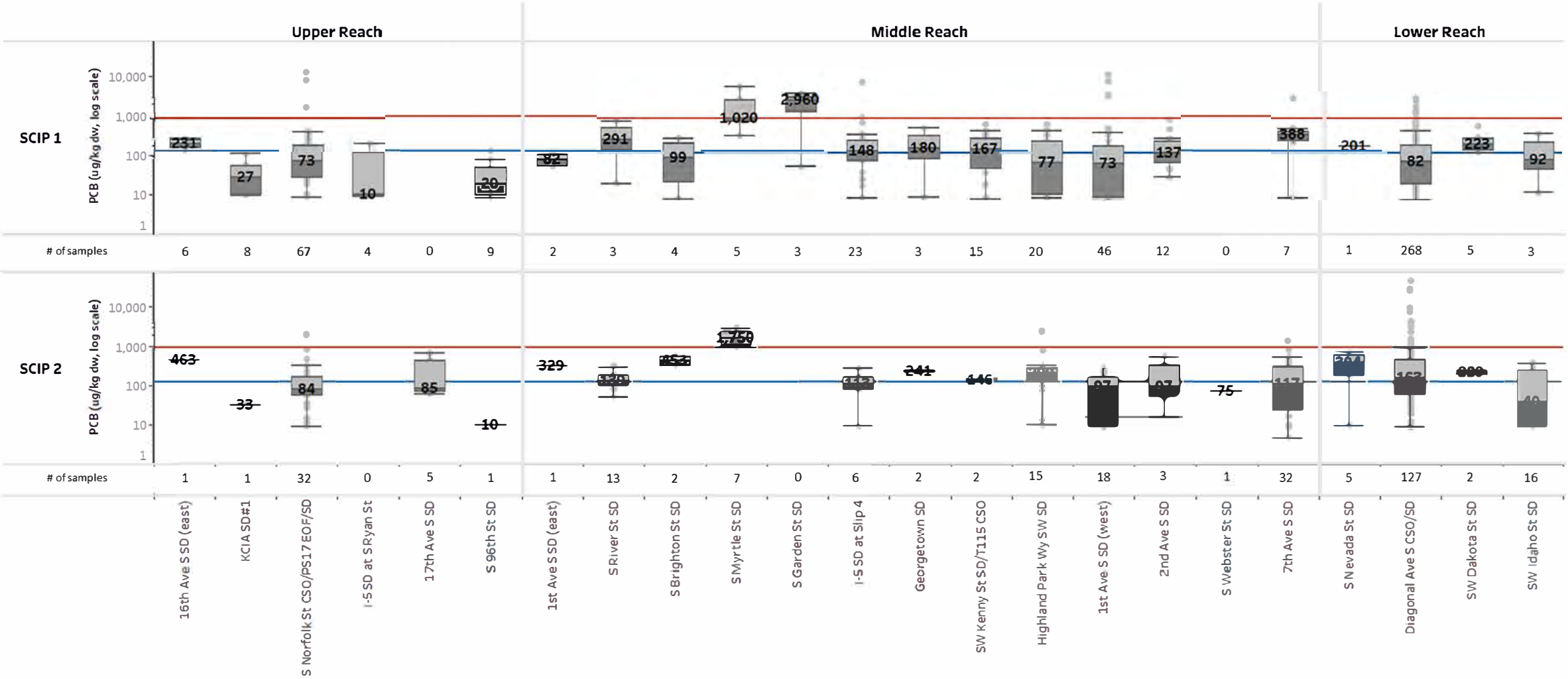


Figure B-9: Bis(2-ethylhexyl)phthalate (BEHP) Box Plots

Storm drain solids samples collected in Seattle's MS4 between August 13, 2003 and June 30, 2019

* Blue line = LAET (1,300 ug/kg), Red line= 2LAET (1,900 ug/kg dw)
* Median concentrations by outfall are shown in bolded text.
* SCIP 1 = August 18, 2003 - June 30, 2014 (all samples) .
* SCIP 2 = July 1, 2014 - June 30, 2019. If the storm drain has been cleaned, only the most recent post-cleaning samples are included.

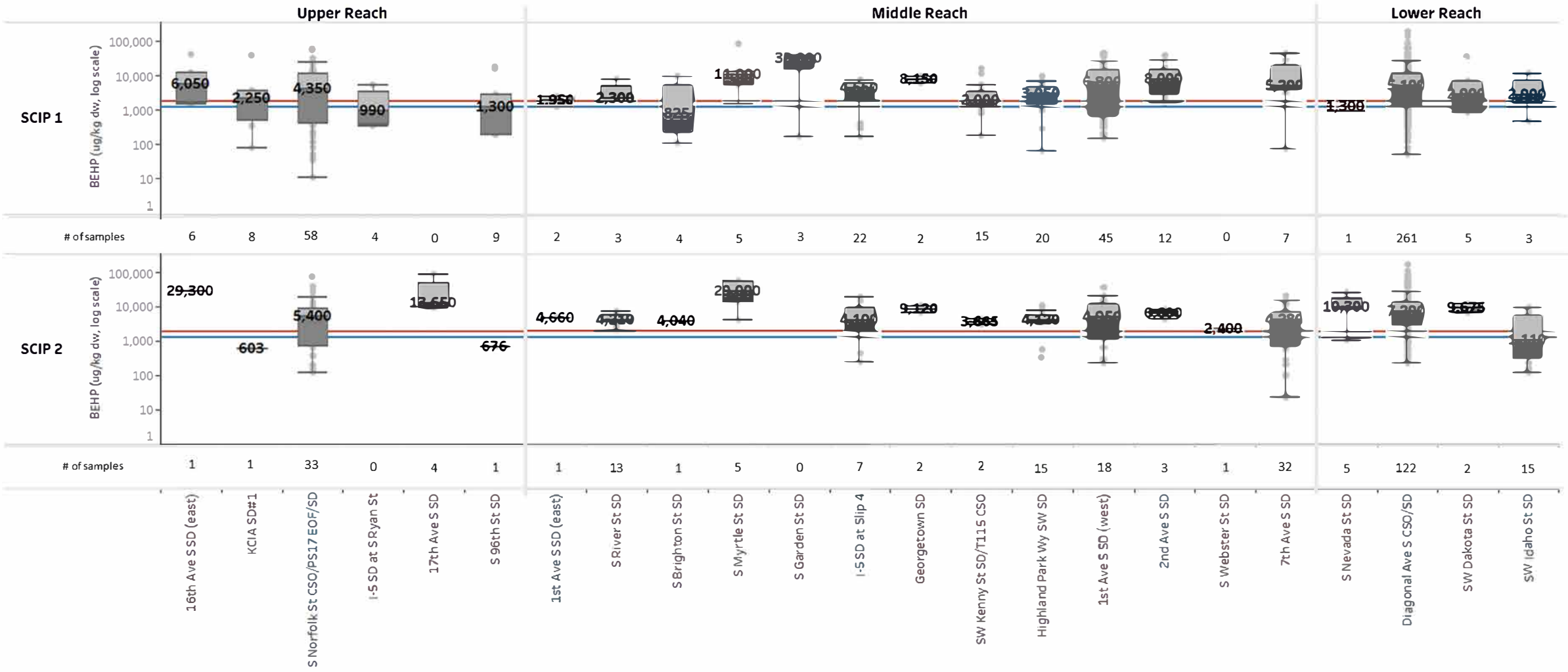


Figure B-10: Butyl Benzyl Phthalate (BBP) Box Plots

Storm drain solids samples collected in Seattle's MS4 between August 13, 2003 and June 30, 2019

* Blue line = LAET (63 ug/kg), Red line= 2LAET (900 ug/kg dw)
* Median concentrations by outfall are shown in bolded text.
* SCIP 1 = August 18, 2003 - June 30, 2014 (all samples).
* SCIP 2 = July 1, 2014 - June 30, 2019. If the storm drain has been cleaned, only the most recent post-cleaning samples are included.

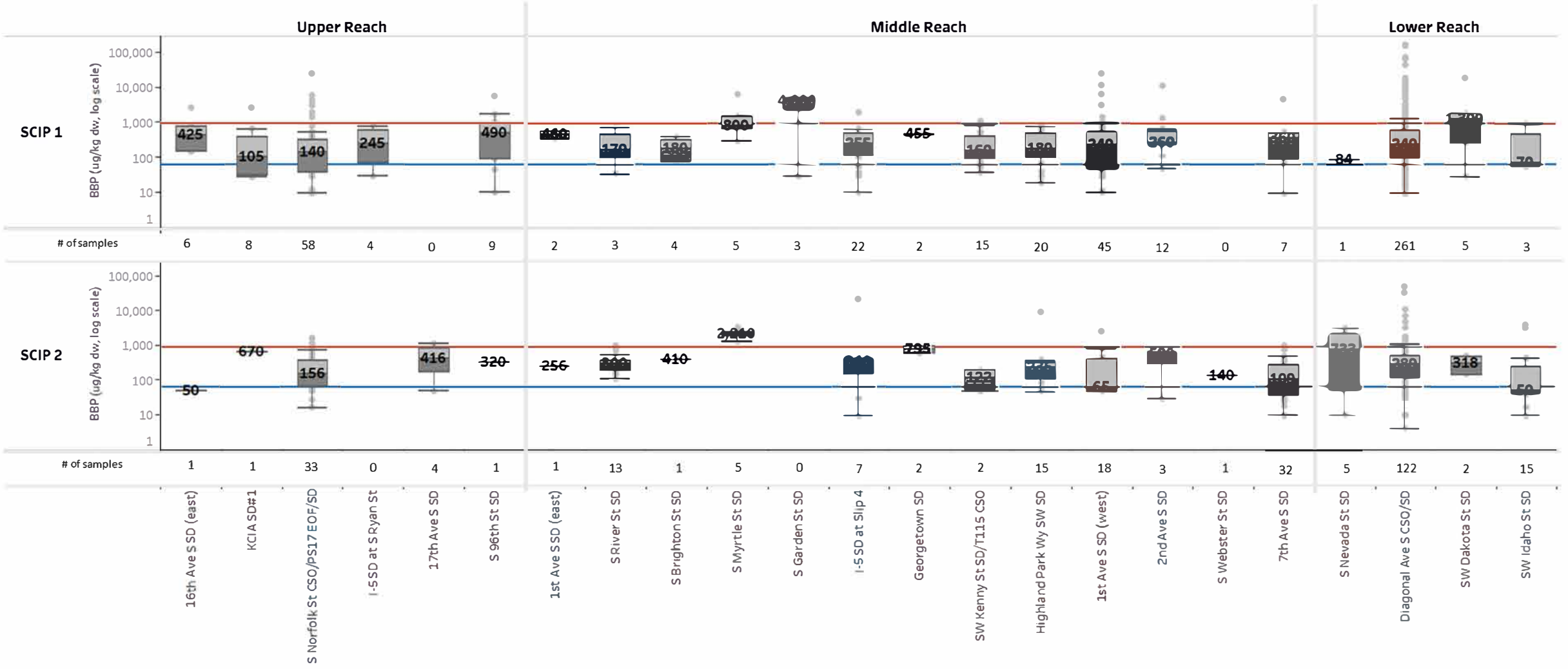


Figure B-11: Dimethyl Phthalate (DMP) Box Plots

Storm drain solids samples colelcted in Seattle's MS4 between August 13, 2003 and June 30, 2019

* Blue line = LAET (71 ug/kg), Red line= 2LAET (160 ug/kg dw)
* Median concentrations by outfall are shown in bolded text.
* SCIP 1 = August 18, 2003 - June 30, 2014 (all samples)
* SCIP 2 = July 1, 2014 - June 30, 2019. If the storm drain has been cleaned, only the most recent post-cleaning samples are included.

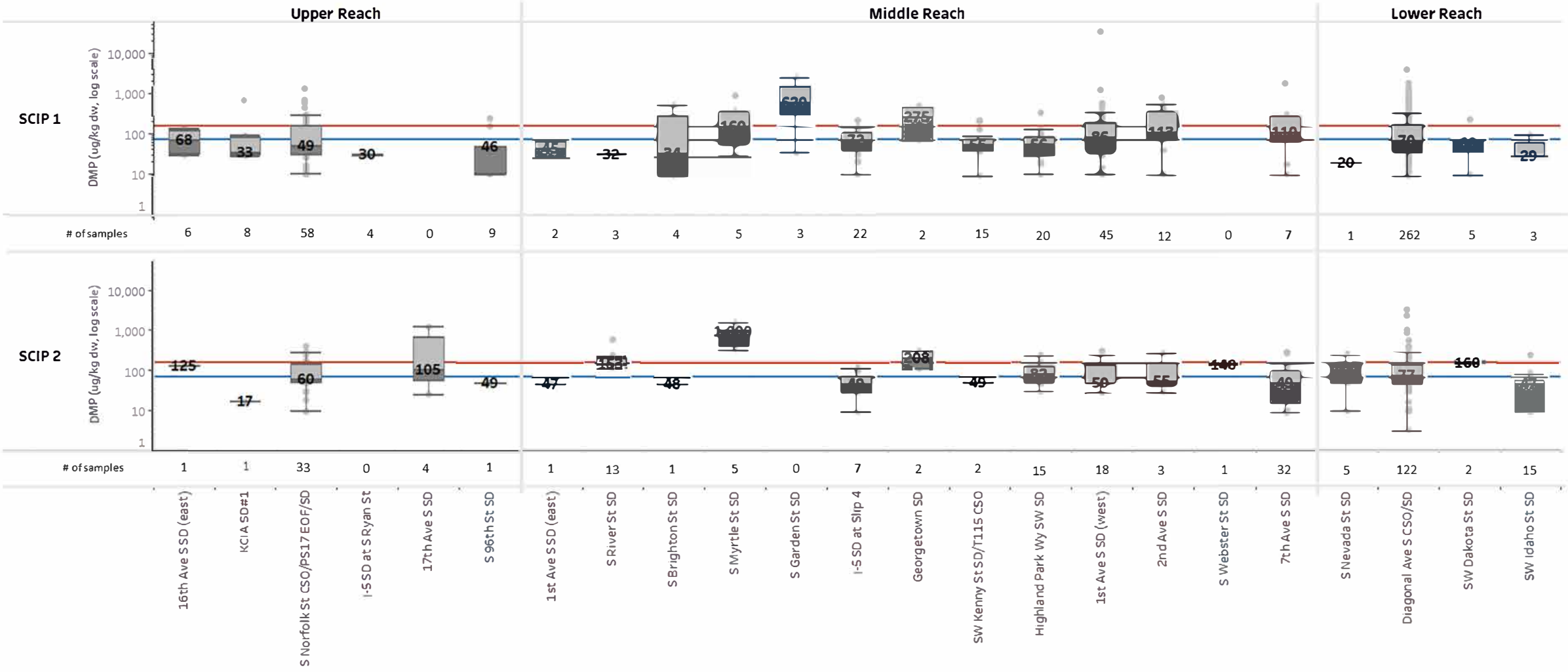


Figure B-12: Total Petroleum Hydrocabons - Diesel (TPH-Diesel) Box Plots

Storm drain solids samples collected in Seattle's MS4 between August 13, 2003 and June 30, 2019

* Red line= LAET/2LAET (2,000 mg/kg dw)
* Median concentrations by outfall are shown in bolded text.
* SCIP 1 = August 18, 2003 - June 30, 2014 (**all** samples).
* SCIP 2 = July 1, 2014 - June 30, 2019. If the storm drain has been cleaned, only the most recent post-cleaning samples are included.

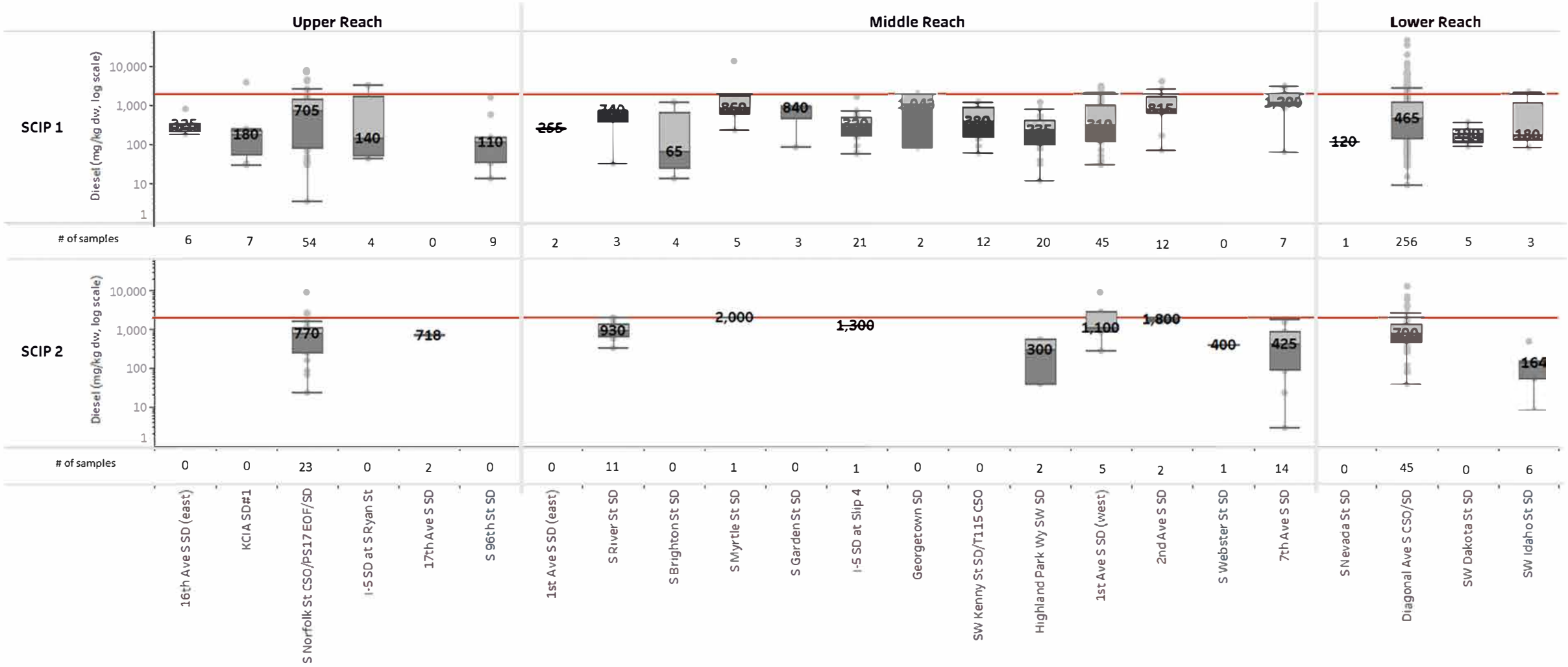


Figure B-13: Total Petroleum Hydrocabons - Motor Oil (TPH-Motor Oil) Box Plots

Storm drain solids samples collected in Seattle's MS4 between August 13, 2003 and June 30, 2019

* Red line= LAET/2LAET (2,000 mg/kg dw)
* Median concentrations by outfall are shown in bolded text.
* SCIP 1 = August 18, 2003 - June 30, 2014 (all samples)
* SCIP 2 = July 1, 2014 - June 30, 2019. If the storm drain has been cleaned, only the most recent post-cleaning samples are included.

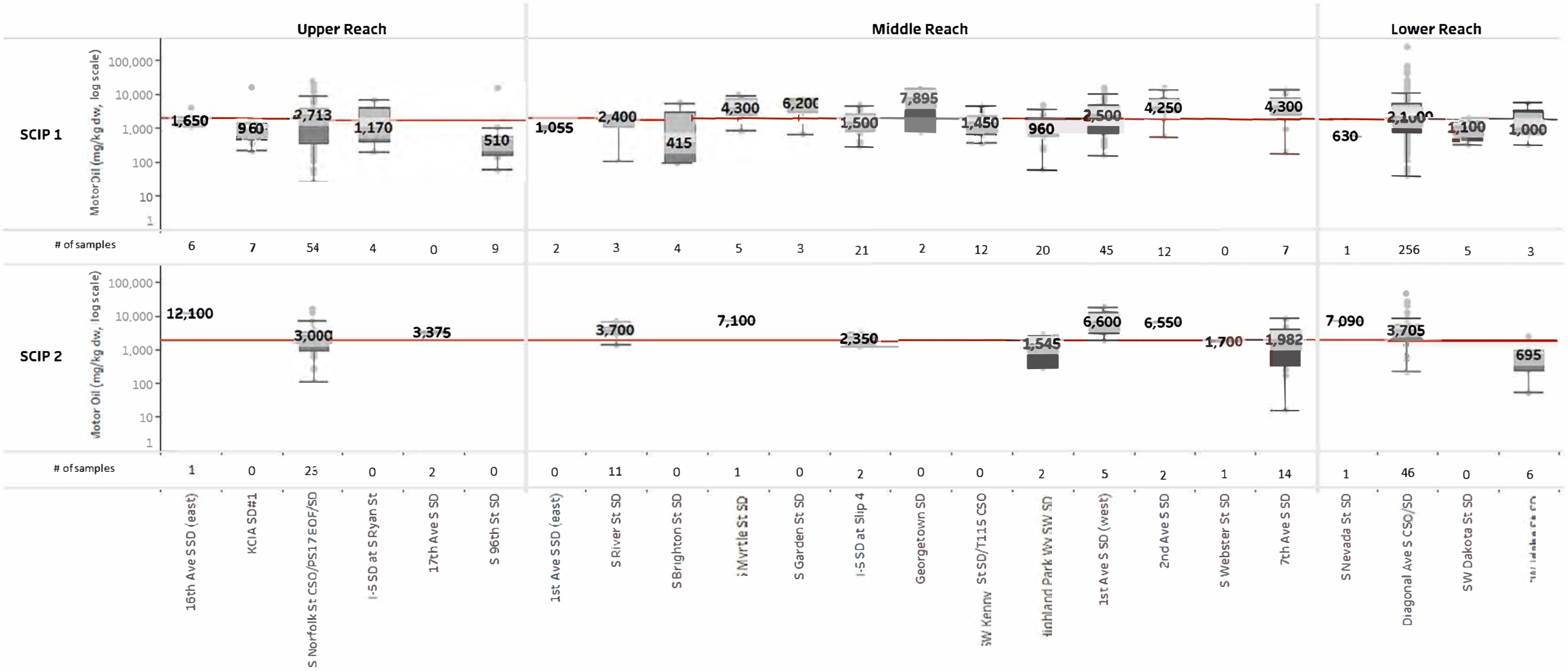


Table B-1

Arsenic (As) Heat Table:

Median concentrations (mg/kg dw) over time for near end-of-pipe sediment samples

*The boxes below without median concentrations shown in bolded text are below the SCO (57 mg/kg)

Table B-2

Copper (Cu) Heat Table:

Median concentrations (mg/kg dw) over time for near end-of-pipe sediment samples

*The boxes below without median concentrations shown in bolded text are below the SCO (390 mg/kg)

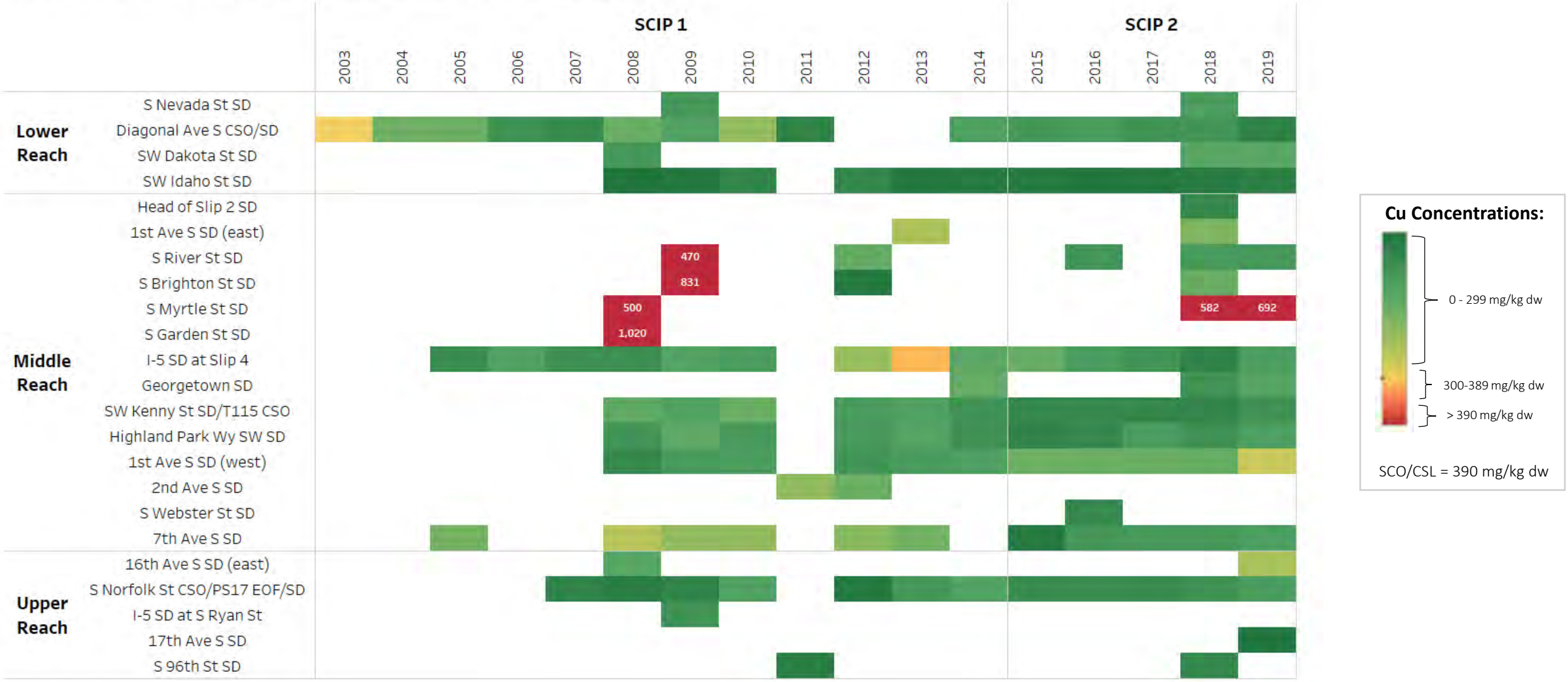


Table B-3

Lead (Pb) Heat Table:

Median concentrations (mg/kg dw) over time for near end-of-pipe sediment samples

*The boxes below without median concentrations shown in bolded text are below the SCO (450 mg/kg dw)

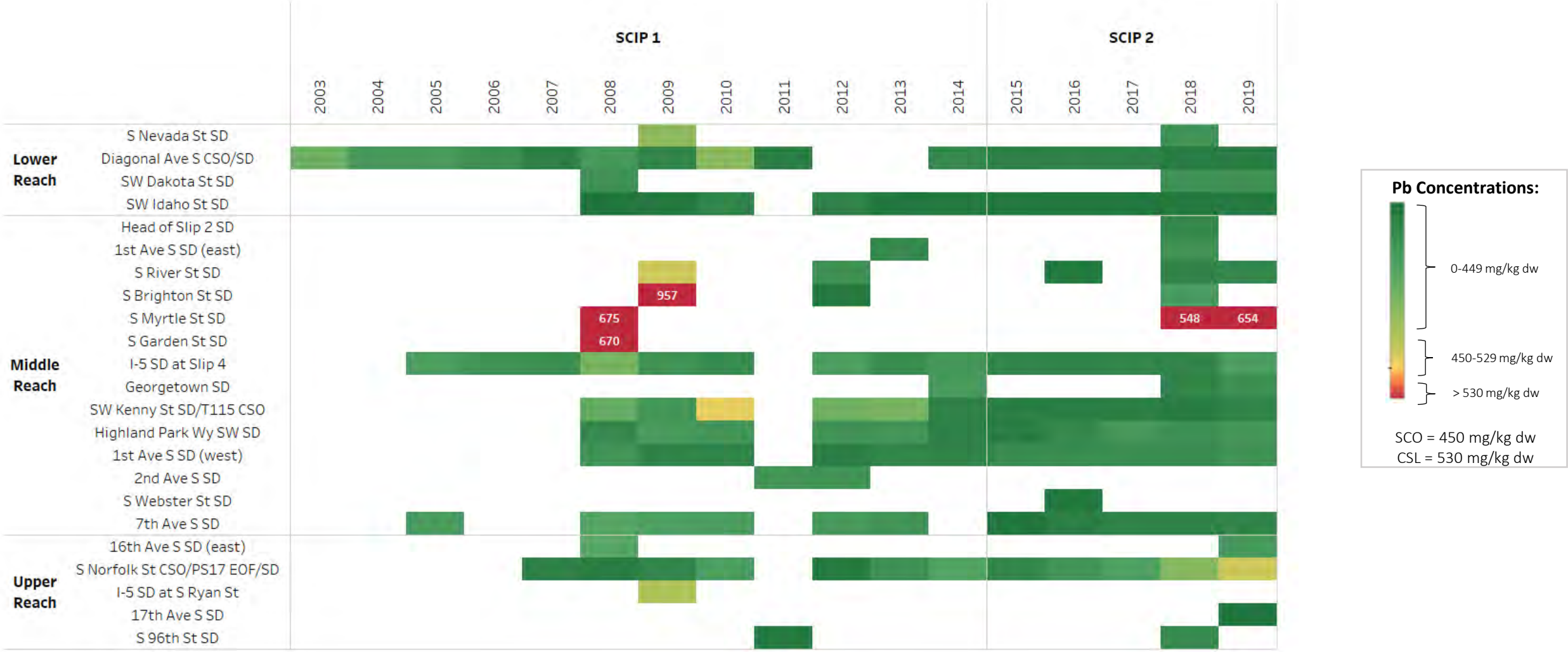


Table B-4

Mercury (Hg) Heat Table:

Median concentrations (mg/kg dw) over time for near end-of-pipe sediment samples

*The boxes below without median concentrations shown in bolded text are below the SCO (0.41 mg/kg dw)

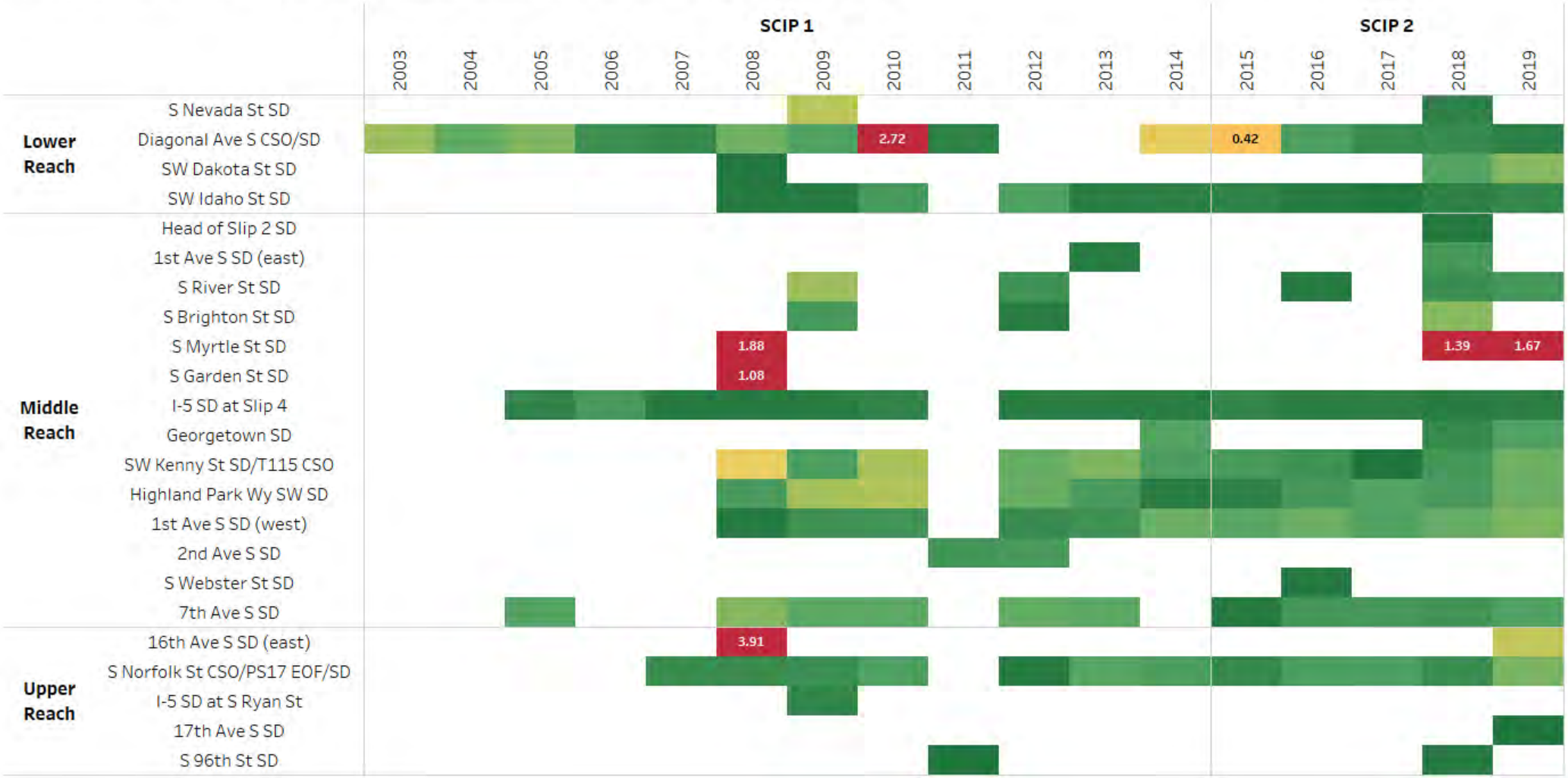
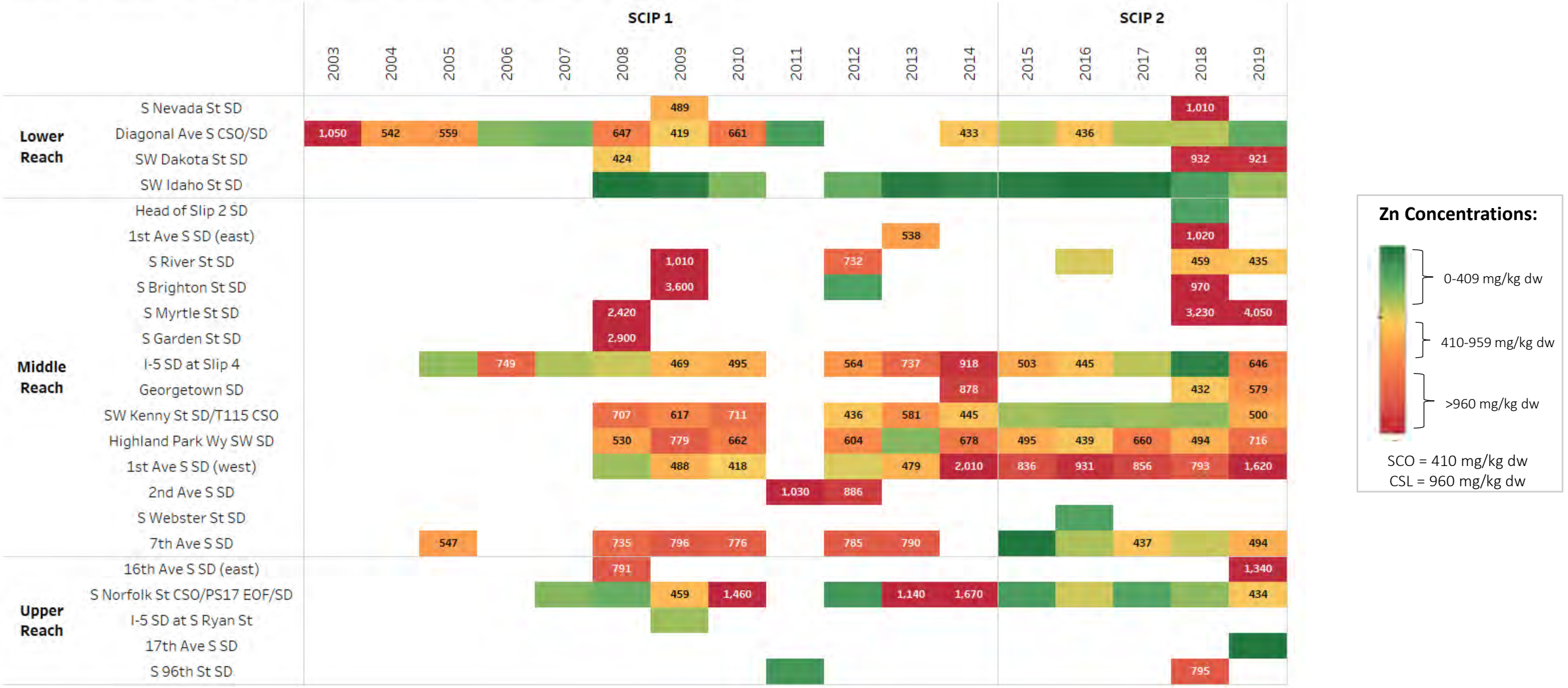


Table B-5

Zinc (Zn) Heat Table:

Median concentrations (mg/kg dw) over time for near end-of-pipe sediment samples

*The boxes below without median concentrations shown in bolded text are below the SCO (410 mg/kg dw)



Zn Concentrations:

- 0-409 mg/kg dw
- 410-959 mg/kg dw
- >960 mg/kg dw

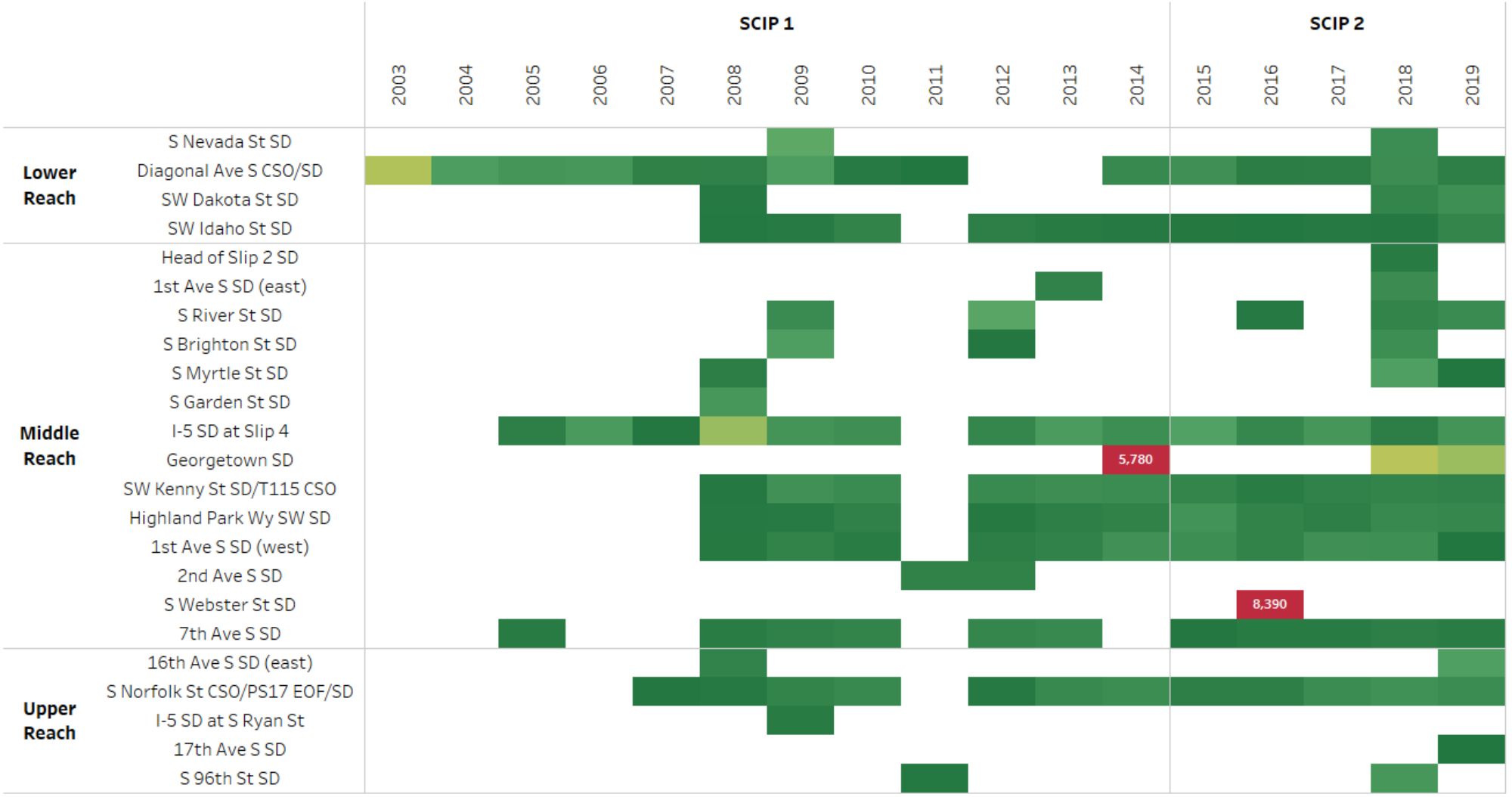
SCO = 410 mg/kg dw
CSL = 960 mg/kg dw

Table B-6

LPAH Heat Tables

Median concentrations (ug/kg dw) over time for near end-of-pipe sediment samples

*The boxes below without median concentrations shown in bolded text are below the LAET/2LAET (5,200 ug/kg dw)



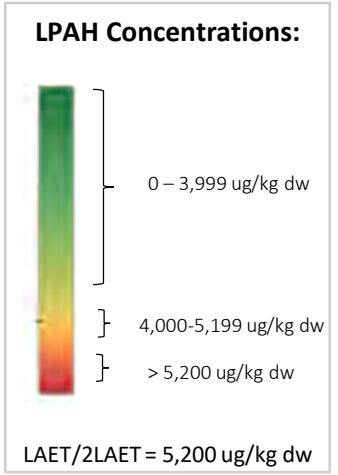


Table B-7

HPAH Heat Tables

Median concentrations (ug/kg dw) over time for near end-of-pipe sediment samples

*The boxes below without median concentrations shown in bolded text are below the LAET (12,000 ug/kg dw)

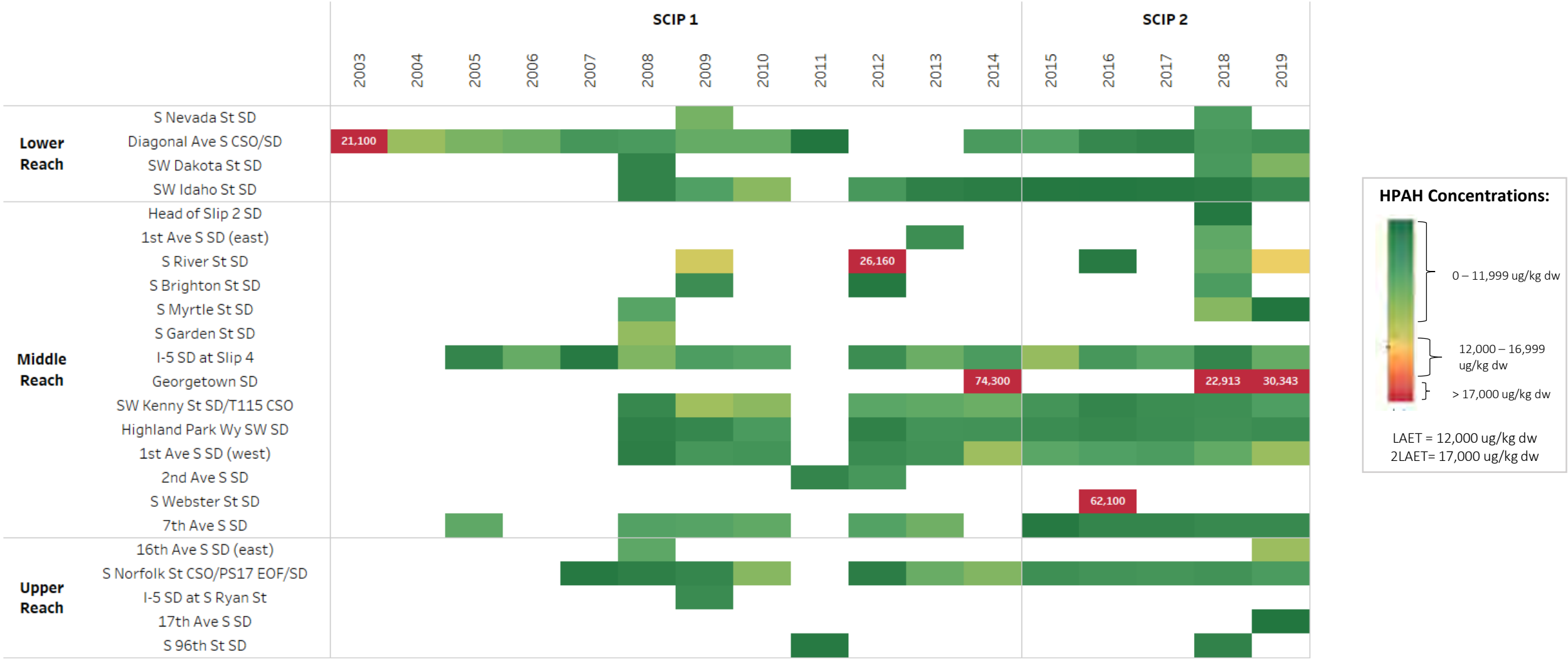


Table B-8

Polychlorinated Biphenyls (PCBs) Heat Table:

Median concentrations (ug/kg dw) over time for near end-of-pipe sediment samples

*The boxes below without median concentrations shown in bolded text are below the LAET (130 ug/kg dw)

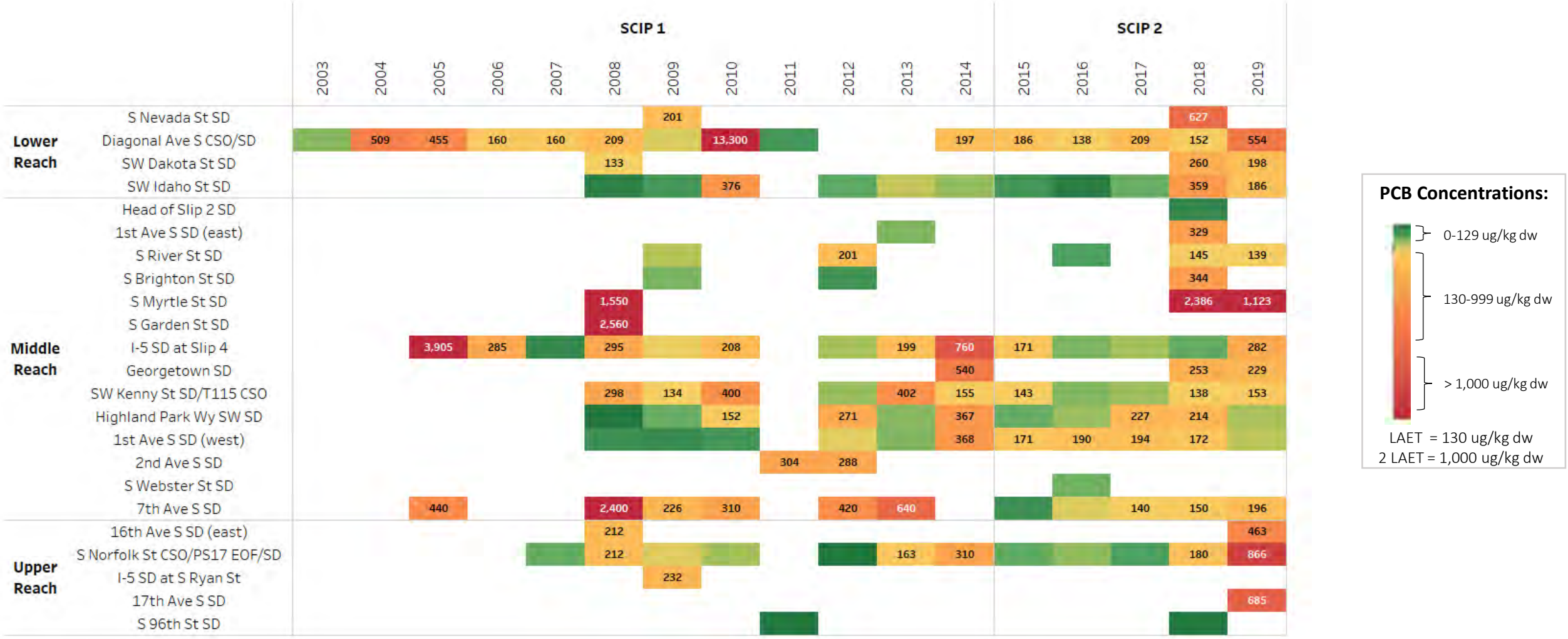


Table B-9

Bis(2-ethylhexyl) phthalate (BEHP) Heat Tables

Median concentrations (ug/kg dw) over time for near end-of-pipe sediment samples

*The boxes below without median concentrations shown in bolded text are below the LAET (1,300 ug/kg dw)

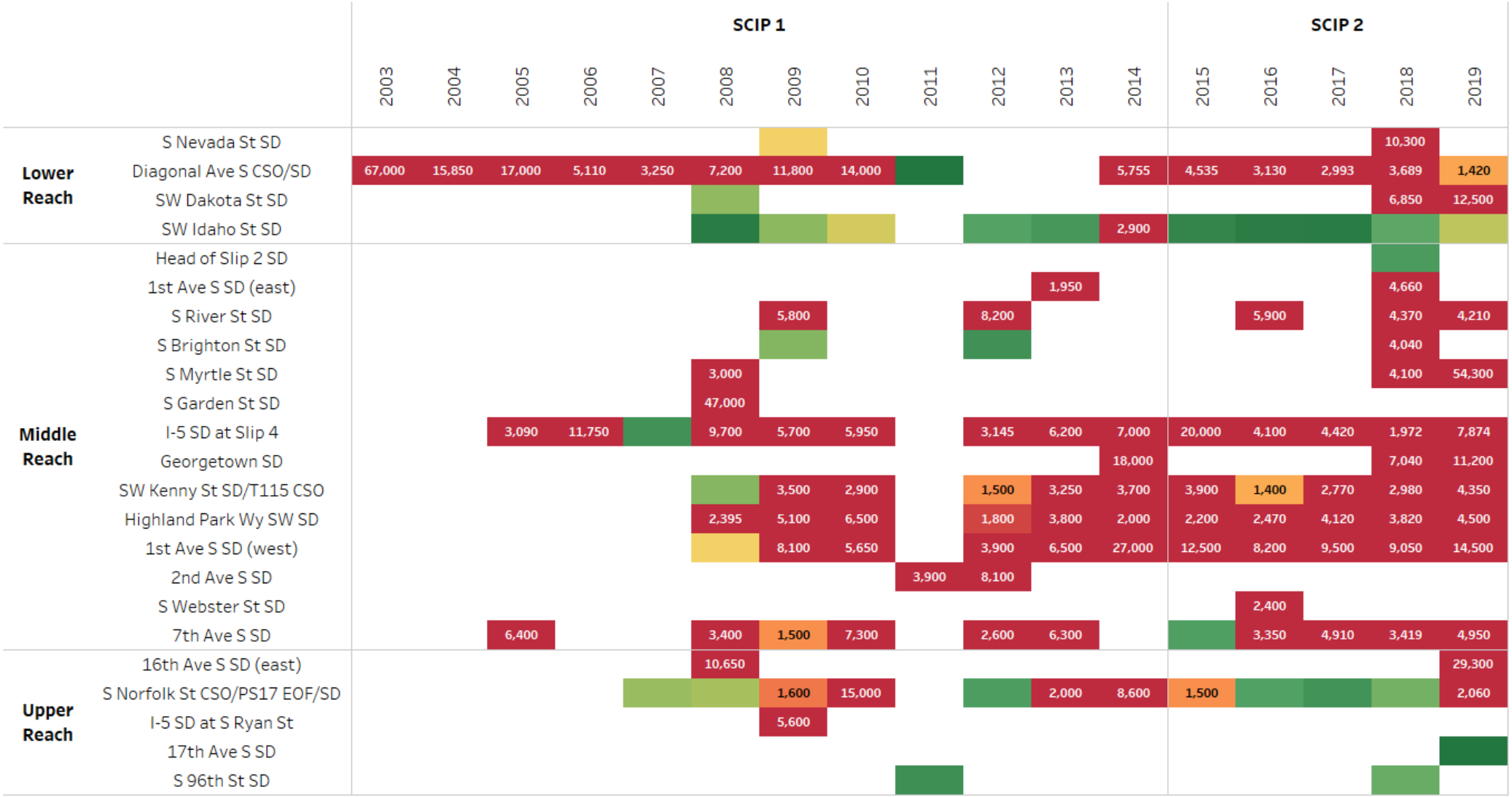


Table B-10

Benzyl butyl phthalate (BBP) Heat Table

Median concentrations (ug/kg dw) over time for near end-of-pipe sediment samples

*The boxes below without median concentrations shown in bolded text are below the LAET (63 ug/kg dw)

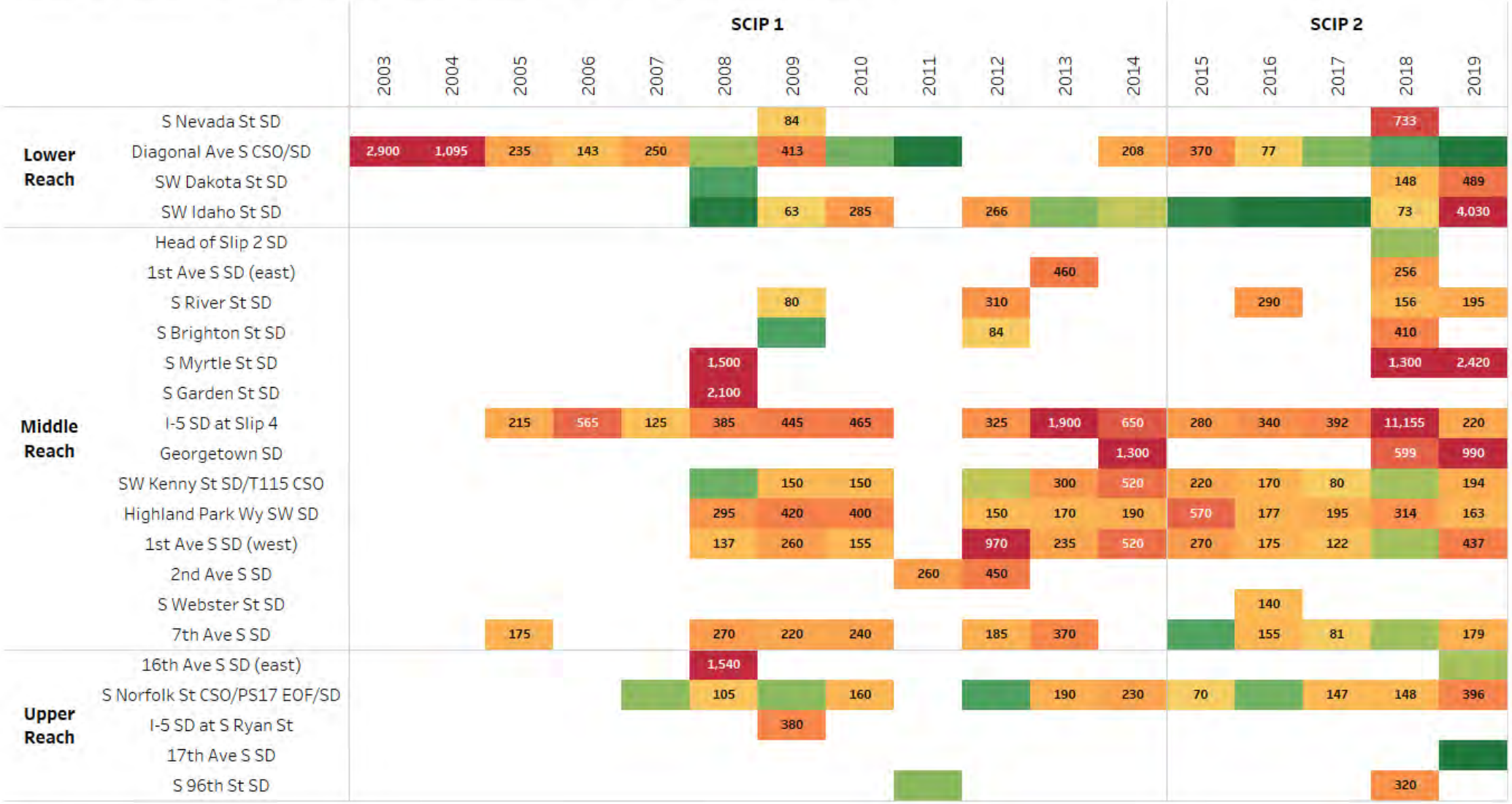


Table B-11

Dimethyl phthalate (DMP)Heat Tables

Median concentrations (ug/kg dw) over time for near end-of-pipe sediment samples

*The boxes below without median concentrations shown in bolded text are below the LAET/ (71 ug/kg dw)

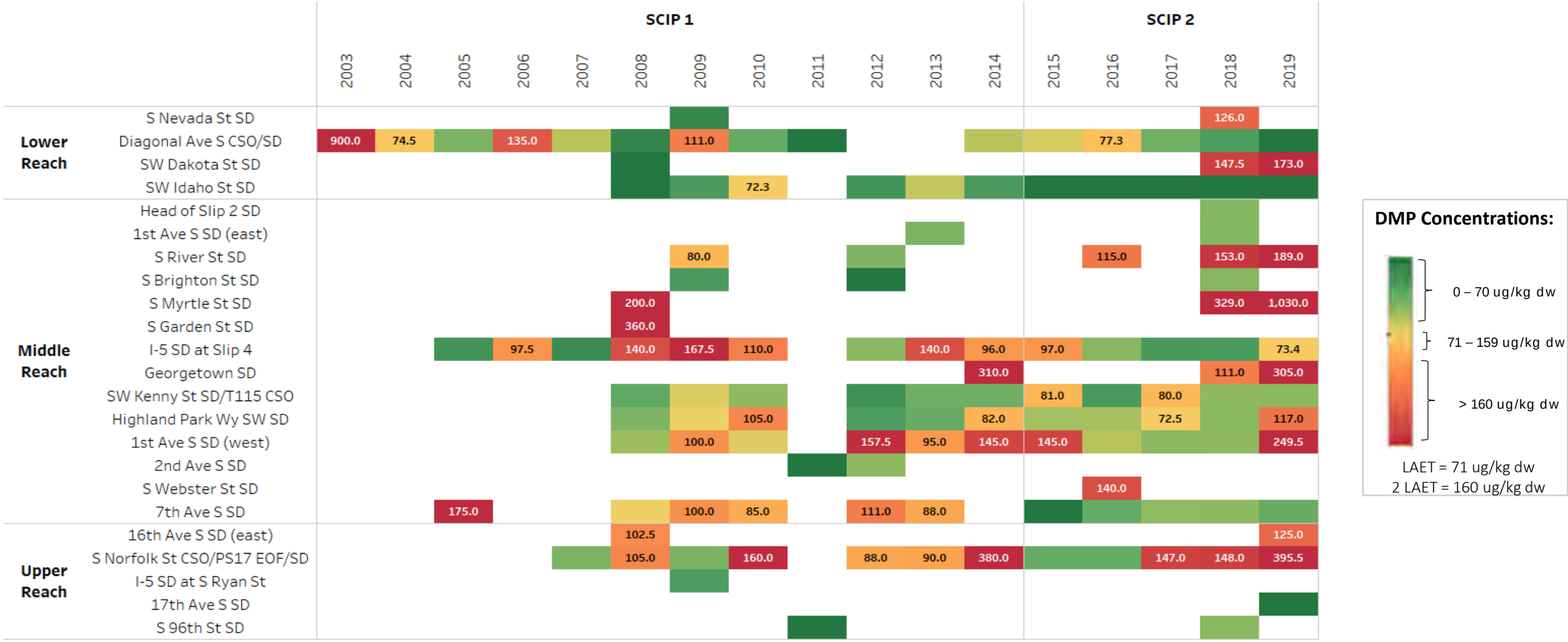


Table B-12

Total Petroleum Hydrocarbons - Diesel (TPH-Diesel) Heat Table

Median concentrations (mg/kg dw) over time for near end-of-pipe sediment samples

*The boxes below without median concentrations shown in bolded text are below the LAET/2LAET (2,000 mg/kg dw)

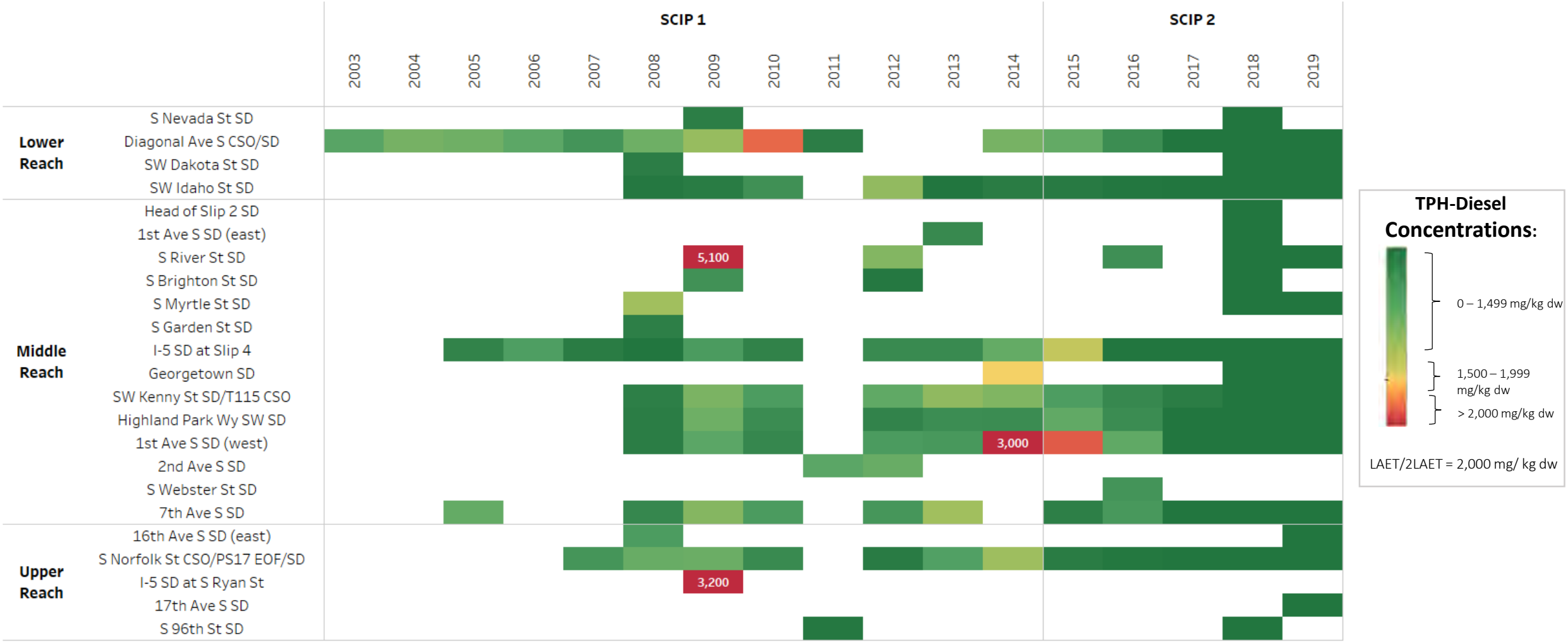
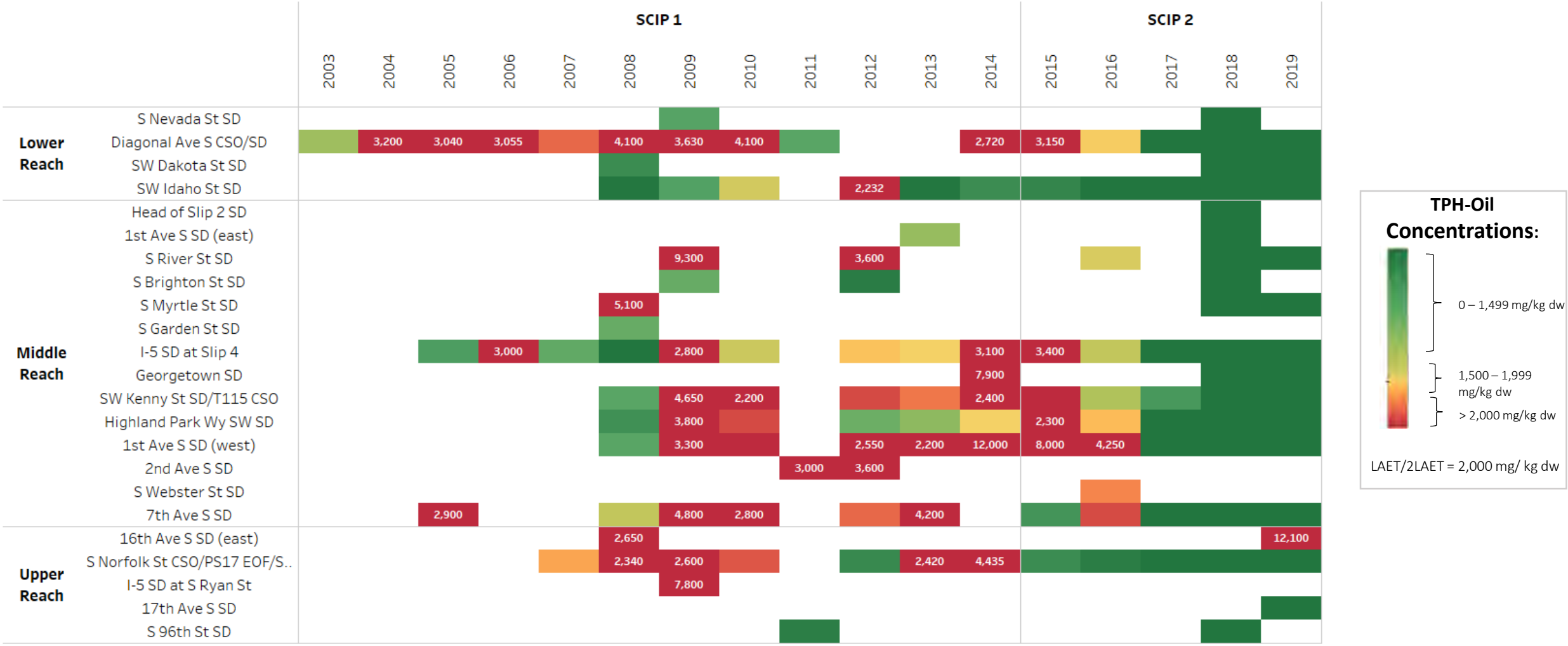


Table B-13

Total Petroleum Hydrocarbons - Motor Oil (TPH-Oil) Heat Table

Median concentrations (mg/kg dw) over time for near end-of-pipe sediment samples

*The boxes below without median concentrations shown in bolded text are below the LAET/2LAET (2,000 mg/kg dw)



Appendix C:

Summary of Source Tracing Results by Outfall

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TABLES

FIGURES

1. INTRODUCTION

Information about individual City-owned outfalls and outfalls that receive stormwater and/or wastewater from City storm drains are described in the following sections. Sample numbers and descriptions are based on data collected through June 2019. In drainage systems where line cleaning has occurred, only samples collected after cleaning are included in the data summaries.[1] Map numbers (e.g., Map 4) refer to maps provided in the map attachment to this Source Control Implementation Plan.

2. UPPER REACH

2.1. 16th Ave S SD (east)

The 16th Ave S SD (east) serves a 3.2-acre basin west of E Marginal Wy S. This system mostly collects roadway runoff from short sections of 16th Ave S and E Marginal Wy S plus runoff from a portion of an industrial parcel located at the southwest corner of 16th Ave S and E Marginal Wy S within the City of Seattle (Map 4). This outfall also serves several catch basins on the east side of the 16th Ave S right-of-way within the City of Tukwila. Boeing disconnected the drainage from its property at 7755 E Marginal Wy S located on the east side of 16th Ave S as part of cleanup work conducted at Plant 2. This area no longer contributes runoff to the 16th Ave S SD (east).

In 2014, King County installed a stormwater wet vault as part of the South Park bridge construction. The approximately 34,000-gallon wet vault treats runoff from the lower 1,000 feet of the South Park bridge approach on 16th Ave S prior to discharging to the LDW via a new 24-inch outfall. The upper 550 feet between the pedestrian tunnel and E Marginal Wy S (city-owned part of the system) continues to discharge untreated to the LDW via the existing outfall.

SPU cleaned the city-owned portion of the 16th Ave S SD (east) drainage system in 2013. Prior to cleaning, SPU collected six storm drain solids samples from this system (one right-of-way catch basin and five inline grab samples). Results are summarized in Table C-1. Benzyl alcohol, benzoic acid, and 2-methylphenol exceeded the 2LAET screening levels in 2 to 3 of the 5 inline grab samples collected from this system. One inline sample (7.7 mg/kg at MH201) exceeded the CSL screening level for mercury and two inline samples (1,020 and 1,640 mg/kg, at MH201 and MH202, respectively exceeded the CSL screening level for zinc.

After cleaning, in 2019, SPU collected an inline grab from a MH201 near the downstream end of the City-owned system. Results are presented in Table C-2. Benzyl alcohol (2,690 ug/kg dw), benzoic acid (1,120 ug/kg dw), and zinc (1,340 mg/kg) remained elevated after cleaning. Mercury (0.358 mg/kg) was below the SCO after cleaning but was still high compared to other storm drains in the LDW. PCBs (463 ug/kg dw) in the 2019 sample were higher than the samples collected in 2008 prior to cleaning (241 ug/kg dw) and were more than two times higher than the median concentration observed in other storm drains in the LDW (96 ug/kg dw). LPAH, HPAH, and cPAH in MH201 were also more than two times higher than the median concentration observed in other storm drains in the LDW, but this is not surprising given the heavy traffic that crosses the South Park Bridge.

[1] Samples flagged as "post cleaning" and "never been cleaned" are included. Samples flagged as "ODS" (outside the drainage system, such as soil, dirt, caulk, and paint), "non-MS4", and "pre-cleaning" are not included in the data analysis.

Table C-1: Summary of chemicals exceeding SMS screening levels in the 16th Ave S (east) drainage system before cleaning.

	SCO LAET	CSL 2LAET	N	Min	Max	Mean	Median	Percent of samples >SCO LAET screening level	Percent of samples >CSL 2LAET screening level
Arsenic	57	93	6	3	10	6.4	6.5	0	0
Copper	390	390	6	76	158	127	129	0	0
Lead	450	530	6	64	281	167	156	0	0
Mercury	0.41	0.59	6	0.05	7.7	1.37	0.12	17	17
Zinc	410	960	6	219	1,640	736	587	67	33
TPH-oil	2,000[a]	2,000[a]	6	1,100	3,900	1,980	1,650	33	33
LPAH	5,200	5,200	6	190	640	390	385	0	0
HPAH	12,000	17,000	6	1,540	6,650	3,930	3,910	0	0
cPAH	1,000[b]	1,000[b]	6	167	819	514	522	0	0
PCBs	130	1,000	6	136	300	229	231	100	0
BEHP	1,300	1,900	6	1,500	44,000	12,100	6,050	100	67
Butylbenzyl phthalate	63	900	6	150	2,600	757	425	100	17
Dimethyl phthalate	71	160	6	29	130	74	68	50	0
Benzoic acid	650	650	6	<580	13,000	2,800	<1,700	33	33
Benzyl alcohol	57	73	6	<58	31,000	5.600	300	50	50
2-methyl phenol	63	63	6	<58	5,700	1,100	<170	33	33

N = number of samples BEHP = bis(2-ethylhexyl)phthalate PCBs = polychlorinated biphenyls

PAH = polycyclic aromatic hydrocarbons, TPH = total petroleum hydrocarbons

Units: mg/kg for metals and TPH-oil, ug/kg dw for organic compounds, ug TEQ/mg for cPAH.

a. MTCA Method A soil cleanup level for unrestricted use

b. Sediment remedial action level

Samples collected November 2008 through April 2009.

Table C-2: Results for an inline grab sample collected from the 16th Ave S SD (east) after cleaning.

	SCO LAET	CSL 2LAET	MH201[c] 06/06/19
Arsenic	57	93	13.8 U
Copper	390	390	234
Lead	450	530	144
Mercury	0.41	0.59	0.358
Zinc	410	960	1,340
TPH-oil	2,000[a]	2,000[a]	12,100 J
LPAH	5,200	5,200	1,430 J
HPAH	12,000	17,000	8,582 J
cPAH[d]	1,000[b]	1,000[b]	840 J
PCBs	130	1,000	463
BEHP	1,300	1,900	29,300 J
Butylbenzyl phthalate	63	900	100 UJ

	SCO LAET	CSL 2LAET	MH201[c] 06/06/19
Dimethyl phthalate	71	160	125 J

Exceeds SCO/LAET

Exceeds CSL/2LAET

Units: mg/kg for metals and TPH-oil, ug/kg dw for organic compounds, ug TEQ/kg for cPAH.

N = number of samples BEHP = bis(2-ethylhexyl)phthalate PCBs = polychlorinated biphenyls

PAH = polycyclic aromatic hydrocarbons, TPH = total petroleum hydrocarbons

a. MTCA Method A soil cleanup for unrestricted use

b. Sediment remedial action level

c. Near end-of-pipe inline grab.

Nine surface sediment samples were collected within 200 feet of the 16th Ave S SD outfall (AECOM 2012) prior to 2015 when The Boeing Company completed an Early Action Cleanup at Plant 2. Chemicals that exceeded SCO included:

- Zinc: 420 J mg/kg at one sample located 180 feet upstream of the outfall
- PCBs: multiple samples. The sample closest to the outfall (40 feet offshore) contained 1,450 ug/kg dw PCBs, but concentrations were higher (2,400 – 17,300 ug/kg dw) at stations further away (180 feet) from the outfall
- Total HPAH and several individual HPAHs at one station located 200 feet upstream of the outfall.

PCBs exceeded SMS in eight of the samples, but the highest concentrations were found in samples collected upstream of the 16th Ave S outfall and PCB concentrations in the storm drain samples (136 – 300 ug/kg dw) were generally lower than the concentrations found in nearby sediment (220 – 17,300 ug/kg dw, 4,900 ug/kg dw mean).

After the Plant 2 cleanup, samples were collected in 2015 and 2016 from three locations within 200 feet of the outfall (PCM006, PCM016, and PCM026, Windward 2018). None of the samples exceeded the SCO for any chemicals.[2]

Based on this information, SPU does not consider the 16th Ave S SD to be a significant source to the waterway. However, given that the concentrations of several chemicals of concern for the waterway were higher than in other City storm drains discharging to the LDW, additional work is warranted. Over the next 5 years, SPU intends to conduct the following activities in the 16th Ave S SD (east) basin:

- Establish a long-term monitoring station near the downstream end of the City-owned portion of this system to monitor the quality of storm drain solids discharged to the LDW.
- Inspect business at corner of E Marginal Wy S and 16th Ave S and if possible, collect sample from private onsite catch basin.
- Clean entire system after completing source tracing.

2.2. KCIA SD#1

The KCIA SD#1 serves a total area of about 192 acres (Map 5). Approximately 114 acres in the City MS4 system (residential areas along Military Rd S) discharges to the KCIA SD#1 outfall via a ditch/culvert system that runs parallel to the railroad. This system crosses under the railroad and ties into the KCIA SD#1 system on the east side of Airport Wy S.

[2] PCM006 is 130 feet upstream, PCM016 is 170 feet upstream, and PCM026 is 110 feet downstream of the outfall.

To date, SPU has collected three storm drain solids samples from the City MS4 that discharges to the KCIA SD#1 drainage system (two right-of-way catch basin samples in 2007[3] and one inline grab sample in 2018). Results are provided in Table C-3. No chemicals exceeded the SMS screening levels in RCB118 and only phthalates exceeded the CSL/LAET screening level in RCB116. MH47 was collected from a maintenance hole located on Military Rd S just upstream of the ditch/culvert system. All chemicals except butyl benzyl phthalate (670 ug/kg dw) were below the SCO/LAET screening levels.

Table C-3: Storm drain solids sample results for KCIA SD#1.

	SCO LAET	CSL 2LAET	RCB116 11/16/07	RCB118 11/16/07	MH47 10/12/18
Arsenic	57	93	8 U	7 U	8.27
Copper	390	390	44.2	53.2	42.9
Lead	450	530	36	20	87.9
Mercury	0.41	0.59	0.06 U	0.05 U	0.0581
Zinc	410	960	161	73	169
TPH-oil	2,000[a]	2,000[a]	1,500	620	309
LPAH	5,200	5,200	100	66	682 J
HPAH	12,000	17,000	496	169	4,267
cPAH[d]	1,000[b]	1,000[b]	67	51	540
PCBs	130	1,000	20 U	20 U	33
BEHP	1,300	1,900	2,700	660	603
Butyl benzyl phthalate	63	900	640	60 U	670
Dimethyl phthalate	71	160	60 U	60 U	19.6 U

Exceeds SCO/LAET

Exceeds CSL/2LAET

Units: mg/kg for metals and TPH-oil, ug/kg dw for organic compounds, ug TEQ/kg for cPAH.

N = number of samples BEHP = bis(2-ethylhexyl)phthalate PCBs = polychlorinated biphenyls

PAH = polycyclic aromatic hydrocarbons, TPH = total petroleum hydrocarbons

a. MTCA Method A soil cleanup for unrestricted use

b. Sediment remedial action level

More than 20 surface sediment samples have been collected within 200 feet of the KCIA SD#1 outfall. There were no SMS exceedances at two stations located within 30 feet of the outfall (LDW-SS127 and 23-intsed-2). At the next closest station to the outfall (LDW-SS2080-A at 40 feet offshore) only dimethyl phthalate and benzyl alcohol exceeded the SMS, although both exceeded the CSL. Multiple SVOCs exceeded the SCO at stations 90 to 200 feet from the outfall and many of these chemicals also exceeded the CSL.

It does not appear that solids from the City MS4 system are affecting sediment quality offshore of KCIA SD#1. Over the next 5 years, SPU plans to continue collecting near end-of-pipe samples from the City MS4 system and will evaluate whether a sediment trap should be installed to capture a representative sample of solids entering KCIA SD#1.

2.3. Norfolk CSO/PS17 EOF/SD

The Norfolk CSO/PS17 EOF/SD drainage system serves an area of about 649 acres. Land use in the basin is approximately 29.4 percent industrial, 18.5 percent residential, 15.9 percent open/vacant/parks, 3.5 percent

[3] RCB116 and RCB118 were collected from catch basins in the residential area east of I5.

commercial, and 32.7 percent right-of-way. Approximately 431 acres are located within the City of Seattle (Map 6). The remaining 218 acres are within the City of Tukwila's jurisdiction. The I-5 corridor (11,000 LF) takes up a significant portion of the right-of-way within this basin.

SPU jetted and cleaned the lines south of S Norfolk St in 2005 in preparation for the Sound Transit Light Rail project, which when completed in 2010, upgraded the drainage system along
Martin Luther King, Jr Wy S. There are now 30- to 42-inch storm drains on both sides of the roadway, which improves drainage along this corridor. Unfortunately, Sound Transit mistakenly connected some sanitary side sewers to the storm drain system, while re-connecting pipes along the corridor. SPU inspectors continue to find and correct illicit connections that resulted from this work.

In 2011 SPU constructed a 5-acre foot stormwater wet pond just west of I-5 that treats runoff from the 226-acre MLK sub-basin. Runoff from this portion of the drainage basin now passes through a 1,000-foot long heavily vegetated drainage swale, the new wet pond, and a natural wetland before discharging to the LDW. SPU cleaned all the pipes in this sub-basin in 2018.

The CSO and emergency overflow (EOF) connections to the Norfolk outfall are no longer very active. In 2005, King County installed a 14-foot diameter, 3,100 –foot-long tunnel to store, treat, and disinfect CSOs. The facility provides storage and treatment of potential CSO during peak, storm events. The diversion of wastewater into the tunnel prevents the discharge of CSO to surface waters during all but the most severe storms. CSOs that are discharged, receive primary treatment by settling, screening, disinfection, and dechlorination (King County 2006). Since 2005, the Norfolk CSO has discharged treated flows 0 to 3 times per year with overflow volumes ranging from <1 to 19.8 million gallons per year (King County 2006 – 2018).

SPU records show that the emergency overflow on pump station #17 in the Norfolk system has discharged twice in the past 10 years. The first occurred during a large December 11-12, 2010 storm event during which the pump station discharged approximately 1.3 million gallons over a nearly 7-hr period. This is considered a worst-case estimate, because there was no evidence that the duckbill valve opened to allow flow from the sanitary sewer to discharge to the storm drain. SPU crews did not observe any evidence of sewage in the ditch downstream of the duckbill valve (e.g., toilet paper, rags). The second overflow occurred on February 19, 2017. Total volume discharged during this event was estimated at 47,075 gallons.

The 25-acre parcel located at 3301 S Norfolk St is being re-developed. Redevelopment is expected to bring significant changes to the onsite drainage system, which will affect the City's Norfolk CSO/EOF/SD system at NST2 and the I-5 SD at S Ryan St system. The Seattle Department of Construction and Inspections is currently reviewing the developer's building permit application. SPU will review project plans when they become available and make necessary adjustments to monitoring locations when the site is developed.

Between the 2005 and 2018 cleanings, SPU collected 122 storm drain solids samples from the City-owned lines within the Norfolk CSO/EOF/SD drainage system (38 sediment trap, 31 onsite catch basins, 12 right-of-way catch basin, and 41 inline grab samples). Results are summarized in Table C-4.

Chemical concentrations in samples collected from the Norfolk CSO/EOF/SD drainage system were comparable to other City storm drains in the LDW (see box plots in Appendix B). However, elevated levels of HPAH have repeatedly been found in the MLK Jr Wy S sub-basin. SPU continues to track sources of HPAHs in this area. To date, SPU has found and eliminated several illicit connections (e.g., vehicle/equipment wash pads). During the 2018 cleaning, SPU's contractor observed and removed deposits of asphalt from the 30-inch pipe on MLK Jr Wy S north of S Norfolk St.

Table C-4: Summary of chemicals exceeding the SMS screening levels in the City-owned MS4 within the S Norfolk CSO/PS17 EOF/SD drainage system before 2018 cleaning.

	SCO LAET	CSL 2LAET	N[a]	Min	Max	Mean	Median	Percent of samples >SCO LAET screening level	Percent of samples >CSL 2LAET screening level
Arsenic	57	93	111	<5.4	48	13	11	0	0
Copper	390	390	109	17.2	3,590	160	102	4	4
Lead	450	530	109	10	407	83	64	0	0
Mercury	0.41	0.59	109	<0.02	0.33	0.09	0.08	0	0
Zinc	410	960	109	74	2,850	650	540	58	22
TPH-oil	2,000[b]	2,000[b]	103	<64	24,000	3,700	2,860	60	60
LPAH	5,200	5,200	106	<18	79,127	2,500	565	5	5
HPAH	12,000	17,000	106	19.2	585,400	16,000	3,328	10	8
cPAH	1,000[c]	1,000[c]	106	<30	83,540	2,200	423	24	24
PCBs	130	1,000	114	<17	2,100	150	86	35	1
BEHP	1,300	1,900	106	<22	74,000	8,100	5,500	69	60
Butyl benzyl phthalate	63	900	106	<18	4,600	330	235	69	7
Dimethyl phthalate	71	160	106	<18	1,950	140	120	44	22

N = number of samples BEHP = bis(2-ethylhexyl)phthalate PCBs = polychlorinated biphenyls
PAH = polycyclic aromatic hydrocarbons, TPH = total petroleum hydrocarbons
Units: mg/kg for metals and TPH-oil, ug/kg dw for organic compounds.
Samples collected October 2005 through April 2018.

a. Includes all samples collected in the MS4 that have not been affected by the 2005 cleaning operations (i.e., data flagged as "never been cleaned" or "post cleaning"). Does not include ODS (outside the drainage system) samples, which include surface dirt, soil, or other materials (e.g., caulk, paint)Does not include samples collected before the 2005 cleaning
b. MTCA Method A soil cleanup level for unrestricted use.
c. Sediment remedial action level.

Since the 2018 cleaning, SPU has collected 5 inline grabs or traps and 1 onsite CB sample in the MLK sub-basin. Results are displayed in Table C-5. Sampling locations are shown on Map 59. PAH concentrations in all samples were below the 2LAET screening level. Peak LPAH (1,030 ug/kg dw) and HPAH (8,074 ug/kg dw) concentrations were also significantly lower than samples collected prior to cleaning (79,127 and 585,400 ug/kd dw, respectively).

Zinc and phthalates continue to exceed SMS screening levels, but except for PCBs at NST-4 (866 J ug/kg dw), concentrations of these and other chemicals are comparable to levels found in other storm drains in the LDW. SPU has collected trap samples at NST-4 since 2008. Prior to 2019, PCB concentrations were all below 200 ug/kg dw. The higher level in 2019 (866 J ug/kg dw) is unusual and may reflect new source(s) in this sub-basin. NST4 drains the southern end of the King County Airport, portions of Airport Wy S, the railroad right-of-way, and a few private parcels located north of S Norfolk St on the east side of I-5. SPU collected storm drain solids samples from one right-of-way catch basin on Airport Wy S (RCB130 in 2008) and one private onsite catch basin at a trucking facility (CB233 in 2015). PCBs in both samples were low (22 and 11 J ug/kg dw, respectively). SPU inspected the trucking business in 2019 and found no violations. The lot area is swept each month and the onsite drainage system was well maintained.

Table C-5: Storm drain solids results for samples collected in the MLK Jr Wy S sub-basin after cleaning.

	SCO LAET	CSL 2LAET	CB334 05/03/19	NST1 [a] 04/17/19	NST1 [b] 04/17/19	NST3 [a] 04/16/19	NST4 [a] 04/16/19	NST5 [a] 04/16/19
Arsenic	57	93	17.4	11.2	6.75 U	10.2 U	95.4 U	--
Copper	390	390	123	110	40	94.7	111	--
Lead	450	530	58.3	76.4	27.6	72.7	407	--
Mercury	0.41	0.59	0.0426	0.117	0.0573	0.142	0.494 UJ	--
Zinc	410	960	1,010	713	207	463	435	--
TPH-oil	2,000 [c]	2,000 [c]	2,790	3,980 J	1,090	1,680 J	1,000 J	--
LPAH	5,200	5,200	1,032 J	1,020 J	414	1,025	791	--
HPAH	12,000	17,000	5,969 J	8,074 J	3,271	6,017 J	3,873	--
cPAH [d]	1,000 [d]	1,000 [d]	684 J	963 J	407	573 J	683 J	--
PCBs	130	1,000	66	162 J	111 J	20 U	866 J	492
BEHP	1,300	1,900	7,280	9,950 J	3,070	15,700 J	2,060 J	--
Butylbenzyl phthalate	63	900	205 J	156 J	50.9 J	427 J	791 UJ	--
Dimethyl phthalate	71	160	296 U	100 UJ	59.8 U	99.8 UJ	791 UJ	--

Exceeds SCO/LAET

Exceeds CSL/2LAET

Units: mg/kg for metals and TPH-oil, ug/kg dw for organic compounds, ug TEQ/kg for cPAH.
BEHP = bis(2-ethylhexyl)phthalate
New samples collected after the lines were cleaned in 2018.

a. Sediment trap sample
b. Inline grab at sediment trap location
c. Sediment remedial action level
d. Sediment remedial action level.

For the past 2 years, SPU has not been able to retrieve the sediment trap at station NST-2 due to high water levels in the maintenance hole. This trap will be relocated and re-established following redevelopment at the 3301 S Norfolk St property.

All samples collected in the S Norfolk CSO/EOF PS17/SD system that have not been affected by either the 2005- or 2018-line cleaning operations are summarized in **Error! Not a valid bookmark self-reference.**. Median concentrations for all chemicals are similar to the levels observed at other storm drains in the LDW.

Table C-6: Results for storm drain solids results collected in the S Norfolk St CSO/EOF PS17/SD after 2018 cleaning.

	SCO LAET	CSL 2LAET	N[a]	Min	Max	Mean	Median	Percent of samples >SCO LAET screening level	Percent of samples >CSL 2LAET screening level
Arsenic	57	93	56	<5.4	48	13	10	0	0
Copper	390	390	55	17.2	3,590	200	106	7	7
Lead	450	530	55	15	407	90	63	0	0
Mercury	0.41	0.59	55	<0.03	0.33	0.09	0.09	0	0
Zinc	410	960	55	74	2,220	610	579	51	27
TPH-oil	2,000[b]	2,000[b]	49	<64	24,000	4,300	3,200	51	51
LPAH	5,200	5,200	52	<20	79,127	4,4 00	568	10	10
HPAH	12,000	17,000	52	21	585,400	27,000	3,168	12	12
cPAH	1,000[c]	1,000[c]	52	<34	83,540	3,600	396	17	17
PCBs	130	1,000	59	<18	2,100	140	73	14	1
BEHP	1,300	1,900	53	<22	74,000	9,600	6,500	60	53
Butyl benzyl phthalate	63	900	53	<20	4,600	330	180	70	4
Dimethyl phthalate	71	160	53	<19	1,950	140	65	40	17

N = number of samples BEHP = bis(2-ethylhexyl)phthalate PCBs = polychlorinated biphenyls
PAH = polycyclic aromatic hydrocarbons, TPH = total petroleum hydrocarbons
Units: mg/kg for metals and TPH-oil, ug/kg dw for organic compounds.
Samples collected October 2005 through April 2019

a. Includes all samples collected in the MS4 that have not been affected by the 2005 and 2018 cleaning operations (i.e., data flagged as "never been cleaned" or "post cleaning"). Does not include ODS (outside the drainage system) samples, which include surface dirt, soil, or other materials (e.g., caulk, paint)
b. MTCA Method A soil cleanup level for unrestricted use.
c. Sediment remedial action level.

Near end-of-pipe samples collected at NST-1 and NST-4 were below the CSL/2LAET screening level for metals and PCBs (See Appendix B). Occasional exceedances (≤10 percent of the 21 samples) have occurred for LPAH, HPAH, and cPAH. Like other outfalls in the LDW, phthalates more often exceed the 2LAET screening levels (29-43 percent).

As reported in SCIP 1, from 2010-2012, SPU collected 33 stormwater samples at the downstream end of the 164-acre MLK sub-basin as part of it NPDES stormwater monitoring requirements. The MLK sub-basin was selected to characterize stormwater quality from industrial land use. Land use in the is 37 percent industrial, 32 percent residential, 13 percent commercial and 18 percent open space. Sample results are summarized in Table C-7.

Table C-7: Norfolk CSO/PS17 EOF/SD stormwater monitoring data (2010 - 2012).

	No. of samples	# Detects	Min	Max	Median	Mean
Total suspended solids	33	33	16	455	63	87
Copper, total	33	33	10.2	64.3	18	23
Copper, dissolved	33	33	2	19.2	5	5.7
Lead, total	33	33	2	43	8	10
Lead, dissolved	33	15	0.2	3	0.5	0.5
Mercury, total	33	5	0.01	0.047	0.01	0.01
Mercury, dissolved	33	0	--	--	--	--
Zinc, total	33	33	71	420	131	155
Zinc, dissolved	33	33	12	125	46	47
TPH-diesel	32	32	0.15	2.4	0.77	0.8
TPH-oil	32	32	0.34	3.3	1.6	1.7
Acenaphthene	33	0	--	--	--	--
Acenaphthylene	33	0	--	--	--	--
Anthracene	33	0	--	--	--	--
Fluorene			--	--	--	--
Naphthalene	33	5	0.05	2.1	0.05	0.1
Phenanthrene	33	13	0.04	0.33	0.05	0.1
Benzo(a)anthracene	33	2	0.04	0.3	--	0.1
Benzo(a)pyrene	33	5	0.05	0.36	0.05	0.1
Benzo(g,h,i)perylene	33	9	0.035	0.36	0.05	0.1
Benzofluoranthenes, total	33	8	0.05	0.72	0.095	0.1
Chrysene	33	11	0.04	0.44	0.05	0.1
Dibenzo(a,h)anthracene	33	0	--	--	--	--
Fluoranthene	33	17	0.05	0.6	0.06	0.1
Indeno(1,2,3-cd)pyrene	33	3	0.04	0.28	0.05	0.1
Pyrene	33	21	0.05	0.74	0.11	0.2
Bis(2-ethylhexyl)phthalate	33	20	0.5	2.2	1.6	2.2
Butyl benzyl phthalate	33	0	--	--	--	--
Diethyl phthalate	33	3	0.5	8.9	0.5	0.8
Dimethyl phthalate	33	0	--	--	--	--
Di-n-butylphthalate	33	0	--	--	--	--
Di-n-octylphthalate	33	0	--	--	--	--
PCBs	6	4	<0.01	0.022	0.008	0.010

Reference: SPU 2012

Units: Total suspended solids (mg/L). All other parameters (ug/L)

King County dredged and capped contaminated sediment offshore of the Norfolk outfall in February-March 1999 and monitored sediment offshore of the Norfolk for the following five years (King County 2005). Chemicals exceeding SCO during the five-year post-cleanup monitoring program are listed in Table C-8. In September 2003, Boeing conducted additional cleanup in the area offshore of the outfall from Boeing property, due to elevated levels of PCBs found at NK503 during the 2000 sampling event and subsequent sampling conducted by Ecology in 2002. PCB concentrations offshore of the Boeing storm drain outfall were greater than six times the CSL (King County 2005). PCBs consistently exceeded the SCO and/or LAET in samples collected offshore of the Boeing storm drain outfall.

In addition, sporadic exceedances of PCBs occurred in the channel offshore of the Norfolk outfall (NFK501 in 2004) and the combined channel down gradient of both outfalls (NFK502 in 2001). The 2004 NFK501 sample was collected less than a year after Boeing dredged the adjacent area offshore of the Boeing storm drain outfall. The NFK502 exceedance was never repeated in any of the subsequent samples at this location.

Sporadic exceedances of SCO for butyl benzyl phthalate and PCBs have occurred offshore of the Norfolk CSO/PS 17 EOF/SD outfall since the 1999 cleanup, but there was no consistent upward trend (King County 2005). Butyl benzyl phthalate exceeded the SCO at both stations located downstream of the outfall in the 0-2 cm samples collected in April 2001. All other samples were below the SCO for BBP.

Based on these results, King County (2005) concluded that:

> *There have been periodic exceedances of SMS criteria on the Norfolk sediment cap. These exceedances, however, have been sporadic in nature and do not appear to show a consistent upward trend. Surface recontamination of the sediment cap from discharges of the Norfolk CSO, to levels approaching SCO chemical criteria, does not appear to have occurred over the five-year monitoring period. There appear to be some residual PCB concentrations at the site that are greater than the SCO criterion of the LAET.*

Table C-8: Chemicals exceeding SCO offshore of Norfolk CSO/PS17 EOF/SD following early action area cleanup.

Sample Station	**NFK501** [a]	**NFK502** [b]	**NFK503** [c]
Distance from outfall (ft)	50	100	90
Direction	Opposite	Opposite	Downstream
1999 baseline	None	None	PCBs
2001	Butyl benzyl phthalate[e]	Butyl benzyl phthalate[e], PCBs	PCBs
2002	None	BEHP	PCBs
2003	None	None	PCBs [d]
2004	PCBs	None	PCBs

Results for samples collected at depths of 0-10 cm.
Reference: King County (1999, 2001, 2002, 2003, 2004).

a. Outlet channel opposite Norfolk CSO/PS17 EOF/SD outfall
b. Combined channel downstream of Norfolk and Boeing outfalls
c. Outlet channel opposite Boeing storm drain
d. PCB results could not be OC normalized because of high TOC in sample. Dry weight concentration exceeded the LAET for PCBs.
e. Sample collected at 0-2 cm depth exceeded the SCO for butyl benzyl phthalate. All butyl benzyl phthalate results for samples collected in 2002 and 2003 were qualified as non-detect due to problems with laboratory contamination.

Over the next 5 years, SPU intends to conduct the following activities in the S Norfolk St CSO/EOF PS17/SD:

- Continue inspecting businesses
- Remove material from the sediment trap at the downstream end of the MLK Wy Jr sub-basin and re-establish flow channel, clean oil/water separator, 64-inch pipe (EQNUM 614010) west of MLK Wy Jr S and 36-inch pipe (EQNUM 614009) pipe on MLK Jr Wy S that were not completed during the 2018 line cleaning work in this basin. Schedule annual preventative maintenance cleaning for the sediment trap and oil/water separator.

- Work with King County Airport to investigate potential sources of PCBs in the NST-4 sub-basin where elevated levels of PCBs (866 J ug/kg dw) were observed in the 2019 trap sample.
- Relocate trap NST-2, if necessary, after property at 3301 S Norfolk St is redeveloped. SPU will notify Ecology if this trap is moved.
- Continue source tracing to determine whether PAH sources have been sufficiently controlled.

2.4. I-5 SD at S Ryan St

The I-5 SD at S Ryan St, constructed by WSDOT in 1964, serves an area of about 529 acres, a portion of which (122 acres) is in Tukwila (Map 7). In 1994, WSDOT constructed a dry pond/swale system to treat runoff from I-5. Low flows from I-5 were routed to the treatment system, which discharges to the Norfolk CSO/EOF/SD drainage system, while high flows were diverted around the treatment system to the S Ryan St outfall. In 2011, SPU constructed a wet pond/wetland system immediately south of the WSDOT dry pond. The wet pond replaced the existing swale, but effluent from the WSDOT dry pond continues to discharge to the Norfolk drainage system. Other modifications to this system include:

- In 1992, SPU constructed a diversion structure on the S Norfolk CSO/PS17 EOF/SD drainage system at NST-2 to allow high flows from the City's approximately 224-acre ML King Jr Wy S sub-basin to bypass to the I-5 SD at S Ryan St during large storm events.
- In 1995, SPU constructed a 200-foot long biofiltration swale on the north side of the S Boeing Access Rd (along the I-5 cloverleaf). The swale treats runoff from an 18-inch SD on S Ryan St in Tukwila.

Because of the high flow bypass at NST-2, many of the storm drain solids samples collected from the Norfolk CSO/EOF/SD would be representative of stormwater discharging from the I-5 SD at S Ryan St. In addition, during the previous reporting period SPU collected two inline (MH215 near the downstream end just east of E Marginal Wy S and MH116 on the 60-inch pipe just west of I-5) and two right-of-way catch basin samples (RCB122 and RCB123) from this system. As shown in Table C-9, phthalates and TPH-oil are the only parameters that exceeded the SMS screening levels and except for lead, median concentrations were similar to the concentrations observed in other storm drains in the LDW.

SPU attempted to collect samples from near the downstream end of this drainage system at E Marginal Wy S during the current reporting period but was unable to find enough material to sample.

Table C-9: Storm drain solids sample results from I5 SD at S Ryan St.

	SCO LAET	CSL 2LAET	RCB122 01/04/08	RCB123 01/04/08	MH215 [c] 05/13/09	MH116 11/02/11
Arsenic	57	93	10 U	6 U	10 J	10 U
Copper	390	390	52.6	54.9	87.6 J	44.4 J
Lead	450	530	40	21	357 J	330 J
Mercury	0.41	0.59	0.04 U	0.05 U	0.07 J	0.03 U
Zinc	410	960	93	233	315 J	201
TPH-oil	2,000 [a]	2,000 [a]	570	740	7,800	240
LPAH	5,200	5,200	72	90	184 J	58 U
HPAH	12,000	17,000	230	885	2,249 J	133 J
cPAH	1,000 [b]	1,000 [b]	51	136	202	52
PCBs	130	1,000	20 U	19 U	232	18 U
BEHP	1,300	1,900	300	480	5,600 B	350 B
Butyl benzyl phthalate	63	900	60 U	790	380	58 U
Dimethyl phthalate	71	160	60 U	59 U	61 U	58 U

Exceeds SCO/LAET

Exceeds CSL/2LAET

N = number of samples BEHP = bis(2-ethylhexyl)phthalate PCBs = polychlorinated biphenyls

PAH = polycyclic aromatic hydrocarbons, TPH = total petroleum hydrocarbons

Units: mg/kg for metals and TPH-oil, ug/kg dw for organic compounds, ug TEQ/kg for cPAH.

a. Sediment remedial action level
b. Sediment remedial action level
c. Near end-of-pipe inline grab.

Except for TPH-oil, chemical concentrations in the single near end-of-pipe inline sample (MH215) collected in 2009, were all below the CSL/2LAET/MTCA Method A screening level.

Eleven surface sediment samples (EIT048, OR-05, OR-06, OS-04, OS-05, OS-06, DR-04, EST104, EST098, DRB-116, and LDW-SSRWSD-A) have been collected within 6 – 200 feet of the I-5 SD at S Ryan St outfall (AECOM 2012, SAIC 2011). One SCO exceedance for total PCBs was observed at OS-06 (770 ug/kg dw), located about 40 feet upstream of the outfall. No other SMS exceedances have been reported at these stations.

Over the next 5 years, SPU intends to continue operating and maintaining the two sediment traps, NST-2, located at the overflow structure on the Norfolk drainage that discharges to the I-5 SD at S Ryan St and NST3, located at the upstream end of the biofiltration swale adjacent to the I-5 cloverleaf. As described above, trap NST-2 may need to be relocated to accommodate likely changes in drainage due to proposed development on the property at 3301 S Norfolk St. SPU will notify Ecology if the NST-2 needs to be re-located.

2.5. 16th Ave S SD (west)

The 16th Ave S SD (west) serves about 4 acres of roadway on the west side of the South Park Bridge, including the bridge approach plus portions of Dallas Ave S, S Sullivan St, and 14th Ave S within the Seattle city limits (Map 8). Approximately 1.3 acres are located within the City of Seattle, the remainder is in unincorporated King County. King County installed a bioretention treatment system along the east side of the bridge when it was rebuilt in 2011-2014. It treats runoff from all but a small portion of this drainage system (roof drains and roadway along the east side of the bioretention system, which are in unincorporated King County).

SPU has not sampled the 16th Ave S SD (west). Nine sediment samples have been collected within 90-190 feet offshore of the outfall. No exceedance of SCO was observed in any sample.

Over the next 5 years, SPU will sample select catch basins located within the city along Dallas Ave S and 14th Ave S.

2.6. 17th Ave S SD

The 17th Ave S SD was constructed in 2016 when the City completed the Adjacent Streets and Drainage Improvement Project for the T117 Early Action Area cleanup to remove PCB-contaminated soil found in the right-of-way (Integral 2017). It serves about 2.9 acres of roadway (Dallas Ave S between 14th Ave S and 17th Ave S, 16th Ave S/17th Ave S between Dallas Ave S and S Donovan St, as well as property adjacent to the roadway (see Map 9). Runoff is collected and treated in a system composed of eight infiltrating bioretention cells and four Filterra™ tree box units. Treated runoff from the Filterra™ units and high flows that bypass the Filterra™ and bioretention cells are discharged to the waterway via an 18-inch outfall. The bioretention cells are constructed with two layers of media, 18 inches of soil-mulch mixture to support plant growth underlain by 24 inches of a mixture of sand, zeolite, and granular activated carbon (GAC). The media in the Filterra™ tree box units is also amended with 10 percent GAC (Integral et al., 2014).

Since the outfall was put into operation in 2016, SPU has collected six samples from 1) pre-settling cells on the bioretention system, 2) dirt adjacent to pedestrian path where stormwater ponded[4], and 3) a near end-of-pipe sediment trap. Results are presented in Table C-10. Concentrations of most chemicals were similar to what has been found in other storm drains in the LDW. However, as shown in TableC-11, phthalate concentrations increased between 2017 and 2018 in the samples collected from RCB76 on 17th Ave S

Although the median PCB concentration was similar to what has been observed in other storm drains in the LDW, concentrations in RCB85 and 17th-ST1 (456 and 685 ug/kg dw) were higher than expected given that PCB-contaminated soil was removed as part of the Superfund cleanup conducted in 2015-2016.

SPU also collected stormwater samples from the underdrains in one of the bioretention cells and one Filterra™ unit in 2018-2019 (SPU 2018). Underdrain sampling was required by EPA and Ecology to allow SPU to evaluate when the filtration media needs to be replaced. Bioretention Cell B was constructed with a portion of the cell equipped with a liner and underdrain for this purpose. Five samples were collected from each unit during storm events in 2018-2019. PCBs were not detected at 0.01 ug/L in any of the underdrain samples.

The first post-cleanup sediment samples were collected in the waterway offshore of T117 in March 2019 (Cabanillas 2019). Samples, collected as part of the long-term monitoring and maintenance plan (Integral and AECOM 2018), were analyzed for PAHs, PCBs, dioxins/furans, and arsenic. One sample was collected within 200 feet of the 17th Ave S SD outfall; PERIM-5-LTM was collected about 100 feet downstream of the outfall. It exceeded the project-designated removal action level for arsenic (15.9 mg/kg dw versus 12 mg/kg dw) but did not exceed the SCO (57 mg/kg dw). Arsenic concentrations in the four storm drains solids samples tested in the 17th Ave S SD (<19.3 – 29.8 mg/kg) were all below the SCO, but above the removal action level. Cabanillas (2019) also reported exceedances of the removal action level for arsenic at two other sampling stations located 250-750 feet offshore of the 17th Ave S SD outfall.

Over the next 5 years, SPU intends to conduct the following activities in the 17th Ave S SD:

- Check the sediment trap each year and retrieve samples when there is sufficient material for analysis.
- Collect solids samples from various locations to track PCBs in the basin
- Implement the underdrain monitoring program as described in the project sampling and analysis plan (SPU 2018). The next round of sampling is scheduled to occur in 2021.

[4] SPU had contractor regrade area to prevent future ponding along pathway.

Table C-10: Solids sampling results for 17th Ave S SD.

Chemical	SCO LAET	CSL 2LAET	RCB75[a] 01/08/17	RCB76[b] 01/09/17	RCB76[b] 12/18/18	RCB85[c] 12/18/18	ODS51[d] 01/09/17	17th-ST1[e] 05/08/19
Arsenic	57	93	21	29.8	12.3	19.3 U	21.2	--
Copper	390	390	87.6	114	93.8	146	62.3	--
Lead	450	530	29.4	46.7	28.5	61.3	21	--
Mercury	0.41	0.59	0.09382	0.06326	0.0471 U	0.0878 J	0.06059	--
Zinc	410	960	455	1,090	500	601	176	--
TPH-oil	2,000[f]	2,000[f]	2,030	1,620	3,180	3,570	628	--
LPAH	5,200	5,200	383 J	236 J	257 J	431 J	107 J	--
HPAH	12,000	17,000	3,048	2,781 J	5,945	4,354	775 J	--
cPAH	1,000[f]	1,000[f]	349	312 J	867	525	92 J	--
PCBs (total Aroclors)	130	1,000	74.3	85.1	63.3	456	24.4	685
BEHP	1,300	1,900	14,500	9,610	89,000	12,800	4,450	--
Butyl benzyl phthalate	63	900	533	298	1,150	97.9 U	113	--
Dimethyl phthalate	71	160	49.3 U	243 U	1,230	88.9 U	91.4	--

N = number of samples BEHP = bis(2-ethylhexyl)phthalate PCBs = polychlorinated biphenyls PAH = polycyclic aromatic hydrocarbons, TPH = total petroleum hydrocarbons

Units: mg/kg for metals and TPH-oil, ug/kg dw for organic compounds, ug TEQ/kg for cPAH

Exceeds SCO/LAET

Exceeds CSL/2LAET

a. Presettling cell on Cell F located on 16th Ave S
b. Presettling cell on Cell D located on 17th Ave S
c. Presettling cell on Cell C located on 16th Ave S
d. Dirt sample collected from southeast corner of pedestrian path at Dallas Ave S and S Donovan St
e. Sediment trap at last maintenance hole before outfall. Trap installed in 2017. Retrieval attempted in 2018, but insufficient material for analysis. 2019 sample contained enough material for only PCBs analysis.
f. MTCA Method A soil cleanup level for unrestricted use
g. Sediment remedial action level.

TableC-11: Phthalate concentrations in RCB76 in 17th Ave S SD basin.

Phthalates (ug/kg dw)	RCB76 1/9/17	RECB76 12/18/18
Bis(2-ethylhexyl)phthalate	9,610	89,000
Butyl benzyl phthalate	298	1,150
Dimethyl phthalate	243 U	1,230

2.7. S 96th St SD

The S 96th St SD serves an area of 1,089 acres, mostly in unincorporated King County (Map 10). Approximately 99 acres within the City of Seattle drain to this outfall. SPU cleaned the City's MS4 system in this basin in 2016.[5] Prior to cleaning, SPU collected 12 storm drain solids samples from the City portion of this system (9 right-of-way catch basin, 2 private onsite catch basin, and 1 inline grab sample). Results are summarized in Table C-12. Zinc, TPH-oil, and phthalates exceeded SMS screening levels, but concentrations were comparable to levels found in other storm drains in the LDW.

Table C-12: Summary of chemicals exceeding SMS screening levels in the City-owned portion of the S 96th St SD before cleaning.

Chemical	SCO LAET	CSL 2LAET	N	Min	Max	Mean	Median	Percent of samples >SCO LAET screening level	Percent of samples >CSL 2LAET screening level
Arsenic	57	93	9	4.9	30	15	11	0	0
Chromium	260	270	1	55	55	55	55	0	0
Copper	390	390	9	21	158	66	58	0	0
Lead	450	530	9	19	120	41	27	0	0
Mercury	0.41	0.59	9	<0.02	0.1	0.04	0.04	0	0
Zinc	410	960	9	82	1,740	620	291	44	22
TPH-oil	2,000[a]	2,000[a]	9	<120	18,000	2,400	510	11	11
LPAH	5,200	5,200	9	18	3,180	610	92	0	0
HPAH	12,000	17,000	9	78	4,910	1,900	1,177	0	0
cPAH	1,000[b]	1,000[b]	9	17	555	210	124	0	0
PCBs	130	1,000	12	<17	130	41	20 U	0	0
BEHP	1,300	1,900	9	200	19,000	3,100	1,300	44	33
Butyl benzyl phthalate	63	900	9	<19	5,900	1,300	490	67	33
Dimethyl phthalate	71	160	9	<19	155	426	39	11	0

N = number of samples BEHP = bis(2-ethylhexyl)phthalate PCBs = polychlorinated biphenyls
PAH = polycyclic aromatic hydrocarbons, TPH = total petroleum hydrocarbons
Units: mg/kg for metals and TPH-oil, ug/kg dw for organic compounds, ug TEQ/kg for cPAH.
Samples collected March 2008 through May 2013.

[5] Over the past 5 years, SPU has focused on cleaning drains on the west side of the waterway because SPU had access to a site on the west side of the waterway where dewatering and solids handling could be performed, which minimized transportation requirements.

a. MTCA Method A soil cleanup level for unrestricted use.
b. Sediment remedial action level.

SPU attempted to collect an inline sample from near the downstream end of the City system after cleaning. An inline grab was collected in 2018 (MH41), but this maintenance hole does not capture all of the runoff from the City portion of the basin. Only chromium (795 mg/kg) exceeded the CSL/2LAET screening levels. Zinc (795 mg/kg), and butyl benzyl phthalate (320 ug/kg dw) exceeded the SCO/LAET screening levels. SPU tried again to sample a downstream location in 2019, but there was not enough material in the downstream maintenance holes.

There are several potential sources of chromium in the area, a hard chrome plater; a painting and blasting facility, and an electroplater. The electroplater is on Ecology's list of known and suspected contaminated sites due to metals contamination found in onsite soil and groundwater. Runoff from the painting/blasting facility discharges to the City system upstream of MH41. SPU inspected this facility in 2015 and found an internal floor drain in the wheelabrator room connected to the drainage system and also noted that more frequent yard sweeping was needed. This site installed a stormwater treatment system in 2009-2011, to remove metals. Further investigation is needed to determine whether this site is the source of chromium found in MH41.

Two sediment samples were collected offshore of the S 96th St SD outfall (LDW18-2100A-1 and LDW18-2100A-2).as part of the pre-design, near outfall sampling effort (Windward 2018). No chemicals exceeded sediment criteria. It does not appear that this outfall and particularly the MS4 portion of the basin has affected sediment quality in the waterway.

Over the next 5 years, SPU intends to conduct the following activities in the S 96th St SD basin:

- Continue to inspect the businesses in the area served by the City MS4 with the intent of re-inspecting all businesses at least once during the 5-year period.
- Evaluate whether a sediment trap can be installed in this system to facilitate collection of storm drain solids for long term monitoring.

2.8. DUWAMISH SUBSTATION OUTFALLS

Seattle City Light's approximately 8.4-acre Duwamish Substation facility located at the southern end of LDW study area is served by four small drainage systems, three discharge to outfalls owned by City Light (Duwamish Substation SDs #1, #2, and #3) and one discharges to the W Marginal Pl S SD owned by the City of Tukwila (Map 11). Ecology (Leidos 2015a) collected solids samples from three of the drainage systems on December 16, 2014 (Map 62). Results for the outfalls owned by City Light are presented in Table C-13. See following section for W Marginal Pl S SD results. Samples were analyzed for priority pollutant metals, semi-volatile organic chemicals, PCBs (Aroclor and congener), and dioxins/furans. In addition, one sample from outfall #2 (CB-H1) was analyzed for volatile organic chemicals, but only acetone (11 ug/kg dw), a common laboratory contaminant, was detected.

Table C-13: Storm drain solids sampling results, Duwamish Substation storm drains.

Chemical	SCO LAET	CSL 2LAET	CB-H1[a] Duw Sub SD #2	CB-I3[b] Duw Sub SD #3
Arsenic	57	93	10	4.9
Cadmium	5.1	6.7	1.1	0.51
Chromium	260	270	60	21
Copper	390	390	120	82
Lead	450	530	150	48

Chemical	SCO LAET	CSL 2LAET	CB-H1[a] Duw Sub SD #2	CB-I3[b] Duw Sub SD #3
Mercury	0.41	0.59	0.05	0.019 J
Silver	6.1	6.1	1.4	0.63
Zinc	410	960	550	240
LPAH	5,200	5,200	39,000 J	310 J
HPAH	12,000	17,000	140,000	2,300 J
cPAH[c]	1,000[b]	1,000[b]	18,000	300 J
PCBs (total Aroclors)	130	1,000	62 J	35 J
PCBs (total congeners)	130	1,000	147 J	47.2 J
Dioxins/furans	25[d]	--	53.6 J	12.2 J
BEHP	1,300	1,900	19,000 U	11,000 U
Butylbenzyl phthalate	63	900	6,500 U	3,600 U
Dimethyl phthalate	71	160	390 J	260 J

N = number of samples BEHP = bis(2-ethylhexyl)phthalate PCBs = polychlorinated biphenyls
PAH = polycyclic aromatic hydrocarbons, TPH = total petroleum hydrocarbons
Units: mg/kg for metals and TPH-oil, ug/kg dw for organic compounds, ug TEQ/kg for cPAH
Exceeds SCO/LAET
Exceeds CSL/2LAET
Source: Leidos (2015a)

a. Inline catch basin
b. Inline catch basin
c. Non-detects included at 0.5 times the reporting limit.
d. Sediment remedial action level.

PAHs exceeded the 2LAET screening level in the sample collected from Duwamish Substation SD#2. Phthalates also appeared elevated in both drains, but due to matrix interferences, the analytical detection limits for phthalates were well above the 2LAET screening level. As a result, concentrations of bis(2-ethylhexyl)phthalate and butyl benzyl phthalate could not be quantified. PCBs in both drains were relatively low, although total congeners, but no not total Aroclors, in SD#2 was slightly above the LAET.

After the 2014 Ecology inspection, Seattle City Light cleaned all the onsite trench drains, eliminated materials storage for all work projects other than substation projects[6], and repaired all oil stop valves in the drainage system[7].

Nineteen sediment samples have been collected within 200 feet of the three Duwamish Substation outfalls, but only benzyl alcohol exceeded the SCO and at only one station located 40 feet downstream of Outfall #2. Based on these data it appears that the substation outfalls are not a significant source of contaminants to waterway sediment.

Over the next 5 years, Seattle City Light intends to conduct the following activities at the Duwamish Substation:

- Clean all onsite catch basins (2020).
- Continue inspecting catch basins annually and cleaning when sump is 50 percent full of sediment.
- Collect storm drain solids samples from each of the four onsite drainage systems following cleaning.

6 Prior to 2014, the south end of the substation had been used to store materials for other City Light projects.

7 Oil stop valves close when floating product/oil is present in the catch basin.

2.9. W Marginal Pl S SD

The W Marginal Pl S SD receives runoff from about 4.9 acres on the Seattle City Light Duwamish Substation plus an unknown area along W Marginal Wy SW in the City of Tukwila[8] (Map 11). Most runoff from the substation passes through an oil/water separator before discharging offsite.[9] Results from a sample collected by Ecology on December 16, 2014 are presented in Table C-14. Sample locations are shown on Map 62. The sample was a composite of grabs from trench drains in three transformer banks (#77, 78, and 79).

Table C-14: Storm drain solids results for a sample collected from the W Marginal Pl S SD.

Chemical	SCO LAET	CSL 2LAET	TD-01 W Marginal Pl S SD
Arsenic	57	93	17
Cadmium	5.1	6.7	7.2
Chromium	260	270	100
Copper	390	390	320
Lead	450	530	500
Mercury	0.41	0.59	0.061
Silver	6.1	6.1	7.3
Zinc	410	960	4,200
LPAH	5,200	5,200	1,500 J
HPAH	12,000	17,000	9,400 J
cPAH[a]	1,000[b]	1,000[b]	1,300 J
PCBs (total Aroclors)	130	1,000	77 J
PCBs (total congeners)	130	1,000	84.4 J
Dioxins/furans	25[b]	--	45.5 J
BEHP	1,300	1,900	7,200 J
Butyl benzyl phthalate	63	900	1,300 J
Dimethyl phthalate	71	160	1,600 U

Exceeds SCO/LAET

Exceeds CSL/2LAET

N = number of samples BEHP = bis(2-ethylhexyl)phthalate PCBs = polychlorinated biphenyls

PAH = polycyclic aromatic hydrocarbons, TPH = total petroleum hydrocarbons

Units: mg/kg for metals and TPH-oil, ug/kg dw for organic compounds, ug TEQ/kg for cPAH

Source: Leidos (2015a).

a. Non-detected values included at 0.5 times the reporting limit.

b. Sediment remedial action level.

Other than PAHs and PCBs, concentrations of chemicals in the sample collected from W Marginal Pl S SD were higher than those observed in the other two storm drains sampled on the Duwamish Substation site (see previous Section [2.8]). Copper, lead, zinc, and cPAHs were also greater than two times the median of the median concentrations observed in other outfalls within the LDW (200 mg/kg, 160 mg/kg, 900 mg/kg, and 780 ug TEQ/kg).[10]

Six sediment samples have been collected offshore of the W Marginal Pl S SD, the closest sample (LDW-SS141) is located approximately 60 feet upstream of the outfall. Benzyl alcohol is the only chemical that exceeded SCO in

[8] Basin boundaries for areas within the City of Tukwila have not been developed.

[9] Two catch basins that serve primarily the site service roads discharge directly to the storm drain on W Marginal Wy S.

[10] PSU used a value of two times the median of the median concentrations measured in all outfalls to prioritize outfalls (see Appendix J).

the offshore sediment and only in four of six samples. Exceedances occurred in stations located 80 to 200 feet from the outfall. No exceedances occurred in the closest station (LDW-SS141). These results indicate that the W Marginal Pl S SD is not impacting sediment quality in the waterway.

As described above for the Duwamish Substation storm drains, City Light will conduct the following activities in the W Marginal Pl S SD basin:

- Clean all onsite catch basins and trench drains in 2020.
- Continue inspecting catch basins annually and cleaning when sump is 50 percent full of sediment.
- Collect storm drain solids samples from the onsite drainage system following cleaning.

3. MIDDLE REACH

3.1. Head of Slip 2 SD

The Head of Slip 2 SD serves an approximately 12-acre commercial area (Map 12). The area is occupied by three warehouses with loading docks and employee parking. The drainage system is privately owned, but collects runoff from seven City-owned catch basins on E Marginal Wy S and one on 1st Ave S.

SPU inspected four businesses in the basin between 2008 and 2015. A potential illicit connection was identified at one site. Otherwise, no serious source control issues were identified.

In 2018, SPU collected an inline grab from a maintenance hole near the downstream end of the system (MH38 on Map). None of the chemicals exceeded SMS screening levels. Results are provided in Table C-15.

Table C-15: Storm drain solids sample results for Head of Slip 2 SD.

Chemical	SCO LAET	CSL 2LAET	MH38 05/25/18
Arsenic	57	93	14.8
Copper	390	390	62.5
Lead	450	530	79.8 J
Mercury	0.41	0.59	0.0282
Zinc	410	960	198
TPH-oil	2,000[a]	2,000[a]	454
LPAH	5,200	5,200	208
HPAH	12,000	17,000	227
cPAH	1,000[b]	1,000[b]	85
PCBs (total Aroclors)	130	1,000	27.3
BEHP	1,300	1,900	458
Butyl benzyl phthalate	63	900	94.3 U
Dimethyl phthalate	71	160	94.3 U

Exceeds SCO/LAET
Exceeds CSL/2LAET

N = number of samples BEHP = bis(2-ethylhexyl)phthalate PCBs = polychlorinated biphenyls
PAH = polycyclic aromatic hydrocarbons, TPH = total petroleum hydrocarbons
Units: mg/kg for metals and TPH-oil, ug/kg dw for organic compounds, ug TEQ/kg for cPAH

a. MTCA Method A soil cleanup level for unrestricted use
b. Sediment remedial action level.

Between 1997 and 2011, five sediment samples were collected from between 50 and 120 feet of the outfall. PCBs exceeded the SCO in one of the 50-foot samples and benzyl alcohol exceeded the SCO in the other. Benzyl alcohol was not detected (94.3 U ug/kg dw) and PCBs (27.3 ug/kg dw) were below the LAET screening level in the inline sample collected from this outfall. Therefore, it does not appear that the Head of Slip 2 SD is a significant source of contaminants to the waterway sediment.

Over the next five years, SPU will continue to inspect businesses in the basin and will collect an inline grab sample at MH38 every three years to evaluate the quality of storm drain solids discharged to the waterway.

3.2. 1st Ave S SD (east)

The 1st Ave S SD (east) serves a 15-acre basin under the 1st Ave S Bridge (Map 13). The drainage basin encompasses areas under the 1st Ave S Bridge, approaches to the bridge, and portions of E Marginal Wy S. Stormwater passes through a biofiltration swale before discharging to the waterway. Most of this drainage system was installed by the Washington State Department of Transportation (WSDOT) between 1999 and 2001, when the 1st Ave S Bridge and approaches were modified. SPU has collected three inline grab samples (MH264, MH265, and MH39) from the two main trunk lines connected to this outfall. Results are summarized in Table C-16. Sampling locations are shown on Map 64.

Table C-16: Summary of chemicals exceeding SMS screening levels in 1st Ave S SD (east).

	SCO LAET	CSL 2LAET	MH264 06/06/13	MH265 06/06/13	MH39 05/25/18
Arsenic	57	93	7	7	22.6
Copper	390	390	73.9	401	185
Lead	450	530	38	130	115 J
Mercury	0.41	0.59	0.03	0.04	0.131
Zinc	410	960	526	550	1,020
TPH-oil	2,000[a]	2,000[a]	910	1,200	3,100
LPAH	5,200	5,200	180	752	798
HPAH	12,000	17,000	1,938	3,147	5,434
cPAH	1,000[b]	1,000[b]	264	388	601
PCBs	130	1,000	54	109	328
BEHP	1,300	1,900	1,300	2,600	4,660
Butyl benzyl phthalate	63	900	350	570	256
Dimethyl phthalate	71	160	<53	64	<94.1

Exceeds SCO/LAET

Exceeds CSL/2LAET

N = number of samples BEHP = bis(2-ethylhexyl)phthalate PCBs = polychlorinated biphenyls

PAH = polycyclic aromatic hydrocarbons, TPH = total petroleum hydrocarbons

Units: mg/kg for metals and TPH-oil, ug/kg dw for organic compounds, ug TEQ/kg for cPAH

Note: All three samples were used to characterize end-of-pipe storm drain solids in this system

a. MTCA Method A soil cleanup level for unrestricted use

b. Sediment remedial action level.

Copper, zinc, TPH-oil, PCBs, and phthalates exceeded the SMS screening levels but only TPH-oil and bis(2-ethylhexyl)phthalate exceeded the source tracing screening levels (CSO/2ALET and MTCA Method A). Concentrations of zinc, TPH-oil, HPAH, cPAH, PCBs, and bis(2-ethylhexyl)phthalate in the 2018 sample (MH39) were higher than in the two earlier samples collected in 2013. Although the median concentration for all three

samples was less than two times the median of the median concentrations measured at other storm drains in the LDW, zinc and PCBs in MH39 were above that threshold.

There were no SCO exceedances in a sediment sample collected directly offshore of the biofiltration swale (LDW-SS2503-A; SAIC 2011). PCBs (460 ug/kg dw) exceeded the SCO in a sample collected about 100 feet downstream of the swale outlet (LDW-SS71; AECOM 2012), but this sample is located directly offshore of another outfall (Michigan CSO). Given the distance from the outfall, the small contributing area, and the absence of SCO exceedances in the sample closer to the outfall, it is unlikely that the 1st Ave S SD (east) is a significant contributor of PCBs at LDW-SS71.

Over the next 5 years, SPU intends to conduct the following activities in the 1st Ave S SD (east) basin:

- Jet and clean the City MS4 portion of the system
- Evaluate whether a sediment trap can be installed in this system to facilitate collection of storm drain solids for long term monitoring.

3.3. S River St SD

The S River St SD serves a 7.6-acre industrial area on the north side of Slip 3 (Map 14). The entire drainage system was jetted and cleaned in 2009 - 2010 because previous samples contained elevated levels of arsenic (19 – 110 mg/kg), copper (94.8 – 470 mg/kg), zinc (346 – 1,170 mg/kg), and motor oil (2,500 – 9,300 mg/kg). PCBs (54-450 J ug/kg dw) were similar to the concentrations observed in other storm drains in the LDW. Results are summarized in Table C-17. Sampling locations are shown on Map 65.

Table C-17: Summary of chemicals exceeding SMS screening levels in S River St SD before cleaning.

Chemical	SCO LAET	CSL 2LAET	N	Min	Max	Mean	Median	Percent of samples >SCO LAET screening level	Percent of samples >CSL 2LAET screening level
Arsenic	57	93	6	19	110	56	42	33	33
Copper	390	390	6	94.8	470	249	192	33	33
Lead	450	530	6	44	432	234	235	0	0
Mercury	0.41	0.59	6	0.04	0.36	0.18	0.18	0	0
Zinc	410	960	6	346	1,170	714	671	83	33
TPH-oil	2,000[a]	2,000[a]	6	2,500	9,300	4,500	3,750	100	100
LPAH	5,200	5,200	6	180	807	590	666	0	0
HPAH	12,000	17,000	6	3,120	11,490	6,600	5,066	0	0
cPAH	1,000[b]	1,000[b]	6	353	1,508	840	650	33	33
PCBs	130	1,000	6	54	450	210	154	50	0
BEHP	1,300	1,900	6	1,600	7,400	4,200	3,950	100	83
Butyl benzyl phthalate	63	900	6	<160	1,300	410	165	100	17
Dimethyl phthalate	71	160	6	<120	160	100	140	83	0

N = number of samples BEHP = bis(2-ethylhexyl)phthalate PCBs = polychlorinated biphenyls
PAH = polycyclic aromatic hydrocarbons, TPH = total petroleum hydrocarbons
Units: mg/kg for metals and TPH-oil, ug/kg dw for organic compounds, ug TEQ/kg for cPAH.
Samples collected March 2009 through May 2009.

a. MTCA Method A soil cleanup level for unrestricted use.
b. Sediment remedial action level.

SPU collected 18 storm drain solids samples in this system after the line was cleaned (6 inline, 9 right-of-way catch basin, and 3 private onsite catch basin grab). Results are summarized in Table C-18. Samples collected shortly after cleaning in 2011-2012 (inline grabs at MH211 and MH220 and right-of-way catch basin at RCB192) contained lower concentrations of arsenic, copper, and zinc concentrations than observed before cleaning, but HPAH concentrations increased, especially at MH211 (26,160 ug/kg dw).

PCBs were also elevated in one MH220 (870 J ug/kg dw), but MH220 was resampled in 2016 and PCBs (200 J ug/kg dw) had declined. As shown in Table C-19, the median and mean concentrations of HPAH and PCBs after cleaning are within the ranges found in other storm drains sampled in the LDW. Concentrations of other chemicals were also similar to concentrations observed in other storm drains in the LDW.

Table C-18: Summary of chemicals exceeding SMS screening levels in the S River SD after cleaning.

Chemical	SCO LAET	CSL 2LAET	N[a]	Min	Max	Mean	Median	Percent of samples >SCO LAET screening level	Percent of samples >CSL 2LAET screening level
Arsenic	57	93	18	<7	50	18	15.8	0	0
Copper	390	390	18	64.9	271	130	104	0	0
Lead	450	530	18	20	393	90	71.6	0	0
Mercury	0.41	0.59	18	<0.02	4.4	0.31	0.065	6	6
Zinc	410	960	18	273	2,020	620	434	61	17
TPH-oil	2,000[b]	2,000[b]	18	1,400	6,800	4,500	3,000	95	95
LPAH	5,200	5,200	18	<230	2,470	1,000	812	0	0
HPAH	12,000	17,000	18	530	26,160	8,000	5,836	17	11
cPAH	1,000[c]	1,000[c]	18	201	2,363	860	703	22	22
PCBs	130	1,000	18	53	870	190	142	56	0
BEHP	1,300	1,900	18	2,100	8,200	4,600	4,005	100	100
Butyl benzyl phthalate	63	900	18	<220	970	350	295	100	6
Dimethyl phthalate	71	160	18	<62	590	160	200	83	33

N = number of samples BEHP = bis(2-ethylhexyl)phthalate PCBs = polychlorinated biphenyls
PAH = polycyclic aromatic hydrocarbons, TPH = total petroleum hydrocarbons
Units: mg/kg for metals and TPH-oil, ug/kg dw for organic compounds, ug TEQ/kg for cPAH.
Samples collected May 2009 through June 2019.

a. Includes all samples collected in the MS4 that have not been affected by cleaning operations (i.e., data flagged as "never been cleaned" or "post cleaning"). Does not include ODS (outside the drainage system) samples, which include surface dirt, soil, or other materials (e.g., caulk, paint)
b. MTCA Method A soil cleanup level for unrestricted use.
c. Sediment remedial action level.

Table C-19: Metals, HPAH, and PCBs in the S River St SD after cleaning compared to other storm drains in the LDW.

	Arsenic (mg/kg)	Copper (mg/kg)	Zinc (mg/kg)	HPAH (ug/kg dw)	PCBs (ug/kg dw)
S River St SD pre-cleaning					
Range	19 - 110	94.8 - 470	346 – 1,170	3,120 – 11,490	54 – 470
Median	51	130	251	5,401	201
Mean	56	250	710	6,133	206
S River St SD post-cleaning					
Range	<7 - 50	64.9 - 271	273 – 2,020	530 – 26,160	53 - 870
Median	15.8	104	434	5,836	142
Mean	16	130	620	8,000	190
Other LDW storm drains					
Range	4.9 - 20	<19.2 – 10,900	44 – 4,100	10 – 585,400	8 – 45,900
Median	10	110	460	2,975	110
Mean	12	230	700	9,000	540

During this reporting period, between 2016 and 2019, SPU collected 13 catch basin and inline grab samples from the S River St SD[11]. Except for three private onsite catch basin samples (CB270, CB288, and CB289), metals, and LPAH were all below the SMS screening levels. Mercury exceeded the CSL in CB288 (4.4 mg/kg)[12],zinc exceeded the CSL in in all 3 catch basins (1,140-2,020 mg/kg), and HPAH exceeded the 2LAET at CB270 (18,900 ug/kg dw).

SPU also collected three samples of dirt that had accumulated around a catch basin located on the same property as CB270 at 150 S River St.[13] The mud samples (ODS58) were collected between February 2018 and May 2019 to assist in tracing HPAH. This site had been leased by a truck and trailer repair facility but is now occupied by a business that tests buses for King County Metro. The 2018 mud sample contained very high levels of HPAH (1,082,300 ug/kg dw) and LPAH (118,118 ug/kg dw). SPU worked with the owner of the property who pressure washed the yard area, cleaned the onsite drainage system (catch basins and pipes), and installed filter socks in the catch basins. Two samples collected in 2019 contained lower concentrations (42,599 – 131,550 ug/kg dw HPAH) and 3,609 – 17,715 ug/kg dw LPAH); however, concentrations continued to exceed the SMS screening levels.

The four near end-of-pipe samples collected between 2012 and 2019 also exceeded the 2LAET screening level for HPAH (2012 sample) and cPAH (2012 and 2019 samples),reflecting the source found at 150 S River St. Like other storm drains in the LDW, the near end-of-pipe samples also exceeded the 2LAET for BEHP (4 samples) and dimethyl phthalate (3 samples).

[11] These 13 samples are included in the summary of SMS exceedances provided in Table C-18.

[12] SPU has inspected this facility and found no mercury source. However, this private catch basin does collect runoff from the 2nd Ave S roadway which flows across the property. It is possible that mercury residue from fluorescent light tubes may be contributing to the contamination found in this catch basin.

[13] Dirt samples were collected because there was not enough material in the nearby catch basin for analysis.

Six sediment samples have been collected within 200 feet of the outfall. Two of the three samples (SSRVSTSD-A, -D) collected within 50 feet from the outfall exceeded the SCO for benzyl alcohol, but all other chemicals were below the SCO. PCBs (124 ug/kg dw) exceeded the SCO at station LDW-SS329 located approximately 150 feet offshore of the S River St SD outfall, but PCBs were not elevated at stations located 30 to 40 feet from the outfall. Based on these data, it does not appear that discharges from the S River St SD have had a significant impact on waterway sediment.

Over the next 5 years, SPU intends to conduct the following activities in the S River St SD basin:

- Resample the catch basins at 150 S River St to determine whether the source control actions implemented by the owner have sufficiently controlled the levels of HPAH in private onsite drainage system
- Continue collecting inline solids samples from a maintenance hole located near the downstream end of the system. SPU started collecting annual grab samples at MH211 in 2016 and will evaluate whether installing a sediment trap at this location would improve sample representativeness.
- Continue to inspect high priority businesses in the basin to ensure that they implement appropriate source control BMPs.

3.4. S Brighton St SD

The S Brighton St SD serves an 18.6-acre industrial basin located between Slip 3 and Slip 4 (Map 15). SPU plugged the overflow from the combined sewer that had been connected to this outfall in 2012 (Figure 1 and Figure 2).

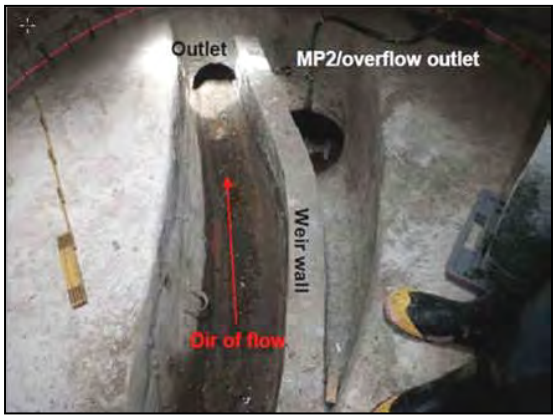


Figure 1: S Brighton CSO before sealing.

Figure 2: S Brighton CSO after sealing.

The entire system (all City-owned lines and structures) was cleaned in 2009 - 2010 because previous samples contained elevated levels of arsenic (8 – 1,420 mg/kg), copper (86 -998 mg/kg), lead (84 – 977 mg/kg), mercury (0.06 – 3.41 mg/kg), zinc (247 – 4,000 mg/kg), motor oil (200 – 30,000 mg/kg), LPAH (<170 – 13,645 ug/kg dw), HPAH (1,483 – 110,200 ug/kg dw), and PCBs (28 – 3,460 ug/kg dw).

SPU re-sampled the system after cleaning in 2011-2012 and again in 2016-2018. Results are summarized in Table C-20. Since cleaning all 7 samples were below the SCO/LAET screening levels for arsenic, copper, lead, mercury, LPAH, and HPAH, although arsenic and mercury were 2 and 10 times higher, respectively in the most recent inline sample collected from MH223, near the downstream end of the system. Median concentrations were also comparable to levels observed in other storm drains in the LDW, which suggests that there are no unusual sources in the basin.

Table C-20: Summary of chemicals exceeding SMS screening levels in S Brighton St SD after cleaning.

	SCO LAET	CSL 2LAET	N[a]	Min	Max	Mean	Median	Percent of samples >SCO LAET screening level	Percent of samples >CSL 2LAET screening level
Arsenic	57	93	6	6	30	11	10	0	0
Copper	390	390	6	25.4	158	75	40.2	0	0
Lead	450	530	6	15	448	140	114	0	0
Mercury	0.41	0.59	6	<0.02	0.267	0.11	0.04	0	0
Zinc	410	960	6	143	970	470	204	50	17
TPH-oil	2,000[b]	2,000[b]	6	92	6,200	1,800	140	33	33
LPAH	5,200	5,200	6	<19.8	1,076	390	44	0	0
HPAH	12,000	17,000	6	94	5,996	2,000	333	0	0
cPAH	1,000[c]	1,000[c]	6	16	757	280	430	0	0
PCBs	130	1,000	7	<18	562	200	39	57	0
BEHP	1,300	1,900	6	110	10,000	2,700	350	33	33
Butyl benzyl phthalate	63	900	6	48	410	210	84	83	0
Dimethyl phthalate	71	160	6	<18	520	110	<19	17	27

N = number of samples BEHP = bis(2-ethylhexyl)phthalate PCBs = polychlorinated biphenyls PAH = polycyclic aromatic hydrocarbons, TPH = total petroleum hydrocarbons
Units: mg/kg for metals and TPH-oil, ug/kg dw for organic compounds, ug TEQ/kg for cPAH.
Samples collected August 2010 through May 2018.

a. Includes all samples collected in the MS4 that have not been affected by cleaning operations (i.e., data flagged as "never been cleaned" or "post cleaning"). Does not include ODS (outside the drainage system) samples, which include surface dirt, soil, or other materials (e.g., caulk, paint)
b. MTCA Method A soil cleanup level for unrestricted use.
c. Sediment remedial action level.

Metals other than zinc, PAHs, PCBs, butyl benzyl phthalate, and dimethyl phthalate in the two near end-of-pipe samples collected in 2012 and 2018 were below the CSL/2LAET screening levels (PCBs were above the LAET screening level in only the 2018 sample). Zinc and bis(2-ethylhexyl)phthalate exceeded the CSL2LAET screening level in the 2018 near end-of-pipe sample.

Seven sediment samples have been collected in the waterway within 200 feet of the outfall. SCO exceedances were observed at four stations. Fluoranthene exceeded the SCO at station DR112 which is located 140 feet downstream of the outfall, but not in any of the samples collected within 60 feet. In addition, fluoranthene did not exceed the LAET in any of the storm drain solids collected after the system was cleaned. The only other chemicals exceeding SCO in the waterway sediment were benzyl alcohol and hexachlorobenzene, neither of which were detected in any of the post-cleaning samples collected from this system. These data indicate that the S Brighton St SD has not had a significant effect on the waterway sediment.

Over the next 5 years, SPU intends to conduct the following activities in the S Brighton St SD basin:

- Regularly sample a maintenance hole (MH223) located near the end of the pipe in this system and evaluate whether installing a sediment trap at this location would improve sample representativeness.

- Re-sample CB163 and re-inspect the business at this location.
- Re-inspect Delta Marine and sample the onsite catch basins.

3.5. S Myrtle St SD

The S Myrtle St SD serves an 8.6-acre industrial basin located between Slip 3 and Slip 4 (Map 16). This entire system (City-owned storm drain lines and structures) was cleaned in 2009 – 2010 due to elevated levels of copper (291 – 2,110 mg/kg), lead (192 – 675 mg/kg), mercury (0.33 – 1.88 mg/kg), zinc (985 – 2,420 mg/kg), motor oil (2,900 – 10,000 mg/kg), and PCBs (840 – 3,700 ug/kg dw). This storm drain is heavily impacted by activities at an adjacent metal recycling facility located on the south side of S Myrtle St and its storage yard located on the north side of S Myrtle St. See the discussion of Seattle Iron and Metals Company (SIMC) in Appendix D for more details.

SPU resampled three right-of-way catch basins located near the metal shredding facility in 2010 - 2011 after cleaning and found continuing exceedances of CSL/2LAET screening levels for copper (860 – 3,280 mg/kg), lead (724 – 905 mg/kg), mercury (0.66 – 1.53 mg/kg), zinc (3,890 – 4,170 mg/kg), and PCBs (2,950 – 8,230 ug/kg dw) in the catch basin located near the driveway entrance. Motor oil (8,600 – 20,000 mg/kg) was also elevated. Metals and PCBs concentrations measured in this system were significantly higher than in other City storm drains in the LDW basin (see box plots in Appendix B). Two private onsite catch basins at businesses east of the metal shredding facility were also sampled in 2011. Copper (1,930 mg/kg), mercury (0.38 mg/kg), zinc (5,240 mg/kg), bis(2-ethylhexyl)phthalate (14,000 ug/kg dw), and PCBs (1,020 ug/kg dw) in the one located within 15 feet of S Myrtle St were higher than median concentrations found in other LDW samples

During the 2014-2019 reporting period, SPU collected a sample from one right-of-way catch basin near the metal shredding facility (RCB65 in 2015) and an inline grab from near the end of pipe (MH100 in 2018). Mercury (0.69 – 1.39 mg/kg), zinc (2,470 – 2,940 mg/kg), bis(2-ethylhexyl)phthalate (4,100 – 14,000 ug/kg dw), and PCBs (1,144 – 1,750 ug/kg dw) exceeded the CSL/2LAET screening levels in both samples.

In 2017, SPU also installed five different style sediment traps at MH100 as part of a pilot test funded by Ecology to develop a new trap design. Trap samples were collected in 2018 and 2019. Copper (444-692 mg/kg), lead (498 – 690 mg/kg), zinc (2,940-4,390 mg/kg), bis(2-ethylhexyl)phthalate (4,100 – 56,700 ug/kg dw), butyl benzyl phthalate (1,300-3,350 ug/kg dw), and PCBs (1,030 – 2,895 ug/kg dw) exceeded the CSL/2LAET screening levels in all samples.

Sample results for all samples collected since the system was cleaned (2010-2019) are summarized in Table C-21. Median concentrations of copper, lead, mercury, zinc, TPH-oil, PCBs, and phthalates were more than two times higher than the median of the median concentrations observed in other storm drains in the LDW. The seven near end-of-pipe samples show similar trends with copper, lead, mercury, zinc, PCBs, and phthalates above the CSL/2LAET in nearly all samples (see Appendix B).

Six sediment samples have been collected in the waterway within 200 feet of the outfall. Multiple chemicals exceeded SCO at the station located within 25 feet of the outfall (LDW-SS027A in 2011):

- Mercury (0.42 mg/kg)
- Zinc (552 J mg/kg)
- Bis(2-ethylhexyl)phthalate (37,000 ug/kg dw)
- Butyl benzyl phthalate (1,600 ug/kg dw)
- PCBs (890 ug/kg dw)
- Benzoic acid (1,200 ug/kg dw)
- Benzyl alcohol (320 ug/kg dw).

Only zinc and a few SVOCs (hexachlorobenzene, benzoic acid, and benzyl alcohol) exceeded SCO in the four samples collected within 80 -160 feet from the outfall. However, three of these four samples were collected within 25-60 feet of another outfall and could have also been affected by that outfall.

Table C-21: Summary of chemicals exceeding SMS screening levels in S Myrtle St SD after cleaning (2010-2019).

	SCO LAET	CSL 2LAET	N[a]	Min	Max	Mean	Median	Percent of samples >SCO LAET screening level	Percent of samples >CSL 2LAET screening level
Arsenic	57	93	14	6.3	23.4	17	20	0	0
Copper	390	390	14	193	3,280	880	657	79	79
Lead	450	530	14	174	1,700	620	557	71	64
Mercury	0.41	0.59	11	0.24	2.56	1.2	1.04	73	73
Zinc	410	960	14	763	8,310	3.700	3,890	100	93
TPH-oil	2,000[b]	2,000[b]	9	1,700	20,000	7,200	7,850	89	89
LPAH	5,200	5,200	11	220	3,040	1,700	1,454	0	0
HPAH	12,000	17,000	11	2,737	11,840	6,700	6,246	0	0
cPAH	1,000[c]	1,000[c]	11	189	1,469	780	788	36	36
PCBs	130	1,000	13	360	8,230	2,400	1,483	100	85
BEHP	1,300	1,900	11	4,100	84,000	31,000	21,500	100	100
Butyl benzyl phthalate	63	900	11	660	6,200	2,800	2,055	100	82
Dimethyl phthalate	71	160	11	<57	1,610	760	650	91	82

N = number of samples BEHP = bis(2-ethylhexyl)phthalate PCBs = polychlorinated biphenyls
PAH = polycyclic aromatic hydrocarbons, TPH = total petroleum hydrocarbons
Units: mg/kg for metals and TPH-oil, ug/kg dw for organic compounds, ug TEQ/kg for cPAH
Samples collected May 2010 through May 2019

a. Includes all samples collected in the MS4 that have not been affected by cleaning operations (i.e., data flagged as "never been cleaned" or "post cleaning"). Does not include ODS (outside the drainage system) samples, which include surface dirt, soil, or other materials (e.g., caulk, paint)
b. MTCA Method A soil cleanup level for unrestricted use.
c. Sediment remedial action level.

Samples collected during this reporting period indicate that the S Myrtle St SD continues to be a source of metals, PCBs, and phthalates to the waterway and the primary source (i.e., SIMC metal recycling facility) is known. The recycling facility is permitted by both Ecology and the Puget Sound Clean Air Agency; however, contaminants continue to migrate offsite, affecting the right-of-way and the City MS4. Under a 2019 Consent Decree (U.S. District Court 2019), the recycling facility is required to implement a number of source control actions to reduce the amount of pollution released offsite (see Appendix D). SPU hopes that the Consent Decree will be successful in controlling the offsite release of contaminants from this site. In the meantime, actions that the City will take in the S Myrtle St SD basin over the next five years include the following:

- Continue to annually sample the sediment trap located near the downstream end of the system.[14]

[14] SPU intends to leave the new style sediment trap for long term monitoring and remove all the others used in the recent pilot test.

- Continue to inspect the two Filterra™ stormwater treatment units that SIMC installed to the driveway on S Myrtle St to ensure that these units are maintained properly.
- Coordinate with Ecology inspectors on SIMC inspections and conduct joint inspections, as necessary.
- Continue to monitor sediment levels in the catch basins on S Myrtle St each quarter and clean when sediment depths reach 60 percent of the sump depth.
- SDOT will continue to sweep S Myrtle St on a bi-weekly basis as part of the City's ongoing Street Sweeping for Water Quality Program.
- After SIMC completes the source control actions required under the 2019 Consent Decree, SPU will jet and clean the S Myrtle St drainage system to remove residual contaminants.

3.6. S Garden St SD

The S Garden St SD serves a 12-acre industrial basin located between Slip 3 and Slip 4 (Map 17). A metal recycling facility, Seattle Iron and Metals Company (9.6 acres) takes up most of the drainage basin. Runoff from approximately 1 acre of the S Garden St right-of-way and 0.46 acres from a rental facility on 8th Ave S, also discharge to this outfall. Seattle vacated a portion of S Garden St to the metal recycling facility, Seattle Iron and Metals, Inc. (SIMC) in 1999 when they relocated to this location from their previous location on Harbor Island. Runoff from the Seattle Iron and Metals Company property is collected and treated in an onsite wastewater treatment system before discharging to the outfall. Roof runoff from many of the buildings on the property is treated in downspout media filters before discharging to the outfall.

The City-owned portion of this system was cleaned in 2009-2010 at the same time the other adjacent storm drains were cleaned. Only two samples were collected from this system prior to cleaning (RCB146 and CB149). RCB146 is a catch basin on S Garden St adjacent to the entrance to the metal recycling facility. CB 149 is an onsite catch basin on the property located at 7135 8th Ave S. This unpaved parcel drains to the S Garden St SD. As shown in Table C-22, elevated levels of copper (1,020 mg/kg), lead (670 mg/kg), mercury (1.08 mg/kg), and PCBs (2,560 ug/kg dw) were found in the right-of-way sample, which are comparable to the levels found in the adjacent S Myrtle St drainage system.

Because SIMC occupies most of the drainage basin and the outfall structure is located on SIMC property, which makes it difficult for SPU to maintain, SIMC agreed to take over ownership of the outfall in 2012. SIMC is now responsible for operating and maintaining the 586 feet of pipe in the vacated portion of S Garden St and in 2014, installed a Filterra™ stormwater treatment system on S Garden St as part of its expansion on 701 S Orchard St property. SIMC has agreed to operate and maintain this system. SPU negotiated this agreement because of concerns about potential impacts to this catch basin from trucks conveying auto shredding residuals along S Garden St between SIMC's metal recycling facility on 601 S Myrtle St and the facility on S Orchard St. SPU also added S Garden St to its street sweeping routes in 2014. It is currently swept every other week.

Table C-22: Summary of chemicals exceeding SMS screening levels in the S Garden St SD before cleaning.

	SCO LAET	CSL 2LAET	CB149 05/27/09	RCB146 09/12/08
Arsenic	57	93	10 U	10.7
Copper	390	390	67.8	1,020
Lead	450	530	52	670
Mercury	0.41	0.59	0.03	1.08
Zinc	410	960	84	130
TPH-oil	2,000[a]	2,000[a]	760	760

	SCO LAET	CSL 2LAET	CB149 05/27/09	RCB146 09/12/08
LPAH	5,200	5,200	58	1,140
HPAH	12,000	17,000	112 J	8,152 J
cPAH	1,000[b]	1,000[b]	88	788
PCBs	130	1,000	60	2,560
BEHP	1,300	1,900	360 U	47,000
Butyl benzyl phthalate	63	900	58 U	2,100
Dimethyl phthalate	71	160	35 J	360

Exceeds SCO/LAET

Exceeds CSL/2LAET

N = number of samples BEHP = bis(2-ethylhexyl)phthalate PCBs = polychlorinated biphenyls

PAH = polycyclic aromatic hydrocarbons, TPH = total petroleum hydrocarbons

Units: mg/kg for metals and TPH-oil, ug/kg dw for organic compounds, ug TEQ/kg for cPAH

Includes all samples collected in the MS4 that have not been affected by cleaning operations (i.e., data flagged as "never been cleaned" or "post cleaning"). Does not include ODS (outside the drainage system) samples, which include surface dirt, soil, or other materials (e.g., caulk, paint)

a. MTCA Method A soil cleanup level for unrestricted use
b. Sediment remedial action level.

SPU did not collect any samples from the S Garden St SD during this reporting period.

Eleven sediment samples have been collected in the waterway within 200 feet of the outfall. SCO exceedances have occurred at eight of the locations. However, only acenaphthene, benzyl alcohol, and dibenzofuran exceeded SCO at the three stations closest to the outfall (LDW-SS2035-A, -D, and -U located 50-60 feet from the outfall). Other chemicals that exceeded SCO included hexachlorobenzene and PCBs, but these samples were all collected farther away from the outfall (90-180 feet), so it is not clear whether these contaminants are associated with discharges from the S Garden St SD.

SPU intends to conduct the following activities in this drainage basin in the future:

- Establish a routine monitoring station in the maintenance hole located near the west end of the City right-of-way on S Garden St. Inline solids samples will be collected each year using either an inline sediment trap or by collecting inline grabs if sufficient sediment accumulates in the system.
- Monitor track out of auto shredding residuals on S Garden St and require controls, as necessary
- Coordinate with Ecology inspectors on SIMC inspections and conduct joint inspections, as necessary.
- Continue to inspect the other active business in this drainage basin, which has a high priority ranking.
- Inspect the Filterra™ unit to make sure it is maintained appropriately.
- SDOT will continue to sweep S Garden St on a bi-weekly basis as part of the City's ongoing Street Sweeping for Water Quality Program.
- After SIMC completes the source control actions required under the 2019 Consent Decree, SPU will jet and clean the S Garden St MS4 drainage system to remove residual contaminants

3.7. I-5 SD at Slip 4

The I-5 SD at Slip 4, constructed by WSDOT in 1965, serves a 150-acre basin. The upper 44 acres consists of a primarily residential neighborhood along the west slope of Beacon Hill. The 1.3 mile I-5 corridor covers about 60 acres and the remaining area is made up of industrial properties and railroad property along Airport Wy S,

and a few small parcels along Ellis Ave S (Seattle Fire Station #27, Air National Guard property, as well as a convenience store/gas station). The drainage system and basin boundaries are shown on Map 18.

During the previous reporting period, SPU collected 23 samples from the I-5 S SD at Slip 4 drainage system (3 private onsite catch basin grabs, 3 right-of-way catch basin grabs, 4 inline grabs, and 13 sediment trap samples). Results are summarized in Table C-23. Sampling locations are shown on Map 68.

Table C-23: Summary of chemicals exceeding the SMS screening levels in the I-5 SD at Slip 4 drainage system (2004-2014).

	SCO LAET	CSL 2LAET	N	Min	Max	Mean	Median	Percent of samples >SCO LAET screening level	Percent of samples >CSL 2LAET screening level
Arsenic	57	93	23	3	50	10	5	0	0
Copper	390	390	23	38	6,320	410	103	9	9
Lead	450	530	23	10	481	140	106	4	0
Mercury	0.41	0.59	23	<0.04	0.34	0.08	0.04	0	0
Zinc	410	960	23	93	3,420	610	488	65	4
TPH-oil	2,000[a]	2,000[a]	20	290	4,700	1,600	1,400	25	25
LPAH	5,200	5,200	23	<38	21,160	1,700	830	4	4
HPAH	12,000	17,000	23	140	150,600	9,700	4,180	4	4
cPAH	1,000[b]	1,000[b]	23	35	21,440	1,300	505	4	4
PCBs	130	1,000	23	<19	7,800	530	160	57	4
BEHP	1,300	1,900	23	180	16,000	5,000	5,550	74	74
Butyl benzyl phthalate	63	900	23	<20	1,900	380	350	83	4
Dimethyl phthalate	71	160	23	<20	215	90	98	57	9

N = number of samples. Note that some of the sediment traps could not be analyzed for all parameters because there was insufficient material in the trap.
BEHP = bis(2-ethylhexyl)phthalate PCBs = polychlorinated biphenyls PAH = polycyclic aromatic hydrocarbons, TPH = total petroleum hydrocarbons
Units: mg/kg for metals and TPH-oil, ug/kg dw for organic compounds, ug TEQ/kg for cPAH.

a. MTCA Method A soil cleanup level for unrestricted use.
b. Sediment remedial action level.
Samples collected December 2004 through April 2014.

During this reporting period, SPU collected an additional 7 samples in the I-5 SD at Slip 4, all from the station at SL4-T6. Results are summarized in Table C-24. Sample locations are shown on Map 68. Except for zinc, metals concentrations remained below the SCO screening levels. Phthalates continued to frequently exceed both the LAET and 2LAET screening levels, while PAH concentrations were lower than the previous reporting period with no exceedances of LAET screening levels observed. PCBs in sediment trap SL4-T6 exceeded the LAET screening level in 29 percent of samples, but none exceeded the 2LAET screening level.

Table C-24: Summary of chemicals exceeding the SMS screening levels in the I-5 SD at Slip 4 drainage system (2015-2019).

	SCO LAET	CSL 2LAET	N	Min	Max	Mean	Median	Percent of samples >SCO LAET screening level	Percent of samples >CSL 2LAET screening level
Arsenic	57	93	7	3.43	16.1	9.4	12	0	0
Copper	390	390	7	23.5	163	99	87.7	0	0
Lead	450	530	7	4.66	228	92	68	0	0
Mercury	0.41	0.59	7	0.0224	0.07	0.05	0.04	0	0
Zinc	410	960	7	41	1,090	402	354	43	14
TPH-oil	2,000[a]	2,000[a]	5	168	3,540	1,363	1,300	20	20
LPAH	5,200	5,200	7	<82	1,522	705	604	0	0
HPAH	12,000	17,000	7	174	8,260	3,700	3,433	0	0
cPAH	1,000[b]	1,000[b]	7	26	970	426	404	0	0
PCBs	130	1,000	7	<19	281.8	111	100	29	0
BEHP	1,300	1,900	7	248	20,000	6,900	4,100	71	71
Butyl benzyl phthalate	63	900	7	<19.2	22,300	3.400	340	71	14
Dimethyl phthalate	71	160	7	<19.2	117	54	97	29	0

N = number of samples. Note that some of the sediment traps could not be analyzed for all parameters because there was insufficient material in the trap.
BEHP = bis(2-ethylhexyl)phthalate PCBs = polychlorinated biphenyls PAH = polycyclic aromatic hydrocarbons, TPH = total petroleum hydrocarbons
Units: mg/kg for metals and TPH-oil, ug/kg dw for organic compounds, ug TEQ/kg for cPAH.
a. MTCA Method A soil cleanup level for unrestricted use.
b. Sediment remedial action level.
Samples collected May 2015 through April 2019.

Chemical concentrations in storm drain solids samples collected from the I-5 SD at Slip 4 were similar to the levels observed in other storm drains in the LDW. The 25 near end-of-pipe samples collected from this drain showed similar results with only one sample exceeding the 2LAET for zinc and PCBs and all samples exceeding the 2LAET for phthalates (see heat tables in Appendix B).

PCBs are the primary chemical of concern in the surface sediments in Slip 4. PCB concentrations in samples collected within 200 feet of the five outfalls located at the head of Slip 4 exceeded the CSL prior to cleanup. Other chemicals that have also been found above SMS in the nearshore samples from the head of Slip 4 include lead, mercury, zinc, HPAH and multiple HPAH components, phenanthrene, and phthalates (bis[2-ethylhexl]phthalate and di-n-octyl phthalate, AECOM 2012 and Integral 2006).

In 2012, the City of Seattle completed an Early Action Area cleanup (Integral 2012). Seattle conducted post-construction sampling in 2012 (baseline), 2013, 2015, 2017, and 2019. Results for PCBs, HPAH, and bis(2-ethylhexyl)phthalate in samples collected within 200 ft of the I-5 SD at Slip 4 outfall are summarized in Table C-25.

Table C-25: Post-cleanup sediment monitoring data in Slip 4 compared to near end-of-pipe inline samples.

Station[a]	WC-1	WC-2[b]	SC-2	SC-3	SL4-T6[c]	MH23[d]
Distance from outfall (ft)	70	100	50	150	0	0
PCBs						
2012	5.5	24	5.7	3.8 U	160	--
2013	89	81	18	6	199	--
2015	290 J	77 J	14.1	2.8 J	171 J	540[e]
2017	212.2	106.8	33 J	17.4	99.7	253[f]
2019	187.8	189.7	34.4	48.2	282	229 J
HPAH						
2012	52 J	263 J	179 J	18 U	4,480	--
2013	2,300	1,540	346 J	105 J	6,150	--
2015	5,180 J	790 J	324 J	90 J	8,260 J	74,300[e]
2017	4,600 J	2,128 J	525 J	549 J	5,004	22,900[f]
2019	8,300	6,300	1,417 J	3,130	5,580 J	30,300 J
BEHP						
2012	68 U	120 U	100 U	22 U	5,900	--
2013	1,800	370	120	48 U	6,200	--
2015	7,000	500	300	47 U	20,000	18,000[e]
2017	7,390	2,330	887	557	4,420	7,040[f]
2019	5,850	3,590	1,070	1,250	15,500 J	11,200 J

Source: Windward (2020) Units: ug/kg dw

PCBs = polychlorinated biphenyls PAH = polycyclic aromatic hydrocarbons BEHP = bis(2-ethylhexyl)phthalate

Values shaded in gray exceed the SCO/LAET.

Values shaded in black exceed the CSL/2LAET

a. WC samples were collected from the waterway cap and SC samples were collected from the slope cap.
b. WC-2 is located in a channel that has developed downstream of the KCIA SD#3/ PS 45 EOF. WC-1 is located in the waterway approximately midway between WC-2 and SC-2. SC-3 is located on the opposite side of the slip (east slope) from the I-5 SD at Slip 4.
c. Inline sediment trap that captures runoff from the bulk of the I-5 SD at Slip 4 drainage system.
d. Inline grab near end-of-pipe sample location in the Georgetown SD (see following Section 3.8).
e. Sample collected in 2014
f. Sample collected in 2018.

PCBs, HPAH, and BEHP have increased at all 4 stations since the cleanup. Zinc (2015, 2017, and 2019 samples at WC-1), butyl benzyl phthalate (2013 -2019 samples at WC-1, 2019 sample at WC-2, and 2017 sample at SC-2), and fluoranthene (2019 sample at WC-1) were the only other chemicals that exceeded the SCO within 200 feet of the outfall. Data summarized in

Table C-25 indicate that the I-5 SD at Slip 4 and Georgetown SD are likely contributing to the increase in PCB, HPAH, and BEHP concentrations observed in waterway sediment since cleanup. However, two other outfalls also discharge to the head of Slip 4 (KCIA SD#3/PS 44 EOF, East Marginal PS), which also likely contribute contaminants to the slip.

Over the next five years, SPU will continue to deploy the sediment trap (SL4-T6) in this system and inspect businesses in the basin.

3.8. Georgetown SD

In 2009 ,SPU constructed the Georgetown SD to replace the old flume that served the Georgetown Steam Plant, when Seattle City Light (SCL) removed the flume and contaminated soil adjacent to the flume. The flume was a system of wood and concrete-lined channels constructed after the Duwamish Waterway was straightened in 1916. It was originally built to convey cooling water from the Georgetown Steam Plant to the Duwamish Waterway. Cooling water discharge was discontinued when the power plant ceased operation in the 1960s. However, the flume, which was owned and operated by Seattle City Light (SCL), continued to serve as a drainage channel conveying stormwater runoff from portions of the steam plant property, North Boeing Field, the Washington National Guard property on Ellis Ave S, as well as a short section of S Myrtle St and the adjacent parcels.

The Georgetown SD follows the same alignment as the old flume, but most of the area east of the flume on North Boeing Field has been disconnected from the storm drain. Areas currently draining to this system include the roof of the Georgetown Steam Plant, a short section of S Myrtle St and adjacent parcels, and areas immediately adjacent to the storm drain (catch basin in parking lot at Washington National Guard property and service drains from the motel at the downstream end of the system). The drainage basin and system are shown on Map 19. Total drainage area is approximately 4.5 acres. SPU also installed two biofiltration swales along the drainage corridor to treat runoff from S Myrtle St. The Georgetown SD has the capacity to convey runoff from all the Steam Plant property. However, at this time, only the roof is connected to the drainage system.

Four samples have been collected from the Georgetown SD system since 2014. Results are presented in Table C-26. Sampling locations are shown on Map 69. Except for zinc, metals were all below the SCO. However, HPAH, bis(2-ethylhexyl)phthalate, and butyl benzyl phthalate exceeded the 2LAET screening levels in all samples. cPAH also exceeded the RAL (1,000 ug TEQ/kg) and PCBs exceeded the LAET, but not the 2LAET screening level, in all samples.

Table C-26: Storm drain solids results for Georgetown SD (2014-2019).

	SCO LAET	CSL 2LAET	MH23[c] 06/20/14	MH6[b] 12/17/15	MH23[c] 06/12/18	MH23[c] 06/05/19
Arsenic	57	93	10 U	8	7.94 U	8.36
Copper	390	390	153	62.6 J	86.8	130
Lead	450	530	143	57	65.7	102
Mercury	0.41	0.59	0.17	0.0182 J	0.0845	0.164
Zinc	410	960	878	591 J	432	579
TPH-oil	2,000[d]	2,000[d]	7,900[d]	--	2,430	2,690 J
LPAH	5,200	5,200	5,780	24,500	3,317 J	2,829 J
HPAH	12,000	17,000	74,300	146,000	22,913	30,343
cPAH	1,000[e]	1,000[e]	8,821	21,530	2,965	3,815 J
PCBs	130	1,000	540	477	253	229 J
BEHP	1,300	1,900	18,000	2,900	7,040	11,200

	SCO LAET	CSL 2LAET	MH23[c] 06/20/14	MH6[b] 12/17/15	MH23[c] 06/12/18	MH23[c] 06/05/19
Butyl benzyl phthalate	63	900	1,300	1,300 U	599	990 J
Dimethyl phthalate	71	160	620 U	1,300 U	111	305 J

Exceeds SCO/LAET
Exceeds CSL/2LAET

N = number of samples BEHP = bis(2-ethylhexyl)phthalate PCBs = polychlorinated biphenyls
PAH = polycyclic aromatic hydrocarbons, TPH = total petroleum hydrocarbons
Units: ug/kg dw for all but cPAH (ug TEQ/kg)

a. Inline grab from maintenance hole located near the downstream end of the system
b. Composite of 3 inline grabs collected from maintenance holes downstream of S Willow St, which receive runoff from only the Georgetown Steam Plant roof (Landau 2015).
c. Sample analyzed with no cleanup. Other samples processed using silica gel and acid cleanup before analysis.
d. MTCA Method A soil cleanup level for unrestricted use
e. Sediment remedial action level.

City Light plans to replace the steam plant roof in 2020. The old roofing material may have been a source of HPAH in this system.

As described in Section 3.7, chemicals exceeding the SCO/LAET in waterway sediment following the 2012 cleanup include 1) bis(2-ethylhexylphthalate), butyl benzyl phthalate, PCBs, zinc, and fluoranthene at WC-1, which is located about 70 feet offshore and 2) PCBs, bis(2-ethylhexl)phthalate, and butyl benzyl phthalate at WC-2, which is located about 100 feet offshore.

Over the next 5 years, SPU intends to conduct the following activities in the Georgetown SD basin:

- Install a sediment trap in MH23 near the downstream end of the system.
- SPU and SCL will jet and clean the Georgetown SD after roof replacement is completed.

3.9. SW Kenny St SD/T115 CSO

The SW Kenny St SD serves an area of about 154 acres, encompassing the commercial/industrial areas along W Marginal Wy SW, as well as undeveloped land located on the steep hillside west of W Marginal Wy SW (Map 20). A significant portion of the undeveloped land (53 acres) is owned by the Seattle Department of Parks and Recreation. Land use in the basin is approximately 5.8 percent residential, 10.1 percent commercial, 28.1 percent industrial, and 56 percent open/vacant/parks.

SPU jetted and cleaned the SW Kenny St SD/T115 CSO drainage system in 2017. Prior to cleaning, multiple samples exceeded the SCO screening levels for arsenic, lead, mercury, and zinc, but none exceeded the CSL screening levels. In addition, LPAH, HPAH, and cPAH exceeded both the LAET and 2LAET screening levels in 7, 13, and 20 percent of the samples, respectively. Other chemicals that exceeded the screening levels included PCBs, bis(2-ethylhexyl)phthalate, butyl benzyl phthalate, and dimethyl phthalate. Chemicals that exceeded the screening levels in pre-cleaning samples are summarized in Table C-27.

Table C-27: Summary of chemicals exceeding SMS screening levels in samples collected from the SW Kenny St SD/T115 drainage system before cleaning.

	SCO LAET	CSL 2LAET	N	Min	Max	Mean	Median	Percent of samples >SCO LAET screening level	Percent of samples >CSL 2LAET screening level
Arsenic	57	93	15	4	70	28	20	13	0
Copper	390	390	15	36	193	121	129	0	0
Lead	450	530	15	11	470	201	82	20	0
Mercury	0.41	0.59	15	0.03	0.42	0.19	0.18	7	0
Zinc	410	960	15	78	879	528	566	73	0
TPH-oil	2,000[a]	2,000[a]	15	370	4,700	1,970	1,700	47	47
LPAH	5,200	5,200	15	60	5,240	1,100	640	7	7
HPAH	12,000	17,000	15	60	36,520	7,890	5,410	13	13
cPAH	1,000[b]	1,000[b]	15	103	4,543	970	734	20	20
PCBs	130	1,000	15	9	710	189	155	53	0
BEHP	1,300	1,900	15	190	5,500	2,500	2,100	73	60
Butyl benzyl phthalate	63	900	15	38	1,100	254	150	80	7
Dimethyl phthalate	71	160	15	9	230	70	50	20	13

N = number of samples BEHP = bis(2-ethylhexyl)phthalate PCBs = polychlorinated biphenyls
PAH = polycyclic aromatic hydrocarbons, TPH = total petroleum hydrocarbons
Units: mg/kg for metals and TPH-oil, ug/kg dw for organic compounds.

a. MTCA Method A soil cleanup level for unrestricted use.
b. Sediment remedial action level.
Samples collected March 2006 through April 2013.

SPU collected two sediment trap samples at KN-ST1 after cleaning in 2018 and 2019 (Table C-28 and Map 70). Metals, LPAH, HPAH, and cPAH were below the SMS screening levels. Bis(2-ethylhexyl)phthalate exceeded the 2LAET screening level in both post cleaning samples, and TPH-oil exceeded the MTCA screening level in the 2019 sample. PCBs and butyl benzyl phthalate exceeded the LAET, but not the 2LAET in two and one (2019) of the samples, respectively.

Table C-28: Results for storm drain solids samples collected in SW Kenny St SD/T115 CSO after cleaning.

	SCO LAET	CSL 2LAET	KN-ST1 04/19/18	KN-ST1 04/23/19
Arsenic	57	93	13.8	26.7
Copper	390	390	55.4	86.2
Lead	450	530	34.1	66.3
Mercury	0.41	0.59	0.123	0.222
Zinc	410	960	299	500
TPH-oil	2,000[a]	2,000[a]	1,650	2,480
LPAH	5,200	5,200	511	465 J
HPAH	12,000	17,000	2,649	4,296 J

	SCO LAET	CSL 2LAET	KN-ST1 04/19/18	KN-ST1 04/23/19
cPAH	1,000[b]	1,000[b]	362	455
PCBs	130	1,000	138	153 J
BEHP	1,300	1,900	2,980	4,350
Butyl benzyl phthalate	63	900	99.4 U	194
Dimethyl phthalate	71	160	99.4 U	98.4 U

Exceeds SCO/LAET
Exceeds CSL/2LAET

Note: KN-ST1 is a near end-of-pipe inline sediment trap
N = number of samples BEHP = bis(2-ethylhexyl)phthalate PCBs = polychlorinated biphenyls
PAH = polycyclic aromatic hydrocarbons, TPH = total petroleum hydrocarbons
Units: mg/kg for metals and TPH-oil, ug/kg dw for organic compounds, ug TEQ/kg for cPAH
BEHP = bis(2-ethylhexyl)phthalate

a. MTCA Method A soil cleanup level for unrestricted use.
b. Sediment remedial action level.

Concentrations in the storm drain solids are comparable to levels observed in other storm drains in the LDW. However, arsenic in the 2019 sample was greater than two times the median of the median concentrations measured in other storm drains. Arsenic was also elevated (43-70 mg/kg) in four of the 14 samples collected from this location prior to cleaning but has not exceeded SCO in any of the offshore sediment samples. It does not appear to be a concern for waterway sediment, but SPU will need to track the concentration of arsenic in this system to ensure that there are no ongoing sources of arsenic in this basin.

Metals, PAH, butyl benzyl phthalate, dimethyl phthalate, and PCBs were below the CSL/2LAET screening levels in both near end-of-pipe sediment trap samples collected since the line was cleaned. Bis(2-ethylhexyl)phthalate exceeded the 2LAET screening level in both samples. Chemicals that exceeded the SCO/LAET screening levels included zinc (2019), PCBs (2018 and 2019),and butyl benzyl phthalate (2019).

Eight waterway sediment samples have been collected within 200 feet of the SW Kenny St SD/T115 CSO outfall. SCO exceedances occurred at 6 of the 8 sites, but hexachlorobenzene, benzyl alcohol, and butyl benzyl phthalate were the only chemicals that exceeded SCO. No chemicals exceeded both the CSL/2LAET in the storm drain solids and the SCO in the waterway sediment. Butyl benzyl phthalate is the only chemical where there was a SCO/LAET exceedance in the storm drain solids and a SCO exceedance in the waterway sediment (at DR126 located approximately 110 feet away from the outfall).

As explained earlier, phthalates are commonly found in urban storm drain sediments. These chemicals are used in a variety of consumer products and are difficult, if not impossible to control using conventional source control methods. Other actions like lobbying industry to reduce the amount of these chemicals used in consumer products, educating the community about these issues, and searching for alternative products may help to address these problems, but are outside the scope of what local jurisdictions can accomplish.

Over the next 5 years, SPU intends to conduct the following activities in the SW Kenny St SD/T115 CSO basin:

- Continue operating and maintaining the sediment trap (KN-ST1) located at the downstream end of this drainage system to characterize conditions in this drainage system
- Continue to inspect businesses operating in the basin.

3.10. Highland Park Wy SW SD

The Highland Park Wy SW SD serves an area of about 296 acres[15] (Map 21). The drainage basin is predominately residential (49 percent) with commercial/industrial areas (19.2 percent) located along W Marginal Wy SW. Open space/vacant/parks makes up the remainder of the basin (31.8 percent). An approximately 94-acre portion of the 1st Ave S SD basin overlaps with the Highland Park Wy SW basin where depending on rainfall, runoff can discharge to either outfall. The area of overlap covers the commercial/industrial area between Detroit Ave SW and W Marginal Wy SW. Recently, most of the runoff has been flowing south to the 1st Ave S SD due to heavy sediment accumulation in the 36-inch pipe east of W Marginal Wy SW on the Highland Park Wy SW system (Map 21).

SPU jetted and cleaned the Highland Park Wy SW drainage system in 2015. Prior to cleaning, concentrations of arsenic, lead, mercury, LPAH, and HPAH were below the SCO/LAET and CSL/2LAET screening levels in all samples. Zinc exceeded SCO only at trap stations HP-ST4 and HP-ST6, but none exceeded the CSL screening level. HP-ST6 is located on the 36-inch line downstream of W Marginal Wy SW. This line conveys runoff from the primarily industrial areas along W Marginal Wy SW, including the area of overlap with the 1st Ave S SD, west basin. HP-ST4 is located on the storm drain serving the mainly residential area on the ridge west of Detroit Ave SW.

PCBs exceeded the LAET screening level in 40 percent of the samples (8 samples); however, none of the samples exceeded the 2LAET screening level. Seven of the eight samples that exceeded the LAET screening level for PCBs (152 – 700 ug/kg dw) were collected at HP-ST6. Concentrations were within the range observed in other storm drain samples collected in the LDW (see box plots in Appendix B). Chemicals that exceeded the screening levels in before cleaning are summarized in Table C-29.

Table C-29: Summary of chemicals exceeding SMS screening levels in samples collected from the Highland Park Wy SW SD system before cleaning (2008-2014).

	SCO LAET	CSL 2LAET	N	Min	Max	Mean	Median	Percent of samples >SCO LAET screening level	Percent of samples >CSL 2LAET screening level
Arsenic	57	93	20	3.5	30	16	11.5	0	0
Copper	390	390	20	28	1,400	156	103	5	5
Lead	450	530	20	19	200	95	94	0	0
Mercury	0.41	0.59	20	0.02	0.36	0.15	0.10	0	0
Zinc	410	960	20	69	932	490	445	50	0
TPH-oil	2,000[a]	2,000[a]	20	62	4,800	1,400	960	20	20
LPAH	5,200	5,200	20	27	965	275	175	0	0
HPAH	12,000	17,000	20	188	7,310	1,980	1,750	0	0
cPAH	1,000[b]	1,000[b]	20	28	833	240	174	0	0
PCBs	130	1,000	20	10	700	154	77	40	0
BEHP	1,300	1,900	20	68	9,900	3,400	3,100	80	65
Butylbenzyl phthalate	63	900	20	19	780	300	180	80	0
Dimethyl phthalate	71	160	20	10	320	71	56	40	5

[15] Does not include the 94-acre overlap with the 1st Ave S SD (west) drainage basin.

N = number of samples BEHP = bis(2-ethylhexyl)phthalate PCBs = polychlorinated biphenyls
PAH = polycyclic aromatic hydrocarbons, TPH = total petroleum hydrocarbons
Units: mg/kg for metals and TPH-oil, ug/kg dw for organic compounds, ug TEQ/kg for cPAH.
a. MTCA Method A soil cleanup level for unrestricted use
b. Sediment remedial action level
Samples collected September 2008 through May 2014.

SPU collected 15 storm drain solids samples in the Highland Park Wy SW SD after it was cleaned (8 sediment trap, 4 inline grabs, 2 private onsite catch basin, and one right-of-way catch basin samples). Results are summarized in Table C-30. Sample locations are shown on Map 71.

Table C-30: Summary of chemicals exceeding SMS screening levels in Highland Park Wy SW SD after cleaning.

	SCO LAET	CSL 2LAET	N[a]	Min	Max	Mean	Median	Percent of samples >SCO LAET screening level	Percent of samples >CSL 2LAET screening level
Arsenic	57	93	15	<6	55	21	16	0	0
Copper	390	390	15	19.5	302	116	113	0	0
Lead	450	530	15	11	263	114	129	0	0
Mercury	0.41	0.59	15	<0.03	0.27	0.14	0.17	0	0
Zinc	410	960	15	85	1,150	570	660	67	13
TPH-oil	2,000[b]	2,000[b]	15	290	5,480	2,500	1,545	77	77
LPAH	5,200	5,200	15	<54	1,125	520	607	0	0
HPAH	12,000	17,000	15	192	7,096	2,600	2,813	0	0
cPAH	1,000[c]	1,000[c]	15	<86	718	270	264	0	0
PCBs	130	1,000	18	<19.9	2,451	340	209	67	6
BEHP	1,300	1,900	15	340	11,200	4,900	4,120	87	87
Butyl benzyl phthalate	63	900	15	<94	9,520	830	235	80	7
Dimethyl phthalate	71	160	15	<60	241.5	98	82	60	13

N = number of samples BEHP = bis(2-ethylhexyl)phthalate PCBs = polychlorinated biphenyls
PAH = polycyclic aromatic hydrocarbons, TPH = total petroleum hydrocarbons
Units: mg/kg for metals and TPH-oil, ug/kg dw for organic compounds, ug TEQ/kg for cPAH.
Samples collected May 2015 through April 2019
a. Includes all samples collected in the MS4 that have not been affected by cleaning operations (i.e., data flagged as "never been cleaned" or "post cleaning"). Does not include ODS (outside the drainage system) samples, which include surface dirt, soil, or other materials (e.g., caulk, paint)
b. MTCA Method A soil cleanup level for unrestricted use
c. Sediment remedial action level

Except for mercury, metals concentrations in storm drain solids samples collected after cleaning were similar to levels observed in other storm drains in the LDW. The median mercury concentration (0.17 mg/kg) was slightly greater than two times the median of the median concentrations measured in other storm drains (0.15 ug/kg). Most of the higher mercury concations were measured at HP-ST6, which serves a parking lot, two currently undeveloped parcels, two commercial parcels, and a small area on the southwest portion of Terminal 115 (roof drains and catch basins in loading dock at the Northland Services warehouse). Mercury did not exceed the SCO

in any offshore waterway sediment samples and did not exceed the SCO screening level in any of the storm drain solids samples collected from this drainage system.

Zinc exceeded the CSL screening level in 13 percent of the storm drain solids samples, which is more than occurred prior to cleaning, but concentrations were similar to other storm drains in the LDW. Zinc also exceeded the CSL screening level in one of the 11 near end-of-pipe samples but did not exceed the SCO in any of the offshore sediment samples collected within 200 feet of the outfall.

Only one of 15 storm drain solids samples exceeded the CSL/2LAET for PCBs, a private onsite catch basin (2,451 ug/kg dw at CB304) on a loading dock at a metal fabrication facility. The facility jetted and cleaned the onsite drainage system in 2017. PCBs were not above the 2LAET screening level in any of the near end-of-pipe samples collected from the Highland Park Wy SW SD and only two of the eight waterway samples collected within 200 feet of the Highland Park Wy SW SD outfall exceeded the SCO for PCBs (137 J ug/kg dw at R3 and 172 ug/kg dw at R4). R3 and R4 are 40 and 100 feet downgradient of the outfall, respectively. R4 is located immediately adjacent to the southern-most pier at T115. Sample T115-01-SS-090428, which is located 10 feet away from the outfall did not exceed SCO for any chemicals.

Phthalates continued to exceed the CSL/2LAET screening levels (7-87 percent of the samples) after cleaning but concentrations were similar to the levels observed in other storm drains in the LDW. Phthalates (bis[2-ethylhexyl], butyl benzyl, and dimethyl) also exceeded SCO at samples collected within 40 to 100 feet of the outfall.

Over the next 5 years, SPU intends to conduct the following activities in the Highland Park Wy SW SD basin:

- Continue operating and maintaining the existing sediment traps (HP-ST4 and HP-ST6) installed in the Highland Park Wy SW SD system to characterize conditions in this drainage system.
- Resample onsite catch basins at the metal fabrication facility.
- Continue to inspect businesses operating in the basin.
- Continue to monitor mercury at HP-ST6. If concentrations exceed the CSL, SPU will investigate potential sources this sub-basin.

3.11. 1st Ave S SD (west)

The 1st Ave SW system serves an area of about 606 acres (Map 22). Land use in the basin is approximately 32.6 percent industrial, 31.6 percent open/vacant/parks, 28.2 percent residential, and 7.6 percent commercial. The SR 509 (8,500 LF) and SR99 (3,800 LF) corridors take up a significant portion of the right-of-way within this basin. As explained above, an approximately
94-acre portion of the 1st Ave S SD, west basin overlaps with the Highland Park Wy SW drainage basin. All runoff from the basin passes through a saltwater wetland prior to discharge to the waterway.

Major improvements were made to the 1st Ave S Bridge and approaches in 1995. SPU constructed a 2.5-acre wet pond near the downstream end of this system as part of the 1st Ave S bridge project to treat runoff from SR99 and SR509. Low flows are treated in the pond and high flows are diverted to the wetland located on WSDOT right-of-way between SR509 and 2nd Ave SW. A series of biofiltration swales were also constructed as part of the drainage system to convey and treat some of the runoff entering the wetland. The wetland discharges to the LDW via a wetland channel located under the 1st Ave S bridge.

SPU jetted and cleaned portions of the 1st Ave S SD (west) drainage system in 2017[16]. Prior to cleaning PCBs (1,050 – 1,950 J ug/kg dw) frequently exceeded the 2LAET in the 1st-ST7 sediment trap located on Olson Pl SW

[16] Ditches and culverts located adjacent to the wetland could not be cleaned because sediment accumulation in the wetland has partially clogged many of the pipes entering it. Cleaning of these drainage structures would need to be coordinated with removal of sediment from the wetland, which is not owned by SPU.

west of Myers Way S (Map 72). The drainage system at this location serves a mostly residential area west of Myers Wy S, including a public storage facility on Olson Pl SW. Other chemicals that exceeded the CSL/2LAET screening levels prior to cleaning included HPAH (10 percent), cPAH (24 percent), and phthalates (10-38 percent). Sample results are summarized in Table C-31.

Table C-31: Summary of chemicals exceeding SMS screening levels in 1st Ave S SD (west) before cleaning (2002 -2017).

	SCO LAET	CSL 2LAET	N	Min	Max	Mean	Median	Percent of samples >SCO LAET screening level	Percent of samples >CSL 2LAET screening level
Arsenic	57	93	29	<5	20	7.6	8	0	0
Copper	390	390	29	29.6	467	81	40.2	3	3
Lead	450	530	29	5	261	79	12	0	0
Mercury	0.41	0.59	29	<0.02	1.294	0.12	0.06	3	3
Zinc	410	960	29	102	2,940	430	215	34	3
TPH-oil	2,000[a]	2,000[a]	29	160	17.100	2,500	950	31	31
LPAH	5,200	5,200	29	39	3,460	740	324	0	0
HPAH	12,000	17,000	29	295	24,500	5,900	2,864	17	10
cPAH	1,000[b]	1,000[b]	29	59	3,033	730	367	24	24
PCBs	130	1,000	29	<16	1,950	380	20	31	21
BEHP	1,300	1,900	29	160	28,600	3,600	790	41	38
Butyl benzyl phthalate	63	900	29	<20	650	120	99	45	0
Dimethyl phthalate	71	160	29	<20	4,200	210	96	34	10

N = number of samples BEHP = bis(2-ethylhexyl)phthalate PCBs = polychlorinated biphenyls
PAH = polycyclic aromatic hydrocarbons, TPH = total petroleum hydrocarbons
Units: mg/kg for metals and TPH-oil, ug/kg dw for organic compounds, ug TEQ/kg for cPAH.
a. MTCA Method A soil cleanup level for unrestricted use
b. Sediment remedial action level
Samples collected September 2008 through May 2017. Does not include samples collected prior to cleaning that were not affected by SPU's cleaning (e.g., private onsite catch basins).

SPU has collected 46 samples in the 1st Ave S SD (west) since the lines were cleaned in 2017 and from locations where pipes/structures have never been cleaned. Results are summarized in Table C-32. Except for zinc, metals concentrations remained low. Arsenic, copper, and lead did not exceed the SMS screening levels in any samples. Mercury exceeded the screening levels in only 3 samples (two trap samples at 1st-ST5 collected in 2008 and 2010 and the 2019 trap sample at 1st-ST2). ST5 is located on Occidental Ave S just north of S Kenyon St and serves an industrial area between W Marginal Wy S and SR509 and between S Kenyon St and S Sullivan St. Businesses include SPU's South Transfer Station (STS), the former STS, the South Park Landfill property, and a small business park on S Kenyon St. ST2 is located on the 18-inch drain entering the southwest corner of the wet pond S Holden St which collects runoff primarily from SR509.

Zinc concentrations were comparable to the concentrations observed at other storm drains in the LDW. Although zinc also exceeded the CSL in seven of the 32 near end-of-pipe samples collected from the 1st Ave S SD (west), it did not exceed the SCO in any of the 10 sediment samples collected within 20-170 feet of

the outfall. These data suggest that the outfall is not having a significant effect on zinc concentrations in waterway sediment.

Other chemicals that exceeded the SMS screening leevels include PCBs and phthalates. One inline grab sample (MH218) collected in 2010 exceeded the 2LAET for PCBs (1,760 ug/kg dw). MH218 is on S Kenyon St downstream of the industrial area described above. SPU did not clean this approximately 540-foot section of pipe on S Kenyon St between Occidental Ave S and 2nd Ave S because it is continuously backwatered from the WSDOT wetland system and SPU simply ran out of time in 2017 to complete this work. SPU intends to clean this section of the 1st Ave S SD (west) system in 2020. Work will be coordinated with demolition of the onsite drainage system at the former South Transfer Station site[17].

Table C-32: Summary of chemicals exceeding SMS screening levels in samples collected from the 1st Ave S SD, west storm drain system after cleaning.

	SCO LAET	CSL 2LAET	N[a]	Min	Max	Mean	Median	Percent of samples >SCO LAET screening level	Percent of samples >CSL 2LAET screening level
Arsenic	57	93	45	<5.7	30	9.8	6.4	0	0
Copper	390	390	45	18.6	305	94	109	0	0
Lead	450	530	45	5.38	301	93	81	0	0
Mercury	0.41	0.59	45	<0.02	0.6	0.15	0.12	7	2
Zinc	410	960	45	108	3,770	740	579	62	24
TPH-oil	2,000[b]	2,000[b]	44	280	18,500	4,300	3,300	62	62
LPAH	5,200	5,200	43	<26	3,220	780	405	0	0
HPAH	12,000	17,000	43	98	15,306	4,400	3,149	7	0
cPAH	1,000[c]	1,000[c]	43	19	1,928	520	360	9	9
PCBs	130	1,000	45	<17.6	1,760	170	93	30	2
BEHP	1,300	1,900	44	19	44,000	11,000	8,500	80	77
Butylbenzyl phthalate	63	900	44	11	6,500	560	230	73	14
Dimethyl phthalate	71	160	44	<20	36,000	960	72	50	23

N = number of samples BEHP = bis(2-ethylhexyl)phthalate PCBs = polychlorinated biphenyls
PAH = polycyclic aromatic hydrocarbons, TPH = total petroleum hydrocarbons
Units: mg/kg for metals and TPH-oil, ug/kg dw for organic compounds, ug TEQ/kg for cPAH
Samples collected September 2008 through May 2019.

a. Includes all samples collected in the MS4 that have not been affected by cleaning operations (i.e., data flagged as "never been cleaned" or "post cleaning"). Does not include ODS (outside the drainage system) samples, which include surface dirt, soil, or other materials (e.g., caulk, paint)
b. MTCA Method A soil cleanup level for unrestricted use
c. Sediment remedial action level
. Includes samples collected prior to 2017 in areas that were not cleaned (e.g., private onsite catch basins or culverts/pipes that were not cleaned in 2017)

[17] The entire onsite drainage system will be removed sometime in 2021 to prepare the site for construction of a new SPU recycling facility. Construction of the new facility is currently scheduled to start in 2022.

Ten sediment samples have been collected in the waterway within 200 feet of the 1st Ave S SD (west) outfall. PCBs (137.6 – 300 ug/kg dw) exceeded the SCO at four locations and butyl benzyl phthalate (82 ug/kg dw) exceeded the SCO at one location. A large mudflat/delta has formed offshore of the channel that discharges from the wetland. No SMS exceedances were observed at the three stations closest to the end of the wetland channel. Exceedances occurred at the stations located closest to the main channel. Given that PCBs in the waterway sediment were higher than most of the near end-of-pipe storm drain solids samples (<17 – 550 ug/kg dw with a median of 74 ug/kg dw and an average concentration of 115 ug/kg dw), it does not appear that the 1st Ave S SD (west) is a significant source of PCBs to the waterway at this location.

Over the next 5 years, SPU intends to conduct the following activities in the 1st Ave S SD (west) drainage basin:

- Continue operating the existing sediment traps (1st-ST1, 1st-ST2, 1st-ST3, and 1st-ST7)
- Jet and clean the 30-inch storm drain on S Kenyon St between Occidental Ave S and 2nd Ave S. Coordinate cleaning with the demolition of the onsite drainage system at the former South Transfer Station site.
- Continue inspecting businesses.

3.12. 2nd Ave S SD

The 2nd Ave S SD serves a 38-acre industrial drainage basin located on the south side of the Trotsky inlet (Map 23). The 30-inch outfall was constructed in 1964 by Northwest Cooperage, Inc, a barrel recycling facility. Prior to 1964, runoff from this basin discharged to the LDW via an open ditch. Over the years, other businesses located on the west side of 2nd Ave S connected their onsite storm drains to this outfall. The City MS4 located east of 2nd Ave S connects to this private system at various points along 2nd Ave S. The area served by the City MS4 encompasses about 18.4 acres.

Northwest Cooperage discharged stormwater and wastewater to this drainage system until about 1965 when they connected onsite drains to the combined sewer. Plat maps of this area show a wastewater lagoon on Northwest Cooperage property connected to this drainage system. This property continues to be occupied by a barrel recycling facility; however most onsite runoff and wastewater are now discharged to the combined sewer under a permit with King County Industrial Waste. Only roof downspouts on buildings located at the northwest corner of the site continue to discharge to the waterway.

SPU jetted and cleaned the City-owned portions of the 2nd Ave S SD along S Fontanelle St and S Webster St in 2010. However, the privately owned pipes and ditches west of 2nd Ave S were not cleaned.

During the previous reporting period, SPU collected 18 samples (2 private onsite catch basins, 14 right-of-way catch basins, and 2 inline grabs) from City-owned storm drains in the 2nd Ave S drainage system. Metals concentrations were comparable to concentrations observed in other storm drains in the LDW. Copper, lead, and mercury exceeded the CSL screening levels in two samples collected at a small recycling facility located at 7620 2nd Ave S (CB116), which stored fluorescent lamps containing mercury and lamp ballasts containing PCBs in an uncovered outside location. The property was sold in 2013 and the recycling business was closed. The new owner jetted and cleaned the onsite drainage system and remodeled the building. The site is now occupied by a machine shop and a theatre company that fabricates stage props. All work is done inside.

Results for samples collected from 2007 through 2013 are summarized in Table C-33. Median concentrations of all chemicals were on the lower end of the concentrations reported at other drains in the LDW (see box plots in Appendix B and Appendix J).

Except for a sample collected from a catch basin at the recycling facility (902 ug/kg dw at CB116), PCB concentrations were relatively low (26 – 304 ug/kg dw). Only seven of the other 17 samples exceeded the LAET screening level (151 – 304 ug/kg dw) and none exceeded the 2LAET screening level

Table C-33: Summary of chemicals exceeding SMS screening levels in samples collected from the 2nd Ave S SD storm drain system (2007-2013).

	SCO LAET	CSL 2LAET	N[a]	Min	Max	Mean	Median	Percent of samples >SCO LAET screening level	Percent of samples >CSL 2LAET screening level
Arsenic	57	93	18	<6	50	13	9.5	0	0
Copper	390	390	18	80	2,110	280	142	11	11
Lead	450	530	18	25	1,540	220	82	11	11
Mercury	0.41	0.59	18	<0.04	48	3.3	0.09	11	11
Zinc	410	960	18	111	2,950	720	448	56	17
TPH-oil	2,000[b]	2,000[b]	18	590	16,000	4,600	3,400	78	78
LPAH	5,200	5,200	18	<60	2,030	520	226	0	0
HPAH	12,000	17,000	18	<190	9,090	2,400	1,672	0	0
cPAH	1,000[c]	1,000[c]	18	<114	1,049	320	214	6	6
PCBs	130	1,000	18	26	902	170	118	44	0
BEHP	1,300	1,900	18	980	39,000	8,200	4,050	94	78
Butyl benzyl phthalate	63	900	18	<95	11,000	900	250	94	11
Dimethyl phthalate	71	160	18	<19	840	160	135	56	22

N = number of samples BEHP = bis(2-ethylhexyl)phthalate PCBs = polychlorinated biphenyls
PAH = polycyclic aromatic hydrocarbons, TPH = total petroleum hydrocarbons
Units: mg/kg for metals and TPH-oil, ug/kg dw for organic compounds, ug TEQ/kg for cPAH

a. Includes all samples collected in the MS4 that have not been affected by cleaning operations (i.e., data flagged as "never been cleaned" or "post cleaning"). Does not include ODS (outside the drainage system) samples, which include surface dirt, soil, or other materials (e.g., caulk, paint)
b. MTCA Method A soil cleanup level for unrestricted use.
c. Sediment remedial action level.

Samples collected May 2007 through June 2013.

During the 2014-2019 reporting period, SPU collected five storm drain solids samples in the 2nd Ave S SD basin. Results are provided in Table C-34. Sampling locations are shown on Map 73. Two samples were associated with a small truck repair service that has struggled to maintain appropriate BMPs (CB263 from an onsite catch basin and CB108 from a right-of-way catch basin adjacent to the site). SPU has inspected this business twice in the past 5 years and the owner has been cooperative in making the necessary improvements. The other samples (CB116, CB280, and CB282) were collected at the former recycling facility described above. Mercury (2.109 – 4.34 mg/kg) was significantly lower than in samples collected prior to site cleanup (10.5-48 mg/kg) but continued to exceed the CSL screening level. PCBs (349 J - 560 J ug/kg dw) were also lower than the last sample collected in 2010 (902 ug/kg dw). Phthalates, particularly bis(2-ethylhexyl)phthalate continued to exceed SMS screening levels.

Table C-34: Storm drain solids results for samples collected from the 2nd Ave S SD (2014-2019).

	SCO LAET	CSL 2LAET	CB108 05/14/15	CB116 08/25/17	CB263 05/14/15	CB280 08/25/17	CB282 08/25/17
Arsenic	57	93	7 U	21.8	6.7 J	29.2	25.1
Copper	390	390	218	375	158	426	822
Lead	450	530	35	348	33	321	386
Mercury	0.41	0.59	0.03 U	2.109	0.1	4.34	2.199
Zinc	410	960	216	1,630	302	862	966
TPH-oil	2,000[a]	2,000[a]	6,500	2,500[b]	6,600	5,270	3,610
LPAH	5,200	5,200	110	933 J	3,942 J	1,577 J	2,077 J
HPAH	12,000	17,000	761 J	3,020 J	7,748 J	3,327	3,834 J
cPAH	1,000[b]	1,000[b]	92 J	378 J	732 J	429	452 J
PCBs	130	1,000	97	560 J	16 J	470 J	349 J
BEHP	1,300	1,900	4,400	8,390	6,600	14,700	12,300
Butylbenzyl phthalate	63	900	59 U	674	580	193	776
Dimethyl phthalate	71	160	59 U	274 J	110 U	109	296 U

Exceeds SCO/LAET

Exceeds CSL/2LAET

N = number of samples BEHP = bis(2-ethylhexyl)phthalate PCBs = polychlorinated biphenyls

PAH = polycyclic aromatic hydrocarbons, TPH = total petroleum hydrocarbons

Units: mg/kg for metals and TPH-oil, ug/kg dw for organic compounds, ug TEQ/kg for cPAH

a. MTCA Method A soil cleanup level for unrestricted use.
b. Sample prepared using silica acid cleanup prior to analysis.
c. Sediment remedial action level.

Two near end-of-pipe inline solids samples were collected at MH241 in the 2nd Ave S SD in 2011 and 2012. Zinc and bis(2-ethylhexyl)phthalate were the only chemicals that exceeded the CSL/2LAET screening levelz; PCBs and butyl benzyl phthalate exceeded the LAET screening levels in both samples. s

Over 20 surface sediment samples have been collected in the waterway within 200 feet of the 2nd Ave S outfall. The most recent samples were collected in 2014 by Industrial Container Services (Windward 2018). Many of these and previous samples exceeded the SCO for multiple chemicals including metals (chromium, copper, mercury, lead and zinc), PCBs, PAHs, and other semi-volatile organic chemicals (e.g., pentachlorophenol, phenol, 2,4-dimethylphenol, 1,2-dichlorobenzene, 1,2,4-trichlorobenzene, and 1,4-dichlorobenzene). The concentrations of chemicals in waterway sediment were generally higher than the concentrations found in the samples collected from the City's storm drain indicating that the City MS4 is not a major source of the contamination found in waterway sediment.

Over the next 5 years, SPU intends to conduct the following activities in the 2nd Ave S SD drainage basin:

- Continue to monitor locations within the City MS4. However, given that a large portion of this drainage system is privately owned, additional sampling outside the City MS4 is needed to characterize contaminant contributions from this drainage system.
- Start collecting annual grab samples at MH241 and evaluate whether installing a sediment trap at this location would improve sample representativeness.

3.13. 7th Ave S SD

The 7th Ave S SD serves an area of about 238 acres (Map 24). Land use in the basin is a mix of industrial (34.2 percent), residential (18.7 percent), open/vacant/park (16.7 percent), commercial (2.9 percent), and right-of-way (27.6 percent). The basin can be generally divided into three sub-basins. The upper basin above SR509 covers about 37.4 acres and is occupied by the City's Fire Training Facility, a church, an apartment building, and several undeveloped parcels. The middle basin (126.3 acres) contains a combination of commercial and residential properties. The lower basin (66.1 acres) is very industrialized with numerous small and medium-sized light to heavy industrial businesses.

The 54-inch and 72-inch mainlines that convey stormwater to the waterway were constructed in 1988-1992. King County constructed the 72-inch line on 7th Ave S as part of the Renton Effluent Transfer System that conveys wastewater from the treatment plant in Renton to Elliott Bay. SPU constructed the 54-inch line on 5th Ave S. Maintenance holes on the 54-inch line are equipped with weirs to trap sediment. The 7th Ave S system is equipped with a tide gate, because the lower approximately 3,000 feet of this system is tidally influenced. SPU installed a new inline check valve in 2017 after the external duck bill-style check valve failed for the second time.

SPU jetted and cleaned the 7th Ave S SD drainage system in 2013. Prior to cleaning, SPU conducted extensive sampling in this drainage system. A total of 58 samples (1 private onsite catch basin, 13 right-of-way catch basins, 24 inline grabs, and 12 sediment traps) were collected through 2013 (Table C-35). As shown in the box plots in Appendix B, chemical concentrations in most samples from 7th Ave S SD were comparable to the levels found in other storm drains sampled in the LDW.

Table C-35: Summary of chemicals exceeding SMS screening levels in samples collected from the 7th Ave S SD storm drain system before cleaning.

	SCO LAET	CSL 2LAET	N[a]	Min	Max	Mean	Median	Percent of samples >SCO LAET screening level	Percent of samples >CSL 2LAET screening level
Arsenic	57	93	56	<6	55	17	19	0	0
Copper	390	390	56	8.9	2,880	200	138.5	7	7
Lead	450	530	56	3	3,690	190	116	7	5
Mercury	0.41	0.59	56	<0.02	1.08	0.16	0.18	5	2
Zinc	410	960	56	50	4,140	660	561	68	9
TPH-oil	2,000[b]	2,000[b]	54	<12	46,000	3,400	2,350	54	54
LPAH	5,200	5,200	55	<18	80,840	2,600	340	4	4
HPAH	12,000	17,000	55	<19	193,000	9,600	3,468	11	4
cPAH	1,000[c]	1,000[c]	55	<32	25,840	1,100	417	16	16
PCBs	130	1,000	56	<17	3,190	300	137	52	5
BEHP	1,300	1,900	55	<19	1,400,000	30,000	2,700	69	58
Butyl benzyl phthalate	63	900	55	<18	3,400	320	230	84	5
Dimethyl phthalate	71	160	55	<18	650	100	130	51	22

N = number of samples BEHP = bis(2-ethylhexyl)phthalate PCBs = polychlorinated biphenyls
PAH = polycyclic aromatic hydrocarbons, TPH = total petroleum hydrocarbons
Units: mg/kg for metals and TPH-oil, ug/kg dw for organic compounds, ug TEQ/kg for cPAH

a. Includes all samples collected in the MS4 that have not been affected by cleaning operations (i.e., data flagged as "never been cleaned" or "post cleaning"). Does not include ODS (outside the drainage system) samples, which include surface dirt, soil, or other materials (e.g., caulk, paint)
b. MTCA Method A soil cleanup level for unrestricted use.
c. Sediment remedial action level.

Samples collected April 2005 through April 2013.

None of the samples exceeded the screening level for arsenic and only a few samples (4-6 percent) exceeded the SCO screening levels for copper, lead, and mercury. Other chemicals that exceeded the CSL/2LAET screening levels included LPAH and HPAH (4 percent of samples), PCBs (5 percent of samples), and phthalates (5-60 percent of samples. SPU identified and controlled a source of metals and HPAH and another source of PCBs during the previous reporting period (SPU 2015).

SPU cleaned the 7th Ave S drainage system in 2013. Since cleaning, SPU has collected 36 storm drain solids samples from the system. Results are summarized in Table C-36. Sampling locations are shown on Map 74. Chemical concentrations were similar to levels measured in other storm drains in the LDW. Arsenic concentrations remained below the SMS screening levels. Concentrations of lead, mercury, HPAH, and LPAH have declined since cleaning. Except for HPAH, none of the post-cleaning samples exceeded the SCO/LAET screening levels. HPAH concentrations exceeded the LAET in one right-of-way catch sample collected on S Riverside Dr at S Holden St (16,170 ug/kg dw in RCB64). S Riverside Dr is a heavily used industrial street, but samples collected from three nearby right-of-way catch basins (4,710 – 8,570 ug/kg dw HPAH) were all well below the LAET.

Table C-36: Summary of chemicals exceeding SMS screening levels in samples collected from the 7th Ave S SD storm drain system after cleaning.

	SCO LAET	CSL 2LAET	N[a]	Min	Max	Mean	Median	Percent of samples >SCO LAET screening level	Percent of samples >CSL 2LAET screening level
Arsenic	57	93	36	2.985	30	14	10	0	0
Copper	390	390	36	9.18	635	110	100.8	3	3
Lead	450	530	36	<6	225	59	45.35	0	0
Mercury	0.41	0.59	36	<0.022	0.26	0.09	0.06	0	0
Zinc	410	960	36	52.1	1,670	415	319	42	6
TPH-oil	2,000[b]	2,000[b]	35	16	9,900	2,500	2,080	49	49
LPAH	5,200	5,200	35	<19	3,700	460	270	0	0
HPAH	12,000	17,000	35	<38	16,170	2,900	1,696	3	0
cPAH	1,000[c]	1,000[c]	35	<19.2	1,828	340	236	9	9
PCBs	130	1,000	40	<9.3	1,454	220	117	48	3
BEHP	1,300	1,900	36	<46	30,000	4,900	3,630	61	58
Butyl benzyl phthalate	63	900	36	<19	980	180	110	58	3

	SCO LAET	CSL 2LAET	N[a]	Min	Max	Mean	Median	Percent of samples >SCO LAET screening level	Percent of samples >CSL 2LAET screening level
Dimethyl phthalate[c]	71	160	36	<18	290	76	98	33	11

N = number of samples BEHP = bis(2-ethylhexyl)phthalate PCBs = polychlorinated biphenyls
PAH = polycyclic aromatic hydrocarbons, TPH = total petroleum hydrocarbons
Units: mg/kg for metals and TPH-oil, ug/kg dw for organic compounds, ug TEQ/kg for cPAH.
Samples collected November 2010 through April 2019

a. Includes all samples collected in the MS4 that have not been affected by cleaning operations (i.e., data flagged as "never been cleaned" or "post cleaning"). Does not include ODS (outside the drainage system) samples, which include surface dirt, soil, or other materials (e.g., caulk, paint)
b. MTCA Method A soil cleanup level for unrestricted use.
c. Sediment remedial action level

Butyl benzyl phthalate and dimethyl phthalate concentrations also declined after cleaning; however, samples continued to exceed both the LAET (33 and 58 percent, respectively) and the 2LAET (3 and 11 percent, respectively.

Zinc, bis(2-ethylhexyl)phthalate, and PCB concentrations remained about the same after cleaning. Zinc (1,670 mg/kg in the 2016 trap sample at 7th-ST1 and 1,460 mg/kg at RCB61)and PCBs (1,454 ug/kg dw in onsite catch basin CB154), exceeded the 2LAET screening levels in only two and one samples, respectively, after cleaning but 40-50 percent of the post-cleaning samples exceeded the LAET. Bis(2-ethylhexyl)phthalate continued to exceed the 2LAET screening level in about 60 percent of the samples.

As shown in Figure C-3, although HPAH and PCBs in the near end-of-pipe sediment trap samples (7th-ST1) were initially much lower after cleaning, both have shown a steady increase in the years following cleaning and are approaching the pre-cleaning levels.

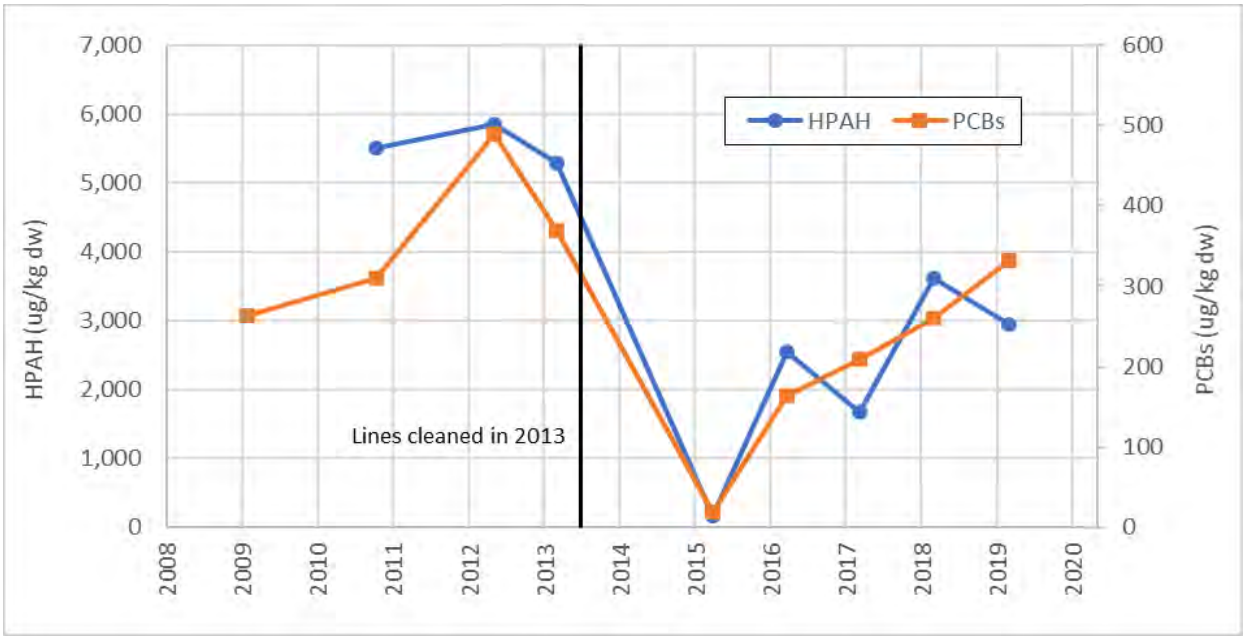


Figure C-3: HPAH and PCBs in 7th-ST1 sediment trap before and after line cleaning.

Surface sediment samples have been collected at six stations located within 70-185 feet of the 7th Ave S SD. SCO exceedances were reported at five of the sites. Results are summarized in Table C-37. BBP and BEHP exceeded the SCO at the two closest stations within 50-70 feet of the outfall, but PAHs were elevated at the farther stations (95-185 feet offshore of the outfall).

Fluoranthene is the only PAH that exceeded the SCO in the stations within 100 feet of the outfall, but only at the 70-foot and not at the 50-foot station. Fluoranthene exceeded the LAET in only 2 of the 22 near end-of-pipe samples collected in the 7th Ave S SD since 2005 and none exceeded the 2LAET. In addition, only 6 of the nearly 100 samples collected from this drain exceeded the 2LAET for fluoranthene. This information suggests that the 7th Ave S SD is not the source of fluoranthene in waterway sediment.

PCBs exceeded the SCO in the 50- (196 ug/kg dw) and 95-foot samples (860 ug/kg dw), but not in the 70-foot sample. Only one of the 22 near end-of-pipe samples (2,400 at 7th-ST-091008) collected since 2005 and none of the samples collected since the system was cleaned in 2013 exceeded the 2LAET screening level for PCBs. However, 16 of the 22 near end-of-pipe samples (164 – 710 ug/kg dw PCBs) exceeded the LAET screening level.

With the exception of BEHP, of the nearly 100 samples collected in the 7th Ave S SD since 2005, only the following 9 locations exceeded the 2LAET or RAL for one or more of the chemicals found above the SCO in the offshore sediment samples:

- RCB139: PCBs, butyl benzyl phthalate
- RCB198: PCBs, cPAH
- RCB227: cPAH, butyl benzyl phthalate
- RCB291: PAH, cPAH, butyl benzyl phthalate
- RCB350: PAH
- CB154: PCBs
- CB262: Butyl benzyl phthalate
- 7th-ST1: PCBs, cPAH[18]
- MH22: cPAH

Table C-37: Chemicals exceeding SMS in surface sediment samples collected within 200 feet of the 7th Ave S SD.

Station	Distance from outfall	Direction from outfall	Chemicals ≥SCO and ≤CSL	Chemicals >CSL
SS2112-A	50	Opposite	BBP, BEHP, hexachlorobenzene, PCBs	Mercury, benzyl alcohol
LDW-SS335	70	Opposite	BBP, fluoranthene	BEHP
LDW-SS530	95	Downstream	2-methylnaphthalene, benzo(a)anthracene, benzo(a)pyrene, chrysene, dibenzofuran, fluoranthene, fluorene, phenanthrene, total benzofluoranthenes, HPAH, LPAH, PCBs	Acenaphthene, dibenzo(a,h)anthracene benzo(g,h,i)perylene, indeno(1,2,3-cd)pyrene,

[18] PCBs exceeded 2LAET in 1 of 12 inline grab samples collected at 7th- ST1. cPAHs exceeded the 2LAET in 2 of 12 inline grab samples collected at 7th- ST1.

Station	Distance from outfall	Direction from outfall	Chemicals ≥SCO and ≤CSL	Chemicals >CSL
TRI-095T	156	Upstream	Benzyl alcohol	2,4-dimethylphenol
LDW-SS95	185	Upstream	Anthracene, benzo(a)anthracene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, HPAH	Acenaphthene, dibenzofuran, fluorene, phenanthrene, LPAH

Although zinc was above the SCO screening level in 15 of 36 storm drain solids samples including 4 of the 10 near end-of-pipe samples, it was below the SCO in all six surface sediment samples collected offshore of the outfall.

Over the next 5 years, SPU intends to conduct the following activities in the 7th Ave S SD drainage basin:

- Continue operating and maintaining the three sediment traps
- Continue source tracing as needed
- Continue inspecting businesses.

4. LOWER REACH

4.1. S Nevada St SD

The Nevada St SD serves an area of approximately 26 acres, most of which is occupied by a large warehouse and associated parking on the Port of Seattle's Terminal 106 (Map 25). The west end of S Nevada St was vacated to the Port in 1970. Catch basins located on the east end of S Nevada St may collect runoff from a short section of E Marginal Wy S, but most of the runoff at this outfall is from S Nevada St, as well as roof and parking areas on adjacent Port property. Source tracing has been difficult due to the lack of accumulation of storm drain solids this system. Five samples have been collected from this drainage system since it was last cleaned in 2015. Results are summarized in Table C-38. Sample locations are shown on Map 75. Results for metals were like the previous sample collected prior to cleaning with arsenic, copper, lead, mercury concentrations below the SCO screening level. Zinc exceeded the SCO screening level in all samples and the CSL screening level in 2 samples. However, elevated levels of LPAH (6,187 – 95,700 ug/kg dw) and HPAH (24,300 – 425,900 ug/kg dw) were measured in three catch basin samples collected in 2019. All three catch basins are located across from the warehouse currently leased by Seattle Tunnel Partners (north side of S Nevada St) and B & G Machine, Inc. (south side of S Nevada St). Illegal dumping of concrete waste has also been observed on several occasions in this general area. SPU has taken measures to track the illegal dumping problem but has not yet determined the source.

Table C-38: Summary of chemicals exceeding SMS screening levels in S Nevada St SD.

	SCO LAET	CSL 2LAET	RCB312 05/25/18	RCB89 06/06/19	MH56 06/06/19	RCB86 06/19/19	RCB88 06/19/19
Arsenic	57	93	13.8	23	10.3	8.8 U	11.4
Copper	390	390	110	160	104	101	221
Lead	450	530	116 J	225	32.6	--	67.9
Mercury	0.41	0.59	0.0605	0.348	0.29	0.0919	0.0716
Zinc	410	960	1,010	1,270	478	590	794

	SCO LAET	CSL 2LAET	RCB312 05/25/18	RCB89 06/06/19	MH56 06/06/19	RCB86 06/19/19	RCB88 06/19/19
TPH-oil	2,000[a]	2,000[a]	3,740	5,600	1,130	3,320	7,090
LPAH	5,200	5,200	824	9,833	194.2 J	95,672	6,187 J
HPAH	12,000	17,000	4,033	47,054 J	804	425,890	24,253
cPAH	1,000[b]	1,000[b]	378	4,700 J	82 J	42,000	2,700
PCBs	130	1,000	627	394	19.5 U	502 J	82.4 J
BEHP	1,300	1,900	10,300	27,800	1,110	8,990	18,800
Butylbenzyl phthalate	63	900	733	2,200	19.9 U	3.080	99.6 U
Dimethyl phthalate	71	160	126	293 U	19.9 U	499 U	99.6 U

Exceeds SCO/LAET

Exceeds CSL/2LAET

N = number of samples BEHP = bis(2-ethylhexyl)phthalate PCBs = polychlorinated biphenyls

PAH = polycyclic aromatic hydrocarbons, TPH = total petroleum hydrocarbons

Units: mg/kg for metals and TPH-oil, ug/kg dw for organic compounds, ug TEQ/kg for cPAH.

Samples collected May 2018 through June 2019.

a. Sediment remedial action level

b. Sediment remedial action level.

One waterway sediment sample has been collected approximately 60 feet offshore of the outfall. No chemicals exceeded the SCO in this sample. This outfall is not considered a significant source of chemicals of concern to the LDW. Over the next 5 years, SPU intends to conduct the following activities in the S Nevada St SD basin:

- Evaluate the potential to install a sediment trap near the downstream end of the system to improve long term monitoring
- Continue to investigate illegal discharges of concrete slurry in this system.
- Track sources of PAHs found in the 2019 samples
- Continue to inspect businesses.

4.2. Diagonal Ave S CSO/SD

The Diagonal Ave S CSO/SD drainage basin, which covers an area of about 2,666 acres, is the largest drainage basin in the City (Maps 26 and 27). Land use in the basin is a mixture of residential (23 percent), commercial (9 percent), industrial (19 percent), vacant/park (10 percent), and right-of-way (39 percent). The upper portion of the basin east of I-5 is mostly residential with commercial businesses clustered along the major transportation corridors (Rainier Ave S, Beacon Ave S, and S Jackson St). The lower portion of the basin west of I-5 is mostly industrial. The main trunkline west of I-5 is also tidally influenced. Given the size of the pipes (108 - 144 inches), these pipes are backwatered throughout most of the tidal cycle. The outfall at elevation approximately -5 ft NAVD88 (-2.5 ft MLLW) is exposed only during a minus tide.

SPU has conducted extensive source tracing in the Diagonal Ave S drainage basin, collecting nearly 400 samples over the past 17 years. Results for the previous reporting period (2003-2014) are summarized in Table C-39 and results for the current reporting period (2014-2019) are summarized in Table C-40. Sample locations for the current reporting period are shown on Maps 76 and 77. Overall, concentrations in the Diagonal Ave S CSO/SD drainage system are comparable to other storm drains in the LDW (see box plots in Appendix B).

Table C-39: Summary of chemicals exceeding SMS screening levels in the Diagonal Ave S CSO/SD drainage system during the previous reporting period (2003 – 2014).

	SCO LAET	CSL 2LAET	N[a]	Min	Max	Mean	Median	Percent of samples >SCO LAET screening level	Percent of samples >CSL 2LAET screening level
Arsenic	57	93	274	<4.6	180	9	9.45	1	1
Copper	390	390	274	13.2	6,250	210	108.5	7	7
Lead	450	530	274	<12	5,830	170	80	4	3
Mercury	0.41	0.59	274	<0.02	11.5	0.21	0.08	6	4
Zinc	410	960	274	44	3,170	530	391.5	46	12
TPH-oil	2,000[b]	2,000[b]	264	40	250,000	5,900	2,100	51	51
LPAH	5,200	5,200	271	<19	44,860	1,500	498	7	7
HPAH	12,000	17,000	271	<19	256,800	7,500	2,400	14	10
cPAH	1,000[c]	1,000[c]	271	<8	42,980	1,022	342	23	23
PCBs	130	1,000	277	<17	13,300	420	86	40	5
BEHP	1,300	1,900	266	51	1,400,000	18,000	4,950	74	67
Butylbenzyl phthalate	63	900	266	<19	160,000	2,900	280	79	22
Dimethyl phthalate	71	160	266	<18	1,800	170	120	47	27

N = number of samples BEHP = bis(2-ethylhexyl)phthalate PCBs = polychlorinated biphenyls
PAH = polycyclic aromatic hydrocarbons, TPH = total petroleum hydrocarbons
Units: mg/kg for metals and TPH-oil, ug/kg dw for organic compounds.
Samples collected August 2003 through June 2014.

a. Includes all samples collected in the MS4 that have not been affected by cleaning operations (i.e., data flagged as "never been cleaned" or "post cleaning"). Does not include ODS (outside the drainage system) samples, which include surface dirt, soil, or other materials (e.g., caulk, paint)
b. MTCA Method A soil cleanup level for unrestricted use
c. Sediment remedial action level.

Table C-40 : Summary of chemicals exceeding SMS screening levels in the Diagonal Ave S CSO/SD during current reporting period (2014-2019).

	SCO LAET	CSL 2LAET	N[a]	Min	Max	Mean	Median	Percent of samples >SCO LAET screening level	Percent of samples >CSL 2LAET screening level
Arsenic	57	93	118	<5.4	452	17	10	3	3
Copper	390	390	118	31.6	10,900	340	135	8	8
Lead	450	530	118	11.3	40,500 [c]	560	84.4	6	4
Mercury	0.41	0.59	118	<0.021	4.72	0.22	0.1	11	7
Zinc	410	960	118	119	10,100	980	613	71	29
TPH-oil	2,000[b]	2,000[b]	118	174	47,900	4,900	2,710	69	69

	SCO LAET	CSL 2LAET	N[a]	Min	Max	Mean	Median	Percent of samples >SCO LAET screening level	Percent of samples >CSL 2LAET screening level
LPAH	5,200	5,200	116	<14.8	40,680	2,100	704	8	8
HPAH	12,000	17,000	116	64	134,780	8,500	3,868	12	9
cPAH	1,000[c]	1,000[c]	116	15	13,416	930	392	17	17
PCBs	130	1,000	123	<19.6	46,060	1,400	158	59	16
BEHP	1,300	1,900	117	236	170,000	16,000	7,475	85	82
Butylbenzyl phthalate	63	900	117	<8	48,000	1,300	304	80	15
Dimethyl phthalate	71	160	117	<6.4	3,460	180	120	58	19

N = number of samples BEHP = bis(2-ethylhexyl)phthalate PCBs = polychlorinated biphenyls
PAH = polycyclic aromatic hydrocarbons, TPH = total petroleum hydrocarbons
Units: mg/kg for metals and TPH-oil, ug/kg dw for organic compounds.
Samples collected July 2014 through June 2019.

a. Includes all samples collected in the MS4 that have not been affected by cleaning operations (i.e., data flagged as "never been cleaned" or "post cleaning"). Does not include ODS (outside the drainage system) samples, which include surface dirt, soil, or other materials (e.g., caulk, paint)
b. MTCA Method A soil cleanup level for unrestricted use
c. Sediment remedial action level.
d. Inline grab sample collected in 2019 from discrete deposit beneath a lateral entering at ST2 from the adjacent property. Lead in the three sediment trap samples collected at this location were below the SCO.

Exceedances of SMS screening levels for arsenic, copper, lead, and mercury were infrequent (<10 percent) during both the previous and current reporting periods. Elevated levels of lead and mercury have occurred in a few inline samples in three main areas:

- Along S Snoqualmie St and S Dakota St (see following section for discussion)
- At the City Light South Yard (see following section for discussion)
- Multiple locations in the downstream mainlines. Elevated levels of lead (2,760 mg/kg) were found in an inline sample (MH260) east of I-5 on a drain line that serves a short section of Beacon Ave and SPU's Beacon Reservoir site. SPU plans to conduct further source tracing in this area.

The only other location where lead and mercury have been found were in samples collected from private onsite catch basins at industrial or recycling sites:

- Battery store: Elevated lead at CB7 and CB83 (805 – 5,830 mg/kg) and elevated mercury at CB83 (2.05 mg/kg). SPU inspected this facility multiple times in 2003 – 2006 and found a number of problems related to spill control/containment, illicit discharges, storage of waste materials, and general housekeeping practices. The company implemented improvements as required by City inspectors. Other than catch basins needing cleaning, no problems were identified during the most recent inspection in 2016. This catch basin was re-sampled in 2016 and concentrations of mercury (0.0.07 mg/kg), lead (981 mg/kg), TPH-oil (4,100 mg/kg), and LPAH (293 J ug/kg dw) had declined. However, lead continues to exceed the CSL screening level. This site is not currently permitted by Ecology.
- Donation center. Mercury (11.5 J mg/kg) exceeded the CSL in an onsite catch basin sample collected in 2014.

The Diagonal Ave S CSO/SD drainage system, like other drainage systems in the LDW, experienced more frequent exceedances of the SCO/CSL screening levels for zinc (71 and 29 percent, respectively during the current reporting period) compared to other metals. However, none of the samples collected offshore of the outfall since 2004 Diagonal/Duwamish early action site cleanup exceeded the SCO for zinc (King County 2008, 2010, Windward 2018).

PAHs continued to exceed CSL/2LAET infrequently (<10 percent of the samples) in the Diagonal Ave S CSO/SD system during the current reporting period. Over half of the exceedances to date occurred in private onsite catch basins. Typical sites where PAHs have been a problem include fast food restaurants, repair shops, maintenance yards, parking lots, and light manufacturing facilities. One site, the King County Sherriff's storage facility, exhibited extremely high levels of LPAH (140,100 – 173,200 ug/kg dw) and HPAH (1,296,000 – 1,555,000 ug/kg dw) during the previous reporting period due to the historic use of coal tar sealant in the storage yard, Concentrations declined significant.ly after the sealant material was removed and replaced with an asphalt-based material. Samples collected in 2019 contained 514 – 4,519 ug/kg dw LPAH and 4,808, 34,310 ug/kg dw HPAHs.

LPAH and HPAH exceedances were observed in right-of-way catch basins (4 samples), inline grab samples (2 samples), and sediment trap samples (8 samples). Samples collected from sediment trap ST6 at Bush Pl and Rainier Ave S frequently exceeded the screening levels in 8 of 10 samples collected between 2003 and 2009. This drain line serves a mixed commercial and residential basin in Seattle's Central District. None of the three other samples collected in this sub-basin exceeded the screening levels. SPU attempted to trace sources in this basin in 2019, but efforts were hampered due to lack of sediment accumulation.

PCBs also exceeded the 2LAET screening level infrequently during the current reporting period (16 percent of the samples); however ,LAET screening level exceedances were more frequent, occurring in 60 percent of the samples. Eleven of the 20 samples that exceeded the 2LAET screening level, were associated with known or suspected[19] PCB sources (e.g., in building materials such as paint or caulk or were collected as part of source tracing efforts to identify PCB sources) and 14 of the 20 samples were from private onsite catch basins. The other three samples that exceeded the 2LAET screening level for PCBs were inline grab or sediment trap samples:

- MH29 (10/11/17): 1,413 ug/kg dw
- MH33 (11/07/17): 9,730 ug/kg dw
- ST 1 (04/23/19): 1,508 J ug/kg dw

MH29 and MH 23 were collected in the vicinity of an old sanitary sewer flush tank that was occasionally to clean out the sanitary sewer line. SPU jetted and cleaned this area in 2018. ST1 is the farthest downstream sample in the Diagonal Ave S CSO/SD system. No other samples collected at ST1. Only one of the 22 other samples collected at this location exceeded the 2LAET screening level for PCBs (13,300 ug/kg dw in a grab sample collected on April 1, 2010).

While exceedances of LAET/2LAET screening levels have occurred at various locations in the Diagonal Ave S CSO/SD basin, except for phthalates, concentrations at the most downstream sediment trap (ST1 at Diagonal Ave S west of E Marginal Wy S) were relatively low. As shown in Figure C-4, lead concentrations at ST1 have consistently been below the SCO screening level (450 mg/kg). Mercury is more variable, but except for two peaks in 2015 and 2019, concentrations were below the SCO screening level (0.41 mg/kg).

HPAH, PCBs, and BEHP are plotted in Figure C-5. Since 2006, HPAH at ST1 have been below the LAET and 2 LAET screening levels. Except for 2019, PCBs, ranging from 85 to 870 ug/kg dw (320 ug/kg dw average) were consistently below the 2LAET screening level. A spike of 1,508 ug/kg dw was observed in 2019. This may be

[19] PCBs suspected based on detection dog alert and/or inspector observations of PCB-like odors.

associated with the PCB spill that the City found and cleaned up in 2019 (see Appendix D for details). Bis(2-ethylhexyl)phthalate exceeded the 2 LAET screening level in 90 percent of the trap samples collected at ST1. Phthalates are widespread in urban areas and will be difficult to control.

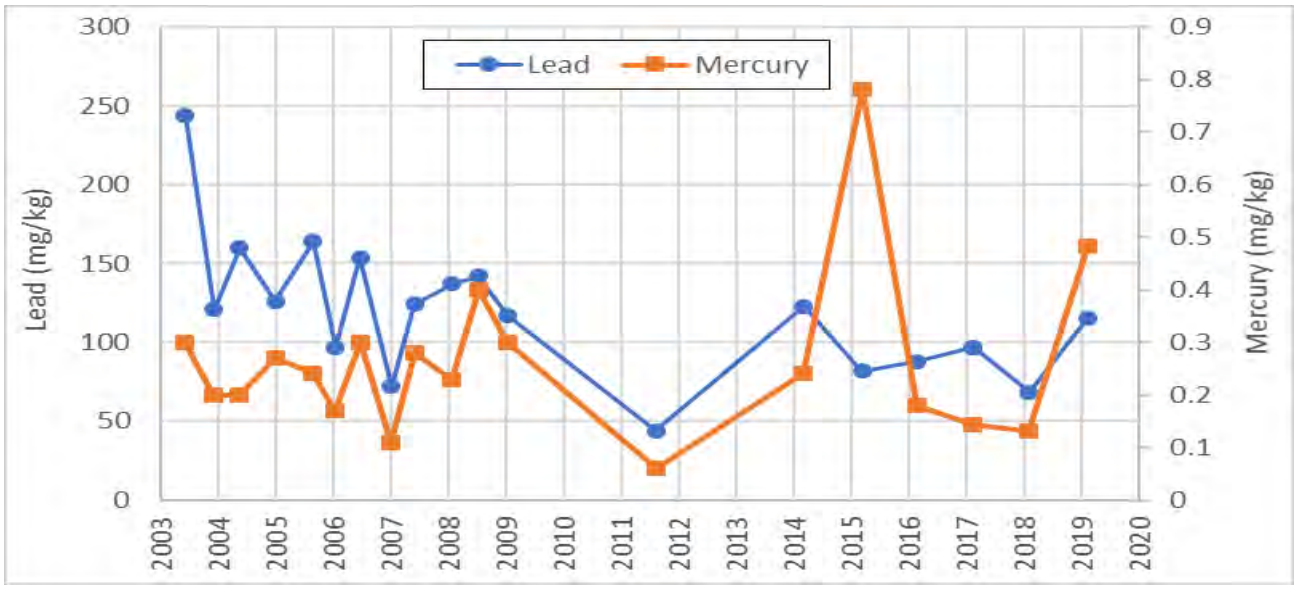


Figure C-4: Lead and mercury in ST1 trap samples (2003-2019).

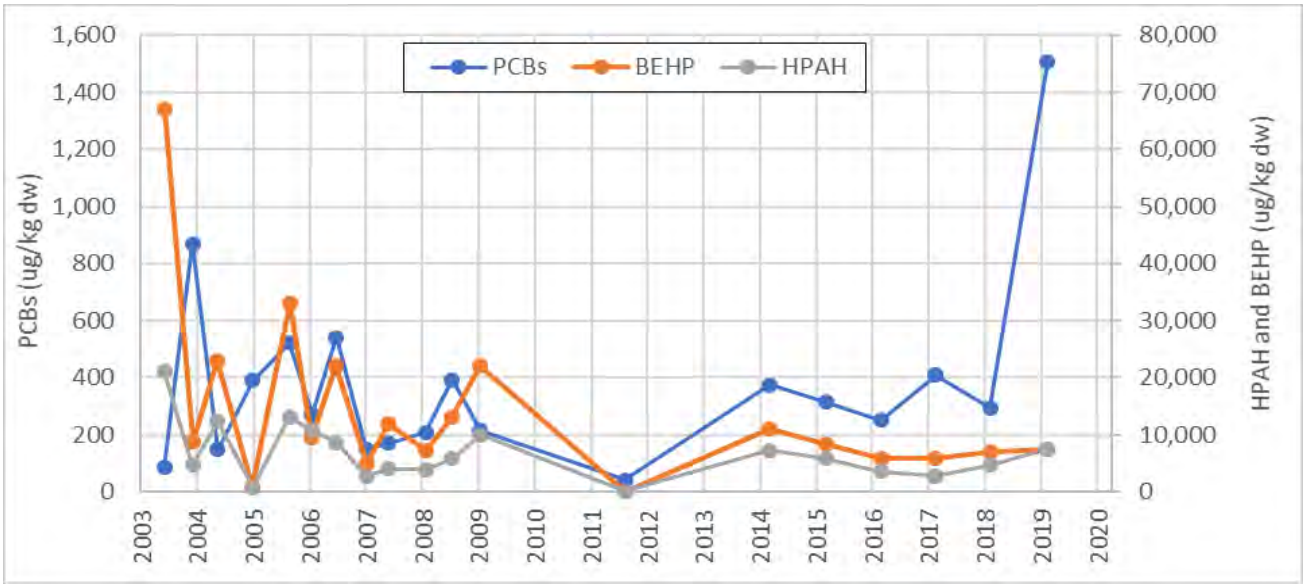
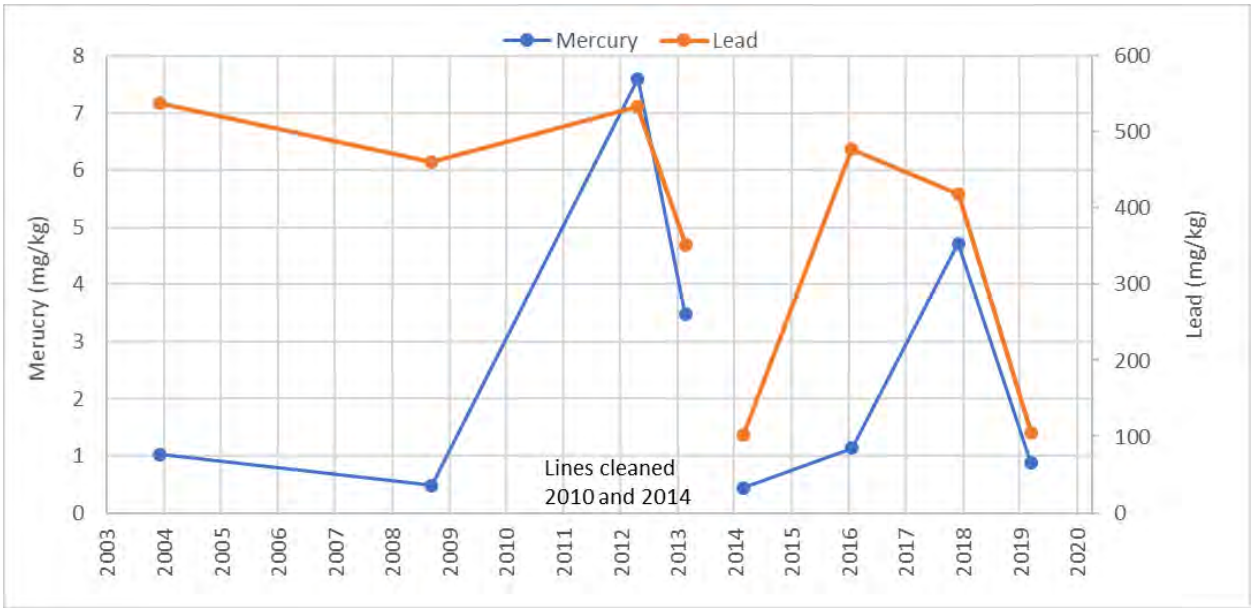


Figure C-5: PCBs, HPAH, and BEHP in ST1 trap samples (2004 - 2019).

4.2.1. S SNOQUALMIE ST SUB-BASIN

The S Snoqualmie St sub-basin is a 103-acre industrial area located between I-5 and the railroad corridor (Map 92). SPU continues to look for sources of mercury and PCBs in the vicinity of MH18 on S Snoqualmie St at 6th Ave S. As described in the previous SCIP, SPU jetted and cleaned the S Snoqualmie drainage lines in 2010 after source tracing failed to identify specific source(s) of the elevated levels of mercury found at MH18. Cleaning was performed to remove all historical contamination to facilitate source tracing for ongoing sources.

As shown in Figure C-6, mercury concentrations continued to exceed SCO screening level after cleaning. Given the industrial nature of this sub-basin, there are likely multiple sources of mercury.



*2014 partial cleaning of lines on 7th Ave S to MH18 by Western Waterproofing

Figure C-6: Mercury and lead in MH18 (2003-2019).

In addition, PCB concentrations increased after cleaning, indicating a potential new source of PCBs. PCBs increased at this location in 2013 and remained elevated in the 4 samples collected between 2014-2019. Results for PCBs and bis(2-ethylhexyl)phthalate are shown in Figure C-7. Both chemicals followed a similar pattern indicating that source(s) may be related. This maintenance hole is equipped with a 3-foot deep sump which serves to trap sediment. SPU has cleaned the MH twice since 2010 (2013 and 2019). During the previous reporting period, SPU completed an intensive inspection/sampling effort and identified two likely sources of PCBs (a masonry/waterproofing facility and an exterior paint source, see Appendix D for additional details). The masonry facility swept and later paved over areas where PCBs were suspected. The other site jetted and cleaned the onsite drainage system to remove paint residues. During this reporting period, SPU deployed the detection dog and installed two new sediment traps to aid in source tracing. The dog found several potential sources of PCBs in building materials (primarily caulk). Trap samples retrieved in 2019 found only low levels of PCBs in two of the three laterals connected to MH18 (265 and 284 ug/kg dw). The third was not sampled because a suitable location for trap installation was not identified.

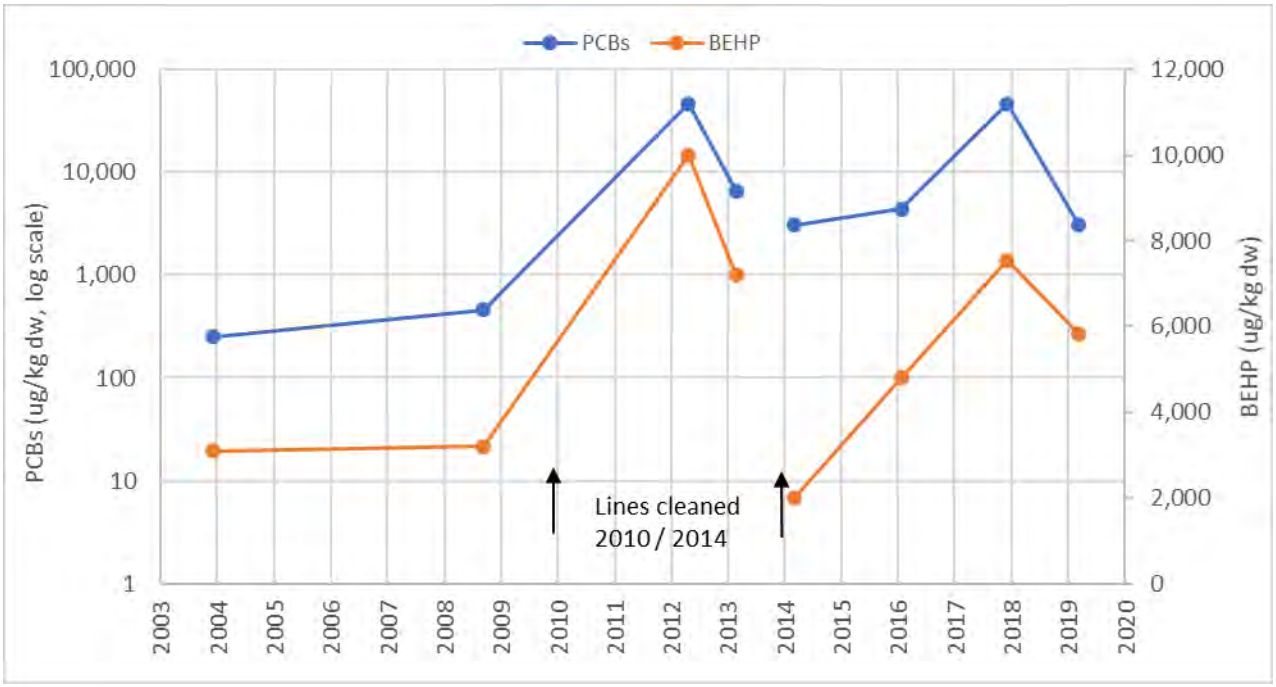


Figure C-7: PCBs and BEHP in MH18.

*2014 partial cleaning of lines on 7th Ave S to MH18 by Western Waterproofing

SAIC (2011) also collected 2 base flow and 3-4 stormwater samples at each of the 4 sampling locations in the S Snoqualmie St sub-basin (Map 92). Mercury was detected in only 3 of the 22 water samples. However, PCBs were detected at all 4 stations (Table C-41). The highest concentrations measured at Stations SQ1 and SQ2 were in base flow samples.

Table C-41: PCBs in water samples collected from S Snoqualmie St sub-basin.

	SQ1	SQ2	SQ3	SQ4
Baseflow				
# of samples	2	2	2	2
# of detects	1	2	2	0
Range	0.198	0.043 – 9.15	0.048 – 0.115	--
Stormwater				
# of samples	4	3	4	4
# of detects	2	2	4	3
Range	0.013 – 0.032	0.011 – 0.123	0.073 – 0.344	0.011 – 0.062

Units: ug/L
Reference: SAIC 2011.

PCBs were also detected in all three tidal water samples collected from the S Snoqualmie St sub-basins (0.014 – 0.025 ug/L).

4.2.2. S DAKOTA ST SUB-BASIN

The S Dakota St sub-basin includes a 145-acre residential area in the Beacon Hill neighborhood, approximately 63 acres in the I-5 corridor, and approximately 86 acres in the industrial area west of I-5 (Map 93). As shown in Table C-42, SPU found elevated levels of mercury and PCBs at a few locations in the basin over the past 15 years.

Mercury exceedances were found at a number of onsite catch basins, an inline grab from a maintenance hole on 6th Ave S in the lower industrial portion of this sub-basin (MH233), and an inline grab (MH252) in a maintenance hole on 15th Ave S in the upper, mostly residential basin. Elevated levels of PCBs were found in catch basins associated with buildings that had PCBs in the paint or caulk material.

Table C-42: Mercury and PCBs in samples collected from the Dakota sub-basin in the Diagonal Ave S CSO/SD.

Station ID	Date	Sample type	Mercury	PCBs
ST7[a]	2003-2019	Sediment trap	<0.05 – 1.28	74 - 457
MH233	05/27/09	Inline grab	1.34 J	340
CB336	04/22/19	Onsite catch basin	0.0482	1,430
CB121	05/23/08	Onsite catch basin	1.411	8,300
	08/12/10	Onsite catch basin	0.66	3,700
	09/23/16	Onsite catch basin	0.86	7,630
ODS27[b]	11/10/16	Soil	--	5,950
ODS54[c]	04/06/17	Paint chip	--	100,000
CB302	10/12/17	Onsite catch basin	0.0844	4,153
CB300	10/12/17	Onsite catch basin	0.784	164.8
MH252	08/01/12	Inline grab	0.69	29
CB341	06/12/19	Onsite catch basin	0.433	130.5 J
SCO/LAET			0.41	130
CSL/2LAET			0.59	1,000

Exceeds SCO/LAET

Exceeds CSL/2LAET

Units: mg/kg for metals and TPH-oil, ug/kg dw for organic compounds, ug TEQ/kg for cPAH
BEHP = bis(2-ethylhexyl)phthalate

a. One of 15 trap samples collected in 2006 exceeded the CSL. No other samples exceeded the SCO screening level for mercury.
b. Dirt sample scraped from base of building adjacent to CB121.
c. Paint chip sample collected from ground adjacent to CB302.

4.2.3. CITY LIGHT SOUTH YARD

The Seattle City Light South Yard is located on 4th Ave S south of S Spokane St. Most of the property drains to the combined sewer, but the western and southern portions of the property drain to the Diagonal Ave S CSO/SD drainage system. During the previous reporting period, SPU sampled catch basins on the combined sewer basin, which can overflow to the East Waterway during large storm events. During this reporting period, Ecology (Leidos 2015b) and SPU collected storm drain solids samples from areas of the South Yard that drain to the Diagonal Ave S CSO/SD drainage system. Results are provided in Table C-43.

Copper, lead, mercury, zinc, HPAH, PCBs, and phthalates exceeded the SMS screening levels at multiple locations. City Light performs the following routine maintenance at the South Service Center:

- Inspects onsite catch basins annually and cleans when the sump is 50 percent full.

- Inspects oil water separators each month and clean when ≥5 inches of sediment accumulate in the vault. OWS-D, located at the downstream end of the drain serving the western portion of the property, is cleaned annually or whenever the coalescing plates appear to be coated with sediment.
- Sweeps the entire yard area monthly and salvage areas twice a month

In addition, City Light has made the following improvements since 2015:

- Cleaned all catch basins in the salvage area where elevated levels of mercury were found.
- Installed incidental spill stations containing spill response equipment at 3 locations in areas draining to the Diagonal Ave S CSO/SD drainage system and one location served by the combined sewer system.
- Stored additional spill supplies and overpack drums at 2 locations in drainage and 2 locations in the combined sewer service area.
- Installed inserts in 14 catch basins in the vicinity of the salvage area loading dock and the PCB building. Inserts are reconditioned every year by power washing and are immersed in a salt brine solution to restore metal adsorption capacity.
- Installed new dumpsters with lids in the main yard area and in the area where pole butts are stored.
- Installed lids on storage bins for galvanized equipment, and bare copper and wire with damaged sheathing. Tarps are also available if needed for large quantities of damaged wire that cannot be stored in bins.
- Replaced coalescing plates and baffle in OWS-D.
- Jetted and cleaned approximately 150 feet of pipe between CB45 and CB49 on the drain line serving the western portion of the property.[20]

Work scheduled in 2020 includes:

- Awarded contracts to install canopies over the staged projects/galvanized equipment storage area and the spent/salvage wire area.
- Plan to install two additional canopies over the salvage dock and oil house to cover salvage bins and transformers. Purchasing and permitting are currently underway.
- Plan to install an outdoor covered cantilevered storage rack at the warehouse area to allow covered storage of galvanized equipment and treated wood. Purchasing and permitting are currently underway.

Table C-43: Storm drain solids sample results for the Seattle City Light South Service Center (2015-2019).

	SCO LAET	CSL 2LAET	CB24[a] 12/11/14	CB35[b] 12/11/14	OWS5[c] 12/11/14	CB343[d] 06/12/19	CB344[e] 06/12/19
Arsenic	57	93	10	14	14	14.8	14.1
Chromium	260	270	62	130	66	--	--
Copper	390	390	2,500	990	740	1,560	233
Lead	450	530	490	250	430	684	119
Mercury	0.41	0.59	0.18	0.20	1.1	1.55	0.13
Zinc	410	960	1,600	2,700	2,000	1,490	1,570
TPH-oil	2,000[f]	2,000[f]	8,900 J	5,800 J	15,000 J	20,300	7,470
LPAH	5,200	5,200	3,500 J	2,900 J	6,100 J	12,287	30,047
HPAH	12,000	17,000	20,000 J	16,000	36,000 J	62,755 J	111,230 J
cPAH	1,000[g]	1,000[g]	2,200 J	2,000	4,000 J	5,833	13,416

[20] Adjacent to decant station. Pipes where visible sediment had accumulated and were cleaned in 2019.

	SCO LAET	CSL 2LAET	CB24[a] 12/11/14	CB35[b] 12/11/14	OWS5[c] 12/11/14	CB343[d] 06/12/19	CB344[e] 06/12/19
Total PCB Aroclors	130	1,000	570 J	520 J	3,500	3,378	747 J
Total PCB congeners	130	1,000	1,320 J	762 J	7,500 J	--	--
BEHP	1,300	1,900	64,000	87,000	120,000	74,900	85,400
Butylbenzyl phthalate	63	900	4,200 U	6,000	6,100 J	964	99.8 U
Dimethyl phthalate	71	160	1,200 J	180 J	420 J	276	99.8 U

Exceeds SCO/LAET

Exceeds CSL/2LAET

N = number of samples BEHP = bis(2-ethylhexyl)phthalate PCBs = polychlorinated biphenyls

PAH = polycyclic aromatic hydrocarbons, TPH = total petroleum hydrocarbons

Units: mg/kg for metals and TPH-oil, ug/kg dw for organic compounds, ug TEQ/kg for cPAH

a. Catch basin adjacent to the salvage/scrap storage yard
b. Catch basin adjacent to the PCB building.
c. Oil water separator D at the downstream end of the storm drain serving the western portion of the property.
d. Catch basin at loading dock for material salvage/scrap operations
e. Catch basin along southern fence line in south storage yard.
f. MTCA Method A soil cleanup level for unrestricted use.
g. Sediment remedial action level.

4.2.4. POST-CLEANUP SAMPLES OFFSHORE OF THE DIAGONAL AVE S CSO/SD OUTFALL

Results from samples collected from 2006 - 2012 following completion of the 2005 Duwamish/Diagonal Early Action Area cleanup show that BEHP and butyl benzyl phthalate concentrations have increased and often exceeded the SCO at the station closest to the outfall (Station DUD_1A located 100 feet offshore of the outfall) (Anchor 2007, King County and Anchor 2008, King County 2010, 2015b). Bis(2-ethylhexyl)phthalate exceeded the SCO in six and butyl benzyl phthalate exceeded in five of the nine samples collected following cleanup. However, neither chemical exceeded the SCO in the most recent, 2012 sample. Dimethyl phthalate exceeded the SCO in only two samples but none after 2009.

Bis(2-ethylhexyl)phthalate and butyl benzyl phthalate also increased in the first few years following cleanup at Stations DUD_2A and DUD_3A, located 170 and 200 feet upstream of the outfall, respectively, but then declined and were below SCO after 2008 at DUD_2A and after 2006 at DUD_3A. Dimethyl phthalate did not exceed the SCO in any samples collected at DUD_2A and DUD_3A.

Time series charts for BEHP and butyl benzyl phthalate, presented in Figure C-8 and Figure C-9, show that phthalate concentrations appear to have reached equilibrium at about 500-1,000 ug/kg dw BEHP and 60-110 ug/kg dw butyl benzyl phthalate.

Time series charts for PCBs and total organic carbon are presented in Figure C-10 and Figure C-11. Peaks in PCBs appear to coincide with peaks in total organic carbon content of the samples. PCB concentrations declined to between 100 and 150 ug/kg dw after cleanup. However, concentrations at DUD_1A and DUD-2A increased to 132 and 202 ug/kg dw, respectively in 2011; DUD_1A exceeded the SCO, but DUD_2A did not. Concentrations at both locations declined in 2012 (both were below the SCO). King County (2015b) concluded that "PCB concentrations in Cap Areas A and B and the enhanced natural recovery area appear to be stable and within the

range of anthropogenic background."[21] PCB patterns at DUD_1A are similar to the trends observed in phthalates, which may be associated with fluctuating total organic carbon content of the samples (Figure C-11). Phthalates, PCBs and TOC at DUD_1A all exhibit a similar spike in 2011 followed by declining levels in 2012.

Table C-44: Chemicals exceeding SCO offshore of Diagonal Ave CSO/SD following cleanup.

Sample Station	DUD_1A	DUD_2A	DUD_3A
Distance from outfall (ft)	100	170	225
Direction	Opposite	Upstream	Upstream
2005	BEHP[b], DMP, benzyl alcohol[b], PCBs[a], fluoranthene	BEHP, BBP	BEHP, BBP
2006	BEHP[b], BBP, PCBs, benzoic acid	BEHP, BBP	--
2007	BEHP[b], BBP	BEHP	--
2008	BMP, DMP[b], 1,4-dichlorobenzene	BEHP, PCBs[a]	BEHP
2009	BEHP	--	--
2010	BEHP[b], BBP	Phenol[b]	Phenol
2011	Chrysene, fluoranthene[b], phenanthrene[b], pyrene[b], LPAH[b], HPAH[b], BEHP[b], BBP, PCBs, 2,4-dimethylphenol[b]	--	--
2012	BEHP[b], BBP[b]	Phenol	Phenol

Reference: Anchor (2007), King County and Anchor (2008, 2010), King County (2015b), Windward (2018).
BEHP = bis(2-ethylhexyl)phthalate, BBP = butyl benzyl phthalate, DMP = dimethyl phthalate

a. PCB results could not be OC normalized because of high TOC in sample. Dry weight concentration exceeded the LAET for PCBs.
b. Exceeded SCO and CSL.

[21] Cap area A is immediately offshore of the Diagonal Ave S CSO/SD outfall. Cap area B is located immediately offshore of the former Diagonal Avenue treatment plan outfall, and the ENR is offshore of Cap area B. Anthropogenic background concentrations for PCBs (40-90 ug/kg dw) were evaluated in the LDW Feasibility Study (AECOM 2012).

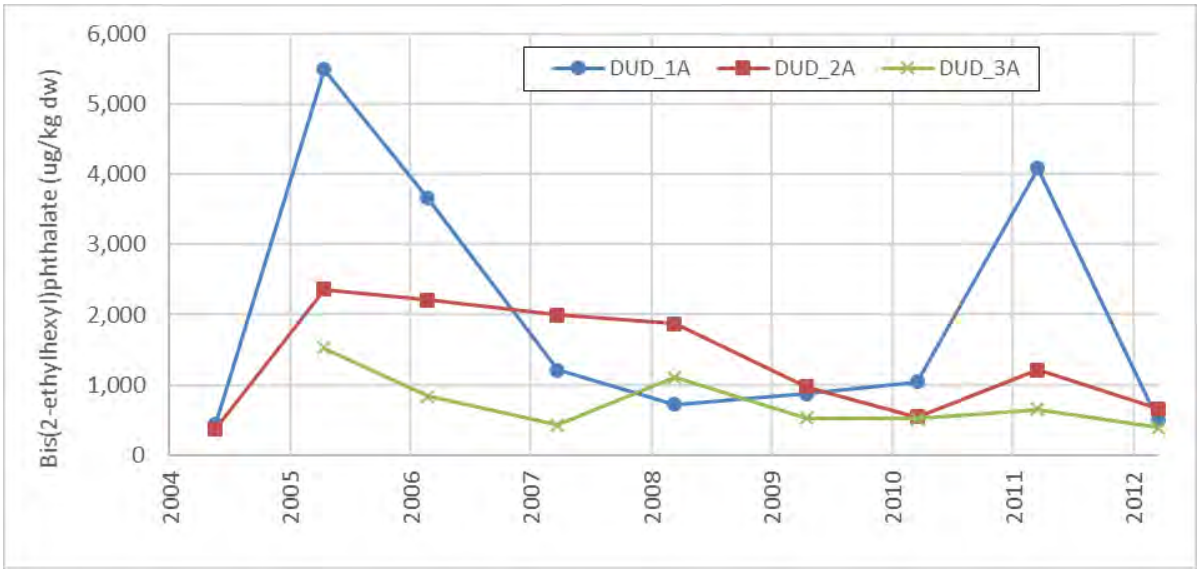


Figure C-8: BEHP in samples collected offshore of the Diagonal Ave S CSO/SD outfall post cleanup.

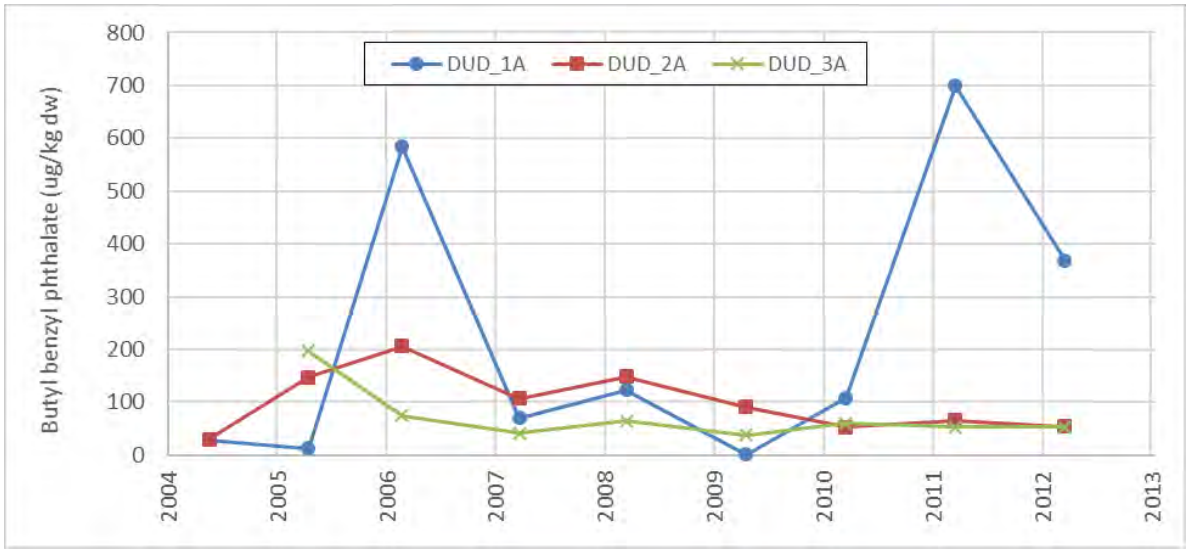


Figure C-9: Butyl benzyl phthalate in samples collected offshore of the Diagonal Ave S CSO/SD after cleanup.

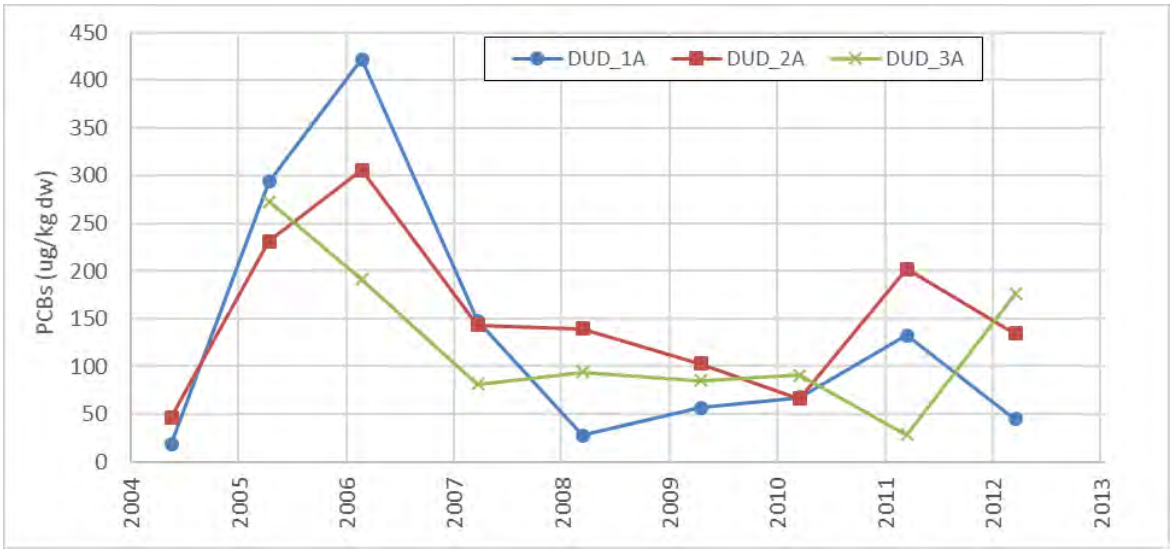


Figure C-10: PCBs in samples collected offshore of the Diagonal Ave S CSO/SD outfall after cleanup.

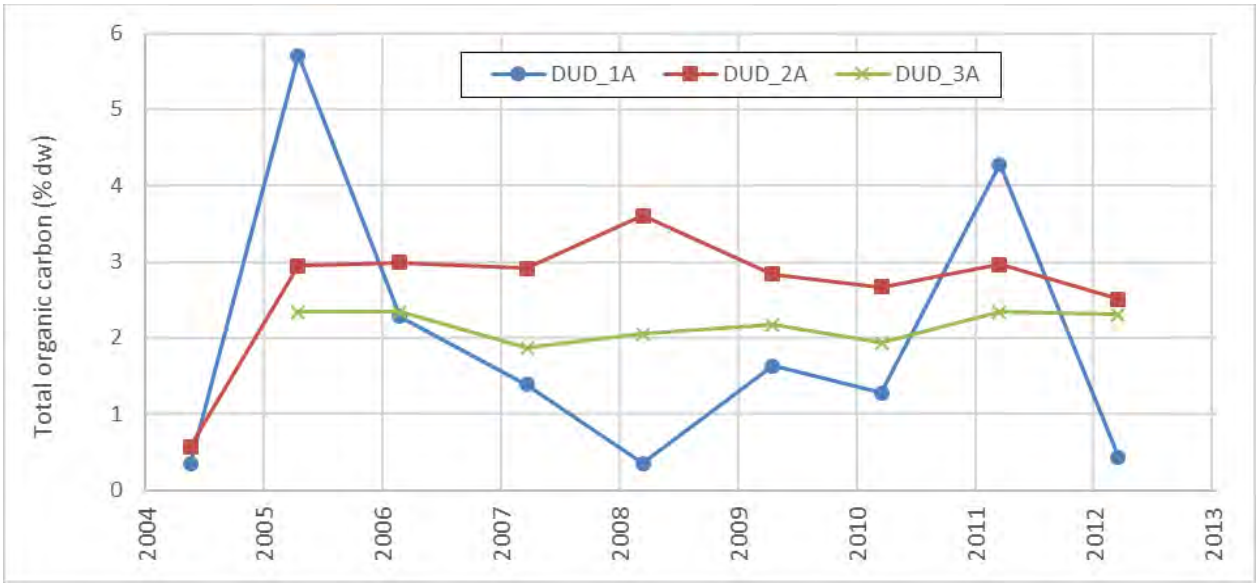


Figure C-11: Total organic carbon in samples collected offshore of the Diagonal Ave S CSO/SD after cleanup.

Results of the near end-of-pipe to waterway sediment comparisons are similar to the ST/BCM recontamination potential analysis from the FS. Both analyses predicted potential exceedances of the sediment RALs for BEHP, BBP, and PCBs. However, the storm drain solids to waterway sediment matches for PCBs are considered weak given that only 2 of 35 near end-of-pipe storm drains solids samples and 3 of 27 sediment samples collected offshore of the outfall after cleanup exceeded the respective criteria.

4.2.5. NEXT FIVE YEARS

Mercury, HPAH, and PCBs are the primary contaminants of concern in the Diagonal Ave S CSO/SD system, although these contaminants are found in different sub-basins within the overall drainage basin. Over the next five years, SPU intends to:

- Resample City mainline in Airport Wy S downstream of the Rainier Commons property at 3100 Airport Wy S and if necessary, require Rainier Commons to jet and clean onsite and affected MS4 to remove PCBs discharged from the site.
- Sample the 144-inch diameter trunkline downstream of Denver Ave S and the Denver Ave S sub-basin to monitor PCB levels following the cleanup of the spill that occurred in 2019.
- Monitor mercury and PCBs in the S Snoqualmie St sub-basin to assess whether source control actions have been effective.
- Conduct source tracing in the Bush Pl sub-basin to locate source(s) of HPAHs.
- Clean maintenance hole at ST2 (EQNUM 597066) where elevated lead levels were found in 2019 inline grab sample and inspect adjacent property.
- Conduct source tracing along Beacon Ave where elevated levels of lead were recently found in an inline sample.
- Work with businesses where elevated levels of mercury, LPAH, and HPAH have been found in private onsite catch basins to identify and control the source of these chemicals.
- Continue to monitor the two sediment traps installed in this system (ST1, ST2, ST09, and ST10).
- Continue inspecting businesses in the basin.

4.3. SW Dakota St SD

The SW Dakota St SD serves an area of about 47 acres[22], encompassing commercial/industrial areas along W Marginal Wy SW, as well as developed/undeveloped residential parcels and large tracts owned by the Seattle Department of Parks and Recreation located on the hillside west of W Marginal Wy SW (Map 28). Land use in the basin is approximately 17.3 percent residential, 1.2 percent commercial, 44.7 percent industrial, 36.8 percent open/vacant/parks. The location of the SW Dakota St SD outfall was changed in 1994 when the Port constructed a wetland channel along the south side of their property at 3838 W Marginal Wy SW. The City's 30-inch diameter storm drain now discharges to the head of the channel approximately 800 feet from the waterway. When it was constructed in 1970, the SW Dakota St SD extended east along SW Dakota St and terminated at an existing ditch about 100 ft east from W Marginal Wy SW.

SPU jetted and cleaned the SW Dakota St SD system in 2016. Prior to cleaning, SPU collected eight storm drain solids samples from this system, five private onsite catch basin (CB41C, CB49, CB50, CB51, and CB52), two right-of-way catch basin (RCB43 and RCB185), and one inline (RCB200a) sample. Results are summarized in Table C-45.

Except for zinc, PCBs, and phthalates, contaminant levels were below SCO/LAET screening levels. Zinc (3,740 mg/kg) exceeded the CSL screening level in a private onsite catch basin (CB41C) located in the parking lot of a business park, which contains an aquarium manufacture/service business, radiator repair facility, and custom wheelchair distributor. BEHP (37,000 ug/kg dw) was also relatively high at this location. PCBs (133 – 610 ug/kg dw) were above the LAET screening level, but below the 2LAET screening level in all of the samples collected from this system. As shown in the box plots in Appendix B and in the storm drain to storm drain comparisons in Appendix J, chemical concentrations in the SW Dakota St SD were comparable to other storm drains sampled in the LDW.

[22] Includes areas served by the City's SW Dakota St SD system, not the portion of Port property that drains to the wetland channel.

Table C-45: Summary of chemicals exceeding SMS screening levels in samples collected from the SW Dakota St drainage system before cleaning.

	SCO LAET	CSL 2LAET	N[a]	Min	Max	Mean	Median	Percent of samples >SCO LAET screening level	Percent of samples >CSL 2LAET screening level
Arsenic	57	93	8	<7	30	10	8	0	0
Copper	390	390	3	101	350	207	170	0	0
Lead	450	530	8	36	203	98	106	0	0
Mercury	0.41	0.59	8	<0.04	0.22	0.08	0.05	0	0
Zinc	410	960	3	202	3,740	1,460	424	67	33
TPH-oil	2,000[b]	2,000[b]	5	330	2,000	1,120	1,100	0	0
LPAH	5,200	5,200	5	113	1,600	570	340	0	0
HPAH	12,000	17,000	5	<92	7,550	2,820	1,460	0	0
cPAH	1,000[c]	1,000[c]	5	<112	903	350	208	0	0
PCBs	130	1,000	5	133	610	288	223	100	0
BEHP	1,300	1,900	5	880	37,000	9,800	2,900	60	60
Butylbenzyl phthalate	63	900	5	<56	19,000	4,500	1,300	80	60
Dimethyl phthalate	71	160	5	<19	220	79	60	20	20

N = number of samples BEHP = bis(2-ethylhexyl)phthalate PCBs = polychlorinated biphenyls

PAH = polycyclic aromatic hydrocarbons, TPH = total petroleum hydrocarbons

Units: mg/kg for metals and TPH-oil, ug/kg dw for organic compounds, ug TEQ/kg for cPAH

a. Includes all samples collected in the MS4 that have not been affected by cleaning operations (i.e., data flagged as "never been cleaned" or "post cleaning"). Does not include ODS (outside the drainage system) samples, which include surface dirt, soil, or other materials (e.g., caulk, paint)

b. MTCA Method A soil cleanup level for unrestricted use

c. Sediment remedial action level

Samples collected February 2005 through April 2010.

During the current reporting period, two inline grabs were collected at the last maintenance hole on the drainage system (RCB200A). Results are provided in Table C-46. Sample locations are shown on Map 78. TPH-oil and bis(2-ethyhlhexyl)phthalate exceeded the respective MTCA and 2LAET screening levels. In addition, zinc, PCBs, butyl benzyl phthalate, and dimethyl phthalate exceeded the SCO/LAET screening levels. All other chemicals were below screening levels. However, chemical concentrations were comparable to other storm drains sampled in the LDW.

Table C-46: Results for storm drain solids samples collected from SW Dakota St SD after cleaning (2014-2019).

	SCO LAET	CSL 2LAET	RCB200A[a] 06/12/18	RCB200A[a] 06/06/19
Arsenic	57	93	16.5 U	8.31
Copper	390	390	135	138
Lead	450	530	113	111
Mercury	0.41	0.59	0.174	0.262
Zinc	410	960	932	921
TPH-oil	2,000[b]	2,000[b]	3,060	5,200
LPAH	5,200	5,200	548 J	874 J
HPAH	12,000	17,000	3,681 J	7,147 J
cPAH	1,000[c]	1,000[c]	457 J	716 J
PCBs	130	1,000	259.7	198.1 J
BEHP	1,300	1,900	6,850	12,500
Butylbenzyl phthalate	63	900	295 U	489
Dimethyl phthalate	71	160	295 U	173 J

Exceeds SCO/LAET

Exceeds CSL/2LAET

BEHP = bis(2-ethylhexyl)phthalate PCBs = polychlorinated biphenyls

PAH = polycyclic aromatic hydrocarbons, TPH = total petroleum hydrocarbons

Units: mg/kg for metals and TPH-oil, ug/kg dw for organic compounds, ug TEQ/kg for cPAH.

a. RCB200A is a near end-of-pipe inline grab sample
b. MTCA Method A soil cleanup level for unrestricted use.
c. Sediment remedial action level.

One sample has been collected within 25 feet of the City's storm drain outfall (SS2149-A). Zinc (478 mg/kg). butyl benzyl phthalate (220 ug/kg dw), BEHP (1,700 ug/kg dw), and PCBs (146 ug/kg dw) exceeded the SCO and benzyl alcohol (100 ug/kg dw) exceeded the CSL.

Over the next five years, SPU intends to conduct the following activities in the SW Dakota St SD basin:

- Establish a long-term monitoring station near the downstream end of this system to monitor the quality of storm drain solids discharged to the LDW and assess whether installing one of the new sediment traps would provide a more representative sample of near end-of-pipe solids in this system.
- Continue inspecting businesses.

4.4. SW Idaho St SD

The SW Idaho St SD serves an area of about 423 acres (Map 29). The drainage basin is predominately residential (45.7 percent) with commercial/industrial areas (23.6 percent) located along W Marginal Wy SW. A significant portion of the basin is undeveloped (30.7 percent). The lower basin on the steep hillside west of W Marginal Wy SW is mostly undeveloped land owned by the Seattle Department of Parks and Recreation. Puget Creek enters the SW Idaho St drainage system just west of W Marginal Wy S at Puget Wy SW.

SPU jetted and cleaned the SW Idaho St SD in 2012-2013.[23]. A total of 24 storm drain solids samples were collected from this system prior to cleaning (10 inline grab, 9 sediment trap, and 5 right-of-way catch basin samples). Results are summarized in Table C-47. Arsenic, copper, lead, and mercury were below the SCO screening level in all samples. Zinc exceeded the CSL screening level in one sample (1,540 in 2012) and the SCO screening level in 2 samples (794 and 836 mg/kg, respectively in 2010 and 2009) collected in sediment trap ID-ST1. ID-ST1 is located at the downstream end of the upper, primarily residential sub-basin. The two highest LPAH (4,190 – 8,310 ug/kg dw) and HPAH concentrations (88,600 – 108,800 ug/kg dw) were also observed at this station. In addition, two of the four inline samples (grabs and traps) at this location also exceeded the MTCA level A soil screening level for TPH-oil (2,700 – 7,700 mg/kg). SPU conducted extensive source tracing in the upper basin during the previous reporting period, but no specific sources were identified. The upper basin is almost entirely residential. The South Seattle Community College is the only non-residential site. SPU inspected the campus in 2011, 2014, and 2017 but did not find any relationship between onsite activities and the elevated levels of PAHs observed at station ID-ST1.

Table C-47: Summary of chemicals exceeding SMS screening levels in samples collected from the SW Idaho St SD system before cleaning.

	SCO LAET	CSL 2LAET	N[a]	Min	Max	Mean	Median	Percent of samples >SCO LAET screening level	Percent of samples >CSL 2LAET screening level
Arsenic	57	93	24	<5	20	8	9	0	0
Copper	390	390	24	16.7	194	59	33	0	0
Lead	450	530	24	7	113	49	34	0	0
Mercury	0.41	0.59	24	<0.02	0.28	0.09	0.06	0	0
Zinc	410	960	24	58	1,540	300	168	13	4
TPH-oil	2,000[b]	2,000[b]	24	60	7,700	1,100	445	17	17
LPAH	5,200	5,200	24	<18	8,310	660	68	4	4
HPAH	12,000	17,000	24	<38	108,800	9,900	667	8	8
cPAH	1,000[c]	1,000[c]	24	<17	14,600	1,200	94	8	8
PCBs	130	1,000	28	8	391	92	20	25	0
BEHP	1,300	1,900	24	40	20,000	2,300	570	29	21
Butylbenzyl phthalate	63	900	24	<18	1,400	230	61	46	8
Dimethyl phthalate	71	160	24	<18	255	47	58	13	8

N = number of samples BEHP = bis(2-ethylhexyl)phthalate PCBs = polychlorinated biphenyls

PAH = polycyclic aromatic hydrocarbons, TPH = total petroleum hydrocarbons

Units: mg/kg for metals and TPH-oil, ug/kg dw for organic compounds, ug TEQ/kg for cPAH

a. Includes all samples collected in the MS4 that have not been affected by cleaning operations (i.e., data flagged as "never been cleaned" or "post cleaning"). Does not include ODS (outside the drainage system) samples, which include surface dirt, soil, or other materials (e.g., caulk, paint)

b. MTCA Method A soil cleanup level for unrestricted use.

c. Sediment remedial action level

Samples collected September 2008 through April 2013.

[23] All but the lower approximately 3,600 feet of the system was cleaned in 2012. The remainder was cleaned in 2013.

SPU has collected 23 storm drain solids samples in the SW Idaho St SD since it was cleaned. Results are summarized in Table C-48. Sample locations are shown on Map 79. PAH concentrations have declined since the previous reporting period. However, cPAH exceeded the RAL screening level in 14 percent of the samples.

Table C-48: Summary of chemicals exceeding SMS screening levels in samples collected from the SW Idaho St SD system after cleaning.

	SCO LAET	CSL 2LAET	N[a]	Min	Max	Mean	Median	Percent of samples >SCO LAET screening level	Percent of samples >CSL 2LAET screening level
Arsenic	57	93	21	<6	30	12	11	0	0
Copper	390	390	21	17.4	139	54	31.5	0	0
Lead	450	530	21	9.18	111	46	46	0	0
Mercury	0.41	0.59	21	<0.024	0.23	0.10	0.08	0	0
Zinc	410	960	21	74	1,200	380	225	24	14
TPH-oil	2,000[b]	2,000[b]	20	53	5,700	910	340	15	15
LPAH	5,200	5,200	22	<40	1,111	290	122	0	0
HPAH	12,000	17,000	22	<58	10,190	2,500	888	0	0
cPAH	1,000[c]	1,000[c]	22	<52	1,406	330	129	14	14
PCBs	130	1,000	23	<18.3	402	130	40	35	0
BEHP	1,300	1,900	22	122	14,000	3,500	924	45	45
Butyl benzyl phthalate	63	900	22	<19.9	4,030	510	52.3	45	14
Dimethyl phthalate	71	160	22	<19.5	249	52	46.7	23	5

N = number of samples BEHP = bis(2-ethylhexyl)phthalate PCBs = polychlorinated biphenyls
PAH = polycyclic aromatic hydrocarbons, TPH = total petroleum hydrocarbons
Units: mg/kg for metals and TPH-oil, ug/kg dw for organic compounds, ug TEQ/kg for cPAH
Samples collected September 2009 through April 2019.

a. Includes all samples collected in the MS4 that have not been affected by cleaning operations (i.e., data flagged as "never been cleaned" or "post cleaning"). Does not include ODS (outside the drainage system) samples, which include surface dirt, soil, or other materials (e.g., caulk, paint)
b. MTCA Method A soil cleanup level for unrestricted use.
c. Sediment remedial action level

Chemical concentrations in the SW Idaho St SD are similar to the levels observed in other storm drains in the LDW. In addition, metals, PAHs, and bis(2-ethylhexyl)phthalate were below both the CSL/2LAET and the SCO/LAET in all six of the near end-of-pipe samples. Butyl benzyl phthalate, dimethyl phthalate and PCBs were below the 2 LAET in all six samples, but exceeded the LAET in 3, 1, and 2, samples, respectively.

None of the surface sediment samples collected within 72-165 feet of the SW Idaho St SD outfall exceeded SCO levels (LDW-SS14, WIT299, DR036, DR067, and SS2147; AECOM 2012 and SAIC 2011). One sample collected about 180 feet upstream of the outfall (TRI-016) exceeded the SCO for benzyl alcohol, 2,4-dimethylphenol, and phenol. Benzyl alcohol has been detected in 16 of the 31 samples collected to date from the SW Idaho St SD. Concentrations ranged from 24-6,400 ug/kg with an average concentration of about 582 ug/kg dw.[24] 2,4-

[24] Non-detected values are included at half the detection limit.

Dimethylphenol has not been detected and phenol was only detected in 12 of the 31 samples collected from the SW Idaho St SD. Phenol concentrations have ranged from <18 to 820 ug/kg dw, with an average of 147 ug/kg dw. Given that the sampling stations closer to the outfall did not exceed the SCO, it is unlikely that the SW Idaho St SD is a significant contributor to the SCO exceedances at the 180-foot station.

Over the next 5 years, SPU intends to conduct the following activities in the SW Idaho St SD basin:

- Continue to operate and maintain the existing sediment traps in this system to assess whether additional source controls are needed
- Continue to inspect the community college, which is currently ranked a high priority[25].

4.5. South Operations Center SD

SPU purchased the former Grayline/Evergreen Bus Company site at 4500 W Marginal Wy SW in 2013 (Map 30). The 6-acre site was vacant until 2019 when SPU opened its South Operation Center, which houses Field Operations staff that cover the south end of Seattle (south of Denny Way), associated vehicles and heavy equipment (dump trucks, mowers, excavators, backhoes, vactor trucks), and also contains storage bins for materials (e.g., sand, topsoil, gravel, and waste material from day-to-day operations).

Runoff from the site passes through a presettling vault and an oil/water separator before discharging to the waterway via a 30-inch outfall. SPU cleaned the vault and separator in 2018. No samples have been collected from the drainage system.[26]

Five surface sediment samples were collected within 200 feet of the outfall in 1996, the closest sample (SD-16) was collected about 20 feet shortly upstream of the outfall. No SMS exceedances were reported at any of the locations.

Over the next five years, SPU intends to conduct the following activities in the South Operations Center SD basin:

- Collect an inline grab sample from the downstream-most maintenance hole in the system (EQNUM 1051294), or presettling vault, or oil/water separator, wherever there is enough material for chemical analysis.
- Inspect SPU operations.

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[25] High ranked businesses are inspected every two years.

[26] SPU attempted to sample storm drain solids in August 2018, but there was not enough material in the system

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Appendix D: Sources Identified To Date

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Source tracing efforts have been effective in identifying sources of contaminants to the City-owned drainage system. The following sections highlight significant sources of LDW-specific contaminants of concern (COC) discovered to date through ongoing SPU source tracing and inspection efforts.

1. T117 ADJACENT STREETS (17TH AVE S SD)

Runoff from the roadways adjacent to the T117 early action site historically discharged to the Duwamish Waterway. Prior to 2004, this area was not served by a formal drainage system and streets were in poor condition. Stormwater simply ran down the streets, sheet flowed across the Port's T117 property, and was picked up in the onsite drainage system or ponded in the streets/adjacent yards.

In 2004, SPU found elevated levels of PCBs in soil/dirt present in the street right-of-way (ROW) adjacent to the Terminal 117 Early Action Area (0.03 - 9.2 mg/kg dw) during routine source tracing activities conducted as part of the LDW source control program. Subsequent sample detected PCBs as high as 480 mg/kg in ROW soil (measured at 6-inch depth). SPU completed an independent interim action in December 2004 to protect public health by containing PCB-contaminated soil in the ROW. From 2004 until 2015, runoff from approximately 1.57 acres of streets and parcels adjacent to T117 was collected, stored (in nine 10,000-gallon tanks), and discharged at a controlled rate to the combined sewer system under a discharge authorization with King County Industrial Waste. Because the existing combined sewer system is over capacity, stormwater from the T117 adjacent streets and yards was only discharged to the sewer after it stopped raining and the system was no longer surcharged.

In 2007, EPA incorporated the T117 adjacent streets and yards as a third cleanup area under the Superfund T117 Early Action Area non-time critical removal action (NTCRA). The other two areas are the T117 Sediment Study Area and the T117 Upland Study Area (Map D-1). The subsequent remedial investigation/feasibility study (RI/FS) determined that PCBs originated on the T117 upland site due to historic operation of a roofing material manufacturer (Malarkey Asphalt) and that some of the PCBs used by Malarkey had originated in oil purchased from the Seattle City Light Department (SCL). PCBs present in the ROW were determined to be caused by trackout of PCB-laden mud from Malarkey operations. The Port of Seattle (Port) and SCL completed cleanup of the sediment offshore of T117 and the T117 upland areas in 2015 (AECOM 2016). SCL completed removal of PCB-contamination in the ROW in 2016 (Integral 2017).

As part of the ROW cleanup, SPU installed a new stormwater collection and treatment system that discharges to the waterway via a new 18-inch outfall (17th Ave S SD) located on the north end of T117 (Map D-2). Stormwater is treated in a combination of bioretention cells and Filterra® tree box units. The bioretention soil media are designed with a 2-layer system, an upper 18-inch layer of compost and sand underlain by a 24-inch layer of 50 percent sand, 30 percent zeolite, and 20 percent granular activated carbon (Integral et al. 2014). Media in the Filterra® tree box units are also amended with 10 percent granular activated carbon (by volume).

Under the Long-Term Monitoring and Maintenance Plan (LTMMP) developed for the project (Integral and AECOM, 2018), SPU is required to periodically sample treated stormwater flowing out the bottom of the bioretention cells and Filterra® tree box units to assist in determining when the media needs to be replaced. In 2018, SPU collected samples from underdrains installed in one bioretention cell and one Filterra® tree box unit during five separate storm events. PCBs were not detected at 0.01 ug/L in any of the samples. The next sample event is scheduled to occur in 2021.

SPU also collects storm drain solids samples in the 17th Ave S drainage system as part of its source tracing efforts in the LDW and installed a sediment trap in the downstream-most maintenance hole in the system in 2017. Sample results are summarized in Table D-1.

2. RAINIER COMMONS (DIAGONAL AVE S CSO/SD)

The Rainier Commons property located at 3100 Airport Wy S drains to the Diagonal Ave S CSO/SD drainage system (northern portion of the site) and the combined sewer system (southern portion of the site) which overflows to the East Waterway via King County's Hanford #2 CSO. In 2004, SPU found elevated levels of PCBs (17.5 mg/kg dw) in sediment collected from a catch basin on Airport Wy S (RCB37 on Map D-3) while conducting routine source tracing activities. Subsequent sample traced the PCBs to the exterior building paint on buildings at the Rainier Commons located at 3001 Airport Wy S. Peeling paint containing up to 312,000 mg/kg PCBs has been found at the site (EPI 2012).

Site cleanup is ongoing under the Toxics Substances Control Act (TSCA). The first phase of the cleanup, involving paint removal from two of the 24 buildings to be cleaned, was completed in 2014 (Hamlin 2019). The second phase (IIa), which involved cleaning the south wall of Building 15 was completed in 2016 (Mullin 2019). EPA is currently reviewing the abatement plan for cleanup of Buildings 6 west, 7 west and south, 8/9 elevator shaft and parapet walls, 10 south and catwalk, and 9 catwalk wall.

In the interim, Rainier Commons has implemented an aggressive source control program to try to keep paint out of the drainage system (installed inserts in onsite catch basins and regularly removes paint chips from the ground. However, PCBs continue to enter the drainage system. In 2017, SPU sampled an onsite catch basin plumbed to the City MS4 on Airport Wy S and found 26,300 J ug/kg dw PCBs (TUL-CB3 on Map D-3). Shortly after being notified of the elevated PCB levels, Rainier Commons cleaned the catch basin and replaced the filter insert (Lansing 2017). Rainier Commons catch basin maintenance procedures include weekly inspection, vacuuming accumulated material around the inner rim and outer edge of the grate, and replacing filter insert plus quarterly cleaning of the catch basin sump.

3. SEATTLE IRON AND METALS COMPANY METAL RECYCLING FACILITY (S MYRTLE ST SD AND S GARDEN ST SD)

Seattle Iron and Metals Company (SIMC) operates a metal recycling facility at 601 S Myrtle St and in 2014, expanded operations to 701 S Orchard St (Map D-4). In 2008, as part of routine source sample activities, SPU found elevated levels of PCBs as well as copper, lead, mercury, and zinc in sediment samples collected from the MS4 along S Myrtle St, S Garden St, and S Brighton St. Subsequent sample traced the source of the contaminants to Seattle Iron and Metals Company (SIMC), a large metal recycler located adjacent to the waterway at 601 S Myrtle St. SIMC has an individual NPDES permit with Ecology. Emissions from the large metal shredder (Figure 1) and trackout of contaminated dirt from vehicles exiting the site have contaminated the right-of-way (Figure 2). SPU has conducted extensive source tracing sample on and around the SIMC property and has worked with SIMC and Ecology to reduce emissions from this site. Details of SPU inspection and enforcement operations prior to 2014 were provided in SCIP 1 (Seattle 2016).

Runoff from the main yard at 601 S Myrtle St is collected, treated, and discharged to the S Garden St SD. In 2013, SPU transferred ownership of the S Garden St outfall and the portion of the stormwater conveyance system that is west of the vacated portion of S Garden St that is now part of the SIMC facility to SIMC. SPU retained ownership of the storm drains in S Garden St east of the SIMC property. Roof drains from the maintenance shed used to discharge to the S Myrtle St SD, but SIMC connected the roof drains to its onsite stormwater system, so this runoff now discharges to waterway via the

S Garden St SD. Runoff from the 701 S Orchard St yard is collected, treated, and also discharges to the waterway via the S Garden St SD. However, SIMC transports auto shredding waste in open trucks from the 601 S Myrtle St yard to the 701 S Orchard St facility via S Garden St for further processing. Trucks leaving the 601 S Myrtle St facility track contaminants onto S Garden St and shredding waste is blown onto the street during transport.

The City has been sweeping S Myrtle St on a weekly basis since 2011 as part of an adaptive management plan prepared under Special Condition S4.F.3 of the City's NPDES municipal stormwater permit. The City started sweeping S Garden St in 2015 on a biweekly basis. SPU also inspects catch basins and other structures on S Myrtle and S Garden Streets every 3 months. Catch basins are cleaned in accordance with Seattle's Stormwater Manual (e.g., when sediment exceeds 60 percent of the depth from the bottom of the catch basin to the invert of the lowest pipe into or out of the catch basin or is within 6 inches of the lowest pipe).

Since SCIP 1, SPU has collected 11 drain solids samples from the downstream end of the S Myrtle St SD (in 2018 and 2019). Results continue to show elevated levels of metals (copper, lead, mercury, and zinc), PCBs, and phthalates in this drainage system. Sample results are summarized on Table D-2 and sample locations are shown on Map D-4.

Figure 1: Metal shredder

Reference: Floyd | Snider (2009)

Figure 2: S Myrtle St at Seattle Iron and Metals.

In 2019, the U.S. District Court (2019a) issued a Consent Decree to SIMC in response to a lawsuit filed by the Puget Soundkeeper Alliance. The Consent Decree applies to SIMC's main yard at 601 S Myrtle St, 701 S Orchard St yard, and secondary storage facility at 730 S Myrtle St. It requires Seattle Iron and Metals to take the following actions:

- Replace the outfall pipe (S Garden St SD) with an Ecology-approved outfall to be installed at a lower elevation than the existing outfall.
- Sweep the facility's south dock and no longer store or stage materials on the dock until it is "replaced or repaired such that all precipitation that falls on the south dock is directed to the 601 Facility's wastewater treatment system".
- Amend the facility's stormwater pollution prevention plan.
- Remove metal debris from the Duwamish River along the facility's shoreline on an annual basis.
- Design and build an enclosure with blower and dust collection system around the shredder.
- Install dust fences along the north side of the property on S Myrtle St, as well as around the yard area at the 701 S Orchard St facility (portions of S Orchard St, S Garden St and the east side of the property), conduct two years of continuous dust monitoring at specified locations, maintain daily logs of dust observations

and dust control efforts at the 601 S Myrtle St facility, and collect total suspended particulate samples for quarterly analysis of PCBs, metals, and dioxins. If monitoring indicates that dust controls are not effective, SIMC must commit to enhancing the dust controls as specified by an outside expert identified in the Consent Decree.

- Implement a program to discourage truck traffic associated with SIMC from using certain residential streets.
- Arrange meeting with Puget Soundkeeper, the City of Seattle, and Ecology to discuss the Filterra® treatment systems installed by SIMC on S Myrtle St and S Garden St.
- Limit the height of auto shredder residue piles to 12 feet at the 601 and 701 S Myrtle St properties and install an infrared heat monitoring and fire suppression system for the reside pile at the 601 S Myrtle St facility.

4. SEATTLE IRON AND METALS COMPANY, STORAGE YARD

SIMC stores and repairs equipment (e.g., trucks, drop-boxes, dumpsters, and bins) used as part of its metal recycling operations on property located at 730 S Myrtle St (Map D-4). The site is covered by an industrial general stormwater permit (WAR125002). Runoff from this 3.2-acre previously unpaved lot sheet used to sheet flow onto S Myrtle St and Fox Ave S and enter the City MS4 As reported in SCIP 1, SPU conducted a joint inspection at the site with Ecology in 2012 and found bins/boxes containing metal shavings and residual oils stored outside without proper cover that were leaking onto the ground. Inspectors also observed turbid and oily stormwater flowing off site onto the adjacent right-of-way.

SPU issued a corrective action letter requiring SIMC to prevent the drums and collection bins from contaminating stormwater and the ground around where they are stored, develop and implement a plan to prevent spills and other accidental releases of materials from contaminating stormwater, and control soil erosion from the site. Ecology also required SIMC to begin testing stormwater for lead and TPH, update the site's stormwater pollution prevention plan, and provide proper cover for all liquid chemical or petroleum wastes stored at the site (Ecology 2012).

SIMC made a number of improvements (e.g., installing gravel/mulch berms around the site to filter runoff and moved or covered many of the storage containers). However, given the size and amount of erodible soil on site, site runoff continued to be highly turbid. Ecology issued SIMC a Notice of Penalty in June 2012 for non-compliance with their NPDES permit and water pollution control requirements. SIMC and Ecology signed a Settlement Agreement in 2013, which required SIMC to investigate short-term and long-term structural and operational controls that could be implemented to meet NPDES benchmarks and to update the site's stormwater pollution prevention plans. To avoid interfering with Ecology actions at the site, SPU discontinued enforcement actions and formally referred the site to Ecology in 2013.

In 2016, Ecology issued an Administrative Order requiring SIMC to among other things 1) grade and pave the site, 2) install a pump station and stormwater treatment system, and 3) install a piped connection to the City storm drain on S Myrtle St. Work was completed in 2018. Stormwater from the site is now collected, stored in 11 Stormcapture® underground vaults and pumped to a Modular Wetland treatment system before discharging to the City MS4.

This site was part of the 2019 Consent Decree described in Section 3. Requirements associated with the storage lot included (Ecology 2019):

> *Collect monthly samples of stormwater for two years. If any one sample violates the discharge limits or contains a detectable level of PCBs, SIMC must replace the*

media in the Modular Wetland stormwater treatment system within 3 months. If following media replacement, two or more discharge samples exceed discharge limits or contains a detectable level of PCBs, SIMC must install an enhanced treatment system (e.g., chitosan-enhanced sand filtration, electrocoagulation, ion exchange, or polishing adsorptive media).

As described in the previous section, storm drain solids samples collected near the downstream end of the S Myrtle St SD continue to show elevated levels of metals (copper, lead, mercury, and zinc), PCBs, and phthalates.

5. FORMER MARINE LUMBER (7TH AVE S SD)

Marine Lumber stored treated and untreated lumber on the property located at the northeast corner of 5th Ave S and S Monroe St since the 1980s (EPI 2012). Treated lumber was treated with ammoniacal copper zinc arsenate (ACZA) containing a 2:1:1 ratio of copper oxide, zinc oxide, and arsenic pentoxide. SPU inspected the property in March 2009 and observed green stains across most of the paved storage lot. Runoff sheet flows across the site and enters a small ditch on the north side of S Monroe St. The adjacent property owner to the east had at one time installed a sump to intercept runoff before it could run down the entrance to their building and pumped it to their onsite drainage system which discharges to the sanitary sewer on S Kenyon St.

Samples of dirt from the paved lot (710 mg/kg arsenic, 4,930 mg/kg copper) and in the ditch where most runoff exits the site (750 mg/kg arsenic, 4,520 mg/kg copper) confirmed that ACZA was leaching from the lumber and contaminating runoff leaving the site. SPU inspectors worked with the property owner over the next year to bring the site into compliance with City source control requirements. The owner made a number of improvements including pressure washing the pavement, working with lumber supplier to obtain a drier product less susceptible to leaching, and minimizing the amount of pressure treated lumber stored at the site. Subsequent sample conducted in 2011 determined that arsenic and copper contamination extended approximately 65 feet east of the property boundary where soil in the ditch contained 430-544 mg/kg arsenic and 1,890-2.730 mg/kg copper at depths of 0-3 inches (sample RCB275). Sample locations are shown on Map D-5 and sample results are provided in Table D-3.

In November 2011, Ecology ordered Marine Lumber to implement controls under their NPDES industrial general stormwater permit and to clean up contaminated soil in the right-of-way. Marine Lumber completed a partial cleanup in September 2012 by removing contaminated soil along the 100 ft property frontage on the north side of S Monroe St, extending outward from the fence line to the edge of the pavement. The cleanup did not extend beyond the property boundaries, so contamination found at RCB275 was left in place (EPI 2012). In addition, SPU collected samples at the edge of the excavation and found elevated levels of arsenic (210-980 mg/kg) and copper (396-3,680) at depths of 0 to 24 inches. SPU does not have authority to require additional site cleanup and has requested that Ecology maintain the site on their contaminated site list to ensure that Marine Lumber completes the necessary cleanup in the future.

Marine Lumber sold the property in 2014. The site is now being used to store semi-truck chasses. No additional sample was conducted during the 2014 – 2019 reporting period.

6. FORMER STERNOFF METALS (8TH AVE S ROADWAY)

Sternoff Metals operated a scrap metal salvage yard on the property at 7123 E Marginal Wy S for 45 years until about 1986 (SAIC 2008). This 2.5-acre site is located along the east side of 8th Ave S. Most site runoff is collected in an onsite system

that is plumbed to the combined sewer on E Marginal Wy S. The company also operated an aluminum smelter and auto crusher at this property and reportedly received electrical transformers and capacitors. A number of other tenants occupied the property after Sternoff Metals, the most notable being Remedco, a thermal treatment company that applied for permits to treat petroleum contaminated soil at the site. Although the company never obtained the necessary permits, it did accumulate debris and soil at the site that was found to contain solvents and metals (Ecology 2008). Ecology sampled the debris/soil pile in 1999 and found the material contained 69-120 mg/kg PCBs. This material was subsequently removed and disposed at the Waste Management landfill in Arlington, Oregon. Soil samples collected from the sides and bottom of the excavation still contained 9-77 mg/kg PCBs (SAIC 2008).

In 2008, a community group collected soil samples in the right-of-way as part of an investigation to determine whether a bioretention system could be installed along the east side of 8th Ave S near the former Sternoff property (Simson 2008). PCBs in soil samples collected at depths of 0-12 inches and 12-18 inches contained elevated levels of PCBs (4.4 – 5.9 mg/kg) and lead (309 - 4,700 mg/kg). The bioretention cell was subsequently moved to the next parcel south along 8th Ave S (approximately 200 feet) where testing confirmed that soils in the right-of-way were not contaminated. In July 2009, SDOT collected samples at depths of 0-7 feet at two soil borings located opposite the property at 7266 8th Ave S (Herrera 2009). Concentrations of TPH-Dx, PCBs, copper, chromium, lead, nickel, and zinc were well below MTCA Method A soil cleanup levels. Soil contamination in the right-of-way appears to be confined to the vicinity of the former Sternoff Metals site.

SPU collected additional source tracing samples in the right-of-way and on the former Sternoff property to determine whether PCBs found in the right-of-way could be coming from residual materials remaining on the site. Samples were collected from the right-of-way adjacent to the driveway on 8th Ave S and from dirt piles and the paved yard area on the property (Map D-6). Dirt in the gravel shoulder adjacent to the driveway entrance contained 3,600 – 6,900 ug/kg dw PCBs and dust scraped from the pavement in the yard area contained 1,340 ug/kg dw PCBs. The onsite soil piles contained lower concentrations of PCBs (182-530 ug/kg dw). Sample locations are shown on Map D-6 and results are summarized in Table D-4. This site is on Ecology's list of known or suspected contaminated sites, but past cleanup activities and investigations have focused on removing onsite materials and have not considered the release of chemicals onto the right-of-way.

No additional sample was conducted during the 2014 – 2019 reporting period.

7. FORMER INDEPENDENT METALS / GREEN DAY TRADING (7TH AVE S SD AND DIRECT DISCHARGE)

The former Independent Metals / Green Day Trading Company was a metals recycling facility with facilities at 703 S Monroe St (storage yard), 747 S Monroe St (Plant 1), and 748 S Kenyon St (Plant 2). It went out of business in 2014.

In 2012, SPU and Ecology found PCBs (7 ug/L) in runoff entering the City MS4 on 7th Ave S from the storage yard, which was used to temporarily store truck chassis, enclosed empty shipping containers, empty truck trailers, and empty open top roll off containers. It was not manned and not fenced (Map D-7). Independent Metals agreed to immediately and permanently move all of the open roll off containers from the storage yard and subsequently moved the containers to the Plant 2 site adjacent to the waterway. SPU cleaned the catch basins on 7th Ave S SD in 2012. However, SPU found 1.15 ug/L total Aroclors when runoff entering the inlet on 7th Ave S was resampled later in 2013. Independent Metals then scraped soil from the yard area and placed quarry spall along the

property adjacent to 7th Ave S to minimize runoff from the site. Soil was placed in piles on the east (interior) side of the property.

In 2016, SPU used a specially trained detection dog from the University of Washington Conservation Canine program to survey the storage yard and collected soil samples in areas where the dog (Sampson) showed interest. Only low levels of PCBs (<18 to 77 ug/kg dw) were present in the samples.

Runoff from the main yard area at Plant 1 on S Monroe St was collected, treated, and discharged to the combined sewer under a King County discharge authorization until the facility shut down in 2014. King County collected storm drain solids samples from catch basins on the Plant 1 site in 2011 and found 101 – 2,710 ug/kg dw PCBs. In 2016, while conducting another survey with the detection dog, Sampson alerted to PCBs in a planter strip adjacent to the south driveway entrance on S Elmgrove St on the south side of the Plant 1 property. Elevated levels of PCBs were found in soil samples collected from the planter box (63,810 ug/kg dw in ODS40), dirt along the outside edge of the fence line (46,910 ug/kg dw in ODS41) and in the catch basin on the northwest corner of S Elmgrove St and 8th Ave S (924 ug/kg dw in CB73). Sample locations are shown on Map D-7. It appears that PCBs may have been tracked off or run off the site and entered the planter strip. Runoff from the driveway flows east down S Elmgrove St and enters catch basin CB73 at 8th Ave S. CB73 connects to the 7th Ave S SD.

Most runoff from Plant 2 located at 816 S Kenyon St discharged directly to the LDW via a private onsite drainage system, but runoff from the driveway discharged to the combined sewer system on 8th Ave S (Map D-8). In 2009 and 2011, SPU found elevated levels of PCBs in an onsite catch basin (CB206) at Plant 2 (2,500 – 5,900 ug/kg dw). In 2016, SPU sampled catch basins at the driveway entrance on 8th Ave S (RCB229 and RCB310) which connect to the combined sewer system and found lower levels of PCBs (160 – 370 ug/kg dw).

8. SEATTLE BARREL (DIAGONAL AVE S CSO/SD)

SPU inspected the Seattle Barrel facility located at 4716 Airport Wy S in 2003, 2006, 2008, 2009, 2014, and 2016 and over the years has worked with King County, Ecology Water Quality, Ecology Hazardous Waste, and EPA enforcement staff to control discharges to the City storm drain and sanitary sewer systems that serve this property (Map D-9). In 2008, SPU collected a sediment sample from a sump located at the southeast corner of the building that discharges to the sanitary sewer on Airport Wy S (CB130). As shown in Table D-5, a number of chemicals exceeded the CSL/2LAET screening levels.

Table D-5: Seattle Barrel property source tracing results.

Chemical		Chemical	
Arsenic	480	LPAH	79.7
Copper	707	HPAH	37.9
Lead	1,230	BEHP	180
Mercury	21	Butyl benzyl phthalate	97
Zinc	1,460	Di-n-butyl phthalate	11
TPH-diesel	36,000	PCBs[a]	41 Y
TPH-oil	91,000	2-methyl naphthalene	39
Dibenzofuran	6.4	Phenol	13

Units: mg/kg

a. PCBs were not detected, but the analytical detection limit was elevated (41,000 ug/kg dw) due to interferences from other chemicals.

King County Industrial Waste regulates discharges to the sanitary sewer at this site. The sewer on Airport Wy S in this area can overflow to the Diagonal storm drain system at an overflow point located at Airport Wy S and S Snoqualmie St. SPU records indicate that this station (CSO 111G) has overflowed five times in the past 10 years and not at all since the storm drain lines were cleaned in 2010:

December 9, 2015 .....45,457 gallons

December 7, 2007 .....914,600 gallons

December 14, 2006.....56,200 gallons

November 18, 2003.....172,400 gallons

October 20, 2003.....235,400 gallons

March 3, 2003 .....42,000 gallons

SPU required the barrel cleaning facility to stop unloading drums in the right-of-way and to install barriers to prevent runoff and washwater from entering the street. SPU has also jetted, cleaned, and video-inspected the sanitary sewer and storm drain lines along Airport Wy S.

The Seattle Department of Construction and Inspections issued a notice of violation to Seattle Barrel in 2016 because an 1,800 square foot addition to the building was constructed without a permit. Seattle Barrel was required to submit the appropriate permit application for this work.

SPU last inspected Seattle Barrel in 2016 and found no violations of the City Stormwater Code. In 2017, SPU observed turbid water ponding on the BNSF railroad right-of-way adjacent to Seattle Barrel while inspecting an adjacent business and notified Ecology. Shortly thereafter, King County inspectors observed two garden hoses terminating at the property line from two storage tanks at Seattle Barrel (Gowing 2017). SPU later video-inspected the storm drain on Airport Wy S to confirm that there were no connections from the railroad right-of-way to the City MS4. Seattle Barrel is scheduled for another inspection in 2020.

In 2019, Seattle Barrel was indicted for illegally discharging wastewater containing pH in excess of 12 to the sanitary sewer from approximately 2009 until September 2019 after EPA conducted covert monitoring of discharges to the sanitary sewer on Airport Wy S (US District Court 2019b). SPU staff assisted EPA in accessing the City sewer during the investigation.

9. FORMER JON'S RECYCLING / CAM GRINDERS (2ND AVE S SD)

SPU identified Jon's Recycling, a small recycling facility formerly located at 7620 2nd Ave S as a source of metals (copper, lead, mercury, and zinc), TPH-oil, TPH-diesel, and PCBs to the 2nd Ave S SD in SCIP 1. Between 2008 and 2010, SPU worked with this business to correct numerous problems associated with outdoor storage (e.g., leaking or oily machinery, electrical equipment, batteries, capacitors, ballasts, fluorescent tubes, paint, waste oil), lack of spill control/containment, poor housekeeping practices, and lack of secondary containment for fuel and oil storage areas). The business closed in 2013 and removed all material stored at the site. Map D10

Cam Grinders, Inc., a machine shop for gas and diesel engines, began operating at the site in 2017. SPU inspected the site in August 2017. Cam Grinders occupies the northern building and leases the southern building to Book It Repertory Theatre. All work is conducted inside. The yard area was well swept, and general housekeeping practices were in order at the time of the inspection. However, due to elevated levels of mercury

(2.11 – 4.34 mg/kg) found in samples collected from three onsite catch basins in 2017 (Table D-6), SPU required Cam Grinders to clean these onsite drainage structures. Work was completed in November 2017

Table D-6: Former Jon's Recycling / Cam Grinders property source tracing reuslts.

	SCO LAET	CSL 2LAET	CB116 5/1/08	CB116 6/7/10	CB116 8/25/17	CB280 8/25/17	CB282 8/25/17
Arsenic	57	93	30	50	21.8	29.2	25.1
Copper	390	390	2,110	806	375	426	822
Lead	450	530	1,180	1,540	348	321	386
Mercury	0.41	0.59	10.5	48	2.11	4.34	2.2
Zinc	410	960	2,690	2,950	1,630	862	966
TPH-oil	2,000[a]	2,000[a]	16,000	14,000	2,500	5,270	3,610
LPAH	5,200	5,200	1,000	1,300	933 J	1,577 J	2,077 J
HPAH	12,000	17,000	3,230	6,290 J	3,020 J	3,327	3,834
cPAH	1,000[b]	1,000[b]	572	914	378 J	429	452 J
PCBs	130	1,000	99 U	490	561	471	349
BEHP	1,300	1,900	29,000	39,000 B	8,390	14,700	12,300
Butyl benzyl phthalate	63	900	480	11,000	674	193	776
Dimethyl phthalate	71	160	550	850 U	274 J	109	296 U

Exceeds SCO/LAET

Exceeds CSL/2LAET

PCBs = polychlorinated biphenyls, TPH = total petroleum hydrocarbons, PAH = polycyclic aromatic hydrocarbons, BEHP = bis(2-ethylhexyl)phthalate

Units: mg/kg for metals and TPH-oil, ug/kg dw for organic compounds, ug TEQ/kg for cPAH
BEHP = bis(2-ethylhexyl)phthalate

a. MTCA Method A soil cleanup level for unrestricted use.
b. Sample prepared using silica acid cleanup prior to analysis.
c. Sediment remedial action level.

As shown in Table D-6, concentrations of all chemicals in the 2017 were much lower than measured in previous samples collected when the recycling facility occupied the site, and most were similar to concentrations found in other storm drains in the LDW. However, mercury remained significantly above the SMS screening levels.

10. CHEMITHON (PRIVATE SD)

SPU conducted a joint inspection with Ecology at Chemithon located at 5430 W Marginal Wy SW in April 2006. Chemithon manufactures industrial equipment. The company noted that all stormwater and process water at the site was discharged to the sanitary sewer and that the outfall to the waterway had been plugged in the 1970s. A sample collected from an onsite catch basin (CB90) contained elevated levels of copper (1,820 mg/kg), zinc (2,550 mg/kg) and PCBs (2,500 ug/kg dw). SPU notified King County Industrial Waste about the stormwater discharges to the sanitary sewer system and continued sampling on the Chemithon and adjacent LaFarge property to determine where the contaminants were coming from. Results from SPU source tracing efforts are provided in Table D-7. Sample locations are shown on Map D-11.

A large block of old paint debris (approximately 40 lbs) found sitting next to a catch basin that had recently been cleaned contained 7,000 ug/kg dw PCBs and 1,760 mg/kg lead. Other samples from the onsite drainage system contained 1,040 – 1,660 ug/kg dw PCBs; lower levels of PCBs (421 – 810 ug/kg dw) were found in the storm drains on the LaFarge property. The paint appeared to be the source of PCBs in the Chemithon drainage system and they were required to jet and clean the entire onsite drainage system. Chemithon jetted and cleaned the onsite drainage system in October 2006. However, the contractor decanted the liquid material back to the onsite drainage system. SPU inspectors also found a number of catch basins that were not cleaned, so Chemithon jetted and cleaned their system again in late 2007.

Elevated levels of copper found in the Chemithon drainage system were traced to soil and spent sandblast grit piles (860 – 1,730 mg/kg) used in LaFarge's cement manufacturing process that was stored along the fence line between the two properties. LaFarge moved the piles away from the fence to keep this material out of the Chemithon drainage system.

King County required Chemithon to disconnect stormwater discharges from the combined sewer and redirect stormwater runoff back to the Duwamish. Chemithon has been discharging stormwater to the Duwamish since October 2007. Discharges are covered by an NPDES industrial general stormwater permit (WAR000033).

SPU resampled the vault at the downstream end of the Chemithon drainage system in 2012 and again found elevated levels of PCBs (2,200 ug/kg dw) and copper (464 mg/kg).

No additional sampling was conducted during the 2014 – 2019 reporting period.

11. FORMER WESTERN WATERPROOFING (DIAGONAL AVE S CSO/SD)

In 2014, SPU re-inspected Western Waterproofing located at 4429 Airport Wy S and collected samples from private onsite catch basins and dirt on paved surfaces in the yard area as part of a source tracing effort in the S Snoqualmie St sub-basin of the Diagonal Ave S CSO/SD basin that was conducted to identify sources of mercury and PCBs that were found in MH18. Sample locations are shown on Map D-12 and results are summarized in Table D-8.

During the inspection, the property owner reported that the site had undergone an independent cleanup several years ago to remove PCB contamination. Given the high levels of PCBs found onsite, SPU required Western Waterproofing to sweep the yard area and jet/clean the onsite drainage system, as well as the City-owned lines between the property and MH18 where the PCBs were originally found and install a filter sock in the onsite catch basin. Work was completed in September 2014. The property owner also reportedly prohibited Western Waterproofing from temporarily stockpiling construction and demolition debris (e.g., masonry rubble and dust, coatings, and caulking) and from washing vehicles at the site to avoid bringing materials onsite that could contain PCBs. The owner resampled CB251 in December 2014 and found 5,200 ug/kg dw PCBs (EPI 2015). Western Waterproofing vacated the site in about 2016. Since then, the property has been leased to Central Welding Supply, Inc.

Table D-8: Former Western Waterproofing source tracing results.

Station ID	Description	Type	Date	Total PCBs (ug/kg dw)
MH18	Maintenance hole on City MS4 at S Snoqualmie St and 6th Ave S	Inline grab	05/18/13	6,560
			07/06/12	45,900
CB2	Catch basin at northwest corner of the Western Waterproofing property			970
CB250	Catch basin on property immediately south of Western Waterproofing	Catch basin		770
CB251	Yard drain near driveway entrance	Catch basin	04/16/14	145,000
			05/14/14	16,100
			12/09/14	5,200[a]
CB260	Surface dirt adjacent to CB251	Catch basin	05/14/14	28,900 J
CB261	Surface dirt at base of loading ramp on Western Waterproofing property	Catch basin	05/14/14	39,000
RCB251	Catch basin in parking lot south of the Western Waterproofing property	Catch basin	05/14/14	500
MH208	Maintenance hole in S Snoqualmie St at 7th Ave S	Inline grab	10/19/18	239
ST09	Maintenance hole in S Snoqualmie St at 7th Ave S	Sediment trap	05/08/19	284

a. Source (EPI 2015).

In 2018, SPU collected an inline grab sample and installed a sediment trap in a maintenance hole on the 48-inch pipe on S Snoqualmie St at 7th Ave S (MH208 and ST09). This maintenance hole is downstream of Western Waterproofing. The inline grab sample contained 239 ug/kg dw PCBs and the sediment trap sample collected in May 2019, contained 284 ug/kg dw PCBs. Based on these results, it appears that the Western Waterproofing site is no longer a significant source of PCBs to the City MS4.

12. SUN FOOD TRADING COMPANY

In 2014, SPU inspected Sun Food Trading Company located at 4715 6th Ave S and collected samples from private onsite catch basins and paint chips found in catch basins and on paved areas at the site. Work was conducted as part of a source tracing effort in the S Snoqualmie St sub-basin of the Diagonal Ave S CSO/SD basin that was conducted to identify sources of mercury and PCBs that were found in MH18 (253-46,060 ug/kg dw). Sample locations are shown on Map D-13 and results are summarized in Table D-9.

Although elevated levels of PCBs were found in the onsite drainage system, the sample collected from RCB294 indicated that PCBs had not entered the City MS4. SPU required the property owner to sweep the pavement to remove paint chips and other debris, as well as jet/clean the private onsite drainage system and install filter socks in catch basins located near the southwest corner of the property. Work was completed in August 2014.

In 2018, SPU installed a sediment trap (ST10) in the City storm drain on 6th Ave S where Sun Food Trading's onsite drainage system connects to the City MS4 to assist in tracking PCBs in this area. Two inline grab samples collected in 2018 at MH231 contained 27.5 and 215 ug/kg dw PCBs. The trap sample retrieved in 2019 contained 265 ug/kg dw. These results are consistent with the 2014 sample results and continue to indicate that PCBs present on the Sun Food Trading property are not reaching the City MS4.

Table D-9: Sun Food Trading Company site source tracing results.

Station ID	Description	Sample Type	Date	Total PCBs (ug/kg dw)
CB240	North end of property	Catch basin	04/04/14	270
			7/21/16	270
CB241	Southwest corner of building	Catch basin	04/04/14	10,000
			7/21/16	250 J
CB242	Adjacent to transformer pad	Catch basin	04/04/14	6,200
CB246	West of transformer pad	Catch basin	05/07/14	32,000
SunFoodP	Paint chip sample	Paint chip	04/04/14	45,000
CB247	Pump sump southeast of transformer pad	Catch basin	05/07/14	14,000
CB321	West end of property	Catch basin	11/16/16	722 J
CB248	Southwest of transformer pad	Catch basin	05/07/14	2,900
			7/21/16	30,000
RCB215	Inline catch basin on 6th Ave S where onsite drainage system connects to MS4	Catch basin	05/28/09	77
			05/07/14	94
			07/21/16	27
MH231	Intersection of 6th Ave S and S Alaska St	Inline grab	05/27/09	300
			05/28/09	270
			02/15/18	27.5
			10/19/18	215
ST10	Intersection of 6th Ave S and S Alaska St	Sediment trap	05/08/19	265

13. 150 S RIVER ST (S RIVER ST SD)

SPU found elevated levels of PAH a catch basin and in surface dirt from the pavement adjacent to the catch basin in 2016 and 2018 in the yard area at 150 S River St. The surface dirt concentrations (118,118 ug/kg dw LPAH and 1,082,300 ug/kg dw HPAH) were some of the highest concentrations observed to date in the LDW samples.[1] Results are provided in Table D-10. The former tenant, V. Van Dyke was a trucking facility that specialized in transporting oversized loads. The site is currently occupied by W.W. Trailers, Inc. who conducts tests on buses.

The property owner cleaned the surface pavement and the onsite drainage system (catch basins and pipes) and installed filter socks in the onsite catch basins. SPU re-sampled at ODS58 in 2019. PAH concentrations were significantly lower but continued to exceed source tracing screening levels. Map D-14

The lack of material in the onsite catch basin indicates that the filter socks are functioning to minimize the amount of material leaving the site. SPU will continue to inspect and re-sample this location to determine whether additional action is needed to control the release of PAHs to the S River St SD.

[1] Concentrations were similar to levels found at the King County Sheriff's facility in the Diagonal Ave S CSO/SD drainage basin that were thought to have been related to historic use of a coal tar sealant.

Table D-10: Source tracing results for 150 S River St property.

	SCO LAET	CSL 2LAET	CB270 2/23/16	ODS58[a] 2/5/18	ODS58 5/23/19
TPH-oil	2,000[b]	2,000[b]	3,300	4,220	3,240
LPAH	5,200	5,200	2,470 J	118,118	3,609 J
HPAH	12,000	17,000	18,900	1,082,300	42,599
cPAH	1,000[c]	1,000[c]	2,130	119,300	4,610
Dibenzofuran	540	540	290 U	696	26.5 J
BEHP	1,300	1,900	7,600	12,300	1,910
Butylbenzyl phthalate	63	900	320	1,080	170
Dimethyl phthalate	71	160	590	8,960	576

Exceeds SCO/LAET

Exceeds CSL/2LAET

Units: mg/kg for metals and TPH-oil, ug/kg dw for organic compounds, ug TEQ/kg for cPAH
BEHP = bis(2-ethylhexyl)phthalate

a. ODS = outside drainage system. Dirt on pavement adjacent to catch basin. Insufficient material in catch basin for analysis.
b. MTCA Method A soil cleanup level for unrestricted use.
c. Sediment remedial action level.

14. DENVER AVE S PCB SPILL

On June 5, 2019, an SPU inspector noticed strong PCB odors while driving down Denver Ave S between 1st Ave S and 2nd Ave S and collected a soil sample in the road shoulder where the PCB smell appeared to be the strongest, as well as solids samples from a storm drain inlet and catch basin in the adjacent street. PCBs in the samples were measured at 40,300, 6,970, and 69.4 mg/kg dw, respectively (Seattle and Geosyntec 2019). The Denver Ave S drainage system connects to the Diagonal Ave S CSO/SD drainage system at Diagonal Ave S. PCBs in soil and storm drain solids were comprised primarily of Aroclor 1242, which was commonly used in electrical equipment.

These findings triggered an emergency cleanup by the City (SPU and Seattle Department of Transportation). Initial steps were taken to prevent soil from entering the drainage system (inlet and catch basin grates were wrapped with geotextile fabric and contaminated soil was covered with plastic) and the area was fenced off to prevent pedestrians from entering. The City hired a consultant to collect additional samples to delineate the horizontal and vertical extent of the spill and hired a contractor to remove contaminated soil from the roadway shoulder and the storm drain system on Denver Ave S. Soil samples were collected from depths of 0 to 6 inches, 6 to 12 inches, and 12 to 18 inches. PCB concentrations in soil ranged from <0.05 mg/kg dw to 10,000 mg/kg dw. Soil contamination was found in a 38-feet by 530-feet area in the gravel shoulder along the southwest side of the roadway. The area affected by the spill is shown on Map D-15.

SPU also collected three additional inline grab samples from the 144-inch diameter Diagonal Ave S CSO/SD system downstream of Denver Ave S during a minus tide event in July when the mainline was accessible for sample. Sample locations are shown on Map D-15. Results for all samples collected from the drainage system are summarized in Table D-11.

Cleanup was conducted under a risk-based plan prepared in accordance with the Toxics Substance Control Act. The site cleanup level was established at 0.13 mg/kg dw PCBs. Work was completed in August. SPU's contractor jetted and cleaned about 1,542 feet of pipe in

the Denver Ave S drainage system (Map D-15) and contaminated soil was removed to depths of between 1 and 3 feet. A total of approximately 981 tons of non-regulated PCB-contaminated soil and 40 tons of regulated PCB-contaminated soil/storm drain solids were removed and disposed at Waste Management's Columbia Ridge Landfill and Chemical Waste Landfill, respectively in Arlington, Oregon. Soil samples were collected at the base of excavation to confirm that all contaminated soil was removed. All samples were below the site cleanup level. However, one sidewall sample at the edge of the pavement (0.15 ug/kg dw PCBs) exceeded the cleanup level. In addition, seven bottom samples were also analyzed using the synthetic precipitation leaching procedure to confirm that any remaining residual PCBs would not leach to groundwater. PCBs were not present in any of the samples (reporting limits ranged from 0.01 to 0.082 ug/L).

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TABLES

Table D-1: Results for storm drain solids samples collected from the T117 Adjacent Streets stormwater system (2017-2019).

Location	LDW Source Screening Levels[a]	S Donovan path[b]	Cell F[c]	Cell D	Cell C[c]	Cell D	17th-ST1[d]
Sample date		**01/09/17**	**01/08/17**	**01/09/17**	**12/18/18**	**12/18/18**	**05/08/19**
Sample No.		MBS-010917-2	MBS-010817-1	MBS-010917-1	MBS-121818-1	MBS-1211818-2	17TH-ST1-050819
System locate code		ODS51	RCB75	RCB76	RCB85	RCB76	17th-ST1
Lab SDG		17A0085	17A0085	17A0085	18L0350	18L0350	19E0222
Conventionals							
Solids, total (%)		61.74	35.15	57.04	41.26	52.92	--
Total organic carbon (%)		5.91 J	8.63 J	6.13 J	6.65	7.5	--
Metals (mg/kg)							
Arsenic	93	**21.2**	**21**	**29.8**	19.3 U	**12.2**	--
Copper	390	**62.3**	**87.6**	**114**	**146**	**93.8**	--
Lead	530	**21**	**29.4**	**46.7**	**61.3**	**28.5**	--
Mercury	0.59	**0.06059**	**0.09382**	**0.06326**	**0.0878** J	0.0471 U	--
Zinc	960	**176**	**455**	**1,090**	**601**	**500**	
Total petroleum hydrcarbons (mg/kg)							
Diesel range	2,000	75.7	379	201	746	690	--
Motor oil range	2,000	628	2,030	1,620	3,570	3,180	--
LPAH (ug/kg dw)							
Acenaphthene	500	48.8 U	49.3 U	243 U	25.1 U	24.6 U	--
Acenaphthylene	1,300	48.8 U	49.3 U	243 U	23.3 U	22.9 U	--
Anthracene	960	48.8 U	**46** J	243 U	**50.6** J	28.4 U	--
Fluorene	540	48.8 U	**23.8** J	243 U	24.2 U	23.7 U	--
Naphthalene	2,100	**24.9** J	**46.6** J	243 U	**66.4** J	**60.4** J	--
Phenanthrene	1,500	**81.7**	**267**	**236** J	**314**	**197**	--
LPAH	5,200	**107** J	**383** J	**236** J	**431** J	**257**	--
HPAH (ug/kg dw)							
Benzo(a)Anthracene	1,600	**38.5** J	**200**	**151** J	**233**	**452**	--
Benzo(a)Pyrene	1,600	**54.9**	**224**	**172** J	**322**	**554**	--
Benzo(g,h,i)perylene	720	**42.8** J	**137**	**153** J	**399**	**407**	--
Benzofluoranthenes, total	3,600	**183**	**670**	**709**	**1,000**	**1,730**	--
Chrysene	2,800	**164**	**447**	**478**	**585**	**1,540**	--
Dibenzo(a,h)anthracene	230	48.8 U	**60.7**	**90.1** J	**114**	**124**	--
Fluoranthene	2,500	**135**	**586**	**482**	**725**	**360**	--
Indeno(1,2,3-Cd)Pyrene	690	**34.5** J	**95.8**	**133** J	**285**	**298**	--
Pyrene	3,300	**122**	**627**	**413**	**691**	**480**	--
HPAH	17,000	**775** J	**3,048**	**2,781** J	**4,354**	**5,945**	--
cPAH	1,000	**92** J	**349**	**312** J			--
Phthalates (ug/kg dw)							
Bis(2-ethylhexyl)phthalate	1,900	**4,450**	**14,500**	**9,610**	**12,800**	**89,000**	--
Butylbenzylphthalate	900	**113**	**533**	**298**	39.4 U	**1150**	--
Diethylphthalate		48.8 U	49.3 U	243 U	86.6 U	84.8 U	--
Dimethylphthalate	160	**91.4**	49.3 U	243 U	**88.9** J	**1230**	--
Di-n-butylphthalate	1,400	**30.5** J	**61.1**	243 U	**580** B	**679** B	--
Di-n-octylphthalate		48.8 U	**308**	243 U	**461**	**654**	--

Table D-1: Results for storm drain solids samples collected from the T117 Adjacent Streets stormwater system (2017-2019).

Location	LDW Source Screening Levels[a]	S Donovan path[b]	Cell F[c]	Cell D	Cell C[c]	Cell D	17th-ST1[d]
Sample date		**01/09/17**	**01/08/17**	**01/09/17**	**12/18/18**	**12/18/18**	**05/08/19**
Sample No.		MBS-010917-2	MBS-010817-1	MBS-010917-1	MBS-121818-1	MBS-1211818-2	17TH-ST1-050819
System locate code		ODS51	RCB75	RCB76	RCB85	RCB76	17th-ST1
Lab SDG		17A0085	17A0085	17A0085	18L0350	18L0350	19E0222
PCBs (ug/kg dw)							
Aroclor 1016		3.9 U	4 U	3.9 U	19.6 U	19.7 U	53.4 U
Aroclor 1221		3.9 U	4 U	3.9 U	19.6 U	19.7 U	53.4 U
Aroclor 1232		3.9 U	4 U	3.9 U	19.6 U	19.7 U	53.4 U
Aroclor 1242		3.9 U	4 U	3.9 U	19.6 U	19.7 U	53.4 U
Aroclor 1248		**7.2**	**9.6**	**13.8**	19.6 U	19.7 U	53.4 U
Aroclor 1254		**11.3**	**32.6**	**26.1**	**184**	**44.5** J	**112**
Aroclor 1260		**5.9**	**32.1**	**45.2**	**272**	**63.3**	**573**
Total PCBs	1,000	**24.4**	**74.3**	**85.1**	**456**	**63.3**	**685**
Other organic compounds (ug/kg dw)							
1,2,4-Trichlorobenzene	51	48.8 U	49.3 U	243 U	29.2 U	28.6 U	--
1,2-Dichlorobenzene	50	48.8 U	49.3 U	243 U	22.8 U	22.3 U	--
1,3-Dichlorobenzene		48.8 U	49.3 U	243 U	24.8 U	24.3 U	--
1,4-Dichlorobenzene	110	48.8 U	49.3 U	243 U	21.5 U	21 U	--
1-Methylnaphthalene		48.8 U	49.3 U	243 U	29.1 U	28.5 U	--
2,2'-Oxybis(1-chloropropane)		48.8 U	49.3 U	243 U	27.8 U	27.2 U	--
2,4,5-Trichlorophenol		244 U	247 U	1,210 U	132 U	129 U	--
2,4,6-Trichlorophenol		244 U	247 U	1,210 U	124 U	122 U	--
2,4-Dichlorophenol		244 U	247 U	1,210 U	157 U	153 U	--
2,4-Dimethylphenol	29	244 U	247 U	1,210 U	131 U	128 U	--
2,4-Dinitrophenol		488 U	493 U	2,430 U	202 U	198 U	--
2,4-Dinitrotoluene		244 U	247 U	1,210 U	112 U	110 U	--
2,6-Dinitrotoluene		244 U	247 U	1,210 U	131 U	128 U	--
2-Chloronaphthalene		48.8 U	49.3 U	243 U	21.7 U	21.3 U	--
2-Chlorophenol		48.8 U	49.3 U	243 U	31.7 U	31 U	--
2-Methylnaphthalene	670	48.8 U	**24.6** J	243 U	**51.3** J	27.2 U	--
2-Methylphenol	63	48.8 U	49.3 U	243 U	38.4 U	37.6 U	--
2-Nitroaniline		244 U	247 U	1,210 U	148 U	145 U	--
2-Nitrophenol		48.8 U	49.3 U	243 U	33.9 U	33.2 U	--
3,3`-Dichlorobenzidine		244 U	247 U	1210 U	153 U	150 U	--
3-Nitroaniline		244 U	247 U	1210 U	185 U	181 U	--
4,6-Dinitro-2-Methylphenol		488 U	493 U	2430 U	247 U	242 U	--
4-Bromophenyl Phenyl Ether		48.8 U	49.3 U	243 U	29.7 U	29.1 U	--
4-Chloro-3-Methylphenol		244 U	247 U	1,210 U	141 U	138 U	--
4-Chloroaniline		244 U	247 U	1,210 U	165 U	162 U	--
4-Chlorophenyl Phenylether		48.8 U	49.3 U	243 U	34.1 U	33.4 U	--
4-Methylphenol	670	48.8 U	49.3 U	243 U	72 U	70.4 U	--
4-Nitroaniline		244 U	247 U	1,210 U	171 U	167 U	--
4-Nitrophenol		244 U	247 U	1,210 U	217 U	213 U	--
Benzoic acid	650	**338** J	**1,950**	**739** J	**2,960**	**3,170**	--
Benzyl alcohol	73	**212** J	**1,580** J	**5,760** J	**2,050**	**8,730**	--

Table D-1: Results for storm drain solids samples collected from the T117 Adjacent Streets stormwater system (2017-2019).

Location	LDW Source Screening Levels[a]	S Donovan path[b]	Cell F[c]	Cell D	Cell C[c]	Cell D	17th-ST1[d]
Sample date		**01/09/17**	**01/08/17**	**01/09/17**	**12/18/18**	**12/18/18**	**05/08/19**
Sample No.		MBS-010917-2	MBS-010817-1	MBS-010917-1	MBS-121818-1	MBS-1211818-2	17TH-ST1-050819
System locate code		ODS51	RCB75	RCB76	RCB85	RCB76	17th-ST1
Lab SDG		17A0085	17A0085	17A0085	18L0350	18L0350	19E0222
bis(2-Chloroethoxy) methane		48.8 U	49.3 U	243 U	31 U	30.4 U	--
Bis-(2-chloroethyl) ether		48.8 U	49.3 U	243 U	4530	32.5 U	--
Carbazole	540	**28.3** J	**118** J	243 U	98.4	35.3 U	--
Dibenzofuran	70	48.8 U	49.3 U	243 U	22.6 U	22.1 U	--
Hexachlorobenzene	120	48.8 U	**432**	243 U	23.2 U	22.7 U	--
Hexachlorobutadiene		48.8 U	49.3 U	243 U	24.5 U	24 U	--
Hexachlorocyclopentadiene		244 U	247 U	1,210 U	202 U	198 U	--
Hexachloroethane		48.8 U	49.3 U	243 U	27.7 U	27.1 U	--
Isophorone		48.8 U	49.3 U	243 U	37.9 U	37.1 U	--
Nitrobenzene		48.8 U	49.3 U	243 U	38.9 U	38.1 U	--
N-Nitroso-Di-N-Propylamine		48.8 U	49.3 U	243 U	52.9 U	51.8 U	--
N-Nitrosodiphenylamine	40	48.8 U	49.3 U	243 U	46.8 U	45.9 U	--
Pentachlorophenol	690	244 U	**138** J	1,210 U	153 U	150 U	--
Phenol	1,200	48.8 B	**387**	243 U	**648**	**910**	--

a. SPU uses the CSL (cleanup screening level) of the Washington State Sediment Management Standards (SMS) as a screening level to guide source tracing efforts. The dry weight equivalent of the CSL (2LAET) is used for organic contaminants for which the CSL is based on total organic carbon normalized concentrations because TOC concentrations in most storm drain solids samples are outside the acceptable range defined iin the SMS..

b. Street dirt accumulated along side of pedestrian pathway on southeast corner of Dallas Ave S and S Donovan St

c. Cell F and Cell C are located on 16th Ave S between the alley and S Cloverdale St

d. Sediment trap in the downstream end of the system. Trap in place 2 years to obtain enough material for analysis.

Table D-2 Results for samples collected in the vicinity of Seattle Iron and Metals Corporation and S Myrtle St.

SYS_SAMPLE_CODE				CB149-052709	CB157F-051110	CB157S-051110	CB163-081810	CB207-060309	CB211-042911	CB212-042911	MH100-091208	MH101-091208	MH101-110411	MH110-120309	MH111-120309
SYS_LOC_CODE				CB149	CB157	CB157	CB163	CB207	CB211	CB212	MH100B	MH101	MH101	MH110	MH111
SAMPLE_DATE				05/27/09	05/11/10	05/11/10	08/18/10	06/03/09	04/29/11	04/29/11	09/12/08	09/12/08	11/04/11	12/03/09	12/03/09
Outfall				S Garden St	S Garden St	S Garden St	S Brighton St	S Garden St	S Myrtle St	S Myrtle St	S Myrtle St	S Brighton St	S Brighton St	S Brighton St	S Brighton St
LOC_TYPE_2				CB	CB	CB	CB	CB	CB	CB	Inline	Inline	Inline	Inline	Inline
SAMPLE_METHOD				Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual
X_COORD				1,272,550	1,271,807	1,271,807	1,271,522	1,271,666	1,272,291	1,272,304	1,271,370	1,271,077	1,271,077	1,271,441	1,271,077
Y_COORD		SQS	CSL	199,861	200,279	200,279	201,025	199,904	200,284	200,184	200,336	201,127	201,127	201,405	201,127
TASK_TYPE		LAET	2LAET	CurrentPhase	CurrentPhase	CurrentPhase	CurrentPhase	Cleaned	CurrentPhase	CurrentPhase	Cleaned	Cleaned	Cleaned	Cleaned	Cleaned
Solids, Total	%			99.7	67.3	46.2	62.5	82	37.8	62.3	67.7	48.3	85.4	65	74.7
Total Organic Carbon	%			1.74	4.59	6.7	6.72	11	9.33	8.12	6.89	3.09	1.23	3.62	1.81
Metals															
Arsenic	mg/kg	57	93	10 U	**208**	17	7 U	**60**	20	10	14	50	6	18 J	**960** J
Copper	mg/kg	390	390	68	**1,890**	**2,240**	92	**7,990**	**1,930**	264	**500**	220	36 J	227 J	**998** J
Lead	mg/kg	450	530	52	**1,260**	**1,380**	114	**2,240**	351	174	**675**	178	15 J	84 J	**878** J
Mercury	mg/kg	0.41	0.59	0.03	**0.8**	**1.55**	0.19	**2.72**	0.38	0.38	**1.88**	0.28	0.02 U	0.13 J	0.4 J
Zinc	mg/kg	410	960	201	**4,940**	**5,880**	**810**	**13,300**	**5,240**	**1,260**	**2,420**	**829**	143 J	**455** J	**2,630** J
Total Petroleum Hydrocarbons															
Diesel Range Hydrocarbons	mg/kg	2,000	2,000	84	840	970	1,200	**5,200**	**14,000**	860	1,100	470	35	400	620
Motor Oil Range	mg/kg	2,000	2,000	760	**6,200**	**8,200**	**6,200**	**15,000**	**10,000**	**4,300**	**5,100**	1,100	110	930	1,700
LPAH															
Acenaphthene	ug/kg	500	500	58 U	220 U	250 U	**550** U	**740** U	57 U	57 UJ	190 U	110 U	18 U	130	**700**
Acenaphthylene	ug/kg	1,300	1,300	58 U	220 U	250 U	550 U	740 U	57 U	57 UJ	190 U	110 U	18 U	34 J	96 U
Anthracene	ug/kg	960	960	58 U	130 J	200 J	550 U	740 U	57 U	140 J	190 U	130	18 U	**7,300**	**1,300**
Fluorene	ug/kg	540	540	58 U	220 U	250 U	**550** U	**740** U	**1,200**	34 J	190 U	110 U	18 U	140	**610**
LPAH	ug/kg	5,200	5,200	58	1,180 J	1,290 J	340 J	2,100	2,650	1,222 J	320	440	11 J	**13,645** J	4,110
Naphthalene	ug/kg	2,100	2,100	58 U	150 J	210 J	550 U	740 U	350 NJ	48 J	190 U	110 U	18 U	41 J	96 U
Phenanthrene	ug/kg	1,500	1,500	58	900	880	340 J	**2,100**	1,100	1,000 J	320	310	11 J	**6,000**	**1,500**
HPAH															
Benzo(a)anthracene	ug/kg	1,300	1,600	58 U	550 J	800 J	550 U	1,200	160	320 J	290	400	18 U	**13,000**	1,000
Benzo(a)pyrene	ug/kg	1,600	1,600	58 U	440	580	550 U	940	140	120 J	580	550	13 J	**8,400**	1,000
Benzo(g,h,i)perylene	ug/kg	670	720	58 U	180 J	270	440 J	**740** U	180	130 J	410	240	21	**1,500**	240
Benzofluoranthenes, Total	ug/kg	3,200	3,600	58 U	1,180	1,780	550 U	2,400	390	370 J	1,340	1,990	26	**17,400**	2,200
Chrysene	ug/kg	1,400	2,800	83	990	**1,600**	550 U	**1,800**	420	470 J	490	850	22	**15,000**	**1,600**
Dibenzo(a,h)anthracene	ug/kg	230	230	58 U	55 J	**250** U	**550** U	**740** U	37 J	57 UJ	95 J	110 U	18 U	**1,100**	75 J
Fluoranthene	ug/kg	1,700	2,500	29 J	**1,700**	**2,400**	550	**3,700**	470	1,600 J	770	1,600	20	**27,000**	**4,100**
HPAH	ug/kg	12,000	17,000	112 J	**6,325** J	**9,130** J	**1,490** J	**13,240**	**2,737** J	**4,484** J	**4,925** J	**7,640**	136 J	**110,200**	**13,465** J
Indeno(1,2,3-cd)pyrene	ug/kg	600	690	58 U	130 J	200 J	550 U	**740** U	120	74 J	290	210	11 J	**1,800**	250
Pyrene	ug/kg	2,600	3,300	58 U	1,100	1,500	500 J	**3,200**	820	1,400 J	660	1,800	23	**25,000**	**3,000**
Phthalates															
Bis(2-ethylhexyl)phthalate	ug/kg	1,300	1,900	360 U	**33,000**	**41,000**	**10,000**	**62,000**	**14,000** B	**11,000** J	**3,000**	**12,000**	170 B	**7,500**	**4,700**
Butylbenzylphthalate	ug/kg	63	900	58 U	**5,000**	**4,300**	**550** U	**6,000**	**660** J	**800** J	**1,500**	**310**	48	**250**	**150**
Diethylphthalate	ug/kg	200	1,200	58 U	**220** U	**250** U	**550** U	**740** U	57 U	57 UJ	190 U	110 U	46 U	66 U	50 J
Dimethylphthalate	ug/kg	71	160	35 J	**2,500**	**620**	**520** J	**1,400**	57 U	**160** J	**200**	**110** U	18 U	66 U	49 J
Di-n-butylphthalate	ug/kg	1,400	1,400	58 U	**1,500**	1,200	550 U	**2,300**	57 U	57 UJ	400	110 U	18 U	41 J	140
Di-n-octylphthalate	ug/kg	6,200	6,200	38 J	2,200	3,400	550 U	6,000	1,200	57 UJ	190	140	18 U	190	530
PCBs															
Aroclor 1016	ug/kg			19 U	48 U	60 U	20 U	470 U	20 U	19 U	200 U	59 U	18 U	20 U	26 U
Aroclor 1221	ug/kg			19 U	48 U	60 U	20 U	470 U	20 U	19 U	200 U	59 U	18 U	20 U	26 U
Aroclor 1232	ug/kg			19 U	48 U	60 U	20 U	470 U	20 U	19 U	200 U	59 U	18 U	20 U	26 U
Aroclor 1242	ug/kg			19 U	48 U	60 U	160	470 U	20 U	19 U	200 U	59 U	18 U	20 U	26 U
Aroclor 1248	ug/kg			19 U	1,300	1,400	20 U	7,100	330	100	390 Y	78	18 U	39	52
Aroclor 1254	ug/kg			26	1,400	2,200	100	8,600	550	150	1,200	130	18 U	61 J	87
Aroclor 1260	ug/kg			34	260	420	51	2,600 J	140	110	350	120 J	18 U	43	51
Total PCBs	ug/kg	130	1,000	60	**2,960**	**4,020**	**311**	**18,300** J	**1,020**	**360**	**1,550**	**328** J	18 U	**143** J	**190**

Table D-2 Results for samples collected in the vicinity of Seattle Iron and Metals Corporation and S Myrtle St.

SYS_SAMPLE_CODE				MH204-011509-G	MH205-011509-G	MH205-072512	MH222-052109	MH222-080312	MH223-052109	MH224-052109	MH225-052109	MH226-052609	MH226-080312	MH227-052609	MH240-060309
SYS_LOC_CODE				MH204	MH205	MH205	MH222	MH222	MH223	MH224	MH225	MH226	MH226	MH227	MH240
SAMPLE_DATE				01/15/09	01/15/09	07/25/12	05/21/09	08/03/12	05/21/09	05/21/09	05/21/09	05/26/09	08/03/12	05/26/09	06/03/09
Outfall				S Brighton St	S Brighton St	S Brighton St	S Brighton St	S Brighton St	S Brighton St	S Brighton St	S Brighton St	S Brighton St	S Brighton St	S Brighton St	S Garden St
LOC_TYPE_2				Inline	Inline	Inline	Inline	Inline	Inline	Inline	Inline	Inline	Inline	Inline	Inline
SAMPLE_METHOD				Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual
X_COORD				1,271,934	1,271,077	1,271,077	1,270,366	1,270,366	1,270,727	1,271,124	1,271,355	1,271,510	1,271,510	1,270,727	1,271,720
Y_COORD		SQS	CSL	201,803	201,127	201,127	201,143	201,143	201,133	201,125	200,876	201,105	201,105	201,133	199,909
TASK_TYPE		LAET	2LAET	CurrentPhase	Cleaned	CurrentPhase	Cleaned	CurrentPhase	Cleaned	Cleaned	Cleaned	Cleaned	CurrentPhase	Cleaned	Cleaned
Solids, Total	%			61.9	73.2	86.5	84	79	84.2	46.5	43.2	69.9	82.4	81.3	42.9
Total Organic Carbon	%			6.58	3.56	0.314	0.42	2.24	0.9	6.75	5.5	5.29	5.24	0.73	18.7
Metals															
Arsenic	mg/kg	57	93	8	**125**	12	46 J	12	**1,420** J	30 J	40 J	**58** J	10 U	**1,270** J	40 J
Copper	mg/kg	390	390	200	209	40 J	86 J	25	**831** J	227 J	335 J	273 J	99	**848** J	**2,200** J
Lead	mg/kg	450	530	361	121	448	90 J	24	**977** J	222 J	**473** J	**757** J	119	**957** J	**1,710** J
Mercury	mg/kg	0.41	0.59	**1.19**	0.15	0.02 U	0.06 J	0.04	0.13 J	**0.46** J	**1.15** J	**3.41** J	0.12	0.24 J	**4.29** J
Zinc	mg/kg	410	960	**586**	**710**	204 J	247 J	198	**4,000** J	**959** J	**709** J	**905** J	**519**	**3,600** J	**8,960** J
Total Petroleum Hydrocarbons															
Diesel Range Hydrocarbons	mg/kg	2,000	2,000	410	220	27 U	98	35	370	570	**21,000**	1,100	95	360	**17,000**
Motor Oil Range	mg/kg	2,000	2,000	**2,000**	920	92	200	140	760	1,400	**30,000**	**4,900**	690	910	**60,000**
LPAH															
Acenaphthene	ug/kg	500	500	39 J	66	18 U	63	19 U	87	58 U	170 U	190 U	54	120	**1,800** J
Acenaphthylene	ug/kg	1,300	1,300	27 J	39 U	18 U	20 U	19 U	58 U	58 U	170 U	190 U	54 U	68 U	**2,700** U
Anthracene	ug/kg	960	960	290	180	18 U	**1,400**	10 J	290	33 J	170 U	170 J	150	570	**3,200**
Fluorene	ug/kg	540	540	54	70	18 U	120	19 U	75	58 U	170 U	190 U	67	110	**4,600**
LPAH	ug/kg	5,200	5,200	975 J	756	10 J	1,908	44 J	772	213 J	170 U	1,370 J	1,076 J	1,420	**29,700** J
Naphthalene	ug/kg	2,100	2,100	25 J	39 U	18 U	25	19 U	58 U	58 U	170 U	190 U	35 J	68 U	**4,100**
Phenanthrene	ug/kg	1,500	1,500	540	440	10 J	300	34	320	180	170 U	1,200	770	620	**16,000**
HPAH															
Benzo(a)anthracene	ug/kg	1,300	1,600	410	260	18 U	120	25	180	130	160 J	960	480	460	**5,100**
Benzo(a)pyrene	ug/kg	1,600	1,600	680	330	18 U	73	28	140	130	220	1,200	530	370	**4,000**
Benzo(g,h,i)perylene	ug/kg	670	720	440	180	14 J	19 J	23 J	34 J	65	160 J	**860**	330 J	150	**2,700** U
Benzofluoranthenes, Total	ug/kg	3,200	3,600	1,490	750	16 J	142	70	320	360	510	2,100	1,100	710	**8,200**
Chrysene	ug/kg	1,400	2,800	570	390	16 J	160	44	300	200	540	**1,500**	810	630	**7,300**
Dibenzo(a,h)anthracene	ug/kg	230	230	88 J	25 J	18 U	20 U	19 U	58 U	58 U	170 U	130 J	86	68 U	**2,700** U
Fluoranthene	ug/kg	1,700	2,500	1,100	780	25	590	64	880	350	430	**2,200**	1,200	**1,800**	**16,000**
HPAH	ug/kg	12,000	17,000	**6,128** J	**3,675** J	94 J	**1,483** J	333 J	**2,520** J	**1,575** J	**3,820** J	**11,270** J	**5,996** J	**5,460**	**55,600**
Indeno(1,2,3-cd)pyrene	ug/kg	600	690	400	170	18 U	19 J	17 J	36 J	50 J	100 J	**620**	260	140	**2,700** U
Pyrene	ug/kg	2,600	3,300	950	790	23	360	62	630	290	1,700	1,700	1,200	1,200	**15,000**
Phthalates															
Bis(2-ethylhexyl)phthalate	ug/kg	1,300	1,900	**2,200**	**2,300**	110 J	160	350 B	820	1,100	**5,000**	**1,300**	**1,300** B	1,100	**210,000**
Butylbenzylphthalate	ug/kg	63	900	**400**	**110**	**76** J	20 U	**84**	58 U	**220**	**170** U	**340**	**380**	**68** U	**12,000**
Diethylphthalate	ug/kg	200	1,200	40 U	39 U	45 U	20 U	47 U	58 U	58 U	170 U	190 U	140 U	68 U	**2,700** U
Dimethylphthalate	ug/kg	71	160	**79**	39 U	18 U	20 U	19 U	58 U	35 J	**170** U	**190** U	59	68 U	**4,200**
Di-n-butylphthalate	ug/kg	1,400	1,400	160	36 J	18 U	20 U	180	58 U	49 J	170 U	130 J	54	68 U	**2,600** J
Di-n-octylphthalate	ug/kg	6,200	6,200	130	200	10 J	42	19 U	580	41 J	130 J	190 U	54 U	550	**23,000**
PCBs															
Aroclor 1016	ug/kg			400 U	18 U	18 U	20 U	17 U	20 U	20 U	20 U	97 U	17 U	19 U	420 U
Aroclor 1221	ug/kg			400 U	18 U	18 U	20 U	17 U	20 U	20 U	20 U	97 U	17 U	19 U	420 U
Aroclor 1232	ug/kg			400 U	18 U	18 U	20 U	17 U	20 U	20 U	20 U	97 U	17 U	19 U	420 U
Aroclor 1242	ug/kg			400 U	18 U	18 U	20 U	17 U	20 U	20 U	20 U	97 U	17 U	19 U	17,000
Aroclor 1248	ug/kg			400 U	30	18 U	20 U	11 J	20 U	20 U	99 Y	97 U	43	20	420 U
Aroclor 1254	ug/kg			400 U	61	18 U	20 U	13 J	40	34	370	97 U	59	34	6,400
Aroclor 1260	ug/kg			620	57	18 U	28	15 J	39	39 J	410	350	56 J	47 J	1,600 J
Total PCBs	ug/kg	130	1,000	**620**	**148**	18 U	28	39 J	79	73 J	**780**	**350**	**158** J	101 J	**25,000** J

Table D-2 Results for samples collected in the vicinity of Seattle Iron and Metals Corporation and S Myrtle St.

SYS_SAMPLE_CODE				RCB146-091208	RCB147-091208	RCB148-091208	RCB169-042909	RCB176-120309	RCB177-120309	RCB178-120309	RCB179-120309	RCB180-120309	RCB189F-051110	RCB211-052609	RCB212-052609
SYS_LOC_CODE				RCB146	RCB147	RCB148	RCB169	RCB176	RCB177	RCB178	RCB179	RCB180	RCB189	RCB211	RCB212
SAMPLE_DATE				09/12/08	09/12/08	09/12/08	04/29/09	12/03/09	12/03/09	12/03/09	12/03/09	12/03/09	05/11/10	05/26/09	05/26/09
Outfall				S Garden St	S Myrtle St	S Myrtle St	S Brighton St	S Myrtle St	S Brighton St	S Brighton St	S Brighton St	S Myrtle St	S Myrtle St	S Brighton St	S Brighton St
LOC_TYPE_2				RCB	RCB	RCB	RCB	RCB	RCB	RCB	RCB	RCB	RCB	RCB	RCB
SAMPLE_METHOD				Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual
X_COORD				1,271,999	1,271,950	1,271,988	1,270,366	1,271,851	1,271,650	1,271,636	1,271,429	1,271,372	1,271,799	1,271,217	1,271,217
Y_COORD		SQS	CSL	199,826	200,078	200,316	201,143	200,349	200,599	200,533	200,758	200,386	200,322	201,039	201,039
TASK_TYPE		LAET	2LAET	Cleaned	CurrentPhase	Cleaned	Cleaned	Cleaned	Cleaned	Cleaned	Cleaned	Cleaned	CurrentPhase	Cleaned	Cleaned
Solids, Total	%			52.4		62.1		83.1	56.6	52.3	43.1	66	65.9	59.3	59.2
Total Organic Carbon	%			7.74		9.4		1.55	5.95	5.82	13.8	3.58	4.85	7.11	6.52
Metals															
Arsenic	mg/kg	57	93	11		7		7 J	17 J	18 J	20 J	7 J	22	23 J	21 J
Copper	mg/kg	390	390	**1,020**		386		291 J	242 J	327 J	238 J	**1,110** J	**3,280**	230 J	186 J
Lead	mg/kg	450	530	**670**		**467**		230	290	275	284	192	**904**	170 J	183 J
Mercury	mg/kg	0.41	0.59	**1.08**		**0.74**		**0.42**	**0.45**	0.39	0.36	0.33	**0.66**	0.13 J	0.13 J
Zinc	mg/kg	410	960	**2,900**		**1,950**		**985**	**1,100**	**1,340**	**1,400**	**1,500**	**3,890**	**938** J	**949** J
Total Petroleum Hydrocarbons															
Diesel Range Hydrocarbons	mg/kg	2,000	2,000	130		**2,800**	**6,800**	1,300	1,000	1,200	**4,700**	500	1,800	**3,000**	**4,800**
Motor Oil Range	mg/kg	2,000	2,000	760		**10,000**	**12,000**	**6,300**	**4,200**	**6,600**	**13,000**	**2,900**	**8,600**	**13,000**	**20,000**
LPAH															
Acenaphthene	ug/kg	500	500	140 U	**590** U	280		250	170 U	220 U	260 U	200	330 U	310 U	380 U
Acenaphthylene	ug/kg	1,300	1,300	140 U	590 U	260 U		230 U	170 U	220 U	260 U	100 U	330 U	310 U	380 U
Anthracene	ug/kg	960	960	130 J	590 U	450		300	180	220 U	210 J	460	200 J	310 U	380 U
Fluorene	ug/kg	540	540	100 J	**590** U	490		320	120 J	220 U	190 J	360	240 J	310 U	380 U
LPAH	ug/kg	5,200	5,200	1,140		4,790		2,970	1,120	450	1,740	3,640	2,510 J	920	1,090
Naphthalene	ug/kg	2,100	2,100	110 J	1,000	970		200 J	110 J	220 U	140 J	120	470	180 J	210 J
Phenanthrene	ug/kg	1,500	1,500	800	570 J	**2,600**		**1,900**	710	450	1,200	**2,500**	**1,600**	740	880
HPAH															
Benzo(a)anthracene	ug/kg	1,300	1,600	450	330 J	950		820	540	370	750	790	610 J	400	440
Benzo(a)pyrene	ug/kg	1,600	1,600	490	590 U	670		720	650	470	800	720	520	360	380
Benzo(g,h,i)perylene	ug/kg	670	720	280	590 U	250 J		530	460	350	560	200	220 J	360	380 J
Benzofluoranthenes, Total	ug/kg	3,200	3,600	1,820	1,030	1,770		1,540	1,700	1,320	2,200	1,580	1,220	1,000	1,220
Chrysene	ug/kg	1,400	2,800	1,200	620	**1,500**		**1,400**	1,200	990	**1,900**	1,200	1,300	1,200	**1,400**
Dibenzo(a,h)anthracene	ug/kg	230	230	92 J	**590** U	**260** U		210 J	140 J	220 U	200 J	66 J	**330** U	**310** U	**380** U
Fluoranthene	ug/kg	1,700	2,500	**1,800**	1,100	**3,000**		**2,500**	1,600	890	**2,800**	**2,400**	**2,200**	1,600	**2,400**
HPAH	ug/kg	12,000	17,000	**8,152** J		**11,710** J		**10,370** J	**8,290** J	**5,710**	**12,690** J	**8,736** J	**7,770** J	**6,200** J	**8,140** J
Indeno(1,2,3-cd)pyrene	ug/kg	600	690	220	590 U	170 J		350	400	220	380	180	330 U	180 J	220 J
Pyrene	ug/kg	2,600	3,300	1,800	1,100	**3,400**		2,300	1,600	1,100	**3,100**	1,600	1,700	1,100	1,700
Phthalates															
Bis(2-ethylhexyl)phthalate	ug/kg	1,300	1,900	**47,000**	**35,000**	**36,000**		**23,000**	**21,000**	**15,000**	**28,000**	**6,800**	**84,000**	**24,000**	**38,000**
Butylbenzylphthalate	ug/kg	63	900	**2,100**	**1,900**	**4,400**		**2,100**	**1,400**	**2,100**	**1,800**	**1,500**	**6,200**	**3,000**	**5,000**
Diethylphthalate	ug/kg	200	1,200	140 U	**590** U	**360**		130 J	170 U	**220** U	140 J	63 J	**330** U	**310** U	**380** U
Dimethylphthalate	ug/kg	71	160	**360**	**590** U	**230** J		**780**	**420**	**1,400**	**510**	**360**	**870**	**310** U	**380** U
Di-n-butylphthalate	ug/kg	1,400	1,400	750	1,100	670		680	400	470	860	270	**3,200**	630	970
Di-n-octylphthalate	ug/kg	6,200	6,200	1,100	1,500	2,900		3,400	860	740	2,600	770	3,500	2,900	4,800
PCBs															
Aroclor 1016	ug/kg			200 U		400 U	99 U	58 U	92 U	91 U	67 U	45 U	34 U	96 U	99 U
Aroclor 1221	ug/kg			200 U		400 U	99 U	58 U	92 U	91 U	67 U	45 U	34 U	96 U	99 U
Aroclor 1232	ug/kg			200 U		400 U	99 U	58 U	92 U	91 U	67 U	45 U	34 U	96 U	99 U
Aroclor 1242	ug/kg			200 U		400 U	99 U	58 U	92 U	91 U	67 U	45 U	34 U	96 U	99 U
Aroclor 1248	ug/kg			860		1,600	600 J	980	1,300	700	660	300	1,300	180	210
Aroclor 1254	ug/kg			1,200		2,100	1,400	1,100	1,500	910	770	390	1,400	180	240
Aroclor 1260	ug/kg			500		400 U	910	280	660	390 J	310	150	250	110	150 J
Total PCBs	ug/kg	130	1,000	**2,560**		**3,700**	**2,910**	**2,360**	**3,460**	**2,000**	**1,740**	**840**	**2,950**	**470**	**600**

Table D-2 Results for samples collected in the vicinity of Seattle Iron and Metals Corporation and S Myrtle St.

SYS_SAMPLE_CODE				RCB225-020211	RCB226-020211	RD1-051110	RD2-051110	RCB62-020515	MKJ-052518-6	SMYRTLE_NORTON_053118	SMYRTLE_TRENT_053118	SMYRTLE_RORY_053118	Myr-Rory-051619	Myr-Hamlin-051619	Myrtle-STP-Norton-051619
SYS_LOC_CODE				RCB225	RCB226	RD1	RD2	RCB65	MH100	MYR-ST1	MYR-ST1	MYR-ST1	MYR-ST1	MYR-ST1	MYR-ST1
SAMPLE_DATE				02/02/11	02/02/11	05/11/10	05/11/10	02/05/15	05/25/18	05/31/18	05/31/18	05/31/18	05/16/19	05/16/19	05/16/19
Outfall				S Myrtle St	S Myrtle St	S Garden St	S Myrtle St	S Myrtle St	S Myrtle St	S Myrtle St	S Myrtle St	S Myrtle St	S Myrtle St	S Myrtle St	S Myrtle St
LOC_TYPE_2				RCB	RCB	CB	CB	RCB	Inline	Inline	Inline	Inline	Inline	Inline	Inline
SAMPLE_METHOD				Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab	Grab	Trap	Trap	Trap	Trap	Trap	Trap
X_COORD				1,271,990	1,271,799	1,271,911	1,271,322	1,271,547	1,271,370	1,271,649	1,271,649	1,271,649	1,271,649	1,271,649	1,271,649
Y_COORD		SQS	CSL	200,350	200,322	200,257	200,278	200,328	200,336	200,329	200,329	200,329	200,329	200,329	200,329
TASK_TYPE		LAET	2LAET	CurrentPhase	CurrentPhase	Cleaned	Cleaned	Post clean	Post clean	Post clean	Post clean	Post clean	Post clean	Post clean	Post clean
Solids, Total	%			36.1	82.3	49.2	29.6	51.11	68.54	34.01	29.85	33.04	38.26	44.94	36.56
Total Organic Carbon	%			6.43	4.82	8.84	8.37	7.27	8.37	--	--	--	--	13.7	--
Metals															
Arsenic	mg/kg	57	93	20	6	18	21	**20**	17.9 U	**13**	**17**	**15**	**22.6** J	**22.6** J	**23.4** J
Copper	mg/kg	390	390	**860**	193	**1,090**	**975**	**382**	**444**	**544**	**657**	**620**	**815**	**691**	**692**
Lead	mg/kg	450	530	**724**	256	**1,410**	**1,700**	**334**	**498** J	**538**	**557**	**616**	**654**	**642**	**690**
Mercury	mg/kg	0.41	0.59	**1.53**	0.24	**0.92**	**2.56**	**0.69**	**1.39**	**1.42**	**1.58**	**1.9**	**1.58**	**1.67**	**1.7**
Zinc	mg/kg	410	960	**4,170**	**763**	**5,370**	**8,310**	**2,470**	**2,940**	**3,250**	**3,210**	**4,020**	**4,050**	**4,390**	**4,000**
Total Petroleum Hydrocarbons															
Diesel Range Hydrocarbons	mg/kg	2,000	2,000	**7,200**	**620**	**210**	**190**	**2,000**	**814**	--	--	--	--	**1,790**	--
Motor Oil Range	mg/kg	2,000	2,000	**20,000**	**2,700**	**2,400**	**1,700**	**7,100**	**2,520**	--	--	--	--	**7,950**	--
LPAH															
Acenaphthene	ug/kg	500	500	**970** U	210 U	88 U	150 U	140 U	**30.3** J	**164** J	**144** J	244 U	313 U	**85.7** J	**97.3** J
Acenaphthylene	ug/kg	1,300	1,300	970 U	210 U	88 U	150 U	**36** J	**53.4** J	**188** J	**136** J	244 U	**83.7** J	**102**	**104** J
Anthracene	ug/kg	960	960	**970** U	210 U	88 U	**190**	**140** J	**101**	**286** J	**228** J	**294** J	**209** J	**221**	**225**
Fluorene	ug/kg	540	540	**970** U	210 U	88 U	**86** J	**86** J	**46.9** J	**383** J	**193** J	**225** J	**120** J	**96**	**105** J
LPAH	ug/kg	5,200	5,200	3,040 J	**220**	706 J	**1,506** J	**1,312** J	**744**	**2,271** J	**1,492** J	**1,416** J	**1,616** J	**1,855** J	**2,012** J
Naphthalene	ug/kg	2,100	2,100	840 J	210 U	**66** J	**130** J	**180**	**126**	**190** J	**164** J	**149** J	**319**	**362**	**411**
Phenanthrene	ug/kg	1,500	1,500	**2,200**	**220**	**640**	**1,100**	**690**	**386**	**1,060** J	**627** J	**748** J	**884**	**986**	**1,070**
HPAH															
Benzo(a)anthracene	ug/kg	1,300	1,600	**570** J	**230**	**440**	**720**	**480**	**306**	**676** J	**531** J	**659** J	**919** J	**789**	**667**
Benzo(a)pyrene	ug/kg	1,600	1,600	**780** J	**260**	**670**	**1,000**	**540**	**380**	**638** J	**520** J	**596** J	**795**	**779**	**796**
Benzo(g,h,i)perylene	ug/kg	670	720	**890** J	**200** J	**290**	**440**	**270** J	**431**	**920** J	**682** J	**824** J	**625**	**392**	**317**
Benzofluoranthenes, Total	ug/kg	3,200	3,600	1,700	**510**	**1,400**	**3,000**	**1,200**	**932**	**1,230** J	**1,110** J	**1,380** J	**2,080**	**2,080**	**1,770**
Chrysene	ug/kg	1,400	2,800	**1,800**	410	**1,400**	**1,300**	**800**	**497**	**1,070** J	**830** J	**1,100** J	**1,170**	**1,480**	**1,560**
Dibenzo(a,h)anthracene	ug/kg	230	230	**970** U	210 U	**70** J	**120** J	**100** J	**102**	**216** J	**212** J	**251** J	**139** J	**162**	**100**
Fluoranthene	ug/kg	1,700	2,500	**2,800**	**540**	**1,400**	**2,600**	**1,100**	**510**	**1,470** J	**1,000** J	**1,290** J	**2,250**	**1,620**	**1,970**
HPAH	ug/kg	12,000	17,000	**11,840** J	**2,820** J	**6,750** J	**10,940** J	**5,810**	**4,003**	**8,491** J	**6,682** J	**8,412** J	**11,401** J	**9,691** J	**9,757** J
Indeno(1,2,3-cd)pyrene	ug/kg	600	690	**500** J	**160** J	**170**	**360**	**220** J	**292**	**501** J	**417** J	**482** J	**423**	**229**	**187**
Pyrene	ug/kg	2,600	3,300	**2,800**	**510**	**910**	**1,400**	**1,100**	**553**	**1,770** J	**1,380** J	**1,830** J	**3,000** J	**2,160** J	**2,390** J
Phthalates															
Bis(2-ethylhexyl)phthalate	ug/kg	1,300	1,900	**61,000** B	**5,700** B	**11,000**	**12,000**	**14,000**	**4,100**	--	--	--	**56,700**	**29,000**	**54,300**
Butylbenzylphthalate	ug/kg	63	900	**5,900**	**1,500**	**2,200**	**4,600**	**1,900** J	**1,300**	--	--	--	**2,420**	**3,350**	**2,210**
Diethylphthalate	ug/kg	200	1,200	**970** U	**210** U	88 U	150 U	140 U	95.9 U	--	--	--	313 U	**93.8** J	**165**
Dimethylphthalate	ug/kg	71	160	**1,400**	**370**	**510**	**1,100**	**430**	**329**	--	--	--	**1,000**	**1,610**	**1,030**
Di-n-butylphthalate	ug/kg	1,400	1,400	**1,600**	**230**	**670**	**2,200**	**550**	**541**	--	--	--	**1,010**	**1,320**	**860**
Di-n-octylphthalate	ug/kg	6,200	6,200	970 U	210 U	920	**970**	140 UJ	**325**	--	--	--	**3,330**	43.4 U	**860**
PCBs															
Aroclor 1016	ug/kg			330 U	20 U	40 U	66 U	19 U	18.8 U	19.5 U	19.7 U	19.8 U	8 U	19.9 U	19.5 U
Aroclor 1221	ug/kg			330 U	20 U	40 U	66 U	19 U	18.8 U	19.5 U	19.7 U	19.8 U	8 U	19.9 U	19.5 U
Aroclor 1232	ug/kg			330 U	20 U	40 U	66 U	19 U	18.8 U	19.5 U	19.7 U	19.8 U	8 U	19.9 U	19.5 U
Aroclor 1242	ug/kg			**5,100**	20 U	40 U	66 U	**930**	18.8 U	19.5 U	19.7 U	19.8 U	8 U	19.9 U	19.5 U
Aroclor 1248	ug/kg			330 U	**360**	**570**	**1,800**	19 U	**403**	**1,150**	**1,130**	**1,390**	**406**	**420** J	**479**
Aroclor 1254	ug/kg			**2,300**	**380**	**1,100**	**2,200**	**670**	**571**	**862**	**976**	**1,070**	**435**	**417** J	**524** J
Aroclor 1260	ug/kg			**830** J	**120**	**260**	570	**150**	**170**	**314**	**340**	**435**	**189**	**269** J	**194**
Total PCBs	ug/kg	130	1,000	**8,230** J	**860**	**1,930**	**4,570**	**1,750**	**1,144**	**2,326**	**2,446**	**2,895**	**1,030**	**1,106** J	**1,215** J

Table D-2 Results for samples collected in the vicinity of Seattle Iron and Metals Corporation and S Myrtle St.

SYS_SAMPLE_CODE				Myr-Trent-051619	MKJ-122216-1	MKJ-122216-2	MKJ-052518-
SYS_LOC_CODE				MYR-ST1	ODS38	RCB178	MH223
SAMPLE_DATE				05/16/19	12/22/16	12/22/16	05/25/18
Outfall				S Myrtle St	S Brighton St	S Brighton St	S Brighton St
LOC_TYPE_2				Inline	ODS	RCB	Inline
SAMPLE_METHOD				Trap	Grab	Grab	Grab
X_COORD				1,271,649	1,271,642	1,271,636	1,270,727
Y_COORD		SQS	CSL	200,329	200,526	200,533	201,133
TASK_TYPE		LAET	2LAET	Post clean	NA	Post clean	Post clean
Solids, Total	%			31.65	75	56.09	36.16
Total Organic Carbon	%			--	3.56	7.02	3.12
Metals							
Arsenic	mg/kg	57	93	--	--	--	**29.6**
Copper	mg/kg	390	390	--	--	--	**158**
Lead	mg/kg	450	530	--	--	--	**150**
Mercury	mg/kg	0.41	0.59	--	--	--	**0.267**
Zinc	mg/kg	410	960	--	--	--	**970**
Total Petroleum Hydrocarbons							
Diesel Range Hydrocarbons	mg/kg	2,000	2,000	--	--	--	**935**
Motor Oil Range	mg/kg	2,000	2,000	--	--	--	**3,350**
LPAH							
Acenaphthene	ug/kg	500	500	--	--	--	**78**
Acenaphthylene	ug/kg	1,300	1,300	--	--	--	**36**
Anthracene	ug/kg	960	960	--	--	--	**122**
Fluorene	ug/kg	540	540	--	--	--	**120**
LPAH	ug/kg	5,200	5,200	--	--	--	**846**
Naphthalene	ug/kg	2,100	2,100	--	--	--	**47.3**
Phenanthrene	ug/kg	1,500	1,500	--	--	--	**443**
HPAH							
Benzo(a)anthracene	ug/kg	1,300	1,600	--	--	--	**277**
Benzo(a)pyrene	ug/kg	1,600	1,600	--	--	--	**241**
Benzo(g,h,i)perylene	ug/kg	670	720	--	--	--	**230**
Benzofluoranthenes, Total	ug/kg	3,200	3,600	--	--	--	**759**
Chrysene	ug/kg	1,400	2,800	--	--	--	**602**
Dibenzo(a,h)anthracene	ug/kg	230	230	--	--	--	**54.9**
Fluoranthene	ug/kg	1,700	2,500	--	--	--	**857**
HPAH	ug/kg	12,000	17,000	--	--	--	**3,977**
Indeno(1,2,3-cd)pyrene	ug/kg	600	690	--	--	--	**156**
Pyrene	ug/kg	2,600	3,300	--	--	--	**800**
Phthalates							
Bis(2-ethylhexyl)phthalate	ug/kg	1,300	1,900	--	--	--	**4,040**
Butylbenzylphthalate	ug/kg	63	900	--	--	--	**410**
Diethylphthalate	ug/kg	200	1,200	--	--	--	95.4
Dimethylphthalate	ug/kg	71	160	--	--	--	95.4
Di-n-butylphthalate	ug/kg	1,400	1,400	--	--	--	**22,100**
Di-n-octylphthalate	ug/kg	6,200	6,200	--	--	--	**125**
PCBs							
Aroclor 1016	ug/kg			44.1 U	18.8 U	18.4 U	19.8
Aroclor 1221	ug/kg			44.1 U	18.8 U	18.4 U	19.8
Aroclor 1232	ug/kg			44.1 U	18.8 U	18.4 U	19.8
Aroclor 1242	ug/kg			44.1 U	18.8 U	18.4 U	19.8
Aroclor 1248	ug/kg			**385**	**81.1**	**261**	**103**
Aroclor 1254	ug/kg			**479** J	**130**	**195**	**97**
Aroclor 1260	ug/kg			**261**	**149** J	**106** J	**144**
Total PCBs	ug/kg	130	1,000	**1,125** J	**360** J	**562** J	**344**

Table D-2 Results for samples collected in the vicinity of Seattle Iron and Metals Corporation and S Myrtle St.

SYS_SAMPLE_CODE				CB149-052709	CB157F-051110	CB157S-051110	CB163-081810	CB207-060309	CB211-042911	CB212-042911	MH100-091208	MH101-091208	MH101-110411	MH110-120309	MH111-120309
SYS_LOC_CODE				CB149	CB157	CB157	CB163	CB207	CB211	CB212	MH100B	MH101	MH101	MH110	MH111
SAMPLE_DATE				05/27/09	05/11/10	05/11/10	08/18/10	06/03/09	04/29/11	04/29/11	09/12/08	09/12/08	11/04/11	12/03/09	12/03/09
Outfall				S Garden St	S Garden St	S Garden St	S Brighton St	S Garden St	S Myrtle St	S Myrtle St	S Myrtle St	S Brighton St	S Brighton St	S Brighton St	S Brighton St
LOC_TYPE_2				CB	CB	CB	CB	CB	CB	CB	Inline	Inline	Inline	Inline	Inline
SAMPLE_METHOD				Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual
X_COORD				1,272,550	1,271,807	1,271,807	1,271,522	1,271,666	1,272,291	1,272,304	1,271,370	1,271,077	1,271,077	1,271,441	1,271,077
Y_COORD		SQS	CSL	199,861	200,279	200,279	201,025	199,904	200,284	200,184	200,336	201,127	201,127	201,405	201,127
TASK_TYPE		LAET	2LAET	CurrentPhase	CurrentPhase	CurrentPhase	CurrentPhase	Cleaned	CurrentPhase	CurrentPhase	Cleaned	Cleaned	Cleaned	Cleaned	Cleaned
Other Organic Compounds															
1,2,4-Trichlorobenzene	ug/kg	31	51	**58** U	**220** U	**250** U	**550** U	**740** U	**57** U	**57** UJ	**190** U	**110** U	18 U	**66** U	**96** U
1,2-Dichlorobenzene	ug/kg	35	50	**58** U	**220** U	**250** U	**550** U	**740** U	**57** U	**57** UJ	**190** U	**110** U	18 U	**56** J	**54** J
1,3-Dichlorobenzene	ug/kg			58 U	220 U	250 U	550 U	740 U	57 U	57 UJ	190 U	110 U	18 U	66 U	96 U
1,4-Dichlorobenzene	ug/kg	110	110	58 U	**220** U	**250** U	**550** U	**740** U	57 U	57 UJ	**190** U	82 J	18 U	**260**	**110**
1-Methylnaphthalene	ug/kg						550 U		1,400	37 J			18 U	35 J	98
2,2'-Oxybis(1-chloropropane)	ug/kg			58 U	220 U	250 U	550 U	740 U	57 U	57 UJ	190 U	110 U	18 U	66 U	96 U
2,4,5-Trichlorophenol	ug/kg			290 U	1,100 U	1,200 U	2,800 U	3,700 U	290 UJ	280 UJ	940 U	540 U	92 U	330 U	480 U
2,4,6-Trichlorophenol	ug/kg			290 U	1,100 U	1,200 U	2,800 U	3,700 U	290 UJ	280 UJ	940 U	540 U	92 U	330 U	480 U
2,4-Dichlorophenol	ug/kg			290 U	1,100 U	1,200 U	2,800 U	3,700 U	290 UJ	280 UJ	940 U	540 U	180 U	330 U	480 U
2,4-Dimethylphenol	ug/kg	29		**58** U	**220** U	**250** U	**550** U	**740** U	**57** UJ	**57** UJ	**190** U	**110** U	**37** U	**66** U	**96** U
2,4-Dinitrophenol	ug/kg			580 U	2,200 U	2,500 U	5,500 U	7,400 U	610 UJ	600 UJ	1,900 U	1,100 U	780 U	660 UJ	960 U
2,4-Dinitrotoluene	ug/kg			290 U	1,100 U	1,200 U	2,800 U	3,700 U	290 U	280 UJ	940 U	540 U	92 U	330 U	480 U
2,6-Dinitrotoluene	ug/kg			290 U	1,100 U	1,200 U	2,800 U	3,700 U	290 U	280 UJ	940 U	540 U	92 U	330 U	480 U
2-Chloronaphthalene	ug/kg			58 U	220 U	250 U	550 U	740 U	57 U	57 UJ	190 U	110 U	18 U	66 U	96 U
2-Chlorophenol	ug/kg			58 U	220 U	250 U	550 U	740 U	57 UJ	57 UJ	190 U	110 U	18 U	66 U	96 U
2-Methylnaphthalene	ug/kg	670	670	58 U	150 J	250	550 U	**740** U	**2,000**	65 J	190 U	110 U	18 U	46 J	60 J
2-Methylphenol	ug/kg	63	63	58 U	**220** U	**250** U	**550** U	**740** U	57 UJ	57 UJ	**190** U	**110** U	18 U	**66** U	**96** U
2-Nitroaniline	ug/kg			290 U	1,100 U	1,200 U	2,800 U	3,700 U	290 U	280 UJ	940 U	540 U	92 U	330 U	480 U
2-Nitrophenol	ug/kg			290 U	220 U	250 U	550 U	3,700 U	290 UJ	280 UJ	940 U	540 U	92 U	330 U	480 U
3,3`-Dichlorobenzidine	ug/kg			290 U	1,100 U	1,200 U	2,800 U	3,700 U	290 U	280 UJ	940 U	540 U	140 U	330 U	480 U
3-Nitroaniline	ug/kg			290 U	1,100 U	1,200 U	2,800 U	3,700 U	290 U	280 UJ	940 U	540 U	92 U	330 U	480 U
4,6-Dinitro-2-methylphenol	ug/kg			580 U	2,200 U	2,500 U	5,500 U	7,400 U	570 UJ	570 UJ	1,900 U	1,100 U	180 U	660 U	960 U
4-Bromophenyl phenyl ether	ug/kg			58 U	220 U	250 U	550 U	740 U	57 U	57 UJ	190 U	110 U	18 U	66 U	96 U
4-Chloro-3-methylphenol	ug/kg			290 U	1,100 U	1,200 U	2,800 U	3,700 U	290 U	280 UJ	940 U	540 U	92 U	330 U	480 U
4-Chloroaniline	ug/kg			290 U	1,100 U	1,200 U	2,800 U	3,700 U	290 U	280 UJ	940 U	540 U	250 U	330 U	480 U
4-Chlorophenyl phenylether	ug/kg			58 U	220 U	250 U	550 U	740 U	57 U	57 UJ	190 U	110 U	18 U	66 U	96 U
4-Methylphenol	ug/kg	670	670	58 U	330	**7,800**	**1,400**	**740** U	**1,400** J	**6,500** J	190 U	110 U	16 J	66 U	96 U
4-Nitroaniline	ug/kg			290 U	1,100 U	1,200 U	2,800 U	3,700 U	290 U	280 UJ	940 U	540 U	92 U	330 U	480 U
4-Nitrophenol	ug/kg			290 U	1,100 U	1,200 U	2,800 U	3,700 U	290 UJ	280 UJ	940 U	540 U	92 U	330 U	480 U
Benzoic acid	ug/kg	650	650	580 U	**870** J	**1,100** J	**5,500** U	**7,400** U	**1,400** J	130 J	**1,900** U	**1,100** U	150 J	**660** U	**960** U
Benzyl alcohol	ug/kg	57	73	**58** U	**220** U	**250** U	**550** U	**740** U	**57** UJ	**57** UJ	**190** U	**110** U	18 U	**66** U	**96** U
bis(2-Chloroethoxy) methane	ug/kg			58 U	220 U	250 U	550 U	740 U	57 U	57 UJ	190 U	110 U	18 U	66 U	96 U
Bis-(2-chloroethyl) ether	ug/kg			58 U	220 U	250 U	550 U	740 U	57 U	57 UJ	190 U	110 U	18 U	66 U	96 U
Carbazole	ug/kg			58 U	220 U	250 U	550 U	740 U	57 U	68 J	190 U	86 J	18 UJ	66 U	96 U
Dibenzofuran	ug/kg	540	540	58 U	220 U	250 U	**550** U	**740** U	57 U	57 UJ	190 U	110 U	18 U	62 J	250
Hexachlorobenzene	ug/kg	22	70	**58** U	**220** U	**250** U	**550** U	**740** U	**57** U	**57** UJ	**190** U	**110** U	18 U	**66** U	**96** U
Hexachlorobutadiene	ug/kg	11	120	**58** U	**220** U	**250** U	**550** U	**740** U	**57** U	**57** UJ	**190** U	**110** U	**92** U	**66** U	**96** U
Hexachlorocyclopentadiene	ug/kg			290 U	1,100 U	1,200 U	2,800 UJ	3,700 U	290 U	280 UJ	940 U	540 U	370 U	330 UJ	480 U
Hexachloroethane	ug/kg			58 U	220 U	250 U	550 U	740 U	57 U	57 UJ	190 U	110 U	18 U	66 U	96 U
Isophorone	ug/kg			58 U	220 U	250 U	550 U	740 U	57 U	57 UJ	190 U	110 U	18 U	66 U	96 U
Nitrobenzene	ug/kg			58 U	220 U	250 U	550 U	740 U	57 U	57 UJ	190 U	110 U	18 U	66 U	96 U
N-Nitroso-di-n-propylamine	ug/kg			290 U	1,100 U	1,200 U	2,800 U	3,700 U	57 U	57 UJ	940 U	540 U	18 U	330 U	480 U
N-Nitrosodiphenylamine	ug/kg	28	40	**58** U	**220** U	**250** U	**550** U	**740** U	**57** U	**57** UJ	**190** U	**110** U	18 U	**66** U	**96** U
Pentachlorophenol	ug/kg	360	690	290 U	**1,100** U	**1,200** U	**2,800** U	**3,700** U	290 UJ	280 UJ	**940** U	**540** U	180 U	330 U	**480** U
Phenol	ug/kg	420	1200	58 U	**420**	**1300**	**550** U	**740** U	340 J	**420** J	190 U	110 U	11 J	66 U	96 U

Table D-2 Results for samples collected in the vicinity of Seattle Iron and Metals Corporation and S Myrtle St.

SYS_SAMPLE_CODE				MH204-011509-G	MH205-011509-G	MH205-072512	MH222-052109	MH222-080312	MH223-052109	MH224-052109	MH225-052109	MH226-052609	MH226-080312	MH227-052609	MH240-060309
SYS_LOC_CODE				MH204	MH205	MH205	MH222	MH222	MH223	MH224	MH225	MH226	MH226	MH227	MH240
SAMPLE_DATE				01/15/09	01/15/09	07/25/12	05/21/09	08/03/12	05/21/09	05/21/09	05/21/09	05/26/09	08/03/12	05/26/09	06/03/09
Outfall				S Brighton St	S Brighton St	S Brighton St	S Brighton St	S Brighton St	S Brighton St	S Brighton St	S Brighton St	S Brighton St	S Brighton St	S Brighton St	S Garden St
LOC_TYPE_2				Inline	Inline	Inline	Inline	Inline	Inline	Inline	Inline	Inline	Inline	Inline	Inline
SAMPLE_METHOD				Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual
X_COORD				1,271,934	1,271,077	1,271,077	1,270,366	1,270,366	1,270,727	1,271,124	1,271,355	1,271,510	1,271,510	1,270,727	1,271,720
Y_COORD		SQS	CSL	201,803	201,127	201,127	201,143	201,143	201,133	201,125	200,876	201,105	201,105	201,133	199,909
TASK_TYPE		LAET	2LAET	CurrentPhase	Cleaned	CurrentPhase	Cleaned	CurrentPhase	Cleaned	Cleaned	Cleaned	Cleaned	CurrentPhase	Cleaned	Cleaned
Other Organic Compounds															
1,2,4-Trichlorobenzene	ug/kg	31	51	**40** U	**39** U	18 U	20 U	19 U	**58** U	**58** U	**170** U	**190** U	**54** U	**68** U	**2,700** U
1,2-Dichlorobenzene	ug/kg	35	50	**40** U	33 J	18 U	20 U	19 U	**58** U	**58** U	**170** U	**190** U	**54** U	**68** U	**2,700** U
1,3-Dichlorobenzene	ug/kg			40 U	39 U	18 U	20 U	19 U	58 U	58 U	170 U	190 U	54 U	68 U	2,700 U
1,4-Dichlorobenzene	ug/kg	110	110	40 U	29 J	18 U	20 U	19 U	58 U	58 U	**170** U	**190** U	54 U	68 U	**2,700** U
1-Methylnaphthalene	ug/kg					18 U		19 U					54 U		
2,2'-Oxybis(1-chloropropane)	ug/kg			40 U	39 U	18 U	20 U	19 U	58 U	58 U	170 U	190 U	54 U	68 U	2,700 U
2,4,5-Trichlorophenol	ug/kg			200 U	200 U	90 U	99 U	95 U	290 U	290 U	830 U	970 U	270 U	340 U	13,000 U
2,4,6-Trichlorophenol	ug/kg			200 U	200 U	90 U	99 U	95 U	290 U	290 U	830 U	970 U	270 U	340 U	13,000 U
2,4-Dichlorophenol	ug/kg			200 U	200 U	180 U	99 U	190 U	290 U	290 U	830 U	970 U	540 U	340 U	13,000 U
2,4-Dimethylphenol	ug/kg	29		**40** U	**39** U	**36** U	20 U	**38** U	**58** U	**58** U	**170** U	**190** U	**110** U	**68** U	**2,700** U
2,4-Dinitrophenol	ug/kg			400 U	390 U	760 U	200 U	810 U	580 U	580 U	1,700 U	1,900 U	2,300 U	680 U	27,000 U
2,4-Dinitrotoluene	ug/kg			200 U	200 U	90 U	99 U	95 U	290 U	290 U	830 U	970 U	270 U	340 U	13,000 U
2,6-Dinitrotoluene	ug/kg			200 U	200 U	90 U	99 U	95 U	290 U	290 U	830 U	970 U	270 U	340 U	13,000 U
2-Chloronaphthalene	ug/kg			40 U	39 U	18 U	20 U	19 U	58 U	58 U	170 U	190 U	54 U	68 U	2,700 U
2-Chlorophenol	ug/kg			40 U	39 U	18 U	20 U	19 U	58 U	58 U	170 U	190 U	54 U	68 U	2,700 U
2-Methylnaphthalene	ug/kg	670	670	28 J	20 J	18 U	41	19 U	58 U	58 U	170 U	190 U	54 U	68 U	**13,000**
2-Methylphenol	ug/kg	63	63	40 U	39 U	18 U	20 U	19 U	58 U	58 U	**170** U	**190** U	54 U	**68** U	**2,700** U
2-Nitroaniline	ug/kg			200 U	200 U	90 U	99 U	95 U	290 U	290 U	830 U	970 U	270 U	340 U	13,000 U
2-Nitrophenol	ug/kg			200 U	200 U	90 U	99 U	95 U	290 U	290 U	830 U	970 U	270 U	340 U	13,000 U
3,3`-Dichlorobenzidine	ug/kg			200 U	200 U	140 UJ	99 U	140 UJ	290 U	290 U	830 U	970 U	400 UJ	340 U	13,000 U
3-Nitroaniline	ug/kg			200 U	200 U	90 U	99 U	95 U	290 U	290 U	830 U	970 U	270 U	340 U	13,000 U
4,6-Dinitro-2-methylphenol	ug/kg			400 U	390 U	180 U	200 U	190 U	580 U	580 U	1,700 U	1,900 U	540 U	680 U	27,000 U
4-Bromophenyl phenyl ether	ug/kg			40 U	39 U	18 U	20 U	19 U	58 U	58 U	170 U	190 U	54 U	68 U	2,700 U
4-Chloro-3-methylphenol	ug/kg			200 U	200 U	90 U	99 U	95 U	290 U	290 U	830 U	970 U	270 U	340 U	13,000 U
4-Chloroaniline	ug/kg			200 U	200 U	240 U	99 U	260 U	290 U	290 U	830 U	970 U	730 U	340 U	13,000 U
4-Chlorophenyl phenylether	ug/kg			40 U	39 U	18 U	20 U	19 U	58 U	58 U	170 U	190 U	54 U	68 U	2,700 U
4-Methylphenol	ug/kg	670	670	40 U	39 U	16 J	20 U	38 U	58 U	58 U	170 U	190 U	43 J	68 U	**2,700** U
4-Nitroaniline	ug/kg			200 U	200 U	90 U	99 U	95 U	290 U	290 U	830 U	970 U	270 U	340 U	13,000 U
4-Nitrophenol	ug/kg			200 U	200 U	90 U	99 U	95 U	290 U	290 U	830 U	970 U	270 U	340 U	13,000 U
Benzoic acid	ug/kg	650	650	400 U	390 U	360 U	200 U	380 U	580 U	580 U	**1,700** U	**1,900** U	**1,100** U	**680** U	**27,000** U
Benzyl alcohol	ug/kg	57	73	40 U	**110**	18 U	20 U	19 U	**58** U	**58** U	**170** U	**190** U	54 U	**68** U	**2,700** U
bis(2-Chloroethoxy) methane	ug/kg			40 U	39 U	18 U	20 U	19 U	58 U	58 U	170 U	190 U	54 U	68 U	2,700 U
Bis-(2-chloroethyl) ether	ug/kg			40 U	39 U	18 U	20 U	19 U	58 U	58 U	170 U	190 U	54 U	68 U	2,700 U
Carbazole	ug/kg			160	85	18 U	350	19 U	93	58 U	170 U	110 J	97	150	1,500 J
Dibenzofuran	ug/kg	540	540	34 J	36 J	18 U	53	19 U	58 U	58 U	170 U	190 U	32 J	49 J	**2,700** U
Hexachlorobenzene	ug/kg	22	70	**40** U	**39** U	18 U	20 U	19 UJ	**58** U	**58** U	**170** U	**190** U	**54** UJ	**68** U	**2,700** U
Hexachlorobutadiene	ug/kg	11	120	**40** U	**39** U	**18** U	**20** U	**19** U	**58** U	**58** U	**170** U	**190** U	**54** U	**68** U	**2,700** U
Hexachlorocyclopentadiene	ug/kg			200 U	200 U	360 U	99 U	380 U	290 U	290 U	830 U	970 U	1,100 U	340 U	13,000 U
Hexachloroethane	ug/kg			40 U	39 U	18 U	20 U	19 U	58 U	58 U	170 U	190 U	54 U	68 U	2,700 U
Isophorone	ug/kg			20 J	39 U	18 U	20 U	19 U	58 U	58 U	170 U	190 U	54 U	68 U	2,700 U
Nitrobenzene	ug/kg			40 U	39 U	18 U	20 U	19 U	58 U	58 U	170 U	190 U	54 U	68 U	2,700 U
N-Nitroso-di-n-propylamine	ug/kg			200 U	200 U	18 U	99 U	19 U	290 U	290 U	830 U	970 U	54 U	340 U	13,000 U
N-Nitrosodiphenylamine	ug/kg	28	40	**40** U	**39** U	18 U	20 U	19 U	**36** J	**58** U	**660** Y	**190** U	**54** U	**68** U	**2,700** U
Pentachlorophenol	ug/kg	360	690	200 U	200 U	180 UJ	99 U	190 U	290 U	290 U	**830** U	**970** U	**540** U	340 U	**13,000** U
Phenol	ug/kg	420	1200	41	28 J	18 U	20 U	19 U	58 U	58 U	170 U	190 U	35 J	68 U	**2700** U

Table D-2 Results for samples collected in the vicinity of Seattle Iron and Metals Corporation and S Myrtle St.

SYS_SAMPLE_CODE				RCB146-091208	RCB147-091208	RCB148-091208	RCB169-042909	RCB176-120309	RCB177-120309	RCB178-120309	RCB179-120309	RCB180-120309	RCB189F-051110	RCB211-052609	RCB212-052609
SYS_LOC_CODE				RCB146	RCB147	RCB148	RCB169	RCB176	RCB177	RCB178	RCB179	RCB180	RCB189	RCB211	RCB212
SAMPLE_DATE				09/12/08	09/12/08	09/12/08	04/29/09	12/03/09	12/03/09	12/03/09	12/03/09	12/03/09	05/11/10	05/26/09	05/26/09
Outfall				S Garden St	S Myrtle St	S Myrtle St	S Brighton St	S Myrtle St	S Brighton St	S Brighton St	S Brighton St	S Myrtle St	S Myrtle St	S Brighton St	S Brighton St
LOC_TYPE_2				RCB	RCB	RCB	RCB	RCB	RCB	RCB	RCB	RCB	RCB	RCB	RCB
SAMPLE_METHOD				Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual
X_COORD				1,271,999	1,271,950	1,271,988	1,270,366	1,271,851	1,271,650	1,271,636	1,271,429	1,271,372	1,271,799	1,271,217	1,271,217
Y_COORD		SQS	CSL	199,826	200,078	200,316	201,143	200,349	200,599	200,533	200,758	200,386	200,322	201,039	201,039
TASK_TYPE		LAET	2LAET	Cleaned	CurrentPhase	Cleaned	Cleaned	Cleaned	Cleaned	Cleaned	Cleaned	Cleaned	CurrentPhase	Cleaned	Cleaned
Other Organic Compounds															
1,2,4-Trichlorobenzene	ug/kg	31	51	**140** U	**590** U	**260** U		**230** U	**170** U	**220** U	**260** U	**100** U	**330** U	**310** U	**380** U
1,2-Dichlorobenzene	ug/kg	35	50	**720** U	**590** U	**260** U		**230** U	**170** U	**220** U	**260** U	**100** U	**330** U	**3,100** U	**3,800** U
1,3-Dichlorobenzene	ug/kg			1,400 U	590 U	260 U		230 U	170 U	220 U	260 U	100 U	330 U	1,500 U	1,900 U
1,4-Dichlorobenzene	ug/kg	110	110	**140** U	**590** U	**260** U		**230** U	**170** U	**220** U	**260** U	100 U	**330** U	**310** U	**380** U
1-Methylnaphthalene	ug/kg							150 J	170 U	220 U	140 J	100 J	630		
2,2'-Oxybis(1-chloropropane)	ug/kg			720 U	590 U	260 U		230 U	170 U	220 U	260 U	100 U	330 U	1,500 U	1,900 U
2,4,5-Trichlorophenol	ug/kg			720 U	2,900 U	780 J		1,100 U	870 U	1,100 U	1,300 U	530 U	1,600 U	310 U	380 U
2,4,6-Trichlorophenol	ug/kg			140 U	2,900 U	1,300 U		1,100 U	870 U	1,100 U	1,300 U	530 U	1,600 U	310 U	380 U
2,4-Dichlorophenol	ug/kg			720 U	2,900 U	1,300 U		1,100 U	870 U	1,100 U	1,300 U	530 U	1,600 U	1,500 U	1,900 U
2,4-Dimethylphenol	ug/kg	29		**140** U	**590** U	**260** U		**230** U	**170** U	**220** U	**260** U	**100** U	**330** U	**310** U	**380** U
2,4-Dinitrophenol	ug/kg			140 U	5,900 U	2,600 U		2,300 U	1,700 U	2,200 U	2,600 U	1,000 U	3,300 U	1,500 U	1,900 U
2,4-Dinitrotoluene	ug/kg			720 U	2,900 U	1,300 U		1,100 U	870 U	1,100 U	1,300 U	530 U	1,600 U	1,500 U	1,900 U
2,6-Dinitrotoluene	ug/kg			720 U	2,900 U	1,300 U		1,100 U	870 U	1,100 U	1,300 U	530 U	1,600 U	1,500 U	1,900 U
2-Chloronaphthalene	ug/kg			720 U	590 U	260 U		230 U	170 U	220 U	260 U	100 U	330 U	1,500 U	1,900 U
2-Chlorophenol	ug/kg			720 U	590 U	260 U		230 U	170 U	220 U	260 U	100 U	330 U	3,100 U	3,800 U
2-Methylnaphthalene	ug/kg	670	670	130 J	**3,600**	**1,900**		280	140 J	120 J	210 J	130	**980**	220 J	500
2-Methylphenol	ug/kg	63	63	**140** U	**590** U	**260** U		**230** U	**170** U	**220** U	**260** U	**100** U	**330** U	**310** U	**380** U
2-Nitroaniline	ug/kg			1,400 U	2,900 U	1,300 U		1,100 U	870 U	1,100 U	1,300 U	530 U	1,600 U	310 U	380 U
2-Nitrophenol	ug/kg			140 U	2,900 U	1,300 U		1,100 U	870 U	1,100 U	1,300 U	530 U	1,600 U	1,500 U	1,900 U
3,3`-Dichlorobenzidine	ug/kg			720 U	2,900 U	1,300 U		1,100 U	870 U	1,100 U	1,300 U	530 U	1,600 U	310 U	380 U
3-Nitroaniline	ug/kg			140 U	2,900 U	1,300 U		1,100 U	870 U	1,100 U	1,300 U	530 U	1,600 U	1,500 U	1,900 U
4,6-Dinitro-2-methylphenol	ug/kg			720 U	5,900 U	2,600 U		2,300 U	1,700 U	2,200 U	2,600 U	1,000 U	3,300 U	1,500 U	1,900 U
4-Bromophenyl phenyl ether	ug/kg			720 U	590 U	260 U		230 U	170 U	220 U	260 U	100 U	330 U	310 U	380 U
4-Chloro-3-methylphenol	ug/kg			720 U	2,900 U	1,300 U		1,100 U	870 U	1,100 U	1,300 U	530 U	1,600 U	1,500 U	1,900 U
4-Chloroaniline	ug/kg			140 U	2,900 U	1,300 U		1,100 U	870 U	1,100 U	1,300 U	530 U	1,600 U	310 U	380 U
4-Chlorophenyl phenylether	ug/kg			140 U	590 U	260 U		230 U	170 U	220 U	260 U	100 U	330 U	1,500 U	1,900 U
4-Methylphenol	ug/kg	670	670	140 U	**18,000**	**2,600**		460	290	**15,000**	630	160	330 U	310 U	540
4-Nitroaniline	ug/kg			720 U	2,900 U	1,300 U		1,100 U	870 U	1,100 U	1,300 U	530 U	1,600 U	310 U	380 U
4-Nitrophenol	ug/kg			140 U	2,900 U	1,300 U		1,100 U	870 U	1,100 U	1,300 U	530 U	1,600 U	1,500 U	1,900 U
Benzoic acid	ug/kg	650	650	**1,400** U	**5,900** U	**2,600** U		**2,300** U	**1,700** U	**3,000**	640 J	**1,000** U	**3,300** U	**3,100** U	**3,800** U
Benzyl alcohol	ug/kg	57	73	**140** U	**590** U	**260** U		**230** U	**690**	**220** U	**260** U	**100** U	**440**	**310** U	**380** U
bis(2-Chloroethoxy) methane	ug/kg			720 U	590 U	260 U		230 U	170 U	220 U	260 U	100 U	330 U	380 U	160 U
Bis-(2-chloroethyl) ether	ug/kg			590 U	590 U	260 U		230 U	170 U	220 U	260 U	100 U	330 U	380 U	160 U
Carbazole	ug/kg			140	590 U	310		230 U	170 U	220 U	260 U	100 U	190 J	310 U	380 U
Dibenzofuran	ug/kg	540	540	140 U	**590** U	260 U		180 J	170 U	220 U	260 U	190	330 U	310 U	380 U
Hexachlorobenzene	ug/kg	22	70	**140** U	**590** U	**260** U		**230** U	**170** U	**220** U	**260** U	**100** U	**330** U	**310** U	**380** U
Hexachlorobutadiene	ug/kg	11	120	**140** U	**590** U	**260** U		**230** U	**170** U	**220** U	**260** U	**100** U	**330** U	**310** U	**380** U
Hexachlorocyclopentadiene	ug/kg			590 U	2,900 U	1,300 U		1,100 U	870 U	1,100 U	1,300 U	530 U	1,600 U	380 U	160 U
Hexachloroethane	ug/kg			140 U	590 U	260 U		230 U	170 U	220 U	260 U	100 U	330 U	310 U	380 U
Isophorone	ug/kg			140 U	590 U	260 U		230 U	170 U	220 U	260 U	100 U	330 U	310 U	380 U
Nitrobenzene	ug/kg			590 U	590 U	260 U		230 U	170 U	220 U	260 U	100 U	330 U	1,900 U	790 U
N-Nitroso-di-n-propylamine	ug/kg			2,900 U	2,900 U	1,300 U		1,100 U	870 U	1,100 U	1,300 U	530 U	1,600 U	1,900 U	790 U
N-Nitrosodiphenylamine	ug/kg	28	40	**140** U	**590** U	**260** U		**230** U	**170** U	**220** U	**260** U	**100** U	**330** U	**310** U	**380** U
Pentachlorophenol	ug/kg	360	690	**720** U	**2,900** U	**1,300** U		**1,100** U	**870** U	**1,100** U	**1,300** U	**530** U	**1,600** U	**1,500** U	**1,900** U
Phenol	ug/kg	420	1200	180 U	**850** U	**890** U		230 U	170 U	180 J	260 U	55 J	330 U	310 U	380 U

Table D-2 Results for samples collected in the vicinity of Seattle Iron and Metals Corporation and S Myrtle St.

SYS_SAMPLE_CODE				RCB225-020211	RCB226-020211	RD1-051110	RD2-051110	RCB62-020515	MKJ-052518-6	SMYRTLE_NORTON_053118	SMYRTLE_TRENT_053118	SMYRTLE_RORY_053118	Myr-Rory-051619	Myr-Hamlin-051619	Myrtle-STP-Norton-051619
SYS_LOC_CODE				RCB225	RCB226	RD1	RD2	RCB65	MH100	MYR-ST1	MYR-ST1	MYR-ST1	MYR-ST1	MYR-ST1	MYR-ST1
SAMPLE_DATE				02/02/11	02/02/11	05/11/10	05/11/10	02/05/15	05/25/18	05/31/18	05/31/18	05/31/18	05/16/19	05/16/19	05/16/19
Outfall				S Myrtle St	S Myrtle St	S Garden St	S Myrtle St	S Myrtle St	S Myrtle St	S Myrtle St	S Myrtle St	S Myrtle St	S Myrtle St	S Myrtle St	S Myrtle St
LOC_TYPE_2				RCB	RCB	CB	CB	RCB	Inline	Inline	Inline	Inline	Inline	Inline	Inline
SAMPLE_METHOD				Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab	Grab	Trap	Trap	Trap	Trap	Trap	Trap
X_COORD				1,271,990	1,271,799	1,271,911	1,271,322	1,271,547	1,271,370	1,271,649	1,271,649	1,271,649	1,271,649	1,271,649	1,271,649
Y_COORD		SQS	CSL	200,350	200,322	200,257	200,278	200,328	200,336	200,329	200,329	200,329	200,329	200,329	200,329
TASK_TYPE		LAET	2LAET	CurrentPhase	CurrentPhase	Cleaned	Cleaned	Post clean	Post clean	Post clean	Post clean	Post clean	Post clean	Post clean	Post clean
Other Organic Compounds															
1,2,4-Trichlorobenzene	ug/kg	31	51	**970** U	**210** U	**88** U	**150** U	140 U	95.9 U	--	--	--	--	--	--
1,2-Dichlorobenzene	ug/kg	35	50	**970** U	**210** U	**88** U	**150** U	140 U	95.9 U	--	--	--	--	--	--
1,3-Dichlorobenzene	ug/kg			970 U	210 U	88 U	150 U	140 U	95.9 U	--	--	--	--	--	--
1,4-Dichlorobenzene	ug/kg	110	110	**970** U	**210** U	88 U	**150** U	140 U	95.9 U	--	--	--	--	--	--
1-Methylnaphthalene	ug/kg			1,000	210 U			**110** J	*46.5* J	--	--	--	--	--	--
2,2'-Oxybis(1-chloropropane)	ug/kg			970 U	210 U	88 U	150 U	140 UJ	95.9 U	--	--	--	--	--	--
2,4,5-Trichlorophenol	ug/kg			4,800 U	1,100 U	440 U	730 U	710 U	479 U	--	--	--	--	--	--
2,4,6-Trichlorophenol	ug/kg			4,800 U	1,100 U	440 U	730 U	710 U	479 U	--	--	--	--	--	--
2,4-Dichlorophenol	ug/kg			4,800 U	1,100 U	440 U	730 U	710 U	479 U	--	--	--	--	--	--
2,4-Dimethylphenol	ug/kg	29		**970** U	**210** U	**88** U	**150** U	710 U	479 U	--	--	--	--	--	--
2,4-Dinitrophenol	ug/kg			9,700 U	2,100 U	880 U	1,500 U	1,400 UJ	959 U	--	--	--	--	--	--
2,4-Dinitrotoluene	ug/kg			4,800 U	1,100 U	440 U	730 U	710 U	479 U	--	--	--	--	--	--
2,6-Dinitrotoluene	ug/kg			4,800 U	1,100 U	440 U	730 U	710 U	479 U	--	--	--	--	--	--
2-Chloronaphthalene	ug/kg			970 U	210 U	88 U	150 U	140 U	95.9 U	--	--	--	--	--	--
2-Chlorophenol	ug/kg			970 U	210 U	88 U	150 U	140 UJ	95.9 U	--	--	--	--	--	--
2-Methylnaphthalene	ug/kg	670	670	**2,000**	**120** J	**64** J	170	**220**	**111**	--	--	--	--	--	--
2-Methylphenol	ug/kg	63	63	**970** U	**210** U	**88** U	**150** U	140 U	95.9 U	--	--	--	--	--	--
2-Nitroaniline	ug/kg			4,800 U	1,100 U	440 U	730 U	710 U	479 U	--	--	--	--	--	--
2-Nitrophenol	ug/kg			970 U	210 U	88 U	150 U	140 U	95.9 U	--	--	--	--	--	--
3,3`-Dichlorobenzidine	ug/kg			4,800 U	1,100 U	440 U	730 U	710 U	479 U	--	--	--	--	--	--
3-Nitroaniline	ug/kg			4,800 U	1,100 U	440 U	730 U	710 UJ	479 U	--	--	--	--	--	--
4,6-Dinitro-2-methylphenol	ug/kg			9,700 U	2,100 U	880 U	1,500 U	1,400 U	959 U	--	--	--	--	--	--
4-Bromophenyl phenyl ether	ug/kg			970 U	210 U	88 U	150 U	140 U	95.9 U	--	--	--	--	--	--
4-Chloro-3-methylphenol	ug/kg			4,800 U	1,100 U	440 U	730 U	710 U	479 U	--	--	--	--	--	--
4-Chloroaniline	ug/kg			4,800 U	1,100 U	440 U	730 U	710 U	479 U	--	--	--	--	--	--
4-Chlorophenyl phenylether	ug/kg			970 U	210 U	88 U	150 U	140 U	95.9 U	--	--	--	--	--	--
4-Methylphenol	ug/kg	670	670	**5,000**	**1,700**	88 U	150 U	**910**	95.9 U	--	--	--	--	--	--
4-Nitroaniline	ug/kg			4,800 U	1,100 U	440 U	730 U	710 U	479 U	--	--	--	--	--	--
4-Nitrophenol	ug/kg			4,800 U	1,100 U	440 U	730 U	710 U	479 U	--	--	--	--	--	--
Benzoic acid	ug/kg	650	650	**6,500** J	**510** J	**590** J	**1,500** U	**480** J	**339** J	--	--	--	--	--	--
Benzyl alcohol	ug/kg	57	73	**4,800** U	**1,100** U	**88** U	**150** U	140 U	95.9 U	--	--	--	--	--	--
bis(2-Chloroethoxy) methane	ug/kg			970 U	210 U	88 U	150 U	140 U	95.9 U	--	--	--	--	--	--
Bis-(2-chloroethyl) ether	ug/kg			970 U	210 U	88 U	150 U	140 U	95.9 U	--	--	--	--	--	--
Carbazole	ug/kg			970 U	210 U	**120**	**200**	**93** J	68 J	--	--	--	--	--	--
Dibenzofuran	ug/kg	540	540	**970** U	210 U	88 U	150 U	140 U	**41** J	--	--	--	--	--	--
Hexachlorobenzene	ug/kg	22	70	**970** U	**210** U	**88** U	**150** U	140 U	95.9 U	--	--	--	--	--	--
Hexachlorobutadiene	ug/kg	11	120	**970** U	**210** U	**88** U	**150** U	140 U	95.9 U	--	--	--	--	--	--
Hexachlorocyclopentadiene	ug/kg			4,800 U	1,100 U	440 U	730 U	710 U	479 U	--	--	--	--	--	--
Hexachloroethane	ug/kg			970 U	210 U	88 U	150 U	140 U	95.9 U	--	--	--	--	--	--
Isophorone	ug/kg			970 U	210 U	88 U	150 U	140 U	95.9 U	--	--	--	--	--	--
Nitrobenzene	ug/kg			970 U	210 U	88 U	150 U	140 U	95.9 U	--	--	--	--	--	--
N-Nitroso-di-n-propylamine	ug/kg			970 U	210 U	440 U	730 U	140 U	95.9 U	--	--	--	--	--	--
N-Nitrosodiphenylamine	ug/kg	28	40	**970** U	**210** U	**88** U	**150** U	140 U	79.6 U	--	--	--	--	--	--
Pentachlorophenol	ug/kg	360	690	**4,800** U	**340** J	**440** U	**730** U	710 U	479 U	--	--	--	--	--	--
Phenol	ug/kg	420	1200	**870** J	**130** J	240	**320**	**1,000**	**292**	--	--	--	--	--	--

Table D-2 Results for samples collected in the vicinity of Seattle Iron and Metals Corporation and S Myrtle St.

SYS_SAMPLE_CODE				Myr-Trent-051619	MKJ-122216-1	MKJ-122216-2	MKJ-052518-
SYS_LOC_CODE				MYR-ST1	ODS38	RCB178	MH223
SAMPLE_DATE				05/16/19	12/22/16	12/22/16	05/25/18
Outfall				S Myrtle St	S Brighton St	S Brighton St	S Brighton St
LOC_TYPE_2				Inline	ODS	RCB	Inline
SAMPLE_METHOD				Trap	Grab	Grab	Grab
X_COORD				1,271,649	1,271,642	1,271,636	1,270,727
Y_COORD		SQS	CSL	200,329	200,526	200,533	201,133
TASK_TYPE		LAET	2LAET	Post clean	NA	Post clean	Post clean
Other Organic Compounds							
1,2,4-Trichlorobenzene	ug/kg	31	51	--	--	--	95.4
1,2-Dichlorobenzene	ug/kg	35	50	--	--	--	95.4
1,3-Dichlorobenzene	ug/kg			--	--	--	95.4
1,4-Dichlorobenzene	ug/kg	110	110	--	--	--	95.4
1-Methylnaphthalene	ug/kg			--	--	--	95.4
2,2'-Oxybis(1-chloropropane)	ug/kg			--	--	--	95.4
2,4,5-Trichlorophenol	ug/kg			--	--	--	477
2,4,6-Trichlorophenol	ug/kg			--	--	--	477
2,4-Dichlorophenol	ug/kg			--	--	--	477
2,4-Dimethylphenol	ug/kg	29		--	--	--	477
2,4-Dinitrophenol	ug/kg			--	--	--	954
2,4-Dinitrotoluene	ug/kg			--	--	--	477
2,6-Dinitrotoluene	ug/kg			--	--	--	477
2-Chloronaphthalene	ug/kg			--	--	--	95.4
2-Chlorophenol	ug/kg			--	--	--	95.4
2-Methylnaphthalene	ug/kg	670	670	--	--	--	**33.3**
2-Methylphenol	ug/kg	63	63	--	--	--	95.4
2-Nitroaniline	ug/kg			--	--	--	477
2-Nitrophenol	ug/kg			--	--	--	95.4
3,3`-Dichlorobenzidine	ug/kg			--	--	--	477
3-Nitroaniline	ug/kg			--	--	--	477
4,6-Dinitro-2-methylphenol	ug/kg			--	--	--	954
4-Bromophenyl phenyl ether	ug/kg			--	--	--	95.4
4-Chloro-3-methylphenol	ug/kg			--	--	--	477
4-Chloroaniline	ug/kg			--	--	--	477
4-Chlorophenyl phenylether	ug/kg			--	--	--	95.4
4-Methylphenol	ug/kg	670	670	--	--	--	95.4
4-Nitroaniline	ug/kg			--	--	--	477
4-Nitrophenol	ug/kg			--	--	--	477
Benzoic acid	ug/kg	650	650	--	--	--	954
Benzyl alcohol	ug/kg	57	73	--	--	--	95.4
bis(2-Chloroethoxy) methane	ug/kg			--	--	--	95.4
Bis-(2-chloroethyl) ether	ug/kg			--	--	--	95.4
Carbazole	ug/kg			--	--	--	**145**
Dibenzofuran	ug/kg	540	540	--	--	--	**61.1**
Hexachlorobenzene	ug/kg	22	70	--	--	--	95.4
Hexachlorobutadiene	ug/kg	11	120	--	--	--	95.4
Hexachlorocyclopentadiene	ug/kg			--	--	--	477
Hexachloroethane	ug/kg			--	--	--	95.4
Isophorone	ug/kg			--	--	--	95.4
Nitrobenzene	ug/kg			--	--	--	95.4
N-Nitroso-di-n-propylamine	ug/kg			--	--	--	95.4
N-Nitrosodiphenylamine	ug/kg	28	40	--	--	--	95.4
Pentachlorophenol	ug/kg	360	690	--	--	--	477
Phenol	ug/kg	420	1200	--	--	--	**113**

Table D-3: Results from samples collected at Marine Lumber site.

Sample Number				CB137-032709		ML1-092412-0	ML1-092412-12	ML1-092412-24	ML2-092412-0	ML2-092412-12	ML2-092412-24	ML3-092412-0	ML3-092412-12	ML3-092412-24	ML4-092412-0	ML4-092412-12
Station ID				CB137		ML1	ML1	ML1	ML2	ML2	ML2	ML3	ML3	ML3	ML4	ML4
Date				3/27/2009		9/24/2012	9/24/2012	9/24/2012	9/24/2012	9/24/2012	9/24/2012	9/24/2012	9/24/2012	9/24/2012	9/24/2012	9/24/2012
Sample Type				Street dirt		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Sample Method				Grab-Manual		Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual
Xcoord				1,271,264.87		1,271,259.86	1,271,259.86	1,271,259.86	1,271,281.17	1,271,281.17	1,271,281.17	1,271,280.96	1,271,280.96	1,271,280.96	1,271,231.21	1,271,231.21
Ycoord		SQS	CSL	197,433.98		197,408.26	197,408.26	197,408.26	197,401.64	197,401.64	197,401.64	197,397.56	197,397.56	197,397.56	197,399.18	197,399.18
Cleaned		LAET	2LAET	Pre-cleanup		Post-cleanup	Post-cleanup	Post-cleanup	Post-cleanup	Post-cleanup	Post-cleanup	Post-cleanup	Post-cleanup	Post-cleanup	Post-cleanup	Post-cleanup
Solids, Total	%			75.6												
Total Organic Carbon	%			4.03												
Metals																
Arsenic	mg/kg	57	93	**710**	J	**930**	**980**	**334**	**220**	30	40	**78**	**60**	50	**210**	40
Copper	mg/kg	390	390	**4,930**	J	**3,680**	**938**	**396**	**817**	300	99	**400**	291	224	**587**	133
Lead	mg/kg	450	530	118	J											
Mercury	mg/kg	0.41	0.59	0.22	J											
Zinc	mg/kg	410	960	**1,950**	J	**1,320**	**740**	**1,770**	382	328	133	220	**417**	339	355	104
Total Petroleum Hydrocarbons																
Diesel Range Hydrocarbons	mg/kg	2,000	2,000	640												
Motor Oil Range	mg/kg	2,000	2,000	**4,900**												
LPAH																
Acenaphthene	ug/kg	500	500	140	U											
Acenaphthylene	ug/kg	1,300	1,300	140	U											
Anthracene	ug/kg	960	960	140	U											
Fluorene	ug/kg	540	540	140	U											
LPAH	ug/kg	5,200	5,200	130	J											
Naphthalene	ug/kg	2,100	2,100	140	U											
Phenanthrene	ug/kg	1,500	1,500	130	J											
HPAH																
Benzo(A)anthracene	ug/kg	1,300	1,600	140	U											
Benzo(A)pyrene	ug/kg	1,600	1,600	140	U											
Benzo(G,H,I)perylene	ug/kg	670	720	110	J											
Benzofluoranthenes, Total	ug/kg	3,200	3,600	280	J											
Chrysene	ug/kg	1,400	2,800	220												
Dibenzo(A,H)anthracene	ug/kg	230	230	140	U											
Fluoranthene	ug/kg	1,700	2,500	280												
HPAH	ug/kg	12,000	17,000	1,140	J											
Indeno(1,2,3-Cd)pyrene	ug/kg	600	690	140	U											
Pyrene	ug/kg	2,600	3,300	250												
Phthalates																
Bis(2-ethylhexyl)phthalate	ug/kg	1,300	1,900	**1,900**												
Butylbenzylphthalate	ug/kg	63	900	**140**												
Diethylphthalate	ug/kg	200	1,200	140	U											
Dimethylphthalate	ug/kg	71	160	**140**	U											
Di-N-Butylphthalate	ug/kg	1,400	1,400	140	U											
Di-N-Octylphthalate	ug/kg	6,200		130	J											
PCBs																
Aroclor 1016	ug/kg			20	U											
Aroclor 1221	ug/kg			20	U											
Aroclor 1232	ug/kg			20	U											
Aroclor 1242	ug/kg			20	U											
Aroclor 1248	ug/kg			20	U											
Aroclor 1254	ug/kg			32												
Aroclor 1260	ug/kg			20	U											
Total PCBs	ug/kg	130	1,000	32												
Other Organic Compounds																
1,2,4-Trichlorobenzene	ug/kg	31	51	**140**	U											
1,2-Dichlorobenzene	ug/kg	35	50	**140**	U											
1,3-Dichlorobenzene	ug/kg			140	U											

Table D-3: Results from samples collected at Marine Lumber site.

Sample Number				ML4-092412-24	ML5-092412-0	ML5-092412-12	ML5-092412-24	ML6-092412-36	RCB159-052011-0	RCB159-052011-12	RCB159-052011-3	RCB159-120508	RCB273-052011-0
Station ID				ML4	ML5	ML5	ML5	ML6	RCB159	RCB159	RCB159	RCB159	RCB273
Date				9/24/2012	9/24/2012	9/24/2012	9/24/2012	9/24/2012	5/20/2011	5/20/2011	5/20/2011	12/5/2008	5/20/2011
Sample Type				Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Sample Method				Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual
Xcoord				1,271,231.21	1,271,184.33	1,271,184.33	1,271,184.33	1,271,263.36	1,271,277.96	1,271,277.96	1,271,277.96	1,271,277.96	1,271,227.41
Ycoord		SQS	CSL	197,399.18	197,405.49	197,405.49	197,405.49	197,403.04	197,401.60	197,401.60	197,401.60	197,401.60	197,403.95
Cleaned		LAET	2LAET	Post-cleanup	Post-cleanup	Post-cleanup	Post-cleanup	Post-cleanup	Pre-cleanup	Pre-cleanup	Pre-cleanup	Pre-cleanup	Post-cleanup
Solids, Total	%								59	74.4	62.3	61.2	66.7
Total Organic Carbon	%								11.9	2.33	9.24	8.55	6.011666667
Metals													
Arsenic	mg/kg	57	93	9	40	10	8		**474**	**260**	**950**	**750**	**205**
Copper	mg/kg	390	390	25	161	53	18		**3,240**	**2,110**	**8,370**	**4,520**	**404**
Lead	mg/kg	450	530						176	20	105	280	59
Mercury	mg/kg	0.41	0.59						0.27	0.13	0.26	0.27	0.19
Zinc	mg/kg	410	960	55	354	89	53		**825**	**594**	**1,660**	**1,490**	**458**
Total Petroleum Hydrocarbons													
Diesel Range Hydrocarbons	mg/kg	2,000	2,000					5 U	220	63 U	230	440	69 U
Motor Oil Range	mg/kg	2,000	2,000					10 U	1,500	420	1,900	**3,000**	445
LPAH													
Acenaphthene	ug/kg	500	500						98 U	99 U	190 U	190 U	94 U
Acenaphthylene	ug/kg	1,300	1,300						98 U	99 U	190 U	190 U	94 U
Anthracene	ug/kg	960	960						98 U	99 U	190 U	190 U	94 U
Fluorene	ug/kg	540	540						98 U	99 U	190 U	190 U	94 U
LPAH	ug/kg	5,200	5,200						98	99 U	190 U	190	94 U
Naphthalene	ug/kg	2,100	2,100						98 U	99 U	190 U	190 U	94 U
Phenanthrene	ug/kg	1,500	1,500						98	99 U	190 U	190 U	94 U
HPAH													
Benzo(A)anthracene	ug/kg	1,300	1,600						59 J	99 U	190 U	190 U	94 U
Benzo(A)pyrene	ug/kg	1,600	1,600						78 J	99 U	96 J	190 U	94 U
Benzo(G,H,I)perylene	ug/kg	670	720						140	99 U	210	190 U	80 J
Benzofluoranthenes, Total	ug/kg	3,200	3,600						250	74 J	370	300	99
Chrysene	ug/kg	1,400	2,800						210	64 J	290	280	76 J
Dibenzo(A,H)anthracene	ug/kg	230	230						98 U	99 U	190 U	190 U	94 U
Fluoranthene	ug/kg	1,700	2,500						160	99 U	150 J	190	61 J
HPAH	ug/kg	12,000	17,000						1,067 J	138 J	1,362 J	770	370 J
Indeno(1,2,3-Cd)pyrene	ug/kg	600	690						98 U	99 U	96 J	190 U	94 U
Pyrene	ug/kg	2,600	3,300						170	99 U	150 J	190 U	71 J
Phthalates													
Bis(2-ethylhexyl)phthalate	ug/kg	1,300	1,900						990 B	240 B	1,200 B	710	300 B
Butylbenzylphthalate	ug/kg	63	900						**83** J	**99** U	**190** U	**190** U	**94** U
Diethylphthalate	ug/kg	200	1,200						98 U	99 U	190 U	190 U	94 U
Dimethylphthalate	ug/kg	71	160						**98** U	**99** U	**190** U	**190** U	**94** U
Di-N-Butylphthalate	ug/kg	1,400	1,400						98 U	99 U	190 U	190 U	94 U
Di-N-Octylphthalate	ug/kg	6,200							98 U	99 U	190 U	190 U	94 U
PCBs													
Aroclor 1016	ug/kg								20 U	18 U	20 U	59 U	20 U
Aroclor 1221	ug/kg								20 U	18 U	20 U	59 U	20 U
Aroclor 1232	ug/kg								20 U	18 U	20 U	59 U	20 U
Aroclor 1242	ug/kg								20 U	18 U	20 U	59 U	20 U
Aroclor 1248	ug/kg								49 Y	18 U	30 Y	59 U	69 Y
Aroclor 1254	ug/kg								130	29	77	77	180
Aroclor 1260	ug/kg								41	29	50	68	33
Total PCBs	ug/kg	130	1,000						**171**	58	127	**145**	**213**
Other Organic Compounds													
1,2,4-Trichlorobenzene	ug/kg	31	51						**98** U	**99** U	**190** U	**190** U	**94** U
1,2-Dichlorobenzene	ug/kg	35	50						**98** U	**99** U	**190** U	**970** U	**94** U
1,3-Dichlorobenzene	ug/kg								98 U	99 U	190 U	1,900 U	94 U

Table D-3: Results from samples collected at Marine Lumber site.

Sample Number				RCB273-052011-12	RCB273-052011-3	RCB275-052011-0	RCB275-052011-12	RCB275-052011-3
Station ID				RCB273	RCB273	RCB275	RCB275	RCB275
Date				5/20/2011	5/20/2011	5/20/2011	5/20/2011	5/20/2011
Sample Type				Soil	Soil	Soil	Soil	Soil
Sample Method				Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual
Xcoord				1,271,227.41	1,271,227.41	1,271,344.59	1,271,344.59	1,271,344.59
Ycoord		SQS	CSL	197,403.95	197,403.95	197,401.87	197,401.87	197,401.87
Cleaned		LAET	2LAET	Post-cleanup	Post-cleanup	Not removed	Not removed	Not removed
Solids, Total	%			91.9	81.1	78.4	91.1	67.3
Total Organic Carbon	%			2.805	5.495	10.1	2.29	11.9
Metals								
Arsenic	mg/kg	57	93	16	**245**	**544**	38	**430**
Copper	mg/kg	390	390	22	219	**2,730**	**419**	**1,890**
Lead	mg/kg	450	530	6	23	**1,040**	129	**995**
Mercury	mg/kg	0.41	0.59	0.065	0.115	0.2	0.11	0.17
Zinc	mg/kg	410	960	48	344	**938**	128	**733**
Total Petroleum Hydrocarbons								
Diesel Range Hydrocarbons	mg/kg	2,000	2,000	55 U	61 U	510	160	560
Motor Oil Range	mg/kg	2,000	2,000	110 U	185	**3,700**	610	**2,900**
LPAH								
Acenaphthene	ug/kg	500	500	18 U	93 U	190 U	98 U	200 U
Acenaphthylene	ug/kg	1,300	1,300	18 U	93 U	190 U	98 U	200 U
Anthracene	ug/kg	960	960	18 U	93 U	190 U	98 U	200 U
Fluorene	ug/kg	540	540	18 U	93 U	190 U	98 U	200 U
LPAH	ug/kg	5,200	5,200	16 J	15 J	100 J	54 J	200 U
Naphthalene	ug/kg	2,100	2,100	18 U	93 U	190 U	98 U	200 U
Phenanthrene	ug/kg	1,500	1,500	19	93 U	100 J	54 J	200 U
HPAH								
Benzo(A)anthracene	ug/kg	1,300	1,600	18 U	93 U	170 J	98 U	200 U
Benzo(A)pyrene	ug/kg	1,600	1,600	18 U	93 U	250	78 J	200
Benzo(G,H,I)perylene	ug/kg	670	720	18 U	93 U	300	78 J	230
Benzofluoranthenes, Total	ug/kg	3,200	3,600	10 J	93 U	670	170	510
Chrysene	ug/kg	1,400	2,800	9 J	93 U	570	88 J	420
Dibenzo(A,H)anthracene	ug/kg	230	230	18 U	93 U	190 U	98 U	200 U
Fluoranthene	ug/kg	1,700	2,500	18 U	93 U	290	93 J	210
HPAH	ug/kg	12,000	17,000	29 J	154 J	2,860 J	666 J	1,890
Indeno(1,2,3-Cd)pyrene	ug/kg	600	690	18 U	93 U	150 J	49 J	200 U
Pyrene	ug/kg	2,600	3,300	10 J	93 U	460	110	320
Phthalates								
Bis(2-ethylhexyl)phthalate	ug/kg	1,300	1,900	31 B	93 U	**2,300** B	98 B	**1,700** B
Butylbenzylphthalate	ug/kg	63	900	18 U	**93** U	**450**	**98** U	**4,900**
Diethylphthalate	ug/kg	200	1,200	45 U	93 U	190 U	98 U	**200** U
Dimethylphthalate	ug/kg	71	160	18 U	**93** U	**180** J	**98** U	**130** J
Di-N-Butylphthalate	ug/kg	1,400	1,400	18 U	93 U	190 U	98 U	200 U
Di-N-Octylphthalate	ug/kg	6,200		18 U	93 U	190 U	98 U	200 U
PCBs								
Aroclor 1016	ug/kg			20 U	19 U	20 U	19 U	20 U
Aroclor 1221	ug/kg			20 U	19 U	20 U	19 U	20 U
Aroclor 1232	ug/kg			20 U	19 U	20 U	19 U	20 U
Aroclor 1242	ug/kg			20 U	19 U	20 U	19 U	20 U
Aroclor 1248	ug/kg			20 U	19 U	75 Y	19 U	49 Y
Aroclor 1254	ug/kg			22	62	210	80	120
Aroclor 1260	ug/kg			20 U	27	70	68	55
Total PCBs	ug/kg	130	1,000	22	89	**280**	**148**	**175**
Other Organic Compounds								
1,2,4-Trichlorobenzene	ug/kg	31	51	18 U	**93** U	**190** U	**98** U	**200** U
1,2-Dichlorobenzene	ug/kg	35	50	18 U	**93** U	**190** U	**98** U	**200** U
1,3-Dichlorobenzene	ug/kg			18 U	93 U	190 U	98 U	200 U

Table D-3: Results from samples collected at Marine Lumber site.

Sample Number				CB137-032709	ML1-092412-0	ML1-092412-12	ML1-092412-24	ML2-092412-0	ML2-092412-12	ML2-092412-24	ML3-092412-0	ML3-092412-12	ML3-092412-24	ML4-092412-0	ML4-092412-12
Station ID				CB137	ML1	ML1	ML1	ML2	ML2	ML2	ML3	ML3	ML3	ML4	ML4
Date				3/27/2009	9/24/2012	9/24/2012	9/24/2012	9/24/2012	9/24/2012	9/24/2012	9/24/2012	9/24/2012	9/24/2012	9/24/2012	9/24/2012
Sample Type				Street dirt	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Sample Method				Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual
Xcoord				1,271,264.87	1,271,259.86	1,271,259.86	1,271,259.86	1,271,281.17	1,271,281.17	1,271,281.17	1,271,280.96	1,271,280.96	1,271,280.96	1,271,231.21	1,271,231.21
Ycoord		SQS	CSL	197,433.98	197,408.26	197,408.26	197,408.26	197,401.64	197,401.64	197,401.64	197,397.56	197,397.56	197,397.56	197,399.18	197,399.18
Cleaned		LAET	2LAET	Pre-cleanup	Post-cleanup	Post-cleanup	Post-cleanup	Post-cleanup	Post-cleanup	Post-cleanup	Post-cleanup	Post-cleanup	Post-cleanup	Post-cleanup	Post-cleanup
1,4-Dichlorobenzene	ug/kg	110	110	**140** U											
1-Methylnaphthalene	ug/kg														
2,2'-Oxybis(1-chloropropane)	ug/kg			140 U											
2,4,5-Trichlorophenol	ug/kg			700 U											
2,4,6-Trichlorophenol	ug/kg			700 U											
2,4-Dichlorophenol	ug/kg			700 U											
2,4-Dimethylphenol	ug/kg	29		**140** U											
2,4-Dinitrophenol	ug/kg			1,400 U											
2,4-Dinitrotoluene	ug/kg			700 U											
2,6-Dinitrotoluene	ug/kg			700 U											
2-Chloronaphthalene	ug/kg			140 U											
2-Chlorophenol	ug/kg			140 U											
2-Methylnaphthalene	ug/kg	670	670	140 U											
2-Methylphenol	ug/kg	63	63	**140** U											
2-Nitroaniline	ug/kg			700 U											
2-Nitrophenol	ug/kg			700 U											
3,3`-Dichlorobenzidine	ug/kg			700 U											
3-Nitroaniline	ug/kg			700 U											
4,6-Dinitro-2-Methylphenol	ug/kg			1,400 U											
4-Bromophenyl phenyl ether	ug/kg			140 U											
4-Chloro-3-Methylphenol	ug/kg			700 U											
4-Chloroaniline	ug/kg			700 U											
4-Chlorophenyl Phenylether	ug/kg			140 U											
4-Methylphenol	ug/kg	670	670	140 U											
4-Nitroaniline	ug/kg			700 U											
4-Nitrophenol	ug/kg			700 U											
Benzoic acid	ug/kg	650	650	**1,000** J											
Benzyl alcohol	ug/kg	57	73	**140** U											
bis(2-Chloroethoxy) methane	ug/kg			140 U											
Bis-(2-chloroethyl) ether	ug/kg			140 U											
Carbazole	ug/kg			140 U											
Dibenzofuran	ug/kg	540	540	140 U											
Hexachlorobenzene	ug/kg	22	70	**140** U											
Hexachlorobutadiene	ug/kg	11	120	**140** U											
Hexachlorocyclopentadiene	ug/kg			700 U											
Hexachloroethane	ug/kg			140 U											
Isophorone	ug/kg			140 U											
Nitrobenzene	ug/kg			140 U											
N-Nitroso-Di-N-Propylamine	ug/kg			700 U											
N-Nitrosodiphenylamine	ug/kg	28	40	**140** U											
Pentachlorophenol	ug/kg	360	690	**700** U											
Phenol	ug/kg	420	1,200	270											

Table D-3: Results from samples collected at Marine Lumber site.

Sample Number				ML4-092412-24	ML5-092412-0	ML5-092412-12	ML5-092412-24	ML6-092412-36	RCB159-052011-0	RCB159-052011-12	RCB159-052011-3	RCB159-120508	RCB273-052011-0
Station ID				ML4	ML5	ML5	ML5	ML6	RCB159	RCB159	RCB159	RCB159	RCB273
Date				9/24/2012	9/24/2012	9/24/2012	9/24/2012	9/24/2012	5/20/2011	5/20/2011	5/20/2011	12/5/2008	5/20/2011
Sample Type				Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Sample Method				Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual
Xcoord				1,271,231.21	1,271,184.33	1,271,184.33	1,271,184.33	1,271,263.36	1,271,277.96	1,271,277.96	1,271,277.96	1,271,277.96	1,271,227.41
Ycoord		SQS	CSL	197,399.18	197,405.49	197,405.49	197,405.49	197,403.04	197,401.60	197,401.60	197,401.60	197,401.60	197,403.95
Cleaned		LAET	2LAET	Post-cleanup	Post-cleanup	Post-cleanup	Post-cleanup	Post-cleanup	Pre-cleanup	Pre-cleanup	Pre-cleanup	Pre-cleanup	Post-cleanup
1,4-Dichlorobenzene	ug/kg	110	110						98 U	99 U	**190** U	**190** U	94 U
1-Methylnaphthalene	ug/kg								98 U	99 U	190 U		94 U
2,2'-Oxybis(1-chloropropane)	ug/kg								98 U	99 U	190 U	970 U	94 U
2,4,5-Trichlorophenol	ug/kg								490 U	500 U	960 U	970 U	470 U
2,4,6-Trichlorophenol	ug/kg								490 U	500 U	960 U	190 U	470 U
2,4-Dichlorophenol	ug/kg								490 U	500 U	960 U	970 U	470 U
2,4-Dimethylphenol	ug/kg	29							**98** U	**99** U	**190** U	**190** U	**94** U
2,4-Dinitrophenol	ug/kg								1,000 U	1,100 U	2,000 U	190 U	1,000 U
2,4-Dinitrotoluene	ug/kg								490 U	500 U	960 U	970 U	470 U
2,6-Dinitrotoluene	ug/kg								490 U	500 U	960 U	970 U	470 U
2-Chloronaphthalene	ug/kg								98 U	99 U	190 U	970 U	94 U
2-Chlorophenol	ug/kg								98 U	99 U	190 U	970 U	94 U
2-Methylnaphthalene	ug/kg	670	670						98 U	99 U	190 U	190 U	94 U
2-Methylphenol	ug/kg	63	63						**98** U	**99** U	**190** U	**190** U	**94** U
2-Nitroaniline	ug/kg								490 U	500 U	960 U	1,900 U	470 U
2-Nitrophenol	ug/kg								490 U	500 U	960 U	190 U	470 U
3,3`-Dichlorobenzidine	ug/kg								490 U	500 U	960 U	970 U	470 U
3-Nitroaniline	ug/kg								490 U	500 U	960 U	190 U	470 U
4,6-Dinitro-2-Methylphenol	ug/kg								980 U	990 U	1,900 U	970 U	940 U
4-Bromophenyl phenyl ether	ug/kg								98 U	99 U	190 U	970 U	94 U
4-Chloro-3-Methylphenol	ug/kg								490 U	500 U	960 U	970 U	470 U
4-Chloroaniline	ug/kg								490 U	500 U	960 U	190 U	470 U
4-Chlorophenyl Phenylether	ug/kg								98 U	99 U	190 U	190 U	94 U
4-Methylphenol	ug/kg	670	670						54 J	99 U	190 U	190 U	94 U
4-Nitroaniline	ug/kg								490 U	500 U	960 U	970 U	470 U
4-Nitrophenol	ug/kg								490 U	500 U	960 U	190 U	470 U
Benzoic acid	ug/kg	650	650						**940** J	**990** U	**1,700** J	**1,900** U	370 J
Benzyl alcohol	ug/kg	57	73						**3,700**	**140**	**1,600**	**190** U	**1,500**
bis(2-Chloroethoxy) methane	ug/kg								98 U	99 U	190 U	970 U	94 U
Bis-(2-chloroethyl) ether	ug/kg								98 U	99 U	190 U	37 U	94 U
Carbazole	ug/kg								98 U	99 U	190 U	190 U	94 U
Dibenzofuran	ug/kg	540	540						98 U	99 U	190 U	190 U	94 U
Hexachlorobenzene	ug/kg	22	70						**98** U	**99** U	**190** U	**190** U	**94** U
Hexachlorobutadiene	ug/kg	11	120						**98** U	**99** U	**190** U	**190** U	**94** U
Hexachlorocyclopentadiene	ug/kg								490 UJ	500 UJ	960 UJ	37 U	470 UJ
Hexachloroethane	ug/kg								98 U	99 U	190 U	190 U	94 U
Isophorone	ug/kg								98 U	99 U	190 U	190 U	94 U
Nitrobenzene	ug/kg								98 U	99 U	190 U	37 U	94 U
N-Nitroso-Di-N-Propylamine	ug/kg								98 U	99 U	190 U	190 U	94 U
N-Nitrosodiphenylamine	ug/kg	28	40						**98** U	**99** U	**190** U	**190** U	**94** U
Pentachlorophenol	ug/kg	360	690						**490** UJ	**500** UJ	**960** UJ	**970** U	**470** UJ
Phenol	ug/kg	420	1,200						230	99 U	260	190 U	71 J

Table D-3: Results from samples collected at Marine Lumber site.

Sample Number				RCB273-052011-12	RCB273-052011-3	RCB275-052011-0	RCB275-052011-12	RCB275-052011-3
Station ID				RCB273	RCB273	RCB275	RCB275	RCB275
Date				5/20/2011	5/20/2011	5/20/2011	5/20/2011	5/20/2011
Sample Type				Soil	Soil	Soil	Soil	Soil
Sample Method				Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual
Xcoord				1,271,227.41	1,271,227.41	1,271,344.59	1,271,344.59	1,271,344.59
Ycoord		SQS	CSL	197,403.95	197,403.95	197,401.87	197,401.87	197,401.87
Cleaned		LAET	2LAET	Post-cleanup	Post-cleanup	Not removed	Not removed	Not removed
1,4-Dichlorobenzene	ug/kg	110	110	18 U	93 U	**190** U	98 U	**200** U
1-Methylnaphthalene	ug/kg			17 J	93 U	190 U	98 U	200 U
2,2'-Oxybis(1-chloropropane)	ug/kg			18 U	93 U	190 U	98 U	200 U
2,4,5-Trichlorophenol	ug/kg			91 U	460 U	950 U	490 U	990 U
2,4,6-Trichlorophenol	ug/kg			91 U	460 U	950 U	490 U	990 U
2,4-Dichlorophenol	ug/kg			180 U	460 U	950 U	490 U	990 U
2,4-Dimethylphenol	ug/kg	29		**36** U	**93** U	**190** U	**98** U	**200** U
2,4-Dinitrophenol	ug/kg			770 U	990 U	2,000 U	1,000 U	2,100 U
2,4-Dinitrotoluene	ug/kg			91 U	460 U	950 U	490 U	990 U
2,6-Dinitrotoluene	ug/kg			91 U	460 U	950 U	490 U	990 U
2-Chloronaphthalene	ug/kg			18 U	93 U	190 U	98 U	200 U
2-Chlorophenol	ug/kg			18 U	93 U	190 U	98 U	200 U
2-Methylnaphthalene	ug/kg	670	670	19	93 U	190 U	98 U	200 U
2-Methylphenol	ug/kg	63	63	18 U	**93** U	**190** U	**98** U	**200** U
2-Nitroaniline	ug/kg			91 U	460 U	950 U	490 U	990 U
2-Nitrophenol	ug/kg			91 U	460 U	950 U	490 U	990 U
3,3`-Dichlorobenzidine	ug/kg			140 UJ	460 U	950 U	490 U	990 U
3-Nitroaniline	ug/kg			91 U	460 U	950 U	490 U	990 U
4,6-Dinitro-2-Methylphenol	ug/kg			180 U	930 U	1,900 U	980 U	2,000 U
4-Bromophenyl phenyl ether	ug/kg			18 U	93 U	190 U	98 U	200 U
4-Chloro-3-Methylphenol	ug/kg			91 U	460 U	950 U	490 U	990 U
4-Chloroaniline	ug/kg			240 U	460 U	950 U	490 U	990 U
4-Chlorophenyl Phenylether	ug/kg			18 U	93 U	190 U	98 U	200 U
4-Methylphenol	ug/kg	670	670	36 U	93 U	190 U	98 U	200 U
4-Nitroaniline	ug/kg			91 U	460 U	950 U	490 U	990 U
4-Nitrophenol	ug/kg			91 U	460 U	950 U	490 U	990 U
Benzoic acid	ug/kg	650	650	360 U	**930** U	340 J	**980** U	**690** J
Benzyl alcohol	ug/kg	57	73	18 U	**320**	**110** J	**98** U	**280**
bis(2-Chloroethoxy) methane	ug/kg			18 U	93 U	190 U	98 U	200 U
Bis-(2-chloroethyl) ether	ug/kg			18 U	93 U	190 U	98 U	200 U
Carbazole	ug/kg			18 U	93 U	190 U	98 U	200 U
Dibenzofuran	ug/kg	540	540	18 U	93 U	190 U	98 U	200 U
Hexachlorobenzene	ug/kg	22	70	18 U	**93** U	**190** U	**98** U	**200** U
Hexachlorobutadiene	ug/kg	11	120	**91** U	**93** U	**190** U	**98** U	**200** U
Hexachlorocyclopentadiene	ug/kg			360 UJ	460 UJ	950 UJ	490 UJ	990 UJ
Hexachloroethane	ug/kg			18 U	93 U	190 U	98 U	200 U
Isophorone	ug/kg			18 U	93 U	190 U	98 U	200 U
Nitrobenzene	ug/kg			18 U	93 U	190 U	98 U	200 U
N-Nitroso-Di-N-Propylamine	ug/kg			18 U	93 U	190 U	98 U	200 U
N-Nitrosodiphenylamine	ug/kg	28	40	18 U	**93** U	**190** U	**98** U	**200** U
Pentachlorophenol	ug/kg	360	690	180 UJ	**460** UJ	**950** UJ	**490** UJ	**990** UJ
Phenol	ug/kg	420	1,200	18 U	93 U	100 J	98 U	150 J

Table D-4: Results of samples collected at former Sternoff Metals site.

Sample Number				CB144-052709	CB145-052709	CB146-052709	CB147-052709	CB148-052709	CB149-052709
Station ID				CB144	CB145	CB146	CB147	CB148	CB149
Date				5/27/2009	5/27/2009	5/27/2009	5/27/2009	5/27/2009	5/27/2009
Sample Type				CB	Surface dirt	Soil	Surface dirt	Soil	Surface dirt
Sample Method				Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual
Xcoord		SQS	CSL	1,272,661.57	1,272,655.67	1,273,086.57	1,272,899.07	1,272,954.28	1,272,550.12
Ycoord		LAET	2LAET	200,016.50	200,013.72	199,853.50	199,935.95	199,833.86	199,860.95
Solids, Total	%			40.6	85.3	93.3	98.6	94.7	99.7
Total Organic Carbon	%			7.06	2.22	1.42	3.59	1.7	1.74
Metals									
Arsenic	mg/kg	57	93	20	20	8	10	6	10 U
Copper	mg/kg	390	390	**668**	**876**	49	224	83	68
Lead	mg/kg	450	530	**1,180**	**1,480**	71	400	155	52
Mercury	mg/kg	0.41	0.59	**0.98**	**1.13**	0.15	**0.41**	0.23	0.03
Zinc	mg/kg	410	960	**948**	**900**	97	391	130	201
Total Petroleum Hydrocarbons									
Diesel Range Hydrocarbons	mg/kg	2,000	2,000	**3,700**	760	190	530	400	84
Motor Oil Range	mg/kg	2,000	2,000	**4,500**	**2,100**	600	**2,200**	940	760
LPAH									
Acenaphthene	ug/kg	500	500	260 U	120 U	58 U	110 U	57 U	58 U
Acenaphthylene	ug/kg	1,300	1,300	260 U	120 U	58 U	110 U	57 U	58 U
Anthracene	ug/kg	960	960	260 U	120 U	58 U	110 U	57 U	58 U
Fluorene	ug/kg	540	540	160 J	120 U	U	110 U	57 U	58 U
LPAH	ug/kg	5,200	5,200	590 J	190	160	81 J	94	58
Naphthalene	ug/kg	2,100	2,100	260 U	120 U	58 U	110 U	57 U	58 U
Phenanthrene	ug/kg	1,500	1,500	430	190	160	81 J	94	58
HPAH									
Benzo(A)anthracene	ug/kg	1,300	1,600	200 J	180	100	76 J	58	58 U
Benzo(A)pyrene	ug/kg	1,600	1,600	190 J	190 J	140 J	93 J	81 J	58 U
Benzo(G,H,I)perylene	ug/kg	670	720	160 J	140 J	73 J	55 J	36 J	58 U
Benzofluoranthenes, Total	ug/kg	3,200	3,600	400 J	400 J	245 J	184 J	132 J	58 U
Chrysene	ug/kg	1,400	2,800	520	400	160	230	96	83
Dibenzo(A,H)anthracene	ug/kg	230	230	**260** U	120 U	58 U	110 U	57 U	58 U
Fluoranthene	ug/kg	1,700	2,500	560	450	300	200	140	29 J
HPAH	ug/kg	12,000	17,000	2,780 J	2,210 J	1,255 J	978 J	653 J	112 J
Indeno(1,2,3-Cd)pyrene	ug/kg	600	690	260 U	110 J	67 J	110 U	57 U	58 U
Pyrene	ug/kg	2,600	3,300	750	340	170	140	110	58 U
Phthalates									
Bis(2-ethylhexyl)phthalate	ug/kg	1,300	1,900	**14,000** B	**3,400** B	63 U	**2,000** B	290 U	360 U
Butylbenzylphthalate	ug/kg	63	900	**2,100**	**360**	58 U	**420**	57 U	58 U
Diethylphthalate	ug/kg	200	1,200	**260** U	120 U	58 U	110 U	57 U	58 U
Dimethylphthalate	ug/kg	71	160	**260** U	**120** U	58 U	**110** U	57 U	35 J
Di-N-Butylphthalate	ug/kg	1,400	1,400	420	220	58 U	100 J	57 U	58 U
Di-N-Octylphthalate	ug/kg	6,200		850	170	58 U	98 J	57 U	38 J
PCBs									
Aroclor 1016	ug/kg			760 U	1,400 U	19 U	290 U	19 U	19 U
Aroclor 1221	ug/kg			760 U	1,400 U	19 U	290 U	19 U	19 U
Aroclor 1232	ug/kg			760 U	1,400 U	19 U	290 U	19 U	19 U
Aroclor 1242	ug/kg			760 U	1,400 U	19 U	290 U	19 U	19 U
Aroclor 1248	ug/kg			760 U	1,400 U	19 U	290 U	19 U	19 U
Aroclor 1254	ug/kg			1,800	3,800	52	590	130	26
Aroclor 1260	ug/kg			1,800	3,100	130 J	750	400	34
Total PCBs	ug/kg	130	1,000	**3,600**	**6,900**	**182** J	**1,340**	**530**	60

Table D-4: Results of samples collected at former Sternoff Metals site.

Sample Number				CB144-052709	CB145-052709	CB146-052709	CB147-052709	CB148-052709	CB149-052709
Station ID				CB144	CB145	CB146	CB147	CB148	CB149
Date				5/27/2009	5/27/2009	5/27/2009	5/27/2009	5/27/2009	5/27/2009
Sample Type				CB	Surface dirt	Soil	Surface dirt	Soil	Surface dirt
Sample Method				Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual
Xcoord		SQS	CSL	1,272,661.57	1,272,655.67	1,273,086.57	1,272,899.07	1,272,954.28	1,272,550.12
Ycoord		LAET	2LAET	200,016.50	200,013.72	199,853.50	199,935.95	199,833.86	199,860.95
Other Organic Compounds									
1,2,4-Trichlorobenzene	ug/kg	31	51	**260** U	**120** U	**58** U	**110** U	**57** U	**58** U
1,2-Dichlorobenzene	ug/kg	35	50	**260** U	**120** U	**58** U	**110** U	**57** U	**58** U
1,3-Dichlorobenzene	ug/kg			260 U	120 U	58 U	110 U	57 U	58 U
1,4-Dichlorobenzene	ug/kg	110	110	**260** U	**120** U	58 U	**110** U	57 U	58 U
2,2'-Oxybis(1-chloropropane)	ug/kg			260 U	120 U	58 U	110 U	57 U	58 U
2,4,5-Trichlorophenol	ug/kg			1,300 U	620 U	290 U	530 U	280 U	290 U
2,4,6-Trichlorophenol	ug/kg			1,300 U	620 U	290 U	530 U	280 U	290 U
2,4-Dichlorophenol	ug/kg			1,300 U	620 U	290 U	530 U	280 U	290 U
2,4-Dimethylphenol	ug/kg	29		**260** U	**120** U	**58** U	**110** U	**57** U	**58** U
2,4-Dinitrophenol	ug/kg			2,600 U	1,200 U	580 U	1,100 U	570 U	580 U
2,4-Dinitrotoluene	ug/kg			1,300 U	620 U	290 U	530 U	280 U	290 U
2,6-Dinitrotoluene	ug/kg			1,300 U	620 U	290 U	530 U	280 U	290 U
2-Chloronaphthalene	ug/kg			260 U	120 U	58 U	110 U	57 U	58 U
2-Chlorophenol	ug/kg			260 U	120 U	58 U	110 U	57 U	58 U
2-Methylnaphthalene	ug/kg	670	670	180 J	120 U	58 J	110 U	47 J	58 U
2-Methylphenol	ug/kg	63	63	**260** U	**120** U	58 U	**110** U	57 U	58 U
2-Nitroaniline	ug/kg			1,300 U	620 U	290 U	530 U	280 U	290 U
2-Nitrophenol	ug/kg			1,300 U	620 U	290 U	530 U	280 U	290 U
3,3`-Dichlorobenzidine	ug/kg			1,300 U	620 U	290 U	530 U	280 U	290 U
3-Nitroaniline	ug/kg			1,300 U	620 U	290 U	530 U	280 U	290 U
4,6-Dinitro-2-Methylphenol	ug/kg			2,600 U	1,200 U	580 U	1,100 U	570 U	580 U
4-Bromophenyl phenyl ether	ug/kg			260 U	120 U	58 U	110 U	57 U	58 U
4-Chloro-3-Methylphenol	ug/kg			1,300 U	620 U	290 U	530 U	280 U	290 U
4-Chloroaniline	ug/kg			1,300 U	620 U	290 U	530 U	280 U	290 U
4-Chlorophenyl Phenylether	ug/kg			260 U	120 U	58 U	110 U	57 U	58 U
4-Methylphenol	ug/kg	670	670	**2,300**	92 J	58 U	110 U	57 U	58 U
4-Nitroaniline	ug/kg			1,300 U	620 U	290 U	530 U	280 U	290 U
4-Nitrophenol	ug/kg			1,300 U	620 U	290 U	530 U	280 U	290 U
Benzoic acid	ug/kg	650	650	**2,600** U	**1,200** U	580 U	**1,100** U	570 U	580 U
Benzyl alcohol	ug/kg	57	73	**510**	**120** U	**58** U	**110** U	**57** U	**58** U
bis(2-Chloroethoxy) methane	ug/kg			260 U	120 U	58 U	110 U	57 U	58 U
Bis-(2-chloroethyl) ether	ug/kg			260 U	120 U	58 U	110 U	57 U	58 U
Carbazole	ug/kg			260 U	120 U	58 U	110 U	57 U	58 U
Dibenzofuran	ug/kg	540	540	260 U	120	58 U	110 U	57 U	58 U
Hexachlorobenzene	ug/kg	22	70	**260** U	**120** U	**58** U	**110** U	**57** U	**58** U
Hexachlorobutadiene	ug/kg	11	120	**260** U	**120** U	**58** U	**110** U	**57** U	**58** U
Hexachlorocyclopentadiene	ug/kg			1,300 U	620 U	290 U	530 U	280 U	290 U
Hexachloroethane	ug/kg			260 U	120 U	58 U	110 U	57 U	58 U
Isophorone	ug/kg			260 U	120 U	58 U	110 U	57 U	58 U
Nitrobenzene	ug/kg			260 U	120 U	58 U	110 U	57 U	58 U
N-Nitroso-Di-N-Propylamine	ug/kg			1,300 U	620 U	290 U	530 U	280 U	290 U
N-Nitrosodiphenylamine	ug/kg	28	40	**260** U	**120** U	**58** U	**110** U	**57** U	**58** U
Pentachlorophenol	ug/kg	360	690	**1,300** U	**620** U	290 U	**530** U	280 U	290 U
Phenol	ug/kg	420	1,200	210 J	120 U	58 U	110 U	57 U	58 U

Table D-7: Results from samples collected at Chemithon.

Sample Number				CB102-022107	CB103-022107	CB90-050506	CB93-101206	CB94-101206	CB95-080312	CB95-101206	CB96-020607	CB97-020607	CB98-020607	CH-E-111406	CH-N-111406
Station ID				CB102	CB103	CB90	CB93	CB94	CB95	CB95	CB96	CB97	CB98	CH-E	CH-N
Date				02/21/07	02/21/07	05/05/06	10/12/06	10/12/06	08/03/12	10/12/06	02/06/07	02/06/07	02/06/07	11/14/06	11/14/06
Sample Type				CB	CB	CB	CB	CB	CB	CB	CB	CB	CB	Street dirt	Street dirt
Sample Method				Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual
Xcoord				1,267,191.45	1,267,244.37	1,267,202.46	1,267,220.75	1,267,231.09	1,267,235.94	1,267,235.94	1,267,144.72	1,267,170.07	1,267,178.51	1,267,237.73	1,267,134.42
Ycoord		SQS	CSL	205,418.96	205,258.52	205,386.58	205,346.86	205,259.20	205,123.14	205,123.14	205,186.37	205,378.77	205,348.74	205,372.02	205,403.46
Cleaned		LAET	2LAET	Cleaned	Cleaned	Cleaned	Cleaned	Cleaned	Current Phase	Cleaned	Cleaned	Cleaned	Cleaned	Cleaned	Cleaned
Solids, Total	%			84.1	79.9	67	51.5	60.6	24	22	64.4		73.3	67.4	74
Total Organic Carbon	%			0.973	1.36	2.03	4.22	7.18	14.4	13.2	4.83		1.78	3.65 J	2.4 J
Metals															
Arsenic	mg/kg	57	93	30 U	20	40	30	**60**	40	**150**	20	13	7	40 U	20
Copper	mg/kg	390	390	**1,730**	**860**	**1,820**	**991**	**1,150**	**464**	**734**	**557**	139	169	**1,040**	**696**
Lead	mg/kg	450	530	120	61	410	178	276	189	352	185	**1,760**	47	150	106
Mercury	mg/kg	0.41	0.59	0.07	0.04	0.07	**0.65**	0.31	0.27	0.2	0.33	**9.4**	0.17	**0.58**	0.15
Zinc	mg/kg	410	960	**1,360**	**745**	**2,500**	**1,830**	**3,290**	**1,890**	**3,030**	**939**	**771**	314	**1,380**	**888**
Total Petroleum Hydrocarbons															
Diesel Range Hydrocarbons	mg/kg	2,000	2,000	150	330	280	450	**5,400**	**2,600**	**5,700**	1,600		1,100	650	950
Motor Oil Range	mg/kg	2,000	2,000	410	**2,100**	650	**2,300**	**7,500**	**7,600**	**12,000**	**5,300**		1,200	1,600	**2,100**
LPAH															
Acenaphthene	ug/kg	500	500	320	120	**530**	180	390 U	220	**520** U	120 U	400	29 U	200	58 J
Acenaphthylene	ug/kg	1,300	1,300	65	94 U	310 U	120 U	390 U	200 U	520 U	120 U	240 U	29 U	110 U	320
Anthracene	ug/kg	960	960	350	210	**1,500**	300	390 U	200 U	520 U	280	240 U	29 U	110	100 J
Fluorene	ug/kg	540	540	280	140	460	220	390 U	200	520 U	120 U	430	29 U	130	110 U
LPAH	ug/kg	5,200	5,200	3,015	2,400	**9,810**	2,900	1,600	2,150	1,900	1,580	3,530	150	1,520	1,078 J
Naphthalene	ug/kg	2,100	2,100	300	730	320	200	390 U	430	520 U	120 U	1,200	29 U	220	140
Phenanthrene	ug/kg	1,500	1,500	**1,700**	1,200	**7,000**	**2,000**	**1,600**	1,300	**1,900**	1,300	**1,500**	150	860	460
HPAH															
Benzo(A)anthracene	ug/kg	1,300	1,600	**1,400**	650	**6,300**	990	520	560	820	800	880	100	500	580
Benzo(A)pyrene	ug/kg	1,600	1,600	1,300	480	**5,100**	1,000	1,000	660	1,100	740	460	150	640	960
Benzo(G,H,I)perylene	ug/kg	670	720	560	240	**2,100**	520	**1,100**	600 J	**710**	300	300	100	230	380
Benzofluoranthenes, Total	ug/kg	3,200	3,600	2,710	1,050	**9,000**	2,300	2,400	1,900	3,100	1,590	2,070	380	1,410	2,140
Chrysene	ug/kg	1,400	2,800	**1,600**	760	**7,000**	**1,600**	**1,400**	**1,400**	**1,900**	1,100	**1,500**	240	780	860
Dibenzo(A,H)anthracene	ug/kg	230	230	180	58 J	**600**	180	**390** U	120 J	**520** U	120 U	**240** U	29 U	110 U	93
Fluoranthene	ug/kg	1,700	2,500	**3,100**	**1,800**	**16,000**	**3,100**	**2,000**	**2,000**	**3,100**	**3,000**	**2,600**	560	1,400	1,100
HPAH	ug/kg	1,200	17,000	**13,500**	**6,568** J	**58,300**	**12,410**	**10,970**	**9,270** J	**13,500**	**10,210**	**10,190**	**1,952**	**6,180**	**7,493**
Indeno(1,2,3-Cd)pyrene	ug/kg	600	690	**650**	230	**2,200**	520	**950**	430	**670**	280	280	92	220	410
Pyrene	ug/kg	2,600	3,300	2,000	1,300	**10,000**	2,200	1,600	1,600	2,100	2,400	2,100	330	1,000	970
Phthalates															
Bis(2-ethylhexyl)phthalate	ug/kg	1,300	1,900	**3,400**	**3,600**	**5,700**	**5,900**	**3,000**	**72,000** B	**65,000**	**15,000**		1,100	**4,400**	**4,100**
Butylbenzylphthalate	ug/kg	63	900	**510**	**500**	**1,800**	**800**	**1,200**	**200** U	**1,700**	**460**		**220**	**5,200**	**700**
Diethylphthalate	ug/kg	200	1,200	59 U	94 U	**310** U	120 U	**390** U	**510** U	**520** U	120 U	**240** U	29 U	110 U	110 U
Dimethylphthalate	ug/kg	71	160	**93**	**73** J	**310** U	**120** U	**610**	**1,100**	**520** U	**240**	**240** U	33	**220**	**650**
Di-N-Butylphthalate	ug/kg	1,400	1,400	1,200	1,100	500	350 U	390 U	630	570 U	160		29 U	780	410
Di-N-Octylphthalate	ug/kg	6,200		340	220	500	300	390 U	4,600	4,300	1,000		56	380	240
PCBs															
Aroclor 1016	ug/kg			19 U	19 U	600 U	99 U	3,900 U	96 U	100 U	180 U	1,500 U	190 U	580 U	550 U
Aroclor 1221	ug/kg			19 U	19 U	600 U	99 U	3,900 U	96 U	100 U	180 U	1,500 U	190 U	580 U	550 U
Aroclor 1232	ug/kg			19 U	19 U	600 U	99 U	3,900 U	96 U	100 U	180 U	1,500 U	190 U	580 U	550 U
Aroclor 1242	ug/kg			19 U	19 U	600 U	99 U	3,900 U	96 U	100 U	180 U	1,500 U	190 U	580 U	550 U
Aroclor 1248	ug/kg			19 U	77 Y	600 U	99 U	3,900 U	430 Y	100 U	180 U	1,500 U	190 U	580 U	550 U
Aroclor 1254	ug/kg			55	350	2,500	510	3,900 U	1,400	270	630	3,800	970	660 J	760
Aroclor 1260	ug/kg			21 J	71	600 U	260	7,900 Y	810 J	170	410	3,200	690	580 J	900
Total PCBs	ug/kg	130	1,000	76 J	**421**	**2,500**	**770**	**7,900** Y	**2,210** J	**440**	**1,040**	**7,000**	**1,660**	**1,240** J	**1,660**
Other Organic Compounds															
1,2,4-Trichlorobenzene	ug/kg	31	51	**59** U	**94** U	**310** U	**120** U	**390** U	**200** U	**520** U	**120** U	**240** U	29 U	**110** U	**110** U
1,2-Dichlorobenzene	ug/kg	35	50	**59** U	**94** U	**310** U	**120** U	**390** U	**200** U	**520** U	**120** U	**240** U	29 U	**110** U	**110** U
1,3-Dichlorobenzene	ug/kg			59 U	94 U	310 U	120 U	390 U	200 U	520 U	120 U	240 U	29 U	110 U	110 U
1,4-Dichlorobenzene	ug/kg	110	110	59 U	94 U	**310** U	**120** U	**390** U	**200** U	**520** U	**120** U	**240** U	29 U	**110** U	**110** U
1-Methylnaphthalene	ug/kg								250						

Table D-7: Results from samples collected at Chemithon.

Sample Number				CB102-022107	CB103-022107	CB90-050506	CB93-101206	CB94-101206	CB95-080312	CB95-101206	CB96-020607	CB97-020607	CB98-020607	CH-E-111406	CH-N-111406
Station ID				CB102	CB103	CB90	CB93	CB94	CB95	CB95	CB96	CB97	CB98	CH-E	CH-N
Date				02/21/07	02/21/07	05/05/06	10/12/06	10/12/06	08/03/12	10/12/06	02/06/07	02/06/07	02/06/07	11/14/06	11/14/06
Sample Type				CB	CB	CB	CB	CB	CB	CB	CB	CB	CB	Street dirt	Street dirt
Sample Method				Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual	Grab-Manual
Xcoord				1,267,191.45	1,267,244.37	1,267,202.46	1,267,220.75	1,267,231.09	1,267,235.94	1,267,235.94	1,267,144.72	1,267,170.07	1,267,178.51	1,267,237.73	1,267,134.42
Ycoord		SQS	CSL	205,418.96	205,258.52	205,386.58	205,346.86	205,259.20	205,123.14	205,123.14	205,186.37	205,378.77	205,348.74	205,372.02	205,403.46
Cleaned		LAET	2LAET	Cleaned	Cleaned	Cleaned	Cleaned	Cleaned	Current Phase	Cleaned	Cleaned	Cleaned	Cleaned	Cleaned	Cleaned
2,2'-Oxybis(1-chloropropane)	ug/kg			59 U	94 U	310 U	120 U	390 U	200 U	520 U	120 U	240 U	29 U	110 U	110 U
2,4,5-Trichlorophenol	ug/kg			300 U	470 U	1,600 U	590 U	2,000 U	1,000 U	2,600 U	620 U	1,200 U	140 U	570 U	550 U
2,4,6-Trichlorophenol	ug/kg			300 U	470 U	1,600 U	590 U	2,000 U	1,000 U	2,600 U	620 U	1,200 U	140 U	570 U	550 U
2,4-Dichlorophenol	ug/kg			300 U	470 U	1,600 U	590 U	2,000 U	2,000 U	2,600 U	620 U	1,200 U	140 U	570 U	550 U
2,4-Dimethylphenol	ug/kg	29		**59** U	**94** U	**310** U	**120** U	**390** U	**410** U	**520** U	**120** U	**9,200**	**29** U	**110** U	**110** U
2,4-Dinitrophenol	ug/kg			590 U	940 U	3,100 U	1,200 U	3,900 U	8,700 U	5,200 U	1,200 U	2,400 U	290 U	1,100 U	1,100 U
2,4-Dinitrotoluene	ug/kg			300 U	470 U	1,600 U	590 U	2,000 U	1,000 U	2,600 U	620 U	1,200 U	140 U	570 U	550 U
2,6-Dinitrotoluene	ug/kg			300 U	470 U	1,600 U	590 U	2,000 U	1,000 U	2,600 U	620 U	1,200 U	140 U	570 U	550 U
2-Chloronaphthalene	ug/kg			59 U	94 U	310 U	120	390 U	200 U	520 U	120 U	240 U	29 U	110 U	110 U
2-Chlorophenol	ug/kg			59 U	94 U	310 U	120 U	390 U	200 U	520 U	120 U	240 U	29 U	110 U	110 U
2-Methylnaphthalene	ug/kg	670	670	200	290	310	160	**1,700**	500	**790**	140	**34,000**	37	**900**	100 J
2-Methylphenol	ug/kg	63	63	59 U	**94** U	**310** U	**120** U	**390** U	**200** U	**520** U	**120** U	**750**	29 U	**110** U	**110** U
2-Nitroaniline	ug/kg			300 U	470 U	1,600 U	590 U	2,000 U	1,000 U	2,600 U	620 U	1,200 U	140 U	570 U	550 U
2-Nitrophenol	ug/kg			300 U	470 U	1,600 U	590 U	2,000 U	1,000 U	2,600 U	620 U	1,200 U	140 U	570 U	550 U
3,3`-Dichlorobenzidine	ug/kg			300 U	470 U		590 U	2,000 U	1,500 UJ	2,600 U	620 U	1,200 U	140 U	570 U	550 U
3-Nitroaniline	ug/kg			300 U	470 U	1,600 U	590 U	2,000 U	1,000 U	2,600 U	620 U	1,200 U	140 U	570 U	550 U
4,6-Dinitro-2-Methylphenol	ug/kg			590 U	940 U	3,100 U	1,200 U	3,900 U	2,000 U	5,200 U	1,200 U	2,400 U	290 U	1,100 U	1,100 U
4-Bromophenyl phenyl ether	ug/kg			59 U	94 U	310 U	120 U	390 U	200 U	520 U	120 U	240 U	29 U	110 U	110 U
4-Chloro-3-Methylphenol	ug/kg			300 U	470 U	1,600 U	590 U	2,000 U	1,000 U	2,600 U	620 U	1,200 U	140 U	570 U	550 U
4-Chloroaniline	ug/kg			300 U	470 U		590 U	2,000 U	2,800 U	2,600 U	620 U	1,200 U	140 U	570 U	550 U
4-Chlorophenyl Phenylether	ug/kg			59 U	94 U	310 U	120 U	390 U	200 U	520 U	120 U	240 U	29 U	110 U	110 U
4-Methylphenol	ug/kg	670	670	59 U	110	310 U	**1,700**	390 U	**1,100**	**2,200**	120 U	**1,200**	150	120	120
4-Nitroaniline	ug/kg			300 U	470 U	1,600 U	590 U	2,000 U	1,000 U	2,600 U	620 U	1,200 U	140 U	570 U	550 U
4-Nitrophenol	ug/kg			300 U	470 U	1,600 U	590 U	2,000 U	1,000 U	2,600 U	620 U	1,200 U	140 U	570 U	550 U
Benzoic acid	ug/kg	650	650	590 U	**940** U	**3,100** U	**1,200** U	**4,400**	**4,100** U	**5,200** U	**1,200** U	**2,400** U	290 U	**1,100** U	**1,100** U
Benzyl alcohol	ug/kg	57	73	**580**	**1,600**	**440**	**120** U	**390** U	**300**	**520** U	**120** U	**1,200** U	29 U	**500**	**120**
bis(2-Chloroethoxy) methane	ug/kg			59 U	94 U	310 U	120 U	390 U	200 U	520 U	120 U	240 U	29 U	110 U	110 U
Bis-(2-chloroethyl) ether	ug/kg			59 U	94 U	310 U	120 U	390 U	200 U	520 U	120 U	240 U	29 U	110 U	110 U
Carbazole	ug/kg			240	140	780	280	390 U	180 J	520 U	360	240 U	29 U	120	57 J
Dibenzofuran	ug/kg	540	540	150	97	310 U	130	390 U	220 Y	520 U	120 U	240 U	29 U	120	110 U
Hexachlorobenzene	ug/kg	22	70	**59** U	**94** U	**310** U	**120** U	**390** U	**200** UJ	**520** U	**120** U	**240** U	**29** U	**110** U	**110** U
Hexachlorobutadiene	ug/kg	11	120	**59** U	**94** U	**310** U	**120** U	**390** U	**200** U	**520** U	**120** U	**240** U	**29** U	**110** U	**110** U
Hexachlorocyclopentadiene	ug/kg			300 U	470 U	1,600 U	590 U	2,000 U	4,100 U	2,600 U	620 U	1,200 U	140 U	570 U	550 U
Hexachloroethane	ug/kg			59 U	94 U	310 U	120 U	390 U	200 U	520 U	120 U	240 U	29 U	110 U	110 U
Isophorone	ug/kg			59 U	94 U	310 U	120 U	390 U	200 U	520 U	120 U	240 U	29 U	110 U	110 U
Nitrobenzene	ug/kg			59 U	94 U	310 U	120 U	390 U	200 U	520 U	120 U	240 U	29 U	110 U	110 U
N-Nitroso-Di-N-Propylamine	ug/kg			300 U	470 U	1,600 U	590 U	2,000 U	200 U	2,600 U	620 U	1,200 U	140 U	570 U	550 U
N-Nitrosodiphenylamine	ug/kg	28	40	**59** U	**94** U	**310** U	**120** U	**390** U	**200** U	**520** U	**120** U	**240** U	**29** U	**110** U	**110** U
Pentachlorophenol	ug/kg	360	690	300 U	**470** U	**1,600** U	**590** U	**2,000** U	**2,000** U	**2,600** U	**620** U	**1,200** U	140 U	**570** U	**550** U
Phenol	ug/kg	420	1,200	280	**640**	350 B	**870**	**1,500**	**1,000**	**1,500**	120 U	360	41	380 U	240 U

Table D-11: Denver Ave S PCB spill storm drain sample results

Sample No.	Date	Storm Drain	Location	SDG	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Total PCBs
SD in Denver Ave S												
MKJ-060519-02	06/05/19	Denver SD	Unmapped SPU inlet on S side of Denver mid block east of 1st.	19F0053	816 U	816 U	816 U	**6,970**	816 U	816 UJ	816 U	**6,970**
MKJ-060519-03	06/05/19	Denver SD	CB on north side of Denver, midblock east of 1st Ave S	19F0053	9.46 U	9.46 U	9.46 U	**69.4**	9.46 U	9.46 UJ	9.46 U	**69.4**
MKJ-062019-3	06/20/19	Denver SD	First MH downstream of input from CB and inlet that were initially sampled.	19F0298	0.199 U	0.199 U	0.199 U	**4.36**	0.199 U	0.199 UJ	0.199 UJ	**4.36**
NCH-062119-1	06/21/19	Denver SD	MH in NE corner of intersection, just upstream of tide gate on Denver line	19F0310	0.499 U	0.499 U	0.499 U	**61.6**	0.499 U	0.499 UJ	**0.961**	**62.56**
NCH-062119-2	06/21/19	Denver SD	First MH upstream of contamination, taken from iron bacteria heavy sed in south line.	19F0310	0.0507 U	0.0507 U	0.0507 U	**0.105**	0.0507 U	**0.0927**	0.0507 UJ	**0.198**
MKJ-071619-1	07/16/19	Denver SD	Line cleaning solids[b]	19G0209	0.0995 U	0.0995 U	0.0995 U	**4.86**	0.0995 U	**0.95**	**0.199**	**6.01**
Diagonal Ave S CSO/SD mainline												
MKJ-062519-1	6/25/2019[a]	Diag MNL	Upstream of Denver Ave S line	19F0365	0.02 U	0.02 U	0.02 U	**0.0792**	0.02 U	0.02 UJ	0.02 UJ	**0.079**
MKJ-062519-2	6/25/2019[a]	Diag MNL	MH on Diag mainline just downstream of Denver input	19F0365	0.0198 U	0.0198 U	0.0198 U	**0.307**	0.0198 U	0.0198 UJ	0.0198 UJ	**0.307**
MKJ-062519-3	6/25/2019[a]	Diag MNL	MH immediately D/S of KC pump station.	19F0365	0.0199 U	0.0199 U	0.0199 U	**0.194**	0.0199 U	0.0199 UJ	0.0199 UJ	**0.194**
MKJ-070319-1	07/03/19	Diag MNL	Just upstream of outfall	19G0054	0.0197 U	0.0197 U	0.0197 U	**1.16**	0.0197 U	0.0197 UJ	**0.0264**	**1.19**
MKJ-070319-2	07/03/19	Diag MNL	Dupe of -1	19G0054	0.0979 U	0.0979 U	0.0979 U	**0.934**	0.0979 U	0.0979 UJ	0.0979 UJ	**0.934**
MKJ-070319-3	07/03/19	Diag MNL	South of 4401 E Marginal Wy S	19G0054	0.0195 U	0.0195 U	0.0195 U	**0.513**	0.0195 U	0.0195 UJ	0.0195 UJ	**0.513**
MKJ-070319-4	07/03/19	Diag MNL	S Oregon St and Diagonal Ave S	19G0054	0.0194 U	0.0194 U	0.0194 U	**0.853**	0.0194 U	0.0194 UJ	**0.0237**	**0.877**
Street dirt												
MKJ-060519-01	06/05/19	Street dirt	Road shoulder composite from dirt just SW of inlet midblock on denver, east of 1st	19F0053	4,070 U	4,070 U	4,070 U	**40,300**	4,070 U	4,070 UJ	4,070 U	**40,300**
MKJ-062019-1	06/20/19	Street dirt	Sample of curb sediment in ROW, on pavement.	19F0298	0.199 U	0.199 U	0.199 U	**3.97**	0.199 U	0.199 UJ	0.199 UJ	**3.97**
MKJ-062019-2	06/20/19	Street dirt	Road curb dirt on ROW pavement upgradient from CB at 1st Ave Bridge and Denver	19F0298	0.0991 U	0.0991 U	0.0991 U	**0.966**	0.0991 U	0.0991 UJ	0.0991 UJ	**0.966**

Units: mg/kg dw

CB = catch basin MH = maintenance hole

U = Analyte was not detected above the listed sample reporting limit.

UJ = Analyte was not detected above the listed sample reporting limit. However, the reporting limit is approximate and may or may not represent the actual limit of quantification necessary to accurately and precisely measure the analyte in the sample.

Notes:

a. 06/25/19 samples in Diagonal Ave S CSO/SD mainline collected using long handled scoop. 07/03/19 samples collected via confined space entry during extremely low tide.

b. Composite sample collected from the roll off container.

MAPS

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integral consulting inc

Map D-1

T-117 Early Action Cleanup Site Overview
Lower Duwamish Superfund Site – Terminal 117 Early Action Area

Legend

Sample_locations

- Sediment trap
- Storm drain solids
- Street dirt
- Underdrain
- Bioretention cell
- Filterra tree box unit

Structures

- Other Mainline End Point
- Maintenance hole

Utilities

- MS4
- Sanitary sewer
- Combined sewer

Lower Duwamish Waterway

Map No. D-2 - Terminal 117 Adjacent Streets sample locations

Seattle

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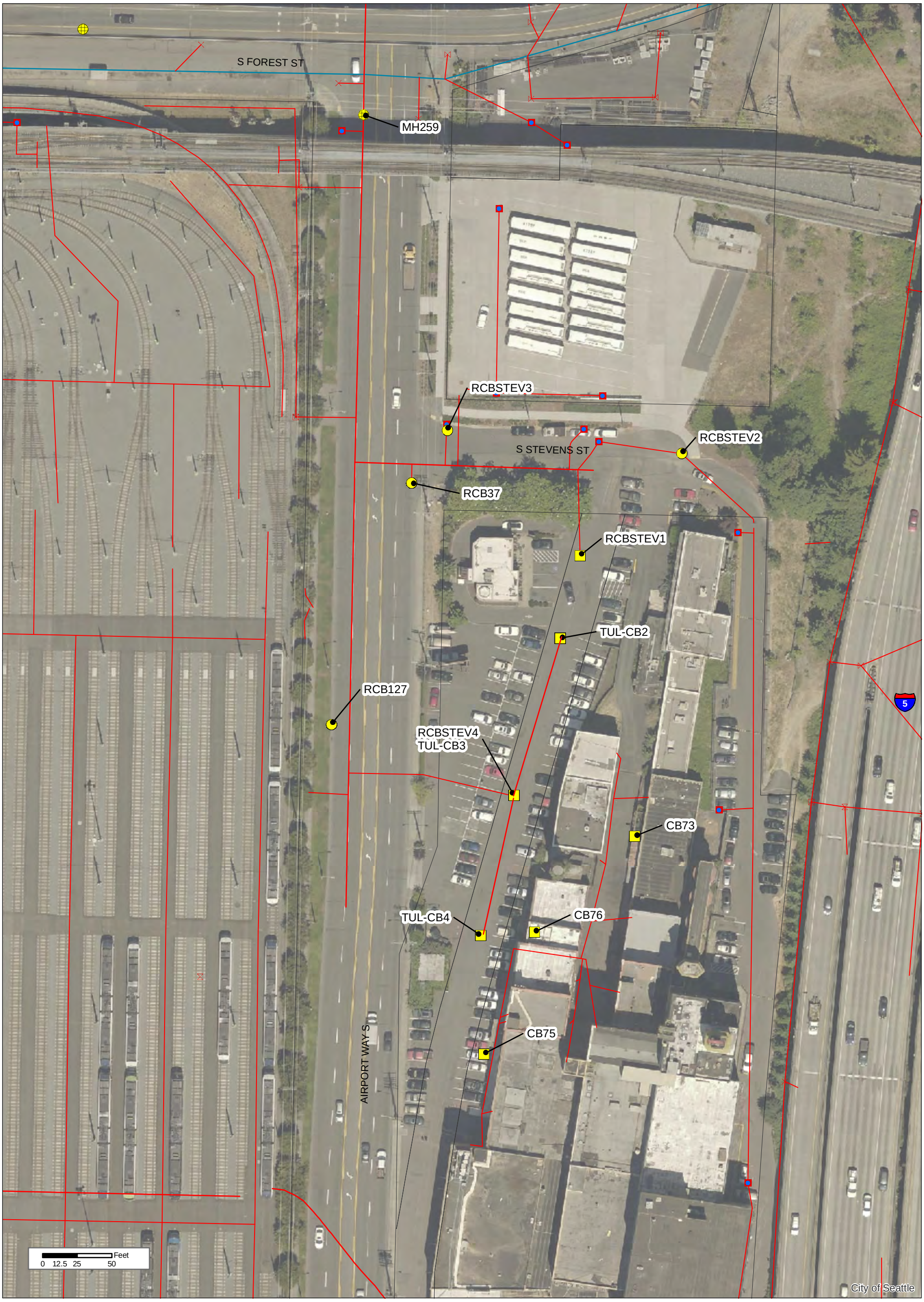

Lower Duwamish Waterway

Map No. D- 3 - Rainier Commons sample locations

Seattle

N

Legend

Source samples

- Catch basin
- Inline grab
- Sediment trap
- Right-of-way catch basin

Catch basin

- Catch Basin
- Catch Basin Grated Top
- Flow Control Catch Basin

Storm drains

- non-MS4
- MS4
- Parcels

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RCB177
RCB178
730 S Myrtle St
FOX AVE S
RCB180
RCB65
RCB176
RCB226
RCB148
S MYRTLE ST
MH100
MYR-ST1
RCB189
CB157
RD2
RD1
7TH AVE S
CB211
CB212
RCB147
S ORCHARD ST
601 S Myrtle St
CB207
MH240
701 S Orchard St
RCB146
S GARDEN ST
Duwamish Waterway
Feet
0 15 30 60
City of Seattle

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Legend

Source samples

- Catch basin
- Inline grab
- Sediment trap
- Right-of-way catch basin

Catch basin

- Catch Basin
- Catch Basin Grated Top
- Flow Control Catch Basin

Storm drains

- non-MS4
- MS4
- Parcels

Lower Duwamish Waterway

Map No. D-4 - Seattle Iron and Metals Corporation sample locations

Seattle

N

Lower Duwamish Waterway

Map No. D- 5 - Marine Lumber sample locations

Seattle

N

Legend

Source samples

- Soil / surface dirt
- Area excavated by Marine Lumber

Catch basin

- Catch Basin
- Catch Basin Grated Top
- Flow Control Catch Basin

Storm drains

- non-MS4
- MS4
- Parcels

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Legend

Source samples

- Catch basin
- Soil / surface dirt

Catch basin

- Catch Basin
- Catch Basin Grated Top

Storm drains

- non-MS4
- MS4
- SPU Sanitary Main
- SPU Combined Main
- King County Sewer Main
- Private Sanitary Main
- Parcels

Lower Duwamish Waterway

Map No. D-6 - Sternoff Metals sample locations

Seattle

N

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Legend

Source samples

- Catch basin
- Soil / surface dirt
- Right-of-way catch basin

SYMBOL

- CSO-KC
- Unknown

Catch basin

- Catch Basin
- Catch Basin Grated Top

Storm drains

- non-MS4
- MS4
- SPU Sanitary Main
- SPU Combined Main
- King County Sewer Main
- Parcels

Lower Duwamish Waterway

Map No. D-7 - Independent Metals

Plant 2 sample locations

Seattle

N

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Legend

Source samples

- Catch basin
- Inline grab
- Sediment trap
- Soil / surface dirt
- Right-of-way catch basin

Catch basin

- Catch Basin
- Catch Basin Grated Top
- Flow Control Catch Basin

Storm drains

- non-MS4
- MS4
- Parcels

Lower Duwamish Waterway

Map No. D-7 - Independent Metals Plant 1sample locations

Seattle

N

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Lower Duwamish Waterway

Map No. D- 9 - Seattle Barrel sample locations

Seattle

N

Legend

Source samples

- Catch basin
- Outside drainage system
- Right-of-way catch basin

Catch basin

- Catch Basin
- Catch Basin Grated Top
- Flow Control Catch Basin

Storm drains

- non-MS4
- MS4
- Parcels

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Lower Duwamish Waterway

Map No. D-10 - Former Jon's Recycling / Cam Grinder sample locations

Seattle

N

Legend

Source samples

- Catch basin
- Inline grab
- Sediment trap
- Right-of-way catch basin

Catch basin

- Catch Basin
- Catch Basin Grated Top
- Flow Control Catch Basin

Storm drains

- non-MS4
- MS4
- Parcels

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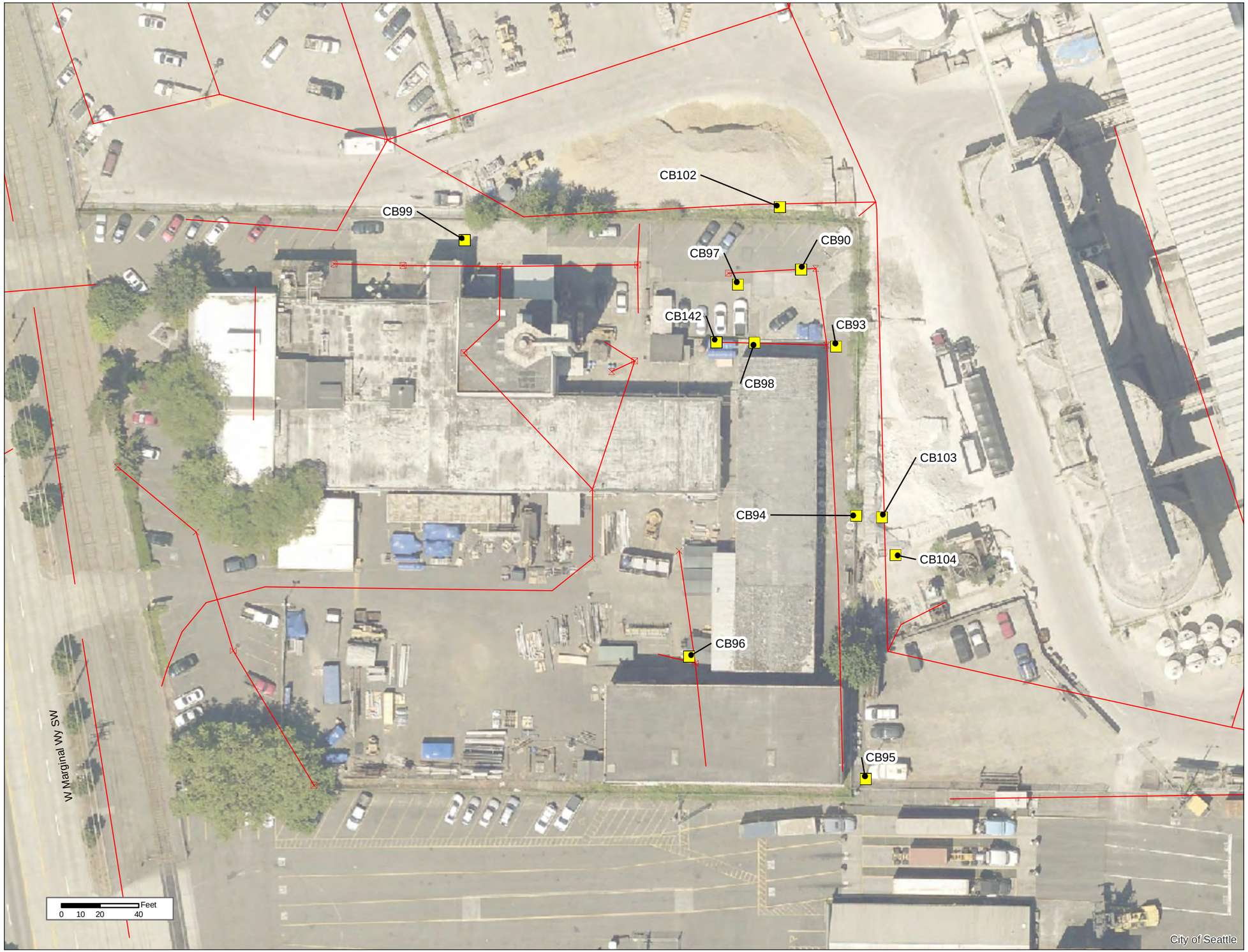

Legend

Source samples

- Catch basin
- Inline grab
- Sediment trap
- Right-of-way catch basin

Catch basin

- Catch Basin
- Catch Basin Grated Top
- Flow Control Catch Basin

Storm drains

- non-MS4
- MS4

Lower Duwamish Waterway

Map No. D-11 - Chemithon samples

Seattle

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Lower Duwamish Waterway

Map No. D-12 - Western Waterproofing samples

Seattle

N

Legend

Source samples

- Catch basin
- Inline grab
- Sediment trap
- Right-of-way catch basin

Catch basin

- Catch Basin
- Catch Basin Grated Top
- Flow Control Catch Basin

Storm drains

- non-MS4
- MS4
- base_screen

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Lower Duwamish Waterway

Map No. D-13 - Sun Food Trading Company samples

Seattle

N

Legend

Source samples

- Catch basin
- Inline grab
- Sediment trap
- Right-of-way catch basin

Catch basin

- Catch Basin
- Catch Basin Grated Top
- Flow Control Catch Basin

Storm drains

- non-MS4
- MS4

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Lower Duwamish Waterway

Map No. D- 14 - 150 S River St
sample locations

Seattle

N

Legend

Source samples
- Catch basin
- Surface dirt

Catch basin
- Catch Basin
- Catch Basin Grated Top
- Flow Control Catch Basin

Storm drains
- non-MS4
- MS4
- Parcels

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Legend

Sample locations

- Inline grab
- Soil / surface dirt
- Right-of-way catch basin
- Storm drain cleaned
- Approximate boundaries of PCB spill

Structures

- Drop MH; Drop Connection MH
- Maintenance Hole
- Catch Basin MH, CB, CB Large Inlet
- Overflow MH
- Other MH
- Plug
- Tee
- Outfall
- Water Quality Structure
- Other Mainline End Point

Storm Drains

- MS4
- non-MS4

Lower Duwamish Waterway

Map No. D-15 - Denver Ave S PCB spill sample locations

Seattle

N

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Appendix E:
Spills and Water Quality Complaints
(July 1, 2014 to June 30, 2019)

Spill and water quality complaint locations shown on Maps 31 - 54

Table E-1: Water quality complaints (2014-2015).

Map No.	Grid No.	Date	Address	Outfall	MS4 Impacted?	Waterbody Impacted?	Pollutant	Cause_of_Problem
31	A2	09/18/14	MILITARY RD S & S OTHELLO ST	KCIA SD#1	No	No	Garbage/Debris	Illegal Dumping
31	E3	06/29/16	8300 MILITARY RD S	KCIA SD#1	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
32	M9	07/24/15	9245 42nd Ave S	S Norfolk St CSO/PS#17/EOF/SD	No	No	Sediment	Other
32	Q5	03/29/17	3301 S NORFOLK ST	S Norfolk St CSO/PS#17/EOF/SD	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
32	Q5	02/28/18	3301 S NORFOLK ST	S Norfolk St CSO/PS#17/EOF/SD	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Other
32	Q9	03/29/18	9845 M L KING JR WAY S	S Norfolk St CSO/PS#17/EOF/SD	Yes	No	Sewage	Illicit Connnection
32	R10	07/26/16	10023 M L KING JR WAY S	S Norfolk St CSO/PS#17/EOF/SD	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Fixed business not implementing BMPs
32	R4	10/07/15	10230 EAST MARGINAL WAY S	S Norfolk St CSO/PS#17/EOF/SD	No	No	Garbage/Debris	Mobile business not implementing BMPs
32	R4	02/20/18	10230 EAST MARGINAL WAY S	S Norfolk St CSO/PS#17/EOF/SD	No	No	Drainage	Construction
34	B4	08/22/16	DALLAS AVE S & 17TH AVE S	17th Ave S SD	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
34	C2	05/09/17	8602 16TH AVE S	17th Ave S SD	No	No	None	Unknown
35	D9	05/20/15	9220 8TH AVE S	S 96th St SD	No	No	None	None
35	D9	07/09/18	9220 8TH AVE S	S 96th St SD	No	No	Chemicals (Solvent, Haz Waste, Acids, etc)	Fixed business not implementing BMPs
35	H6	02/02/16	9900 Myers Wy S	S 96th St SD	No	No	Garbage/Debris	None
35	H6	01/23/17	9900 Myers Wy S	S 96th St SD	No	No	Other	Encampment
36	H1	09/22/16	EAST MARGINAL WAY S & 1ST AVE S	Head of Slip 2 SD	No	No	Unknown	Other
37	B2	06/13/17	6050 EAST MARGINAL WAY S	1st Ave S SD, east	No	No	Groundwater	Construction
39	E5	09/09/14	S BRIGHTON ST & FOX AVE S	S Brighton St SD	Yes	No	Soap/Washwater	Illicit Connnection
39	G7	02/03/17	6900 Fox Ave S	S Brighton St SD	No	No	Chemicals (Solvent, Haz Waste, Acids, etc)	Illegal Dumping
40	C3	08/04/16	FOX AVE S & S MYRTLE ST	S Myrtle St SD	No	No	Garbage/Debris	Illegal Dumping
42	G10	09/28/16	21ST AVE S & S GRAHAM ST	I-5 SD at Slip 4	No	No	Chlorinated Water	Potable Water Line Break
42	N1	05/19/15	7201 EAST MARGINAL WAY S	I-5 SD at Slip 4	No	No	None	None
44	C5	09/19/18	5400 WEST MARGINAL WAY SW	SW Kenny St SD/T115 CSO	No	<Null>	Other	Accidental Spill
44	I6	12/18/15	6045 WEST MARGINAL WAY SW	SW Kenny St SD/T115 CSO	No	No	None	None
45	B7	10/08/15	6700 WEST MARGINAL WAY SW	Highland Wy SW SD	No	No	Chemicals (Solvent, Haz Waste, Acids, etc)	Accidental Spill
45	D7	07/22/14	WEST MARGINAL WAY SW & SW FRONT ST	Highland Wy SW SD	Yes	No	Unknown	Drainage Problem
45	F8	10/25/16	7201 DETROIT AVE SW	Highland Wy SW SD	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Illegal Dumping
45	L4	05/04/17	7755 HIGHLAND PARK WAY SW	Highland Wy SW SD	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
45	O2	02/19/16	8156 12TH AVE SW	Highland Wy SW SD	No	No	Chlorinated Water	Potable Water Line Break
46	C5	08/27/14	7201 WEST MARGINAL WAY SW	1st Ave S SD, west	No	No	Process Wastewater	Fixed business not implementing BMPs
46	C8	09/19/16	7152 1ST AVE S	1st Ave S SD, west	No	No	None	None
46	F8	06/24/19	7272 WEST MARGINAL WAY S	1st Ave S SD, west	Yes	<Null>	Hydraulic Fluid	Motor Vehicle Collision
46	G3	10/13/16	6TH AVE SW & SW OTHELLO ST	1st Ave S SD, west	No	No	Chlorinated Water	Potable Water Line Break
46	K11	03/03/17	521 S MONROE ST	1st Ave S SD, west	No	No	Drainage	Fixed business not implementing BMPs
46	K6	10/08/14	7905 DETROIT AVE SW	1st Ave S SD, west	No	No	Chlorinated Water	Potable Water Line Break
46	K7	01/19/16	1ST AVE S & SW KENYON ST	1st Ave S SD, west	No	No	Sewage	RV Dumping
46	K7	01/18/19	1ST AVE S & SW KENYON ST	1st Ave S SD, west	Yes	<Null>	Garbage/Debris	Encampment
46	K8	10/28/16	130 S KENYON ST	1st Ave S SD, west	No	No	None	None
46	K8	07/19/18	130 S KENYON ST	1st Ave S SD, west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
46	K9	05/06/16	7900 2nd Ave S	1st Ave S SD, west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
46	K9	07/06/18	7951 2ND AVE S	1st Ave S SD, west	No	No	Garbage/Debris	RV Dumping
46	L4	04/23/15	8120 5TH AVE SW	1st Ave S SD, west	No	No	Chlorinated Water	Potable Water Line Break
46	L4	06/28/16	8100 5TH AVE SW	1st Ave S SD, west	No	No	Chlorinated Water	Potable Water Line Break
46	S7	09/20/17	9200 OLSON PL SW	1st Ave S SD, west	Yes	No	Sewage	Illegal Dumping
46	S7	12/08/17	9200 2ND AVE SW	1st Ave S SD, west	No	No	Garbage/Debris	Illegal Dumping
46	U2	03/17/15	9449 7TH AVE SW	1st Ave S SD, west	No	No	None	None
47	E4	04/27/16	2ND AVE S & S FONTANELLE ST	2nd Ave S SD	No	No	Garbage/Debris	Illegal Dumping

Table E-1: Water quality complaints (2014-2015).

Map No.	Grid No.	Date	Address	Outfall	MS4 Impacted?	Waterbody Impacted?	Pollutant	Cause_of_Problem
47	E5	12/22/15	3RD AVE S & S FONTANELLE ST	2nd Ave S SD	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	RV Dumping
47	G4	02/06/19	2nd Ave S & S Webster St	2nd Ave S SD	No	<Null>	Sewage	Planned Cleanup
47	I4	05/25/16	240 S HOLDEN ST	2nd Ave S SD	No	No	Chlorinated Water	Potable Water Line Break
48	A7	03/17/17	7509 5TH AVE S	7th Ave S SD	No	No	None	None
48	B8	04/30/15	540 S HOLDEN ST	7th Ave S SD	No	No	Soap/Washwater	Fixed business not implementing BMPs
48	C9	07/03/17	7TH AVE S & S PORTLAND ST	7th Ave S SD	No	No	Other	None
48	D9	05/11/15	7777 7TH AVE S	7th Ave S SD	No	No	Other	Other
48	E10	04/28/15	740 S MONROE ST	7th Ave S SD	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Fixed business not implementing BMPs
48	E10	09/11/17	744 S KENYON ST	7th Ave S SD	No	No	None	None
48	E6	04/22/15	327 S KENYON ST	7th Ave S SD	No	No	Other	Leaking Vehicle (no repair)
48	E7	05/08/18	526 S MONROE ST	7th Ave S SD	No	No	None	None
48	E9	06/25/15	7TH AVE S & S MONROE ST	7th Ave S SD	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Mobile business not implementing BMPs
48	G9	06/27/18	8219 7TH AVE S	7th Ave S SD	No	No	Sewage	Encampment
48	I7	08/12/16	500 S SULLIVAN ST	7th Ave S SD	No	No	None	None
48	J5	05/18/17	309 S Cloverdale St	7th Ave S SD	No	No	Unknown	Unknown
48	J6	03/24/17	432 S CLOVERDALE ST	7th Ave S SD	No	No	Garbage/Debris	Fixed business not implementing BMPs
48	J7	07/07/14	5TH AVE S & S CLOVERDALE ST	7th Ave S SD	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	None
48	L4	01/10/19	8819 2ND AVE S	7th Ave S SD	No	<Null>	Transmission/Brake Fluid	Leaking Vehicle
48	M5	02/27/18	9008 2ND AVE S	7th Ave S SD	No	No	None	None
48	Q3	08/25/17	9400 Myers Wy S	7th Ave S SD	No	No	Sewage	RV Dumping
48	Q3	09/27/17	9401 MYERS WAY S	7th Ave S SD	No	No	None	None
48	Q3	09/11/18	9401 MYERS WAY S	7th Ave S SD	No	<Null>	Garbage/Debris	Illegal Dumping
48	S4	11/05/14	9600 Myers Wy S	7th Ave S SD	No	No	None	None
49	D4	10/06/14	21 S NEVADA ST	S Nevada St SD	No	No	Chlorinated Water	Potable Water Line Break
49	D4	10/02/15	21 S NEVADA ST	S Nevada St SD	No	No	Other	Illegal Dumping
49	D5	09/02/14	44 S NEVADA ST	S Nevada St SD	Yes	No	Chlorinated Water	Potable Water Line Break
50	AC13	01/15/15	M L KING JR WAY S & RENTON AVE S	Diagonal Ave S CSO/SD - east	No	No	Chlorinated Water	Potable Water Line Break
50	C11	01/19/17	2220 E Union St	Diagonal Ave S CSO/SD - east	No	No	Unknown	Other
50	D12	05/25/16	1130 23RD AVE	Diagonal Ave S CSO/SD - east	No	No	Sewage	Broken/Blocked side sewer or pipe
50	G10	02/21/17	619 20TH AVE	Diagonal Ave S CSO/SD - east	No	No	Drainage	Drainage Problem
50	G10	05/30/17	1920 E JEFFERSON ST	Diagonal Ave S CSO/SD - east	No	No	Sewage	Broken/Blocked side sewer or pipe
50	J12	08/09/16	101 25TH AVE S	Diagonal Ave S CSO/SD - east	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Home Auto Repair/Illegal Auto Repair
50	J13	06/22/15	2512 E YESLER WAY	Diagonal Ave S CSO/SD - east	No	No	Chlorinated Water	Potable Water Line Break
50	J14	12/07/17	M L KING JR WAY S & E YESLER WAY	Diagonal Ave S CSO/SD - east	No	No	None	Encampment
50	J14	01/07/19	M L KING JR WAY S & E YESLER WAY	Diagonal Ave S CSO/SD - east	No	<Null>	Sewage	RV Dumping
50	K10	04/13/17	2033 S WASHINGTON ST	Diagonal Ave S CSO/SD - east	No	No	Concrete/Cement	Construction
50	K6	07/13/16	1265 S Main St	Diagonal Ave S CSO/SD - east	No	No	Sewage	Broken/Blocked side sewer or pipe
50	K8	08/23/17	1601 S MAIN ST	Diagonal Ave S CSO/SD - east	No	No	Sewage	Broken/Blocked side sewer or pipe
50	L12	03/28/18	23RD AVE S & S JACKSON ST	Diagonal Ave S CSO/SD - east	No	No	Sediment	Construction
50	L13	05/07/18	2603 S JACKSON ST	Diagonal Ave S CSO/SD - east	No	No	Animal Waste	Fixed business not implementing BMPs
50	L13	09/24/18	26TH AVE S & S JACKSON ST	Diagonal Ave S CSO/SD - east	Yes	<Null>	Sewage	Broken/Blocked Side Sewer
50	L5	08/05/14	1207 S Jackson St	Diagonal Ave S CSO/SD - east	No	No	Fats, Oil and Grease (FOG)	Fixed business not implementing BMPs
50	L5	10/12/15	1207 S Jackson St	Diagonal Ave S CSO/SD - east	No	No	Garbage/Debris	Fixed business not implementing BMPs
50	L7	09/14/17	14TH AVE S & BOREN AVE S	Diagonal Ave S CSO/SD - east	No	No	Soap/Washwater	Fixed business not implementing BMPs
50	L8	03/20/19	1610 S KING ST	Diagonal Ave S CSO/SD - east	No	<Null>	Transmission/Brake Fluid	Leaking Vehicle
50	L9	07/22/14	S JACKSON ST & 18TH AVE S	Diagonal Ave S CSO/SD - east	No	No	None	None
50	M7	07/16/18	S LANE ST & DEARBORN PL S	Diagonal Ave S CSO/SD - east	No	No	Garbage/Debris	Illegal Dumping

Table E-1: Water quality complaints (2014-2015).

Map No.	Grid No.	Date	Address	Outfall	MS4 Impacted?	Waterbody Impacted?	Pollutant	Cause_of_Problem
50	M9	05/22/18	1809 S WELLER ST	Diagonal Ave S CSO/SD - east	No	No	Sewage	Broken/Blocked side sewer or pipe
50	N10	07/27/16	2011 S DEARBORN ST	Diagonal Ave S CSO/SD - east	No	No	Chlorinated Water	Potable Water Line Break
50	N8	07/22/14	S DEARBORN ST & HIAWATHA PL S	Diagonal Ave S CSO/SD - east	Yes	No	None	Potable Water Line Break
50	N8	01/25/17	S DEARBORN ST & RAINIER AVE S	Diagonal Ave S CSO/SD - east	No	No	Garbage/Debris	Encampment
50	O10	01/30/18	1101 20TH AVE S	Diagonal Ave S CSO/SD - east	No	No	Sewage	Broken/Blocked side sewer or pipe
50	O11	07/22/14	S NORMAN ST & 21ST AVE S	Diagonal Ave S CSO/SD - east	Yes	No	Soap/Washwater	Illicit Connnection
50	O14	01/25/16	918 28TH AVE S	Diagonal Ave S CSO/SD - east	No	No	Garbage/Debris	Unknown
50	O14	04/29/18	918 29th Ave S	Diagonal Ave S CSO/SD - east	Yes	No	Sewage	Broken/Blocked side sewer or pipe
50	O9	07/15/14	944 HIAWATHA PL S	Diagonal Ave S CSO/SD - east	No	No	Groundwater	None
50	O9	03/09/17	1121 RAINIER AVE S	Diagonal Ave S CSO/SD - east	No	No	Garbage/Debris	Illegal Dumping
50	O9	04/05/17	1121 RAINIER AVE S	Diagonal Ave S CSO/SD - east	No	No	Garbage/Debris	Encampment
50	P5	03/09/17	1311 12TH AVE S	Diagonal Ave S CSO/SD - east	No	No	Garbage/Debris	Encampment
50	P6	03/09/17	1120 15TH AVE S	Diagonal Ave S CSO/SD - east	No	No	Garbage/Debris	Illegal Dumping
50	P6	02/26/18	1337 13TH AVE S	Diagonal Ave S CSO/SD - east	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
50	P7	06/06/18	S JUDKINS ST & STURGUS AVE S	Diagonal Ave S CSO/SD - east	No	No	Unknown	Unknown
50	P9	03/26/17	1261 RAINIER AVE S	Diagonal Ave S CSO/SD - east	No	No	Garbage/Debris	Illegal Dumping
50	P9	09/11/18	1849 S BUSH PL	Diagonal Ave S CSO/SD - east	Yes	<Null>	Sewage	Encampment
50	Q11	03/09/17	1401 23RD AVE S	Diagonal Ave S CSO/SD - east	No	No	Garbage/Debris	Encampment
50	Q8	03/09/17	1506 17TH AVE S	Diagonal Ave S CSO/SD - east	No	No	Garbage/Debris	Illegal Dumping
50	Q9	03/02/17	1354 Rainier Ave S	Diagonal Ave S CSO/SD - east	No	No	Garbage/Debris	Encampment
50	Q9	03/20/17	1281 Rainier Ave S	Diagonal Ave S CSO/SD - east	No	No	Garbage/Debris	Encampment
50	Q9	03/28/17	1299 RAINIER AVE S	Diagonal Ave S CSO/SD - east	No	No	Garbage/Debris	Encampment
50	Q9	04/07/17	1304 Rainier Ave S	Diagonal Ave S CSO/SD - east	No	No	Garbage/Debris	Encampment
50	R10	12/24/14	1713 20TH AVE S	Diagonal Ave S CSO/SD - east	No	No	Chlorinated Water	Potable Water Line Break
50	R15	07/24/15	3003 S ATLANTIC ST	Diagonal Ave S CSO/SD - east	No	No	Chemicals (Solvent, Haz Waste, Acids, etc)	Illegal Dumping
50	R9	03/08/17	1500 Valentine Pl S	Diagonal Ave S CSO/SD - east	No	No	Garbage/Debris	Encampment
50	R9	03/09/17	1501 Valentine Pl S	Diagonal Ave S CSO/SD - east	No	No	Garbage/Debris	Encampment
50	S10	08/05/14	S GRAND ST & RAINIER AVE S	Diagonal Ave S CSO/SD - east	No	No	None	None
50	S10	04/13/17	2100 S GRAND ST	Diagonal Ave S CSO/SD - east	No	No	Garbage/Debris	Encampment
50	S10	06/13/18	S GRAND ST & RAINIER AVE S	Diagonal Ave S CSO/SD - east	No	No	None	None
50	S11	03/02/18	1818 RAINIER AVE S	Diagonal Ave S CSO/SD - east	Yes	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Fixed business not implementing BMPs
50	S7	05/16/18	1610 S GRAND ST	Diagonal Ave S CSO/SD - east	No	No	Sewage	Broken/Blocked side sewer or pipe
50	S9	08/18/15	1760 19TH AVE S	Diagonal Ave S CSO/SD - east	No	No	Other	Accidental Spill
50	T13	07/02/18	S HOLGATE ST & M L KING JR WAY S	Diagonal Ave S CSO/SD - east	No	No	None	Other
50	U10	05/23/19	21ST AVE S & S HILL ST	Diagonal Ave S CSO/SD - east	Yes	<Null>	Sewage	RV Dumping
50	U11	07/10/16	RAINIER AVE S & S HILL ST	Diagonal Ave S CSO/SD - east	No	No	Chlorinated Water	Potable Water Line Break
50	U11	07/02/18	S WALKER ST & 22ND AVE S	Diagonal Ave S CSO/SD - east	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
50	U11	09/11/18	2120 RAINIER AVE S	Diagonal Ave S CSO/SD - east	No	<Null>	Soap/Washwater	Fixed Business Not Implementing BMPs
50	U12	07/11/16	RAINIER AVE S & S COLLEGE ST	Diagonal Ave S CSO/SD - east	No	No	Chlorinated Water	Potable Water Line Break
50	U12	06/07/18	RAINIER AVE S & S COLLEGE ST	Diagonal Ave S CSO/SD - east	No	No	Unknown	Unknown
50	U12	06/21/18	RAINIER AVE S & S COLLEGE ST	Diagonal Ave S CSO/SD - east	Yes	<Null>	Sewage	RV Dumping
50	U9	01/02/18	1908 S WALKER ST	Diagonal Ave S CSO/SD - east	No	No	Sewage	Broken/Blocked side sewer or pipe
50	V11	06/15/18	2341 24TH AVE S	Diagonal Ave S CSO/SD - east	No	No	Sewage	Encampment
50	V12	05/18/18	2338 25TH AVE S	Diagonal Ave S CSO/SD - east	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Encampment
50	V9	04/04/16	2340 19TH AVE S	Diagonal Ave S CSO/SD - east	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
50	W12	05/30/18	2543 RAINIER AVE S	Diagonal Ave S CSO/SD - east	Yes	No	Fats, Oil and Grease (FOG)	Illegal Dumping
50	W14	08/14/15	29TH AVE S & S BAYVIEW ST	Diagonal Ave S CSO/SD - east	No	No	Chlorinated Water	Potable Water Line Break

Table E-1: Water quality complaints (2014-2015).

Map No.	Grid No.	Date	Address	Outfall	MS4 Impacted?	Waterbody Impacted?	Pollutant	Cause_of_Problem
50	W15	01/16/18	2523 31ST AVE S	Diagonal Ave S CSO/SD - east	No	No	Chlorinated Water	Mobile business not implementing BMPs
50	W9	07/15/15	1903 S BAYVIEW ST	Diagonal Ave S CSO/SD - east	No	No	Sewage	Broken/Blocked side sewer or pipe
50	X11	03/22/16	2717 HARRIS PL S	Diagonal Ave S CSO/SD - east	No	No	Chlorinated Water	Potable Water Line Break
50	X14	06/13/18	S MCCLELLAN ST & 29TH AVE S	Diagonal Ave S CSO/SD - east	No	No	None	None
50	X15	07/01/14	S MCCLELLAN ST & 30TH AVE S	Diagonal Ave S CSO/SD - east	Yes	No	None	Other
50	Y10	10/04/15	21ST AVE S & S STEVENS ST	Diagonal Ave S CSO/SD - east	No	No	Chlorinated Water	Potable Water Line Break
50	Y10	04/28/17	2911 21ST AVE S	Diagonal Ave S CSO/SD - east	No	No	Heating Oil	Heating Oil Tank Leak
50	Y11	03/22/16	2920 HARRIS PL S	Diagonal Ave S CSO/SD - east	No	No	Chlorinated Water	Potable Water Line Break
50	Z12	09/10/14	3101 25TH AVE S	Diagonal Ave S CSO/SD - east	Yes	No	Sewage	Broken/Blocked side sewer or pipe
50	Z14	05/22/18	M L KING JR WAY S & S WINTHROP ST	Diagonal Ave S CSO/SD - east	Yes	No	Unknown	Unknown
50	Z14	06/04/18	M L KING JR WAY S & RAINIER AVE S	Diagonal Ave S CSO/SD - east	Yes	No	Sewage	Broken/Blocked side sewer or pipe
50	Z14	06/04/18	M L KING JR WAY S & RAINIER AVE S	Diagonal Ave S CSO/SD - east	Yes	No	Pesticides/Herbicides/Fertilize	None
50	Z15	03/02/17	3013 S MOUNT BAKER BLVD	Diagonal Ave S CSO/SD - east	No	No	Garbage/Debris	Illegal Dumping
51	D11	03/11/18	2306 12TH AVE S	Diagonal Ave S CSO/SD - west	No	No	Sewage	Broken/Blocked side sewer or pipe
51	E9	10/17/16	2700 Airport Wy S	Diagonal Ave S CSO/SD - west	No	No	Chlorinated Water	Potable Water Line Break
51	F13	08/22/14	2916 BEACON AVE S	Diagonal Ave S CSO/SD - west	No	No	None	None
51	F13	10/27/16	2901 17th Ave S	Diagonal Ave S CSO/SD - west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Fixed business not implementing BMPs
51	F9	07/01/14	3100 Airport Wy S	Diagonal Ave S CSO/SD - west	No	No	Soap/Washwater	Other
51	F9	10/06/14	3100 Airport Wy S	Diagonal Ave S CSO/SD - west	No	No	Other	Construction
51	G9	12/14/15	3250 AIRPORT WAY S	Diagonal Ave S CSO/SD - west	No	No	Chlorinated Water	Potable Water Line Break
51	H12	02/26/15	3430 15TH AVE S	Diagonal Ave S CSO/SD - west	No	No	Chlorinated Water	Potable Water Line Break
51	H12	03/20/15	3436 14TH AVE S	Diagonal Ave S CSO/SD - west	No	No	Groundwater	Unknown
51	H8	10/18/17	3300 6TH AVE S	Diagonal Ave S CSO/SD - west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Unknown
51	H9	11/15/16	3407 AIRPORT WAY S	Diagonal Ave S CSO/SD - west	No	No	Fats, Oil and Grease (FOG)	Illegal Dumping
51	H9	01/25/17	3407 AIRPORT WAY S	Diagonal Ave S CSO/SD - west	No	No	Soap/Washwater	Fixed business not implementing BMPs
51	H9	05/22/18	3407 AIRPORT WAY S	Diagonal Ave S CSO/SD - west	Yes	No	Groundwater	None
51	I12	02/12/15	1506 S SPOKANE ST	Diagonal Ave S CSO/SD - west	No	No	Chlorinated Water	Potable Water Line Break
51	I12	03/05/15	1410 S COLUMBIAN WAY	Diagonal Ave S CSO/SD - west	No	No	Garbage/Debris	Illegal Dumping
51	I12	06/21/16	3601 14TH AVE S	Diagonal Ave S CSO/SD - west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Illegal Dumping
51	I8	03/08/16	3623 6TH AVE S	Diagonal Ave S CSO/SD - west	No	No	Sewage	Broken/Blocked side sewer or pipe
51	I8	05/26/16	620 S SPOKANE ST	Diagonal Ave S CSO/SD - west	No	No	Sewage	Unknown
51	I8	07/18/17	3623 6TH AVE S	Diagonal Ave S CSO/SD - west	No	No	Sewage	Broken/Blocked side sewer or pipe
51	J12	10/27/14	3811 14TH AVE S	Diagonal Ave S CSO/SD - west	No	No	None	Broken/Blocked side sewer or pipe
51	J12	04/22/15	3815 14TH AVE S	Diagonal Ave S CSO/SD - west	No	No	Sewage	Broken/Blocked side sewer or pipe
51	J12	06/18/18	3808 14TH AVE S	Diagonal Ave S CSO/SD - west	No	No	Sewage	Broken/Blocked side sewer or pipe
51	J8	03/10/15	3901 7TH AVE S	Diagonal Ave S CSO/SD - west	No	No	None	Drainage Problem
51	J8	05/21/18	6TH AVE S & S CHARLESTOWN ST	Diagonal Ave S CSO/SD - west	Yes	No	None	None
51	J9	12/08/15	3706 AIRPORT WAY S	Diagonal Ave S CSO/SD - west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
51	J9	07/05/17	820 S CHARLESTOWN ST	Diagonal Ave S CSO/SD - west	No	No	Other	Other
51	K12	02/26/15	4100 16TH AVE S	Diagonal Ave S CSO/SD - west	No	No	Chlorinated Water	Potable Water Line Break
51	K5	07/01/14	1ST AVE S & S DAKOTA ST	Diagonal Ave S CSO/SD - west	Yes	No	None	None
51	K6	05/08/18	DIAGONAL AVE S & 4TH AVE S	Diagonal Ave S CSO/SD - west	No	No	Unknown	Unknown
51	K6	05/08/18	DIAGONAL AVE S & 4TH AVE S	Diagonal Ave S CSO/SD - west	No	No	Unknown	Unknown
51	K6	06/22/18	DIAGONAL AVE S & 4TH AVE S	Diagonal Ave S CSO/SD - west	Yes	<Null>	Sewage	Illicit Connection
51	K7	01/25/19	S ANDOVER ST & 6TH AVE S	Diagonal Ave S CSO/SD - west	Yes	<Null>	Sewage	Encampment
51	K7	01/25/19	S ANDOVER ST & 6TH AVE S	Diagonal Ave S CSO/SD - west	Yes	<Null>	Garbage/Debris	Encampment
51	K7	01/25/19	S ANDOVER ST & 6TH AVE S	Diagonal Ave S CSO/SD - west	Yes	<Null>	Sewage	RV Dumping

Table E-1: Water quality complaints (2014-2015).

Map No.	Grid No.	Date	Address	Outfall	MS4 Impacted?	Waterbody Impacted?	Pollutant	Cause_of_Problem
51	K7	03/27/19	S ANDOVER ST & 6TH AVE S	Diagonal Ave S CSO/SD - west	Yes	<Null>	Sewage	Planned Cleanup
51	K8	09/18/15	S ANDOVER ST & 7TH AVE S	Diagonal Ave S CSO/SD - west	No	No	Chlorinated Water	Potable Water Line Break
51	K8	05/22/18	S ANDOVER ST & MAYNARD AVE S	Diagonal Ave S CSO/SD - west	No	No	Unknown	Unknown
51	L7	05/31/16	601 S NEVADA ST	Diagonal Ave S CSO/SD - west	No	No	Sewage	RV Dumping
51	L7	03/15/18	601 S NEVADA ST	Diagonal Ave S CSO/SD - west	No	No	Other	Encampment
51	L9	07/17/14	AIRPORT WAY S & S ADAMS ST	Diagonal Ave S CSO/SD - west	No	No	None	None
51	L9	04/09/15	812 S ADAMS ST	Diagonal Ave S CSO/SD - west	No	No	Sewage	RV Dumping
51	M1	10/01/15	1S Idaho St	Diagonal Ave S CSO/SD - west	No	No	None	None
51	M1	12/01/15	1S Idaho St	Diagonal Ave S CSO/SD - west	No	No	Sediment	Fixed business not implementing BMPs
51	M11	05/14/15	13TH AVE S & S OREGON ST	Diagonal Ave S CSO/SD - west	No	No	Chlorinated Water	Potable Water Line Break
51	M12	07/25/16	4351 15TH AVE S	Diagonal Ave S CSO/SD - west	No	No	Chlorinated Water	Potable Water Line Break
51	M2	04/21/15	7S Idaho St	Diagonal Ave S CSO/SD - west	No	No	<Null>	<Null>
51	M2	06/01/17	14 S Idaho St	Diagonal Ave S CSO/SD - west	No	No	None	Fixed business not implementing BMPs
51	M2	04/04/19	15 S IDAHO ST	Diagonal Ave S CSO/SD - west	No	<Null>	Hydraulic Fluid	Accidental Spill
51	M2	06/24/19	12 S IDAHO ST	Diagonal Ave S CSO/SD - west	Yes	<Null>	Hydraulic Fluid	Equipment Failure
51	M3	07/02/14	OHIO AVE S & DIAGONAL AVE S	Diagonal Ave S CSO/SD - west	No	No	Garbage/Debris	Fixed business not implementing BMPs
51	M3	06/10/15	EAST MARGINAL WAY S & S IDAHO ST	Diagonal Ave S CSO/SD - west	No	No	Chlorinated Water	Potable Water Line Break
51	M3	06/27/18	OHIO AVE S & DIAGONAL AVE S	Diagonal Ave S CSO/SD - west	Yes	No	Other	Other
51	M4	09/22/16	COLORADO AVE S & DENVER AVE S	Diagonal Ave S CSO/SD - west	No	No	None	None
51	M6	07/31/14	4401 4TH AVE S	Diagonal Ave S CSO/SD - west	No	No	None	None
51	M6	01/27/15	4400 4th Ave S	Diagonal Ave S CSO/SD - west	Yes	No	Soap/Washwater	Mobile business not implementing BMPs
51	M6	12/14/15	4401 4TH AVE S	Diagonal Ave S CSO/SD - west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Fixed business not implementing BMPs
51	N12	11/13/18	4611 14TH AVE S	Diagonal Ave S CSO/SD - west	Yes	<Null>	Transformer Oil	Equipment Failure
51	N4	01/15/19	4700 Denver Ave S	Diagonal Ave S CSO/SD - west	Yes	<Null>	AntiFreeze/Coolant	Equipment Failure
51	N4	04/08/19	4700 Denver Ave S	Diagonal Ave S CSO/SD - west	Yes	<Null>	Hydraulic Fluid	Equipment Failure
51	N4	04/17/19	4700 Denver Ave S	Diagonal Ave S CSO/SD - west	Yes	<Null>	Motor Oil	Equipment Failure, Accidental Spill
51	N7	12/19/18	6TH AVE S & S Snoqualmie St	Diagonal Ave S CSO/SD - west	No	<Null>	Sewage	Planned Cleanup, RV Dumping
51	O4	03/16/18	70 S Alaska St	Diagonal Ave S CSO/SD - west	No	No	None	<Null>
51	O4	04/23/19	S Alaska St & Utah Ave S	Diagonal Ave S CSO/SD - west	No	<Null>	Fire Fighting Foam, Garbage/Debris	Fire
51	O9	09/14/16	4716 AIRPORT WAY S	Diagonal Ave S CSO/SD - west	No	No	Chemicals (Solvent, Haz Waste, Acids, etc)	None
51	O9	02/13/17	4716 AIRPORT WAY S	Diagonal Ave S CSO/SD - west	No	No	Process Wastewater	Drainage Problem
51	O9	12/04/17	4716 AIRPORT WAY S	Diagonal Ave S CSO/SD - west	No	No	Chemicals (Solvent, Haz Waste, Acids, etc)	<Null>
51	P3	09/03/14	S HUDSON ST & OHIO AVE S	Diagonal Ave S CSO/SD - west	No	No	Chlorinated Water	Potable Water Line Break
52	C3	02/08/18	3801 West Marginal Wy SW	SW Dakota St SD	No	No	Sewage	Broken/Blocked side sewer or pipe
52	G4	12/27/14	16TH AVE SW & SW DAKOTA ST	SW Dakota St SD	No	No	Chlorinated Water	Potable Water Line Break
53	<Null>	01/05/18	SW FINDLAY ST & 35TH AVE SW	<Null>	No	No	Odor	Unknown
53	B5	08/05/14	WEST MARGINAL WAY SW & SW IDAHO ST	SW Idaho St SD	Yes	No	None	None
53	H5	01/13/17	4861 WEST MARGINAL WAY SW	SW Idaho St SD	Yes	Yes	Chemicals (Solvent, Haz Waste, Acids, etc)	Other
53	I5	11/02/15	WEST MARGINAL WAY SW & PUGET WAY SW	SW Idaho St SD	Yes	No	Sediment	Mobile business not implementing BMPs
53	I5	11/10/15	WEST MARGINAL WAY SW & PUGET WAY SW	SW Idaho St SD	No	No	Chlorinated Water	Potable Water Line Break
53	T3	02/11/15	6551 17TH AVE SW	SW Idaho St SD	No	No	Chlorinated Water	Potable Water Line Break
54	B9	01/15/18	1463 20TH AVE	Combined sewer basin	No	No	Drainage	Broken/Blocked side sewer or pipe
54	C7	10/03/16	550 BROADWAY	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	C7	12/13/16	747 BROADWAY	Combined sewer basin	Yes	No	Sewage	Other
54	C8	07/27/15	1610 E MARION ST	Combined sewer basin	No	No	Drainage	Drainage Problem
54	C8	04/16/18	12TH AVE & E MADISON ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Unknown
54	C9	11/09/14	2015 E Union St	Combined sewer basin	No	No	Drainage	Broken/Blocked side sewer or pipe

Table E-1: Water quality complaints (2014-2015).

Map No.	Grid No.	Date	Address	Outfall	MS4 Impacted?	Waterbody Impacted?	Pollutant	Cause_of_Problem
54	C9	04/03/15	2407 E UNION ST	Combined sewer basin	No	No	Sediment	Construction
54	C9	12/21/17	2015 E Union St	Combined sewer basin	No	No	Process Wastewater	Mobile business not implementing BMPs
54	C9	01/15/18	1456 20TH AVE	Combined sewer basin	No	No	Garbage/Debris	Other
54	C9	07/09/18	949 20TH AVE	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	D7	04/20/17	325 9TH AVE	Combined sewer basin	No	No	Soap/Washwater	Fixed business not implementing BMPs
54	D7	03/06/18	412 11TH AVE	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	D8	07/15/15	13TH AVE & E REMINGTON CT	Combined sewer basin	No	No	Concrete/Cement	Construction
54	D8	01/14/17	225 12TH AVE S	Combined sewer basin	No	No	Garbage/Debris	Illegal Dumping
54	D8	07/08/17	E FIR ST & 15TH AVE	Combined sewer basin	No	No	None	Potable Water Line Break
54	D8	05/14/19	500 17TH AVE	Combined sewer basin	No	<Null>	Hydraulic Fluid	Accidental Spill
54	D9	01/24/18	217 25TH AVE	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	E8	06/30/17	12TH AVE S & S MAIN ST	Combined sewer basin	No	No	Garbage/Debris	Illegal Dumping
54	E8	11/27/17	504 12TH AVE S	Combined sewer basin	No	No	Odor	Other
54	E8	04/01/19	1200 S Dearborn St	Combined sewer basin	No	<Null>	Garbage/Debris	Encampment, Illegal Dumping
54	F8	04/02/15	1208 S MASSACHUSETTS ST	Combined sewer basin	No	No	Sediment	Drainage Problem
54	G1	06/24/15	2727 36TH AVE SW	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	G10	03/27/15	32ND AVE S & S BAYVIEW ST	Combined sewer basin	No	No	Pesticides/Herbicides/Fertilize	Other
54	G10	05/19/17	2349 33RD AVE S	Combined sewer basin	No	No	Sewage	Sewer Mainline Problem
54	G2	06/07/16	SW OLGA ST & SW ADMIRAL WAY	Combined sewer basin	No	No	Concrete/Cement	Unknown
54	G2	07/31/17	HARBOR AVE SW & FAUNTLEROY AVE SW	Combined sewer basin	No	No	Sewage	RV Dumping
54	G8	08/28/14	2415 BEACON AVE S	Combined sewer basin	No	No	Soap/Washwater	Fixed business not implementing BMPs
54	G8	12/03/14	13TH AVE S & S BAYVIEW ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	G8	02/23/15	2503 BEACON AVE S	Combined sewer basin	No	No	None	None
54	G8	06/13/18	13TH AVE S & S BAYVIEW ST	Combined sewer basin	No	No	<Null>	<Null>
54	H1	10/13/16	BELVIDERE AVE SW & SW HANFORD ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	H1	10/16/16	BELVIDERE AVE SW & SW HANFORD ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	H1	10/18/16	BELVIDERE AVE SW & SW HANFORD ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	H10	03/02/17	3301 S HORTON ST	Combined sewer basin	No	No	Garbage/Debris	Illegal Dumping
54	H10	02/07/18	2954 36TH AVE S	Combined sewer basin	No	No	<Null>	<Null>
54	H2	06/24/16	3017 SW HINDS ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Home Auto Repair/Illegal Auto Repair
54	H2	08/05/16	3123 HARBOR AVE SW	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	H2	03/16/18	3009 HARBOR AVE SW	Combined sewer basin	No	No	Sewage	Leaking Vehicle (no repair)
54	H7	03/30/15	2600 AIRPORT WAY S	Combined sewer basin	Yes	No	Other	Fixed business not implementing BMPs
54	H8	08/05/17	18TH AVE S & S HORTON ST	Combined sewer basin	No	No	Fats, Oil and Grease (FOG)	Mobile business not implementing BMPs
54	I1	06/21/16	3706 SW CHARLESTOWN ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	I1	10/25/16	41ST AVE SW & SW DAKOTA ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	I1	10/27/16	41ST AVE SW & SW DAKOTA ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	I1	03/28/19	41st Ave SW / SW Dakota St	Combined sewer basin	No	<Null>	Chemicals, Garbage/Debris	Illegal Dumping
54	I10	01/12/15	34TH AVE S & LETITIA AVE S	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	I10	04/20/15	2821 S WALDEN ST	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	I10	06/04/15	3867 RAINIER AVE S	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	I10	06/08/15	2821 S WALDEN ST	Combined sewer basin	Yes	No	Sewage	Broken/Blocked side sewer or pipe
54	I10	09/04/15	4058 RAINIER AVE S	Combined sewer basin	No	No	Soap/Washwater	Accidental Spill
54	I10	09/24/15	4058 RAINIER AVE S	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	I10	01/26/16	3600 COURTLAND PL S	Combined sewer basin	No	No	Sediment	Construction
54	I10	04/01/17	3617 COURTLAND PL S	Combined sewer basin	No	No	Garbage/Debris	Illegal Dumping
54	I10	04/12/17	3600 COURTLAND PL S	Combined sewer basin	No	No	Garbage/Debris	Illegal Dumping

Table E-1: Water quality complaints (2014-2015).

Map No.	Grid No.	Date	Address	Outfall	MS4 Impacted?	Waterbody Impacted?	Pollutant	Cause_of_Problem
54	I10	04/14/17	3896 Rainier Ave S	Combined sewer basin	No	No	Garbage/Debris	None
54	I10	05/05/17	3896 Rainier Ave S	Combined sewer basin	No	No	Garbage/Debris	Other
54	I10	06/08/17	3711 RAINIER AVE S	Combined sewer basin	Yes	No	Soap/Washwater	Unknown
54	I10	07/25/17	COURTLAND PL S & S CHARLESTOWN ST	Combined sewer basin	No	No	None	None
54	I10	07/26/17	S SPOKANE ST & 33RD AVE S	Combined sewer basin	Yes	No	None	Other
54	I10	08/08/17	S SPOKANE ST & 33RD AVE S	Combined sewer basin	Yes	No	Unknown	Unknown
54	I10	07/22/18	3411 34TH AVE S	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	I11	07/27/14	LAKE WASHINGTON BLVD S & 46TH AVE S	Combined sewer basin	No	No	Odor	Other
54	I11	06/05/15	3905 43RD AVE S	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	I11	09/20/16	S HINDS ST & YORK RD S	Combined sewer basin	No	No	Sewage	Accidental Spill
54	I11	11/22/16	3905 43RD AVE S	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	I11	12/29/16	3933 43RD AVE S	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	I11	12/30/16	3905 43RD AVE S	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	I12	10/25/17	3939 LAKE WASHINGTON BLVD S	Combined sewer basin	No	No	Unknown	Unknown
54	I2	12/14/15	SW SPOKANE ST & HARBOR AVE SW	Combined sewer basin	No	No	Sediment	Fixed business not implementing BMPs
54	I2	10/17/16	3299 SW Spokane St	Combined sewer basin	No	Yes	Sediment	Construction
54	I2	02/27/17	3601 33RD AVE SW	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	I2	11/11/17	2856 SW ADAMS ST	Combined sewer basin	No	No	Paint	Construction
54	I2	03/06/18	SW AVALON WAY & SW YANCY ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	I2	03/16/18	35th Ave S & S Spokane St	Combined sewer basin	No	No	None	Potable Water Line Break
54	I3	10/15/14	4035 23RD AVE SW	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	I3	12/11/15	SW SPOKANE ST & WEST MARGINAL WAY SW	Combined sewer basin	No	No	Garbage/Debris	RV Dumping
54	I3	12/24/15	4115 21ST AVE SW	Combined sewer basin	No	No	Sediment	Construction
54	I3	01/16/16	3816 19TH AVE SW	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	I3	05/19/17	4101 20TH AVE SW	Combined sewer basin	No	No	None	Illegal Dumping
54	I3	10/12/17	4003 21ST AVE SW	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	I3	11/13/17	4134 25TH AVE SW	Combined sewer basin	No	No	None	None
54	I3	11/29/17	4034 21ST AVE SW	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	I3	01/02/18	3518 WEST MARGINAL WAY SW	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	I3	04/30/18	DELRIDGE WAY SW & SW ANDOVER ST	Combined sewer basin	No	No	Other	Illegal Dumping
54	I9	06/10/15	4101 BEACON AVE S	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	I9	08/07/17	3826 24TH AVE S	Combined sewer basin	No	No	Concrete/Cement	Construction
54	J1	07/15/14	SW ALASKA ST & 36TH AVE SW	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	J1	10/16/14	4539 42ND AVE SW	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	J1	10/13/15	42ND AVE SW & SW OREGON ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	J1	03/22/16	4511 40TH AVE SW	Combined sewer basin	No	No	None	Potable Water Line Break
54	J1	04/21/17	4000 SW ALASKA ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Fixed business not implementing BMPs
54	J1	05/06/17	42ND AVE SW & SW ALASKA ST	Combined sewer basin	No	No	Soap/Washwater	RV Dumping
54	J1	04/11/18	4754 FAUNTLEROY WAY SW	Combined sewer basin	No	No	None	None
54	J1	06/18/18	4801 FAUNTLEROY WAY SW	Combined sewer basin	No	No	Paint	Construction
54	J10	04/18/15	4551 33RD AVE S	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	J10	06/02/15	4730 32ND AVE S	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	J10	07/15/16	4427 RAINIER AVE S	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	J10	10/26/16	36TH AVE S & S ADAMS ST	Combined sewer basin	No	No	Chemicals (Solvent, Haz Waste, Acids, etc)	Illegal Dumping
54	J10	04/24/17	36TH AVE S & S ADAMS ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Illegal Dumping
54	J10	08/24/17	S COLUMBIAN WAY & 29TH AVE S	Combined sewer basin	Yes	No	Sewage	Illicit Connnection
54	J10	09/05/17	S ALASKA ST & 31ST AVE S	Combined sewer basin	Yes	No	Other	Unknown

Table E-1: Water quality complaints (2014-2015).

Map No.	Grid No.	Date	Address	Outfall	MS4 Impacted?	Waterbody Impacted?	Pollutant	Cause_of_Problem
54	J10	05/10/19	36TH AVE S & S ADAMS ST	Combined sewer basin	Yes	<Null>	Sewage	RV Dumping
54	J11	02/02/15	38TH AVE S & S GENESEE ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	J11	02/24/15	42ND AVE S & S GENESEE ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	J11	03/06/16	3929 S AMERICUS ST	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	J11	04/25/17	4110 S OREGON ST	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	J11	08/09/17	37TH AVE S & S OREGON ST	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	J11	08/09/17	43RD AVE S & S ADAMS ST	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	J11	08/23/17	37TH AVE S & S OREGON ST	Combined sewer basin	Yes	No	Other	Unknown
54	J11	10/26/18	43RD AVE S & S ADAMS ST	Combined sewer basin	Yes	<Null>	Sewage	Broken/Blocked Side Sewer
54	J12	06/04/15	4515 50th Ave S	Combined sewer basin	No	No	None	None
54	J12	04/13/16	S ALASKA ST & 50TH AVE S	Combined sewer basin	No	No	Sediment	Construction
54	J12	01/14/19	4400 LAKE WASHINGTON BLVD S	Combined sewer basin	Yes	<Null>	Fire Fighting Foam	Fire
54	J13	02/09/17	S ALASKA ST & LAKE WASHINGTON BLVD S	Combined sewer basin	No	No	None	None
54	J2	04/20/15	3201 SW AVALON WAY	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	J2	12/02/15	2847 SW NEVADA ST	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	J3	10/07/14	4712 DELRIDGE WAY SW	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	J3	09/15/15	4409 DELRIDGE WAY SW	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	J3	04/04/16	4800 DELRIDGE WAY SW	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	J3	06/03/16	4747 DELRIDGE WAY SW	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	J3	10/26/16	DELRIDGE WAY SW & SW OREGON ST	Combined sewer basin	No	No	Sediment	Construction
54	J3	04/04/17	4717 COTTAGE PL SW	Combined sewer basin	No	No	None	None
54	J3	04/20/17	26TH AVE SW & SW ALASKA ST	Combined sewer basin	No	No	Sediment	Construction
54	J3	01/11/18	4715 21st Ave SW	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Unknown
54	J9	09/05/17	S ALASKA ST & BEACON AVE S	Combined sewer basin	No	No	Other	None
54	J9	11/05/18	4514 BEACON AVE S	Combined sewer basin	No	<Null>	Sewage	RV Dumping
54	J9	03/13/19	4559 BEACON AVE S	Combined sewer basin	Yes	<Null>	Sewage	Encampment, RV Dumping
54	J9	03/22/19	4559 BEACON AVE S	Combined sewer basin	Yes	<Null>	Sewage	Planned Cleanup, RV Dumping
54	K10	06/16/15	2928 S FERDINAND ST	Combined sewer basin	No	No	None	None
54	K10	09/03/15	3102 S HUDSON ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	K10	11/16/16	M L KING JR WAY S & S FERDINAND ST	Combined sewer basin	No	No	Animal Waste	Unknown
54	K10	01/26/17	3247 S EDMUNDS ST	Combined sewer basin	No	No	Groundwater	Drainage Problem
54	K10	03/29/17	5224 33RD AVE S	Combined sewer basin	No	No	Unknown	None
54	K10	08/22/17	S DAWSON ST & 33RD AVE S	Combined sewer basin	Yes	No	Other	Unknown
54	K10	12/29/17	5050 M L KING JR WAY S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
54	K10	03/09/18	5050 M L KING JR WAY S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
54	K10	04/03/18	5050 M L KING JR WAY S	Combined sewer basin	No	No	Other	Accidental Spill
54	K10	06/07/18	5050 M L KING JR WAY S	Combined sewer basin	Yes	No	Sediment	Potable Water Line Break
54	K10	01/09/19	5054 M L KING JR WAY S	Combined sewer basin	No	<Null>	Gasoline	Accidental Spill
54	K11	07/11/15	45TH AVE S & S DAWSON ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	K11	03/10/16	4403 S FERDINAND ST	Combined sewer basin	Yes	No	Sediment	Construction
54	K11	03/20/17	39TH AVE S & S DAWSON ST	Combined sewer basin	Yes	No	Sewage	Broken/Blocked side sewer or pipe
54	K11	09/07/17	4869 Rainier Ave S	Combined sewer basin	Yes	No	Soap/Washwater	Fixed business not implementing BMPs
54	K11	01/23/19	37th Ave S & S Dawson St	Combined sewer basin	No	<Null>	Motor Oil	Illegal Home Auto Repair
54	K12	02/12/15	5219 46TH AVE S	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	K12	06/30/16	48TH AVE S & S DAWSON ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	K12	07/06/16	46TH AVE S & S DAWSON ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	K12	07/08/16	46TH AVE S & S DAWSON ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break

Table E-1: Water quality complaints (2014-2015).

Map No.	Grid No.	Date	Address	Outfall	MS4 Impacted?	Waterbody Impacted?	Pollutant	Cause_of_Problem
54	K12	10/31/16	4834 S BRANDON ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	K12	09/27/17	4922 46TH AVE S	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	K13	10/20/16	S MAYFLOWER ST & 54TH AVE S	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	K13	09/27/18	4926 54TH AVE S	Combined sewer basin	No	<Null>	Groundwater	Drainage Problem
54	K3	11/22/15	23RD AVE SW & SW BRANDON ST	Combined sewer basin	No	No	Algae/Bacteria/Vegetation	Mobile business not implementing BMPs
54	K3	02/06/17	5000 Delridge WY SW	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	K3	04/26/18	5202 23RD AVE SW	Combined sewer basin	No	No	Sewage	Construction
54	K3	<Null>	5202 23RD AVE SW	Combined sewer basin	No	No	<Null>	<Null>
54	K6	11/18/14	311 S BRANDON ST	Combined sewer basin	No	No	Sewage	None
54	K6	02/12/16	206 S BRANDON ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Mobile business not implementing BMPs
54	K6	05/27/16	S BRANDON ST & 3RD AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Unknown
54	K6	05/25/17	UTAH AVE S & S HUDSON ST	Combined sewer basin	No	No	Sewage	RV Dumping
54	K6	02/20/18	3RD AVE S & S HUDSON ST	Combined sewer basin	No	No	None	None
54	K6	06/07/18	74 S HUDSON ST	Combined sewer basin	No	No	<Null>	<Null>
54	K8	11/06/15	5324 16TH AVE S	Combined sewer basin	No	No	None	None
54	K8	08/24/16	5344 16TH AVE S	Combined sewer basin	No	No	Animal Waste	Illegal Dumping
54	K8	03/13/17	5129 17TH AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Unknown
54	K8	03/13/17	1528 S PEARL ST	Combined sewer basin	No	No	Sediment	Mobile business not implementing BMPs
54	K8	12/15/17	5559 16TH AVE S	Combined sewer basin	No	No	None	Broken/Blocked side sewer or pipe
54	K8	01/26/18	5311 17TH AVE S	Combined sewer basin	No	No	Drainage	Drainage Problem
54	K8	12/18/18	1332 S PEARL ST	Combined sewer basin	No	<Null>	Sediment/rock	Construction
54	K9	05/10/17	COLUMBIA DR S & S FERDINAND ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Home Auto Repair/Illegal Auto Repair
54	K9	06/29/18	BEACON AVE S & S FERDINAND ST	Combined sewer basin	No	No	Sediment	Potable Water Line Break
54	K9	12/04/18	5218 COLUMBIA DR S	Combined sewer basin	No	<Null>	Motor Oil	Leaking Vehicle
54	K9	03/13/19	2515 S EDMUNDS ST	Combined sewer basin	No	<Null>	Sewage	Broken/Blocked Side Sewer
54	L10	05/18/15	5521 35TH AVE S	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	L10	07/11/15	32ND AVE S & S JUNEAU ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	L10	07/11/15	3618 S ORCAS ST	Combined sewer basin	Yes	No	Sewage	Broken/Blocked side sewer or pipe
54	L10	08/04/15	3635 S FINDLAY ST	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	L10	09/29/15	3622 S ORCAS ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Illegal Dumping
54	L10	08/09/16	5908 32ND AVE S	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	L10	09/12/16	5908 32ND AVE S	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	L11	10/27/15	6101 RAINIER AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Home Auto Repair/Illegal Auto Repair
54	L11	12/14/15	5623 RAINIER AVE S	Combined sewer basin	No	No	Unknown	None
54	L11	02/08/16	6101 RAINIER AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	L11	03/02/16	5900 37TH AVE S	Combined sewer basin	No	No	None	None
54	L11	06/23/16	6101 RAINIER AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Home Auto Repair/Illegal Auto Repair
54	L11	08/16/16	5504 37TH AVE S	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	L11	07/14/17	4203 S KENNY ST	Combined sewer basin	No	No	Sewage	Unknown
54	L12	07/11/15	51ST AVE S & S FINDLAY ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	L12	07/11/15	51ST AVE S & S LUCILE ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	L12	07/11/15	48TH AVE S & S JUNEAU ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	L12	07/11/15	5128 S JUNEAU ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	L12	07/11/15	51ST AVE S & S RAYMOND ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	L12	07/11/15	52ND AVE S & S ORCAS ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	L12	07/11/15	6030 51ST PL S	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	L12	07/11/15	52ND AVE S & S SPENCER ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break

Table E-1: Water quality complaints (2014-2015).

Map No.	Grid No.	Date	Address	Outfall	MS4 Impacted?	Waterbody Impacted?	Pollutant	Cause_of_Problem
54	L12	11/18/15	6040 51ST PL S	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	L12	03/05/16	4833 S RAYMOND ST	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	L12	08/07/16	4711 S ORCAS ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	L13	03/31/15	5895 LAKE WASHINGTON BLVD S	Combined sewer basin	No	No	Other	Unknown
54	L13	07/11/15	6036 UPLAND TER S	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	L13	08/31/16	5536 S ORCAS ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	L13	01/17/18	5900 LAKE WASHINGTON BLVD S	Combined sewer basin	No	No	Odor	Unknown
54	L13	02/13/18	5976 WILSON AVE S	Combined sewer basin	No	No	<Null>	<Null>
54	L2	01/11/16	5603 30TH AVE SW	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	L2	03/07/19	5641 34TH AVE SW	Combined sewer basin	Yes	<Null>	Motor Oil	Equipment Failure
54	L2	03/20/19	3100 SW GRAHAM ST	Combined sewer basin	No	<Null>	Paint	Accidental Spill
54	L3	08/01/14	6331 24TH AVE SW	Combined sewer basin	No	No	None	None
54	L3	05/27/15	5650 23RD AVE SW	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	L3	09/23/15	Delridge Wy SW & SW Juneau St	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	L3	11/30/16	5600 DELRIDGE WAY SW	Combined sewer basin	No	No	Fats, Oil and Grease (FOG)	Fixed business not implementing BMPs
54	L3	01/26/17	5950 DELRIDGE WAY SW	Combined sewer basin	No	No	Algae/Bacteria/Vegetation	Drainage Problem
54	L6	09/10/15	6333 1ST AVE S	Combined sewer basin	No	No	None	None
54	L6	03/10/16	6145 4TH AVE S	Combined sewer basin	No	No	Soap/Washwater	Fixed business not implementing BMPs
54	L6	06/17/16	6333 1ST AVE S	Combined sewer basin	No	No	Chemicals (Solvent, Haz Waste, Acids, etc)	Fixed business not implementing BMPs
54	L6	08/31/16	6333 1ST AVE S	Combined sewer basin	No	No	Process Wastewater	Accidental Spill
54	L6	03/14/17	511 S MEAD ST	Combined sewer basin	No	No	Fats, Oil and Grease (FOG)	Fixed business not implementing BMPs
54	L6	03/22/17	5940 EAST MARGINAL WAY S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Fixed business not implementing BMPs
54	L6	05/26/17	6333 1ST AVE S	Combined sewer basin	No	No	Fats, Oil and Grease (FOG)	Accidental Spill
54	L6	02/08/18	6333 1ST AVE S	Combined sewer basin	No	No	Fats, Oil and Grease (FOG)	Accidental Spill
54	L6	03/28/19	5883 6TH AVE S	Combined sewer basin	No	<Null>	Sewage	Encampment
54	L6	04/26/19	3rd Ave S & S Mead St	Combined sewer basin	No	<Null>	Greywater	Illegal Dumping
54	L6	05/23/19	6333 1ST AVE S	Combined sewer basin	Yes	<Null>	Fats, Oils, orGrease	Fixed Business Not Implementing BMPs
54	L6	06/21/19	S Front St & 6th AVE S	Combined sewer basin	Yes	<Null>	Sewage, Needles	Planned Cleanup
54	L7	10/10/14	6004 CORSON AVE S	Combined sewer basin	No	No	Heating Oil	Fixed business not implementing BMPs
54	L7	05/19/16	751 S MICHIGAN ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Fixed business not implementing BMPs
54	L7	03/21/17	5622 CORSON AVE S	Combined sewer basin	No	No	Garbage/Debris	Illegal Dumping
54	L7	12/03/18	7th Ave S & S Fidalgo St	Combined sewer basin	No	<Null>	Sewage	RV Dumping
54	L7	12/07/18	7th Ave S & S Fidalgo St	Combined sewer basin	No	<Null>	Sewage	RV Dumping
54	L7	03/22/19	950 S HARNEY ST	Combined sewer basin	No	<Null>	Sewage	RV Dumping
54	L7	04/25/19	7th Ave S & S Fidalgo St	Combined sewer basin	No	<Null>	Sewage	RV Dumping
54	L7	05/24/19	7th Ave S & S Fidalgo St	Combined sewer basin	No	<Null>	Sewage	RV Dumping
54	L8	09/14/14	1516 S GRAHAM ST	Combined sewer basin	No	No	Odor	Unknown
54	L8	04/06/17	1516 S GRAHAM ST	Combined sewer basin	No	No	<Null>	None
54	L9	07/22/15	2540 S GRAHAM ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	L9	12/11/16	2442 S SPENCER ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	M10	06/24/15	S GRAHAM ST & 31ST AVE S	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	M11	11/12/14	S HOLLY ST & 45TH AVE S	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	M11	01/27/15	3909 S MORGAN ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	M11	04/05/15	6230 RAINIER AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
54	M11	09/13/17	6608 42ND AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	M11	05/08/18	6316 44TH AVE S	Combined sewer basin	No	No	Chemicals (Solvent, Haz Waste, Acids, etc)	Unknown
54	M12	07/21/14	6815 RAINIER AVE S	Combined sewer basin	Yes	No	Soap/Washwater	Fixed business not implementing BMPs

Table E-1: Water quality complaints (2014-2015).

Map No.	Grid No.	Date	Address	Outfall	MS4 Impacted?	Waterbody Impacted?	Pollutant	Cause_of_Problem
54	M12	09/09/14	4622 S WARSAW ST	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	M12	06/05/15	52ND AVE S & S HOLLY ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	M12	06/22/15	5145 S MORGAN ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	M12	07/11/15	52ND AVE S & S GRAHAM ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	M12	07/11/15	52ND AVE S & S MORGAN ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	M13	04/21/15	S WILLOW ST & 56TH AVE S	Combined sewer basin	No	No	None	Construction
54	M13	10/25/15	HAMPTON RD S & S EDDY ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	M3	03/12/15	1812 SW MYRTLE ST	Combined sewer basin	No	No	Garbage/Debris	Illegal Dumping
54	M3	04/23/15	1812 SW MYRTLE ST	Combined sewer basin	No	No	None	Illegal Dumping
54	M3	12/12/16	SW MYRTLE ST & 17TH AVE SW	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	M3	04/11/18	24TH AVE SW & SW WILLOW ST	Combined sewer basin	No	No	Unknown	Unknown
54	M4	05/02/17	7031 14TH AVE SW	Combined sewer basin	No	No	Other	Construction
54	M4	06/01/18	7031 13TH AVE SW	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	M5	10/06/15	2ND AVE SW & SW MICHIGAN ST	Combined sewer basin	No	No	Sewage	RV Dumping
54	M6	09/25/15	6615 EAST MARGINAL WAY S	Combined sewer basin	No	No	Soap/Washwater	Fixed business not implementing BMPs
54	M6	04/04/17	5TH AVE S & S MICHIGAN ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Encampment
54	M7	05/30/15	6924 FLORA AVE S	Combined sewer basin	No	No	Unknown	Fixed business not implementing BMPs
54	M7	10/12/15	6851 EAST MARGINAL WAY S	Combined sewer basin	No	No	None	None
54	M7	09/14/16	8TH AVE S & S MYRTLE ST	Combined sewer basin	No	No	Garbage/Debris	Illegal Dumping
54	M7	05/02/18	6600 CORSON AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	M7	05/07/18	6451 FLORA AVE S	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	M8	08/11/14	6820 PERIMETER RD S	Combined sewer basin	No	No	Sewage	None
54	M8	12/14/18	Stanley Ave S & S Hardy St	Combined sewer basin	No	<Null>	Sewage	RV Dumping
54	M8	04/19/19	1495 S HARDY ST	Combined sewer basin	Yes	<Null>	Hydraulic Fluid	Equipment Failure
54	M9	02/23/15	S GRAHAM ST & 28TH AVE S	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	M9	04/07/15	BEACON AVE S & S EDDY ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	M9	04/08/15	BEACON AVE S & S EDDY ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	M9	04/08/15	27TH AVE S & S BRIGHTON ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	M9	12/10/15	MILITARY RD S & BEACON AVE S	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	M9	09/08/17	6420 SWIFT AVE S	Combined sewer basin	No	No	Groundwater	Drainage Problem
54	N10	12/23/16	3528 S HOLDEN ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	N11	10/07/14	7101 M L KING JR WAY S	Combined sewer basin	No	No	Fats, Oil and Grease (FOG)	Fixed business not implementing BMPs
54	N11	06/16/15	42nd Ave S & S Myrtle St	Combined sewer basin	Yes	No	Unknown	Unknown
54	N11	07/18/16	7610 45TH AVE S	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	N11	06/07/17	S MYRTLE ST & 44TH AVE S	Combined sewer basin	No	No	Sewage	RV Dumping
54	N11	06/07/17	39TH AVE S & S OTHELLO ST	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	N11	07/19/17	M L KING JR WAY S & S HOLDEN ST	Combined sewer basin	No	No	Garbage/Debris	Illegal Dumping
54	N11	02/07/18	7101 M L KING JR WAY S	Combined sewer basin	No	No	Fats, Oil and Grease (FOG)	Fixed business not implementing BMPs
54	N12	10/20/14	4640 S FONTANELLE ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	N12	06/02/15	48TH AVE S & S AUSTIN ST	Combined sewer basin	Yes	No	Sewage	Illicit Connnection
54	N12	10/09/15	7715 46TH AVE S	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	N12	01/06/16	4808 S OTHELLO ST	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	N12	05/11/16	4840 S HOLDEN ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	N12	01/09/17	4801 S OTHELLO ST	Combined sewer basin	No	No	Sediment	Construction
54	N12	06/12/17	4631 S GARDEN ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	N12	09/25/17	4614 S ORCHARD ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	N12	10/30/17	7100 RAINIER AVE S	Combined sewer basin	No	No	<Null>	<Null>

Table E-1: Water quality complaints (2014-2015).

Map No.	Grid No.	Date	Address	Outfall	MS4 Impacted?	Waterbody Impacted?	Pollutant	Cause_of_Problem
54	N12	02/15/18	7020 Rainier Ave S	Combined sewer basin	No	No	Sewage	Illicit Connnection
54	N12	04/06/18	7519 SEWARD PARK AVE S	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	N3	10/29/15	2300 SW WEBSTER ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	N3	06/25/16	7147 18TH AVE SW	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Home Auto Repair/Illegal Auto Repair
54	N3	12/12/16	DELRIDGE WAY SW & SW ORCHARD ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	N3	03/24/17	DELRIDGE WAY SW & SW ORCHARD ST	Combined sewer basin	No	No	Garbage/Debris	Other
54	N3	08/30/17	7147 18TH AVE SW	Combined sewer basin	No	No	None	None
54	N3	04/17/19	7322 18TH AVE SW	Combined sewer basin	No	<Null>	Motor Oil	Illegal Home Auto Repair
54	N4	07/26/15	1513 SW HOLDEN ST	Combined sewer basin	Yes	No	Soap/Washwater	Fixed business not implementing BMPs
54	N4	02/22/16	7219 16TH AVE SW	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	N5	08/19/15	1ST AVE S & 2ND AVE SW	Combined sewer basin	No	No	Sewage	RV Dumping
54	N7	06/15/16	S GARDEN ST & 8TH AVE S	Combined sewer basin	No	No	Unknown	Accidental Spill
54	N7	03/27/17	7400 8TH AVE S	Combined sewer basin	No	Yes	Other	Accidental Spill
54	N7	12/22/17	7343 EAST MARGINAL WAY S	Combined sewer basin	No	No	Chemicals (Solvent, Haz Waste, Acids, etc)	Accidental Spill
54	N7	02/08/18	7303 8th Ave S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
54	N7	06/12/19	8TH AVE S & S OTHELLO ST	Combined sewer basin	Yes	<Null>	Sewage, Garbage/Debris	Planned Cleanup
54	N8	10/22/14	16TH AVE S & EAST MARGINAL WAY S	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	N8	09/23/15	16TH AVE S & EAST MARGINAL WAY S	Combined sewer basin	No	No	Garbage/Debris	Unknown
54	N8	11/15/17	7500 EAST MARGINAL WAY S	Combined sewer basin	No	No	<Null>	<Null>
54	N9	04/07/15	BEACON AVE S & S MYRTLE ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	O10	12/09/15	8285 PERIMETER RD S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
54	O11	05/06/15	8420 42ND AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Home Auto Repair/Illegal Auto Repair
54	O11	05/27/15	S THISTLE ST & 39TH AVE S	Combined sewer basin	Yes	No	Pesticides/Herbicides/Fertilize	Other
54	O11	06/02/15	S KENYON ST & 44TH PL S	Combined sewer basin	Yes	No	Other	Unknown
54	O11	06/02/15	S KENYON ST & 44TH PL S	Combined sewer basin	Yes	No	Sewage	Illicit Connnection
54	O11	10/20/15	4454 S CAMANO PL	Combined sewer basin	Yes	No	Sewage	Illicit Connnection
54	O11	02/20/19	7856 RENTON AVE S	Combined sewer basin	No	<Null>	Motor Oil	Illegal Home Auto Repair
54	O12	05/14/15	5007 S ELMGROVE ST	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	O12	05/19/15	S Rose St & Wabash Ave S	Combined sewer basin	Yes	No	None	None
54	O12	05/19/15	S KENYON ST & WOLCOTT AVE S	Combined sewer basin	Yes	No	Garbage/Debris	Illicit Connnection
54	O12	05/28/15	8120 50TH AVE S	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	O12	08/06/15	8340 RAINIER AVE S	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	O12	09/01/15	8340 RAINIER AVE S	Combined sewer basin	No	No	Sewage	None
54	O12	10/19/15	8108 48TH AVE S	Combined sewer basin	No	No	None	RV Dumping
54	O12	09/08/16	4616 S THISTLE ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	O12	12/27/16	5002 S ROSE ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	O12	05/06/17	8424 RAINIER PL S	Combined sewer basin	No	No	Sediment	Construction
54	O12	12/05/17	7981 46TH AVE S	Combined sewer basin	No	No	None	Broken/Blocked side sewer or pipe
54	O12	06/07/18	8430 WABASH AVE S	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	O13	05/07/15	8334 ISLAND DR S	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	O13	07/29/15	8317 54TH AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Illegal Dumping
54	O13	10/22/15	8606 55TH AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Construction
54	O13	12/13/15	54TH AVE S & S CLOVERDALE ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	O2	09/02/16	27TH AVE SW & SW KENYON ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	O3	01/26/15	2020 SW THISTLE ST	Combined sewer basin	No	No	None	None
54	O3	09/06/15	1811 SW CLOVERDALE ST	Combined sewer basin	No	No	Chemicals (Solvent, Haz Waste, Acids, etc)	Home Auto Repair/Illegal Auto Repair
54	O3	12/18/16	18TH AVE SW & SW THISTLE ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break

Table E-1: Water quality complaints (2014-2015).

Map No.	Grid No.	Date	Address	Outfall	MS4 Impacted?	Waterbody Impacted?	Pollutant	Cause_of_Problem
54	O3	07/18/17	18TH AVE SW & SW THISTLE ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	O3	01/03/19	7901 DELRIDGE WAY SW	Combined sewer basin	Yes	<Null>	Paint	Construction
54	O4	12/22/15	14TH AVE SW & SW CLOVERDALE ST	Combined sewer basin	No	No	Sediment	Construction
54	O4	05/26/17	SW ELMGROVE ST & 15TH AVE SW	Combined sewer basin	No	No	None	None
54	O7	06/07/16	1037 S CLOVERDALE ST	Combined sewer basin	No	No	None	Broken/Blocked side sewer or pipe
54	O7	09/19/16	1024 S ELMGROVE ST	Combined sewer basin	No	No	Chemicals (Solvent, Haz Waste, Acids, etc)	Fixed business not implementing BMPs
54	O7	12/05/16	1025 S ELMGROVE ST	Combined sewer basin	No	No	Garbage/Debris	Illegal Dumping
54	O7	12/19/16	1025 S ELMGROVE ST	Combined sewer basin	No	No	Unknown	Illegal Dumping
54	O7	02/06/17	1024 S ELMGROVE ST	Combined sewer basin	No	No	Sediment	Fixed business not implementing BMPs
54	O7	03/03/17	1024 S ELMGROVE ST	Combined sewer basin	No	No	Sewage	Fixed business not implementing BMPs
54	O7	03/03/17	7900 10TH AVE S	Combined sewer basin	No	No	Garbage/Debris	Illegal Dumping
54	O7	04/20/17	1024 S ELMGROVE ST	Combined sewer basin	No	No	Drainage	Drainage Problem
54	O7	08/15/17	1033 S CLOVERDALE ST	Combined sewer basin	No	No	None	Other
54	O7	01/14/19	1030 S SOUTHERN ST	Combined sewer basin	No	<Null>	Sewage	Illicit Connection
54	O7	04/24/19	8th Ave S & S Monroe St	Combined sewer basin	No	<Null>	Sewage	RV Dumping
54	O8	05/10/17	14TH AVE S & S CLOVERDALE ST	Combined sewer basin	No	No	Paint	Accidental Spill
54	P10	05/09/19	8615 BEACON AVE S	Combined sewer basin	Yes	<Null>	Sewage	Illicit Connection
54	P11	12/23/15	M L KING JR WAY S & S CLOVERDALE ST	Combined sewer basin	No	No	Sediment	Construction
54	P11	11/28/16	8639 44TH AVE S	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	P11	12/18/16	44TH AVE S & S CLOVERDALE ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	P11	03/06/18	4204 S TRENTON ST	Combined sewer basin	No	No	Concrete/Cement	Construction
54	P11	03/07/18	4021 S HENDERSON ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	P12	03/11/15	9000 RAINIER AVE S	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	P12	05/19/15	RAINIER AVE S & S CLOVERDALE ST	Combined sewer basin	Yes	No	Sewage	Illicit Connnection
54	P12	07/07/15	5327 S HENDERSON ST	Combined sewer basin	No	No	Sewage	None
54	P12	05/13/16	9255 SPEAR PL S	Combined sewer basin	No	No	Heating Oil	Unknown
54	P12	05/05/17	4608 S CLOVERDALE ST	Combined sewer basin	Yes	No	Sewage	Broken/Blocked side sewer or pipe
54	P12	11/20/17	RAINIER AVE S & S DIRECTOR ST	Combined sewer basin	No	No	<Null>	<Null>
54	P12	12/15/17	4624 S DIRECTOR ST	Combined sewer basin	No	No	None	None
54	P12	06/26/19	Rainier Ave S & S Henderson St	Combined sewer basin	Yes	<Null>	Sewage	Broken/Blocked Side Sewer
54	P12	07/01/19	Rainier Ave S & 52nd Ave S	Combined sewer basin	Yes	<Null>	Sewage	Illicit Connection
54	P13	05/07/15	8698 Island DR S	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	P13	06/16/16	9050 SEWARD PARK AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	P13	11/11/16	8626 WABASH AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Home Auto Repair/Illegal Auto Repair
54	P13	05/31/17	9508 RAINIER AVE S	Combined sewer basin	No	No	Garbage/Debris	Fixed business not implementing BMPs
54	P2	03/21/15	26TH AVE SW & SW BARTON ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	P2	10/08/15	SW TRENTON ST & 26TH AVE SW	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	P3	07/24/14	SW BARTON ST & 22ND AVE SW	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	P3	08/31/15	9014 22ND AVE SW	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	P3	09/23/15	25TH AVE SW & SW TRENTON ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	P3	02/22/16	9432 25TH AVE SW	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	P4	02/18/17	SW CAMBRIDGE ST & 16TH AVE SW	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Encampment
54	P4	09/08/17	9051 15TH AVE SW	Combined sewer basin	No	No	Other	Broken/Blocked side sewer or pipe
54	P7	05/19/15	733 S TRENTON ST	Combined sewer basin	No	No	Sediment	Construction
54	P7	07/06/16	1242 S DONOVAN ST	Combined sewer basin	No	No	Garbage/Debris	Illegal Dumping
54	P8	08/27/14	8902 14TH AVE S	Combined sewer basin	No	No	Soap/Washwater	None
54	P8	03/10/16	14TH AVE S & S TRENTON ST	Combined sewer basin	No	No	Unknown	None

Table E-1: Water quality complaints (2014-2015).

Map No.	Grid No.	Date	Address	Outfall	MS4 Impacted?	Waterbody Impacted?	Pollutant	Cause_of_Problem
54	P8	04/11/16	1414 S DIRECTOR ST	Combined sewer basin	No	No	Chemicals (Solvent, Haz Waste, Acids, etc)	Fixed business not implementing BMPs
54	P8	08/19/17	8909 14th Ave S	Combined sewer basin	No	No	Concrete/Cement	Construction
54	Q11	02/10/17	9326 BEACON AVE S	Combined sewer basin	No	No	Garbage/Debris	Illegal Dumping
54	Q12	11/14/14	9601 Renton Ave S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Fixed business not implementing BMPs
54	Q12	01/27/15	9630 49TH AVE S	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	Q12	02/10/15	4801 S ROXBURY ST	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	Q12	02/13/17	9622 49TH AVE S	Combined sewer basin	No	No	Drainage	Drainage Problem
54	Q12	03/28/17	S FLETCHER ST & SPEAR PL S	Combined sewer basin	No	No	Paint	Illegal Dumping
54	Q12	03/29/17	9681 54TH AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	Q13	05/01/16	9744 62ND AVE S	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	Q13	12/21/16	S ROXBURY ST & 58TH AVE S	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	Q13	03/23/17	9670 54TH AVE S	Combined sewer basin	No	No	Drainage	Construction
54	Q13	01/19/18	6040 S ROXBURY ST	Combined sewer basin	No	No	<Null>	<Null>
54	Q14	02/09/17	9800 Rainier Ave S	Combined sewer basin	No	No	Sediment	Other
54	Q2	09/10/15	28TH AVE SW & SW ROXBURY ST	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	Q2	09/24/18	27th Ave SW & SW Roxbury St	Combined sewer basin	Yes	<Null>	Concrete/Cement	Construction
54	R12	10/10/17	5121 S RUGGLES ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Illegal Dumping
54	R13	09/10/15	59TH AVE S & RENTON AVE S	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	R13	11/02/15	RENTON AVE S & 57TH AVE S	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	R13	04/22/16	59TH AVE S & RENTON AVE S	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	R14	06/03/16	10443 65TH AVE S	Combined sewer basin	No	No	Chlorinated Water	Potable Water Line Break
54	R14	09/16/16	10010 RAINIER AVE S	Combined sewer basin	No	No	Garbage/Debris	Other
54	R14	09/26/17	10209 64TH AVE S	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	R14	07/16/18	64TH AVE S & S RYAN ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	R14	09/27/18	10032 RAINIER AVE S	Combined sewer basin	No	<Null>	Sewage	RV Dumping
54	R14	03/06/19	68th Ave S / Rainier Ave S	Combined sewer basin	No	<Null>	Fire Fighting Foam	Fire
54	S13	01/20/15	S BANGOR ST & 55TH AVE S	Combined sewer basin	No	No	Garbage/Debris	Illegal Dumping
54	S13	05/31/16	5600 S Avon St	Combined sewer basin	No	No	None	None
54	S8	08/16/17	11605 GLENDALE WAY S	Combined sewer basin	No	No	Garbage/Debris	Illegal Dumping
54	T14	09/09/15	7120 S 115TH ST	Combined sewer basin	No	No	Chemicals (Solvent, Haz Waste, Acids, etc)	None
54	T14	05/15/18	6828 S 116TH PL	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Home Auto Repair/Illegal Auto Repair
54	U13	05/10/17	12848 Martin Luther King Jr Wy S	Combined sewer basin	No	No	Unknown	Unknown
54	U13	02/01/18	6000 S 129TH ST	Combined sewer basin	No	No	Unknown	Unknown

Table E-2: Spill response (2014-2019).

Map No.	Grid No.	Date	Address	Outfall	MS4 Impacted?	Waterbody Impacted?	Pollutant	Cause_of_Problem
31	E3	11/28/16	8300 MILITARY RD S	KCIA SD#1	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
32	G6	01/11/18	8311 BEACON AVE S	S Norfolk St CSO/PS#17/EOF/SD	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
32	M6	06/20/18	9335 LEROY PL S	S Norfolk St CSO/PS#17/EOF/SD	No	No	<Null>	<Null>
32	Q5	01/19/15	3301 S NORFOLK ST	S Norfolk St CSO/PS#17/EOF/SD	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Unknown
32	Q8	11/17/17	9800 40TH AVE S	S Norfolk St CSO/PS#17/EOF/SD	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
32	Q9	02/10/17	4203 S NORFOLK ST	S Norfolk St CSO/PS#17/EOF/SD	Yes	No	Sewage	Sewer Mainline Problem
32	S4	07/31/14	10430 EAST MARGINAL WAY S	S Norfolk St CSO/PS#17/EOF/SD	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
32	S4	11/04/16	10430 EAST MARGINAL WAY S	S Norfolk St CSO/PS#17/EOF/SD	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
33	E2	03/28/17	DALLAS AVE S & 14TH AVE S	16th Ave S SD, west	No	No	Paint	Unknown
35	F6	08/29/14	420 S 96TH ST	S 96th St SD	No	No	Unknown	Unknown
35	M7	03/30/16	10865 6TH AVE S	S 96th St SD	No	No	Unknown	Unknown
35	S10	02/04/15	NW 120th St & 11th Ave NW	S 96th St SD	No	No	Other	None
36	F1	02/27/15	5975 EAST MARGINAL WAY S	Head of Slip 2 SD	No	No	Unknown	Unknown
36	F1	04/05/17	5975 EAST MARGINAL WAY S	Head of Slip 2 SD	No	Yes	Unknown	Unknown
36	H1	08/28/14	EAST MARGINAL WAY S & 1ST AVE S	Head of Slip 2 SD	No	No	Fats, Oil and Grease (FOG)	Accidental Spill
36	H1	03/15/15	EAST MARGINAL WAY S & 1ST AVE S	Head of Slip 2 SD	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
36	H1	09/21/15	EAST MARGINAL WAY S & 1ST AVE S	Head of Slip 2 SD	No	No	Unknown	Unknown
36	H1	02/29/16	5960 1ST AVE S	Head of Slip 2 SD	No	Yes	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
36	H1	06/26/17	EAST MARGINAL WAY S & 1ST AVE S	Head of Slip 2 SD	No	No	<Null>	<Null>
36	H1	10/16/17	5958 1ST AVE S	Head of Slip 2 SD	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
37	E1	11/20/18	1ST AVE S / S FRONT ST	1st Ave S SD, east	No		Sewage	Encampment
37	G6	07/22/17	EAST MARGINAL WAY S & S MICHIGAN ST	1st Ave S SD, east	No	No	Groundwater	Construction
38	D4	09/07/17	S RIVER ST & 2ND AVE S	S River St SD	No	No	None	None
38	D4	06/19/19	S RIVER ST & 2ND AVE S	S River St SD	No		Sewage	RV Dumping
39	G6	04/25/17	6901 FOX AVE S	S Brighton St SD	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
39	G7	11/14/18	6900 FOX AVE S	S Brighton St SD	No		Sewage	Encampment
40	B1	12/07/18	500 S MYRTLE ST	S Myrtle St SD	Yes		Motor Oil	Illegal Home Auto Repair
40	B1	02/28/19	500 S MYRTLE ST	S Myrtle St SD	Yes		Sewage	RV Dumping
40	C3	10/14/16	FOX AVE S & S MYRTLE ST	S Myrtle St SD	Yes	Yes	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Illegal Dumping
40	C3	06/03/19	FOX AVE S / S MYRTLE ST	S Myrtle St SD	Yes		Sewage	RV Dumping
40	C4	11/29/17	719 S MYRTLE ST	S Myrtle St SD	No	No	Paint	Illegal Dumping
42	N1	07/24/14	7201 EAST MARGINAL WAY S	I-5 SD at Slip 4	No	No	None	None
44	C5	01/25/19	5400 WEST MARGINAL WAY SW	SW Kenny St SD/T115 CSO	No		AntiFreeze/Coolant	Motor Vehicle Collision
44	E5	03/29/17	5615 WEST MARGINAL WAY SW	SW Kenny St SD/T115 CSO	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
44	H6	06/13/18	6000 WEST MARGINAL WAY SW	SW Kenny St SD/T115 CSO	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
45	B7	10/08/15	6700 WEST MARGINAL WAY SW	Highland Wy SW SD	No	No	Other	Accidental Spill
45	B7	11/05/15	6700 WEST MARGINAL WAY SW	Highland Wy SW SD	No	No	Fats, Oil and Grease (FOG)	Accidental Spill
45	B7	06/01/16	6700 WEST MARGINAL WAY SW	Highland Wy SW SD	No	Yes	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
45	B7	07/18/17	6700 WEST MARGINAL WAY SW	Highland Wy SW SD	No	Yes	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Other
45	C7	08/11/14	6760 WEST MARGINAL WAY SW	Highland Wy SW SD	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
45	C7	01/30/19	6720 WEST MARGINAL WAY SW	Highland Wy SW SD	Yes		Motor Oil	Equipment Failure
45	D8	05/19/15	Highland Park Wy SW & West Marginal Wy SW	Highland Wy SW SD	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
45	H4	02/15/17	HIGHLAND PARK WAY SW & SW OTHELLO ST	Highland Wy SW SD	Yes	No	Sediment	Other
45	I2	05/13/18	12TH AVE SW & SW WEBSTER ST	Highland Wy SW SD	No	No	Sewage	RV Dumping
45	K2	11/15/16	SW HOLDEN ST & 12TH AVE SW	Highland Wy SW SD	No	No	Sediment	Construction
45	L4	12/23/15	HIGHLAND PARK WAY SW & SW PORTLAND ST	Highland Wy SW SD	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)

Table E-2: Spill response (2014-2019).

Map No.	Grid No.	Date	Address	Outfall	MS4 Impacted?	Waterbody Impacted?	Pollutant	Cause_of_Problem
45	L4	09/11/18	7779 HIGHLAND PARK WAY SW	Highland Wy SW SD	No		Sewage	Encampment
45	O3	04/27/17	SW ELMGROVE ST & 10TH AVE SW	Highland Wy SW SD	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Home Auto Repair/Illegal Auto Rep
45	S3	05/24/17	8658 10TH AVE SW	Highland Wy SW SD	No	No	Other	Leaking Vehicle (no repair)
46	C5	03/15/18	7224 WEST MARGINAL WAY SW	1st Ave S SD, west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
46	D6	03/28/18	WEST MARGINAL WAY SW & 2ND AVE SW	1st Ave S SD, west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
46	D6	04/03/18	7245 WEST MARGINAL WAY SW	1st Ave S SD, west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Illegal Dumping
46	G8	04/09/16	7401 West Marginal Wy S	1st Ave S SD, west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
46	I6	03/14/17	7717 DETROIT AVE SW	1st Ave S SD, west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Illegal Dumping
46	K10	08/28/14	5TH AVE S & S KENYON ST	1st Ave S SD, west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
46	K11	04/30/15	521 S MONROE ST	1st Ave S SD, west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Unknown
46	K11	11/03/17	521 S MONROE ST	1st Ave S SD, west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Unknown
46	K2	12/07/17	7944 7TH AVE SW	1st Ave S SD, west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
46	K7	04/21/15	1ST AVE S & SW KENYON ST	1st Ave S SD, west	No	No	None	None
46	K7	01/18/16	1ST AVE S & SW KENYON ST	1st Ave S SD, west	No	No	Unknown	RV Dumping
46	K7	03/15/16	1ST AVE S & SW KENYON ST	1st Ave S SD, west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
46	K8	04/20/15	130 S KENYON ST	1st Ave S SD, west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Illegal Dumping
46	K8	06/12/15	130 S KENYON ST	1st Ave S SD, west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
46	K8	06/20/15	130 S KENYON ST	1st Ave S SD, west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
46	K8	09/15/15	130 S KENYON ST	1st Ave S SD, west	No	No	Other	Accidental Spill
46	K8	09/16/15	130 S KENYON ST	1st Ave S SD, west	No	No	Other	Accidental Spill
46	K8	02/27/16	130 S KENYON ST	1st Ave S SD, west	No	No	Other	Leaking Vehicle (no repair)
46	K8	03/12/16	130 S KENYON ST	1st Ave S SD, west	No	No	Other	None
46	K8	05/11/16	130 S KENYON ST	1st Ave S SD, west	No	No	Other	Leaking Vehicle (no repair)
46	K8	09/26/16	130 S KENYON ST	1st Ave S SD, west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
46	K8	10/07/16	130 S KENYON ST	1st Ave S SD, west	No	No	Other	Accidental Spill
46	K8	03/02/17	130 S KENYON ST	1st Ave S SD, west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
46	K8	08/12/17	130 S KENYON ST	1st Ave S SD, west	No	No	Other	Accidental Spill
46	K8	09/09/17	130 S KENYON ST	1st Ave S SD, west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
46	K8	01/19/18	130 S KENYON ST	1st Ave S SD, west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
46	K8	03/27/18	130 S KENYON ST	1st Ave S SD, west	No	No	Chemicals (Solvent, Haz Waste, Acids, etc)	Accidental Spill
46	K8	10/17/18	130 S KENYON ST	1st Ave S SD, west	No		Hydraulic Fluid	Equipment Failure
46	K8	10/24/18	130 S KENYON ST	1st Ave S SD, west	No		Chemicals	Illegal Dumping
46	K8	12/20/18	130 S KENYON ST	1st Ave S SD, west	No		Paint	Accidental Spill
46	K8	04/08/19	130 S KENYON ST	1st Ave S SD, west	No		Hydraulic Fluid	Equipment Failure
46	K9	11/06/14	2ND AVE S & S KENYON ST	1st Ave S SD, west	No	No	Heating Oil	Construction
46	K9	12/16/15	7900 2nd Ave S	1st Ave S SD, west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
46	K9	04/30/16	7951 2ND AVE S	1st Ave S SD, west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
46	L11	12/20/17	8174 5TH AVE S	1st Ave S SD, west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Illegal Dumping
46	R5	03/22/18	9040 3RD AVE SW	1st Ave S SD, west	No	No	Sewage	RV Dumping
46	R7	05/04/18	OLSON PL SW & MYERS WAY S	1st Ave S SD, west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
46	U5	10/01/16	9429 OLSON PL SW	1st Ave S SD, west	Yes	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
47	E6	06/15/17	4TH AVE S & S FONTANELLE ST	2nd Ave S SD	Yes	Yes	Other	Motor Vehicle Accident
47	H4	08/01/15	2ND AVE S & S AUSTIN ST	2nd Ave S SD	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Illegal Dumping
47	I4	06/24/15	2ND AVE S & S HOLDEN ST	2nd Ave S SD	No	No	Paint	Construction
47	I4	04/19/17	2ND AVE S & S HOLDEN ST	2nd Ave S SD	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
48	B8	02/04/16	S AUSTIN ST & S RIVERSIDE DR	7th Ave S SD	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Unknown

Table E-2: Spill response (2014-2019).

Map No.	Grid No.	Date	Address	Outfall	MS4 Impacted?	Waterbody Impacted?	Pollutant	Cause_of_Problem
48	C10	01/30/19	750 S PORTLAND ST	7th Ave S SD	No		Sewage	RV Dumping
48	C7	04/08/15	527 S PORTLAND ST	7th Ave S SD	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
48	C9	12/18/15	7TH AVE S & S PORTLAND ST	7th Ave S SD	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Unknown
48	D9	06/23/15	7800 7TH AVE S	7th Ave S SD	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Illegal Dumping
48	E9	09/11/18	710 S MONROE ST	7th Ave S SD	Yes		Sewage	Broken/Blocked Side Sewer
48	G7	11/09/16	8250 5TH AVE S	7th Ave S SD	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Illegal Dumping
48	G7	09/24/18	8230 5TH AVE S	7th Ave S SD	Yes		Sewage	RV Dumping
48	G8	05/13/17	524 S SOUTHERN ST	7th Ave S SD	No	No	Other	Motor Vehicle Accident
48	I7	04/23/19	500 S SULLIVAN ST	7th Ave S SD	No		Sewage	RV Dumping
48	J9	10/30/15	7TH AVE S & S CLOVERDALE ST	7th Ave S SD	No	No	Paint	Illegal Dumping
48	R4	01/11/18	9500 MYERS WAY S	7th Ave S SD	No	No	None	None
48	R4	02/09/18	9500 MYERS WAY S	7th Ave S SD	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Illegal Dumping
50	AD13	03/17/17	4000 M L KING JR WAY S	Diagonal Ave S CSO/SD - east	No	No	None	None
50	C12	06/06/18	23RD AVE & E UNION ST	Diagonal Ave S CSO/SD - east	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
50	C12	06/27/19	23rd Ave / E Union St	Diagonal Ave S CSO/SD - east	No		Diesel	Accidental Spill
50	G10	05/26/17	1920 E JEFFERSON ST	Diagonal Ave S CSO/SD - east	No	No	Sewage	Broken/Blocked side sewer or pipe
50	G11	12/15/17	500 23rd Ave	Diagonal Ave S CSO/SD - east	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Mobile business not implementing
50	H11	05/24/18	400 23RD AVE	Diagonal Ave S CSO/SD - east	Yes	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
50	J11	10/27/17	22ND AVE S & E YESLER WAY	Diagonal Ave S CSO/SD - east	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
50	J13	04/05/18	25TH AVE S & E YESLER WAY	Diagonal Ave S CSO/SD - east	Yes	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Unknown
50	J14	06/25/15	M L KING JR WAY S & E YESLER WAY	Diagonal Ave S CSO/SD - east	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
50	J14	01/20/18	M L KING JR WAY S & E YESLER WAY	Diagonal Ave S CSO/SD - east	No	No	None	None
50	K12	09/11/18	306 23RD AVE S	Diagonal Ave S CSO/SD - east	No		Motor Oil	Leaking Vehicle
50	K12	11/29/18	306 23RD AVE S	Diagonal Ave S CSO/SD - east	Yes		Motor Oil	Leaking Vehicle
50	K14	01/02/18	2709 S MAIN ST	Diagonal Ave S CSO/SD - east	No	No	Paint	Illegal Dumping
50	K7	08/17/16	S MAIN ST & 14TH AVE S	Diagonal Ave S CSO/SD - east	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
50	L12	01/22/19	2300 S Jackson St	Diagonal Ave S CSO/SD - east	No		Hydraulic Fluid	Leaking Vehicle
50	L14	04/20/18	M L KING JR WAY S & S JACKSON ST	Diagonal Ave S CSO/SD - east	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Other
50	L5	11/30/16	1207 S Jackson St	Diagonal Ave S CSO/SD - east	Yes	No	Sewage	Broken/Blocked side sewer or pipe
50	L7	03/19/19	1440 S JACKSON ST	Diagonal Ave S CSO/SD - east	No		Fats, Oils, orGrease	Accidental Spill
50	N12	12/08/17	25TH AVE S & S DEARBORN ST	Diagonal Ave S CSO/SD - east	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
50	N13	03/27/16	910 M L KING JR WAY S	Diagonal Ave S CSO/SD - east	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
50	N7	01/05/18	1400 S DEAN ST	Diagonal Ave S CSO/SD - east	No	No	<Null>	<Null>
50	N7	04/15/18	838 POPLAR PL S	Diagonal Ave S CSO/SD - east	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Unknown
50	N8	07/26/17	RAINIER AVE S & S DEARBORN ST	Diagonal Ave S CSO/SD - east	Yes	No	Chemicals (Solvent, Haz Waste, Acids, etc)	Motor Vehicle Accident
50	O12	02/05/16	2407 S NORMAN ST	Diagonal Ave S CSO/SD - east	No	No	Concrete/Cement	Construction
50	O12	07/10/18	924 24TH AVE S	Diagonal Ave S CSO/SD - east	No	No	Concrete/Cement	Construction
50	O5	05/17/16	1058 12TH AVE NE	Diagonal Ave S CSO/SD - east	No	No	Other	Accidental Spill
50	O9	09/01/15	940 HIAWATHA PL S	Diagonal Ave S CSO/SD - east	No	No	None	Unknown
50	P14	06/24/19	1300 29TH AVE S	Diagonal Ave S CSO/SD - east	Yes		Transmission/Brake Fluid	Leaking Vehicle
50	P5	06/02/19	1100 12TH AVE S	Diagonal Ave S CSO/SD - east	Yes		Fire Fighting Foam	Fire
50	P6	01/25/16	1120 15TH AVE S	Diagonal Ave S CSO/SD - east	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Unknown
50	P7	04/20/18	1200 STURGUS AVE S	Diagonal Ave S CSO/SD - east	No	No	Sediment	Other
50	Q6	03/13/17	14TH AVE S & S ATLANTIC ST	Diagonal Ave S CSO/SD - east	No	No	Sediment	Construction
50	R11	10/22/16	23RD AVE S & S MASSACHUSETTS ST	Diagonal Ave S CSO/SD - east	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
50	R7	06/13/19	1717 15TH AVE S	Diagonal Ave S CSO/SD - east	Yes		Sewage	Broken/Blocked Side Sewer

Table E-2: Spill response (2014-2019).

Map No.	Grid No.	Date	Address	Outfall	MS4 Impacted?	Waterbody Impacted?	Pollutant	Cause_of_Problem
50	R8	12/27/15	1516 18TH AVE S	Diagonal Ave S CSO/SD - east	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
50	R9	06/08/17	1541 VALENTINE PL S	Diagonal Ave S CSO/SD - east	Yes	No	Concrete/Cement	Construction
50	S10	04/20/17	1802 21st Ave S	Diagonal Ave S CSO/SD - east	No	No	Paint	Unknown
50	S11	05/08/18	1818 RAINIER AVE S	Diagonal Ave S CSO/SD - east	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
50	S11	03/26/19	1818 RAINIER AVE S	Diagonal Ave S CSO/SD - east	No		Motor Oil	Leaking Vehicle
50	S9	12/06/18	19th Ave S & S Holgate St	Diagonal Ave S CSO/SD - east	No		Sewage	RV Dumping
50	T10	09/11/18	2001 S PLUM ST	Diagonal Ave S CSO/SD - east	Yes		Sewage	RV Dumping
50	T10	10/16/18	2001 S PLUM ST	Diagonal Ave S CSO/SD - east	Yes		Diesel	Motor Vehicle Collision
50	T11	06/08/15	S PLUM ST & 23RD AVE S	Diagonal Ave S CSO/SD - east	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Unknown
50	T11	12/03/15	1911 22nd Ave S	Diagonal Ave S CSO/SD - east	Yes	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
50	T11	03/21/18	2009 Rainier Ave S	Diagonal Ave S CSO/SD - east	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
50	T11	11/13/18	2009 RAINIER AVE S	Diagonal Ave S CSO/SD - east	No		Gasoline	Accidental Spill
50	T14	06/22/17	2000 28TH AVE S	Diagonal Ave S CSO/SD - east	No	No	<Null>	<Null>
50	T15	05/12/16	31ST AVE S & S HOLGATE ST	Diagonal Ave S CSO/SD - east	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
50	U11	01/17/18	2101 23RD AVE S	Diagonal Ave S CSO/SD - east	Yes	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
50	U12	04/08/16	2307 RAINIER AVE S	Diagonal Ave S CSO/SD - east	No	No	Soap/Washwater	Washing-Residential
50	U12	07/29/16	RAINIER AVE S & S COLLEGE ST	Diagonal Ave S CSO/SD - east	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
50	U12	04/29/19	2200 25TH AVE S	Diagonal Ave S CSO/SD - east	Yes		Fire Fighting Foam	Fire
50	U6	02/27/17	1425 S COLLEGE ST	Diagonal Ave S CSO/SD - east	Yes	No	Sewage	Broken/Blocked side sewer or pipe
50	V11	07/19/15	23RD AVE S & S COLLEGE ST	Diagonal Ave S CSO/SD - east	No	No	Other	Other
50	V12	01/08/17	2300 RAINIER AVE S	Diagonal Ave S CSO/SD - east	No	No	Paint	None
50	W14	04/12/16	S BAYVIEW ST & 28TH AVE S	Diagonal Ave S CSO/SD - east	No	No	Sewage	Leaking Vehicle (no repair)
50	X11	04/06/17	23RD AVE S & S LANDER ST	Diagonal Ave S CSO/SD - east	Yes	Yes	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
50	X13	03/07/17	2707 RAINIER AVE S	Diagonal Ave S CSO/SD - east	Yes	No	Fats, Oil and Grease (FOG)	Fixed business not implementing E
50	X14	10/27/17	M L KING JR WAY S & S MCCLELLAN ST	Diagonal Ave S CSO/SD - east	No	No	Paint	Other
50	Y12	06/01/17	2906 25TH AVE S	Diagonal Ave S CSO/SD - east	No	No	<Null>	<Null>
50	Z15	02/16/17	30TH AVE S & S MOUNT BAKER BLVD	Diagonal Ave S CSO/SD - east	No	No	Unknown	Unknown
51	E9	05/07/15	2700 Airport Wy S	Diagonal Ave S CSO/SD - west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Unknown
51	E9	08/10/15	2709 AIRPORT WAY S	Diagonal Ave S CSO/SD - west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
51	E9	11/02/16	2700 Airport Wy S	Diagonal Ave S CSO/SD - west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
51	E9	12/06/16	AIRPORT WAY S & S LANDER ST	Diagonal Ave S CSO/SD - west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
51	E9	03/08/17	AIRPORT WAY S & S LANDER ST	Diagonal Ave S CSO/SD - west	No	No	None	None
51	E9	03/15/18	2700 Airport Wy S	Diagonal Ave S CSO/SD - west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Other
51	E9	09/11/18	2700 Airport Way S	Diagonal Ave S CSO/SD - west	No		Transformer Oil	Equipment Failure
51	E9	03/07/19	2700 Airport Way S	Diagonal Ave S CSO/SD - west	No		Chemicals	Accidental Spill
51	F13	04/08/15	17TH AVE S & S STEVENS ST	Diagonal Ave S CSO/SD - west	Yes	No	Heating Oil	Illegal Dumping
51	H8	03/09/16	3455 6TH AVE S	Diagonal Ave S CSO/SD - west	No	No	None	None
51	H9	02/13/16	3407 AIRPORT WAY S	Diagonal Ave S CSO/SD - west	Yes	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
51	I12	12/19/14	15TH AVE S & S SPOKANE ST	Diagonal Ave S CSO/SD - west	No	No	Sediment	Construction
51	I12	12/19/14	S SPOKANE ST & S COLUMBIAN WAY	Diagonal Ave S CSO/SD - west	Yes	No	Sediment	Construction
51	I12	12/21/14	S SPOKANE ST & S COLUMBIAN WAY	Diagonal Ave S CSO/SD - west	Yes	No	Sediment	Construction
51	I12	06/15/16	3601 14TH AVE S	Diagonal Ave S CSO/SD - west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Illegal Dumping
51	I7	11/29/17	I-5 Hwy & S Spokane St	Diagonal Ave S CSO/SD - west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
51	I7	01/28/19	I-5 Hwy & S Spokane St	Diagonal Ave S CSO/SD - west	Yes		Diesel	Motor Vehicle Collision
51	I8	06/23/15	6TH AVE S & S SPOKANE ST	Diagonal Ave S CSO/SD - west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
51	I8	12/21/15	6TH AVE S & S SPOKANE ST	Diagonal Ave S CSO/SD - west	Yes	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident

Table E-2: Spill response (2014-2019).

Map No.	Grid No.	Date	Address	Outfall	MS4 Impacted?	Waterbody Impacted?	Pollutant	Cause_of_Problem
51	I8	07/22/16	3623 6TH AVE S	Diagonal Ave S CSO/SD - west	Yes	Yes	Sewage	Broken/Blocked side sewer or pipe
51	I8	09/30/16	3623 6TH AVE S	Diagonal Ave S CSO/SD - west	No	No	Sewage	Broken/Blocked side sewer or pipe
51	I8	12/01/16	3623 6TH AVE S	Diagonal Ave S CSO/SD - west	Yes	No	Sewage	Broken/Blocked side sewer or pipe
51	I9	08/29/15	AIRPORT WAY S & S SPOKANE ST	Diagonal Ave S CSO/SD - west	Yes	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
51	K5	11/20/17	4103 2ND AVE S	Diagonal Ave S CSO/SD - west	Yes	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
51	K6	12/21/16	4100 4TH AVE S	Diagonal Ave S CSO/SD - west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Other
51	K6	02/14/18	4100 4TH AVE S	Diagonal Ave S CSO/SD - west	No	No	Paint	Unknown
51	K7	09/18/15	S ANDOVER ST & 6TH AVE S	Diagonal Ave S CSO/SD - west	No	No	Garbage/Debris	RV Dumping
51	K7	06/07/17	4005 6TH AVE S	Diagonal Ave S CSO/SD - west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Other
51	K7	06/04/18	600 S DAKOTA ST	Diagonal Ave S CSO/SD - west	No	No	Sewage	Encampment
51	K9	08/12/14	AIRPORT WAY S & S ANDOVER ST	Diagonal Ave S CSO/SD - west	No	No	Sewage	RV Dumping
51	K9	11/30/15	818 S DAKOTA ST	Diagonal Ave S CSO/SD - west	No	No	Sewage	Illegal Dumping
51	L8	07/27/17	654 S INDUSTRIAL WAY	Diagonal Ave S CSO/SD - west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Other
51	M11	09/19/16	4514 13TH AVE S	Diagonal Ave S CSO/SD - west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
51	M12	07/23/14	15TH AVE S & S OREGON ST	Diagonal Ave S CSO/SD - west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
51	M12	03/12/19	4501 14TH AVE S	Diagonal Ave S CSO/SD - west	No		Motor Oil	Accidental Spill
51	M2	09/17/18	15 S IDAHO ST	Diagonal Ave S CSO/SD - west	Yes		Hydraulic Fluid	Equipment Failure
51	M2	04/10/19	7 S IDAHO ST	Diagonal Ave S CSO/SD - west	Yes		Hydraulic Fluid	Leaking Vehicle
51	M3	10/31/16	OHIO AVE S & DIAGONAL AVE S	Diagonal Ave S CSO/SD - west	Yes	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
51	M3	01/05/17	EAST MARGINAL WAY S & S IDAHO ST	Diagonal Ave S CSO/SD - west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
51	M3	01/20/17	EAST MARGINAL WAY S & S IDAHO ST	Diagonal Ave S CSO/SD - west	No	No	Concrete/Cement	Leaking Vehicle (no repair)
51	M4	11/11/14	COLORADO AVE S & DENVER AVE S	Diagonal Ave S CSO/SD - west	No	No	None	None
51	M6	04/18/15	4412 4TH AVE S	Diagonal Ave S CSO/SD - west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
51	M6	12/11/15	4401 4TH AVE S	Diagonal Ave S CSO/SD - west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Unknown
51	M6	11/16/17	4401 4TH AVE S	Diagonal Ave S CSO/SD - west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
51	M6	03/09/18	4401 4TH AVE S	Diagonal Ave S CSO/SD - west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
51	M6	09/26/18	4401 4TH AVE S	Diagonal Ave S CSO/SD - west	Yes		Sewage, Fats, Oils, orGrease Garbage/Debris	Broken/Blocked Side Sewer
51	N11	10/09/18	4612 13TH AVE S	Diagonal Ave S CSO/SD - west	Yes		Sewage	Broken/Blocked Side Sewer
51	N4	01/13/15	4617 COLORADO AVE S	Diagonal Ave S CSO/SD - west	Yes	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
51	N4	03/18/15	4635 COLORADO AVE S	Diagonal Ave S CSO/SD - west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
51	N4	08/29/17	4600 UTAH AVE S	Diagonal Ave S CSO/SD - west	Yes	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Illegal Dumping
51	N7	09/25/18	6TH AVE S & S Snoqualmie St	Diagonal Ave S CSO/SD - west	Yes		Garbage/Debris	Encampment, Illegal Dumping
51	O8	03/10/17	4811 AIRPORT WAY S	Diagonal Ave S CSO/SD - west	Yes	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
51	O8	11/28/18	4809 AIRPORT WAY S	Diagonal Ave S CSO/SD - west	No		Gasoline	Leaking Vehicle
51	Q7	05/18/17	549 S DAWSON ST	Diagonal Ave S CSO/SD - west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Illegal Dumping
51	Q9	05/02/18	5200 AIRPORT WAY S	Diagonal Ave S CSO/SD - west	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
52	C3	11/17/17	3801 West Marginal Wy SW	SW Dakota St SD	No	No	Soap/Washwater	Accidental Spill
52	D4	09/26/16	3835 WEST MARGINAL WAY SW	SW Dakota St SD	No	No	Sewage	RV Dumping
52	D4	05/01/18	3839 WEST MARGINAL WAY SW	SW Dakota St SD	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
52	H5	11/21/18	4101 WEST MARGINAL WAY SW	SW Dakota St SD	No		Hydraulic Fluid	Leaking Vehicle
53	L1	08/16/17	1920 SW BRANDON ST	SW Idaho St SD	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
53	P3	03/21/17	6000 16TH AVE SW	SW Idaho St SD	No	No	Algae/Bacteria/Vegetation	Algae/Bacteria Bloom/Natural foan
53	R3	08/30/16	6324 17TH AVE SW	SW Idaho St SD	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
53	S4	12/21/16	1505 SW MORGAN ST	SW Idaho St SD	No	No	Sediment	Construction
53	U4	03/17/15	6736 15TH AVE SW	SW Idaho St SD	No	No	Drainage	Drainage Problem
53	U4	12/13/17	6715 14TH AVE SW	SW Idaho St SD	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)

Table E-2: Spill response (2014-2019).

Map No.	Grid No.	Date	Address	Outfall	MS4 Impacted?	Waterbody Impacted?	Pollutant	Cause_of_Problem
54	B9	12/21/15	1463 20TH AVE	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Illegal Dumping
54	B9	12/07/17	1814 23RD AVE	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	B9	01/15/18	24TH AVE & E OLIVE ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	B9	06/18/19	1816 23rd Ave	Combined sewer basin	No		Paint	Accidental Spill
54	C7	03/21/16	747 BROADWAY	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	C7	01/11/17	1001 Broadway	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	C8	09/23/17	13th Ave E & E Cherry St	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	C9	01/10/16	20TH AVE & E COLUMBIA ST	Combined sewer basin	No	No	Sewage	RV Dumping
54	C9	06/07/16	22ND AVE & E UNION ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	C9	03/18/19	964 21ST AVE	Combined sewer basin	No		Motor Oil	Motor Vehicle Collision
54	D10	05/06/16	110 29TH AVE S	Combined sewer basin	No	No	Other	Leaking Vehicle (no repair)
54	D7	01/04/16	1035 S WASHINGTON ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
54	D7	02/24/16	9TH AVE & ALDER ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	D7	02/26/18	220 11TH AVE	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	D7	03/12/18	YESLER WAY & BROADWAY	Combined sewer basin	No	No	Fats, Oil and Grease (FOG)	Illegal Dumping
54	D8	09/25/14	13TH AVE & E JEFFERSON ST	Combined sewer basin	No	No	Other	Accidental Spill
54	D8	07/06/15	17TH AVE & E JEFFERSON ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	D8	03/13/16	12TH AVE & E FIR ST	Combined sewer basin	No	No	Sewage	Accidental Spill
54	D8	12/01/16	14TH AVE & E YESLER WAY	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	D8	02/22/17	12TH AVE S & BOREN AVE S	Combined sewer basin	No	No	Fats, Oil and Grease (FOG)	Unknown
54	D8	01/17/18	1600 E JEFFERSON ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Unknown
54	D8	12/14/18	14TH AVE & E YESLER WAY	Combined sewer basin	No		AntiFreeze/Coolant	Motor Vehicle Collision
54	E7	09/29/14	10TH AVE S & S KING ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	E7	11/23/14	10TH AVE S & S DEARBORN ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Unknown
54	E7	05/30/18	1032 S Jackson St	Combined sewer basin	No	No	Drainage	Drainage Problem
54	E7	05/13/19	1043 S JACKSON ST	Combined sewer basin	No		Fats, Oils, orGrease	Fixed Business Not Implementing
54	E8	04/08/15	S DEARBORN ST & CORWIN PL S	Combined sewer basin	No	No	Chemicals (Solvent, Haz Waste, Acids, etc)	Other
54	E8	06/18/15	1212 S KING ST	Combined sewer basin	No	No	Other	Other
54	E8	02/01/16	1248 S KING ST	Combined sewer basin	No	No	Other	Leaking Vehicle (no repair)
54	E8	04/23/17	700 12TH AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	E8	05/01/19	S DEARBORN ST & CORWIN PL S	Combined sewer basin	No		Transmission/Brake Fluid	Equipment Failure
54	E8	06/03/19	12th Ave S & S Jackson St	Combined sewer basin	Yes		Motor Oil	Leaking Vehicle
54	G10	10/27/14	2001 32ND AVE S	Combined sewer basin	No	No	Pesticides/Herbicides/Fertilize	Accidental Spill
54	G2	07/30/17	HARBOR AVE SW & FAUNTLEROY AVE SW	Combined sewer basin	No	No	Sewage	RV Dumping
54	G2	07/31/17	HARBOR AVE SW & FAUNTLEROY AVE SW	Combined sewer basin	No		Sewage	RV Dumping
54	G2	10/12/18	2645 HARBOR AVE SW	Combined sewer basin	No		Gasoline	Leaking Vehicle
54	G2	03/06/19	2256 HARBOR AVE SW	Combined sewer basin	No		Gasoline	Leaking Vehicle
54	G8	04/21/16	15TH AVE S & S BAYVIEW ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	H1	09/22/14	3022 36TH AVE SW	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	H1	12/28/18	3261 BELVIDERE AVE SW	Combined sewer basin	No		Diesel	Equipment Failure
54	H10	11/06/14	35TH AVE S & S HANFORD ST	Combined sewer basin	Yes	No	Paint	Accidental Spill
54	H10	02/19/16	3015 S BYRON ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
54	H10	08/23/16	3207 RAINIER AVE S	Combined sewer basin	No	No	Sewage	Illegal Dumping
54	H11	03/01/16	S HORTON ST & LAKE WASHINGTON BLVD S	Combined sewer basin	No	No	None	RV Dumping
54	H11	11/17/16	3760 S RIDGEWAY PL	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
54	H2	03/15/18	3009 HARBOR AVE SW	Combined sewer basin	Yes	No	Sewage	Illegal Dumping

Table E-2: Spill response (2014-2019).

Map No.	Grid No.	Date	Address	Outfall	MS4 Impacted?	Waterbody Impacted?	Pollutant	Cause_of_Problem
54	H3	10/01/15	3443 West Marginal Wy SW	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Home Auto Repair/Illegal Auto Rep
54	H7	05/25/17	3223 6th Ave S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Illegal Dumping
54	H8	12/15/17	16TH AVE S & BEACON AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
54	H9	08/23/17	3208 22ND AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	I10	04/20/15	2821 S WALDEN ST	Combined sewer basin	Yes	No	Sewage	Broken/Blocked side sewer or pipe
54	I10	06/08/15	2821 S WALDEN ST	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	I10	09/18/15	4058 RAINIER AVE S	Combined sewer basin	No	No	Other	Broken/Blocked side sewer or pipe
54	I10	10/07/15	3613 S SPOKANE ST	Combined sewer basin	No	No	Paint	Construction
54	I10	12/03/15	4058 RAINIER AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
54	I10	04/11/16	4058 RAINIER AVE S	Combined sewer basin	No	No	Other	Accidental Spill
54	I10	08/05/16	4058 RAINIER AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	I10	12/02/16	4058 RAINIER AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
54	I10	02/24/17	3402 CLAREMONT AVE S	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	I10	04/12/17	4058 RAINIER AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
54	I10	07/10/17	4058 RAINIER AVE S	Combined sewer basin	No	No	Other	Accidental Spill
54	I10	07/11/17	4014 LETITIA AVE S	Combined sewer basin	No	No	Other	Accidental Spill
54	I10	09/08/17	4058 RAINIER AVE S	Combined sewer basin	No	No	Other	Accidental Spill
54	I10	11/15/17	4058 RAINIER AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	I10	01/12/18	4058 RAINIER AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	I10	02/02/18	4058 RAINIER AVE S	Combined sewer basin	Yes	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	I10	02/16/18	4058 RAINIER AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	I10	03/06/18	4058 RAINIER AVE S	Combined sewer basin	Yes	No	Chemicals (Solvent, Haz Waste, Acids, etc)	Accidental Spill
54	I10	03/12/18	3019 S ESTELLE ST	Combined sewer basin	Yes	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Illegal Dumping
54	I10	03/23/18	4058 RAINIER AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	I10	09/11/18	3019 S ESTELLE ST	Combined sewer basin	Yes		Sewage	RV Dumping
54	I10	09/11/18	3402 Wetmore Ave S	Combined sewer basin	No		Sewage	RV Dumping
54	I10	12/21/18	4058 RAINIER AVE S	Combined sewer basin	Yes		Diesel	Equipment Failure
54	I10	04/16/19	4058 RAINIER AVE S	Combined sewer basin	No		Diesel	Accidental Spill
54	I10	05/30/19	3612 S CHARLESTOWN ST	Combined sewer basin	No		Hydraulic Fluid	Leaking Vehicle
54	I10	06/10/19	3610 33RD AVE S	Combined sewer basin	No		Fats, Oils, orGrease	Fixed Business Not Implementing
54	I11	01/19/16	LAKE WASHINGTON BLVD S & 46TH AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Unknown
54	I12	12/19/14	50TH AVE S & LAKE WASHINGTON BLVD S	Combined sewer basin	No	No	Unknown	Unknown
54	I12	11/07/16	3808 LAKE WASHINGTON BLVD S	Combined sewer basin	No	Yes	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	I2	08/25/15	2918 SW AVALON WAY	Combined sewer basin	No	Yes	Sewage	Construction
54	I2	09/30/16	34TH AVE SW & SW CHARLESTOWN ST	Combined sewer basin	No	No	Concrete/Cement	Unknown
54	I2	11/02/16	3206 SW SPOKANE ST	Combined sewer basin	No	No	Sediment	Construction
54	I2	01/18/17	28TH AVE SW & SW YANCY ST	Combined sewer basin	Yes	No	Sewage	DWO/SSO
54	I2	05/10/18	3074 SW AVALON WAY	Combined sewer basin	No	No	Paint	Unknown
54	I2	06/17/19	SW SPOKANE ST & HARBOR AVE SW	Combined sewer basin	No		Hydraulic Fluid	Motor Vehicle Collision
54	I3	05/21/15	SW SPOKANE ST & DELRIDGE WAY SW	Combined sewer basin	No	No	Chemicals (Solvent, Haz Waste, Acids, etc)	Illegal Dumping
54	I3	05/21/15	2424 SW ANDOVER ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Unknown
54	I3	12/30/15	3813 19TH AVE SW	Combined sewer basin	No	No	None	None
54	I3	01/04/16	3544 WEST MARGINAL WAY SW	Combined sewer basin	No	No	Garbage/Debris	Illegal Dumping
54	I3	01/16/16	3816 19TH AVE SW	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	I3	01/21/16	3813 19TH AVE SW	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	I3	02/09/17	2629 SW ANDOVER ST	Combined sewer basin	No	No	Sewage	DWO/SSO

Table E-2: Spill response (2014-2019).

Map No.	Grid No.	Date	Address	Outfall	MS4 Impacted?	Waterbody Impacted?	Pollutant	Cause_of_Problem
54	I3	02/28/17	3546 WEST MARGINAL WAY SW	Combined sewer basin	No	Yes	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
54	I3	05/18/17	DELRIDGE WAY SW & SW ANDOVER ST	Combined sewer basin	Yes	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	I3	05/22/17	2414 SW ANDOVER ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Other
54	I3	11/22/17	3500 CHELAN AVE SW	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	I3	12/26/17	DELRIDGE WAY SW & SW ANDOVER ST	Combined sewer basin	Yes	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	I3	02/01/18	2414 SW ANDOVER ST	Combined sewer basin	Yes	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	I3	09/11/18	2629 SW ANDOVER ST	Combined sewer basin	Yes		AntiFreeze/Coolant, Gasoline, Motor Oil	Motor Vehicle Collision
54	I3	09/11/18	CHELAN AVE SW & SW SPOKANE ST	Combined sewer basin	Yes		Gasoline	Motor Vehicle Collision
54	I3	12/10/18	2414 SW ANDOVER ST	Combined sewer basin	No		Diesel	Accidental Spill
54	I3	03/14/19	4050 DELRIDGE WAY SW	Combined sewer basin	Yes		Sewage	Broken/Blocked Side Sewer
54	I3	03/19/19	3527 CHELAN AVE SW	Combined sewer basin	Yes		Diesel	Equipment Failure
54	I5	03/16/15	3801 East Marginal Wy S	Combined sewer basin	No	Yes	Other	Accidental Spill
54	I5	07/13/15	3801 East Marginal Wy S	Combined sewer basin	Yes	Yes	Other	Accidental Spill
54	I5	05/01/19	3670 EAST MARGINAL WAY S	Combined sewer basin	Yes		Sewage	Broken/Blocked Side Sewer
54	I6	06/29/15	3613 4TH AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	I6	12/05/15	3613 4TH AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
54	J1	10/22/14	SW ALASKA ST & 37TH AVE SW	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Unknown
54	J1	04/01/15	4550 42ND AVE SW	Combined sewer basin	No	No	Soap/Washwater	Washing-Residential
54	J1	05/03/15	4000 SW ALASKA ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	J1	06/25/15	40TH AVE SW & SW OREGON ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	J1	06/01/16	40TH AVE SW & SW EDMUNDS ST	Combined sewer basin	No	No	Sediment	Construction
54	J1	10/08/16	4441 FAUNTLEROY WAY SW	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Unknown
54	J1	03/10/17	40TH AVE SW & SW EDMUNDS ST	Combined sewer basin	No	No	Sediment	Construction
54	J1	12/02/17	4545 FAUNTLEROY WAY SW	Combined sewer basin	No	No	Other	Motor Vehicle Accident
54	J1	12/26/17	SW AVALON WAY & FAUNTLEROY WAY SW	Combined sewer basin	No	No	<Null>	<Null>
54	J1	06/09/18	4801 FAUNTLEROY WAY SW	Combined sewer basin	No	No	Paint	Mobile business not implementing
54	J1	01/28/19	4500 36TH AVE SW	Combined sewer basin	Yes		Sewage	Broken/Blocked Side Sewer
54	J10	09/20/14	4556 M L KING JR WAY S	Combined sewer basin	No	No	Fats, Oil and Grease (FOG)	Illegal Dumping
54	J10	02/19/15	RAINIER AVE S & S DAKOTA ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	J10	03/13/17	3611 S GENESEE ST	Combined sewer basin	Yes	Yes	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
54	J10	05/15/17	4227 LETITIA AVE S	Combined sewer basin	No	No	Algae/Bacteria/Vegetation	Algae/Bacteria Bloom/Natural foan
54	J10	10/31/17	4517 RENTON AVE S	Combined sewer basin	No	No	<Null>	<Null>
54	J10	01/09/18	S OREGON ST & 31ST AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Illegal Dumping
54	J10	10/19/18	4240 36TH AVE S	Combined sewer basin	No		Sewage	RV Dumping
54	J10	05/06/19	4200 36TH AVE S	Combined sewer basin	No		Sewage	RV Dumping
54	J10	05/31/19	4200 36TH AVE S	Combined sewer basin	No		Sewage	RV Dumping
54	J11	02/25/15	S DAKOTA ST & 39TH AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
54	J11	03/06/16	3929 S AMERICUS ST	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	J11	03/26/17	37TH AVE S & S OREGON ST	Combined sewer basin	Yes	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	J11	11/22/17	4431 39TH AVE S	Combined sewer basin	No	No	Sewage	Unknown
54	J11	02/17/18	4117 41ST AVE S	Combined sewer basin	Yes	Yes	Sewage	Broken/Blocked side sewer or pipe
54	J11	04/09/18	42ND AVE S & S SNOQUALMIE ST	Combined sewer basin	Yes	Yes	Sewage	Broken/Blocked side sewer or pipe
54	J11	03/28/19	4628 42ND AVE S	Combined sewer basin	Yes		Sewage	Broken/Blocked Side Sewer
54	J11	03/29/19	3824 S ALASKA ST	Combined sewer basin	No		Sewage	Broken/Blocked Side Sewer
54	J12	12/03/14	53RD AVE S & LAKE WASHINGTON BLVD S	Combined sewer basin	No	Yes	Sewage	Broken/Blocked side sewer or pipe
54	J12	02/05/15	53RD AVE S & LAKE WASHINGTON BLVD S	Combined sewer basin	Yes	No	Sewage	Unknown

Table E-2: Spill response (2014-2019).

Map No.	Grid No.	Date	Address	Outfall	MS4 Impacted?	Waterbody Impacted?	Pollutant	Cause_of_Problem
54	J12	07/19/16	53RD AVE S & LAKE WASHINGTON BLVD S	Combined sewer basin	No	No	None	None
54	J12	12/19/17	53RD AVE S & LAKE WASHINGTON BLVD S	Combined sewer basin	Yes	Yes	Sewage	Other
54	J12	06/09/18	49TH AVE S & S GENESEE ST	Combined sewer basin	Yes	No	Sewage	Motor Vehicle Accident
54	J12	03/14/19	5106 S ADAMS ST	Combined sewer basin	Yes		Sewage	Broken/Blocked Side Sewer
54	J13	08/26/15	54th Ave S & S Alaska St	Combined sewer basin	No	Yes	Sewage	Broken/Blocked side sewer or pipe
54	J2	02/12/15	35TH AVE SW & SW AVALON WAY	Combined sewer basin	No	No	Unknown	Mobile business not implementing
54	J2	04/20/15	3201 SW AVALON WAY	Combined sewer basin	Yes	No	Sewage	Broken/Blocked side sewer or pipe
54	J2	04/29/16	SW AVALON WAY & SW GENESEE ST	Combined sewer basin	No	No	Sediment	Mobile business not implementing
54	J2	05/17/17	35TH AVE SW & SW AVALON WAY	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Unknown
54	J2	05/08/19	4470 35TH AVE SW	Combined sewer basin	Yes		Sewage	Broken/Blocked Side Sewer
54	J3	01/22/17	4727 22ND AVE SW	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	J3	04/19/17	26TH AVE SW & SW ALASKA ST	Combined sewer basin	No	No	Other	Illegal Dumping
54	J3	06/29/17	DELRIDGE WAY SW & SW ALASKA ST	Combined sewer basin	Yes	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	J3	04/15/19	4501 DELRIDGE WAY SW	Combined sewer basin	Yes		Gasoline	Leaking Vehicle
54	J3	04/16/19	4408 DELRIDGE WAY SW	Combined sewer basin	Yes		Diesel	Motor Vehicle Collision
54	J7	12/05/16	655 S EDMUNDS ST	Combined sewer basin	Yes	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
54	K10	07/18/14	S EDMUNDS ST & M L KING JR WAY S	Combined sewer basin	Yes	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	K10	10/02/14	RENTON AVE S & S BENNETT ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	K10	01/21/16	30TH AVE S & S DAWSON ST	Combined sewer basin	Yes	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	K10	02/11/16	5040 30TH AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Unknown
54	K10	02/25/16	5026 M L KING JR WAY S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	K10	03/04/16	5418 M L KING JR WAY S	Combined sewer basin	No	No	Other	Accidental Spill
54	K10	04/18/16	M L KING JR WAY S & S DAWSON ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	K10	11/27/16	5037 32ND AVE S	Combined sewer basin	No	No	Drainage	Drainage Problem
54	K10	12/11/16	29TH AVE S & S DAWSON ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Unknown
54	K10	02/05/17	5028 35TH AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	K10	03/20/17	5037 32ND AVE S	Combined sewer basin	No	No	Groundwater	Drainage Problem
54	K10	09/08/17	30TH AVE S & S DAWSON ST	Combined sewer basin	No	No	None	None
54	K10	03/20/18	5050 M L KING JR WAY S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Home Auto Repair/Illegal Auto Rep
54	K10	07/19/18	5202 35TH AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Illegal Dumping
54	K10	01/24/19	5050 M L KING JR WAY S	Combined sewer basin	No		AntiFreeze/Coolant	Fixed Business Not Implementing
54	K10	01/24/19	5050 M L KING JR WAY S	Combined sewer basin	No		Gasoine	Fixed Business Not Implementing
54	K10	01/24/19	5050 M L KING JR WAY S	Combined sewer basin	No		Hydraulic Fluid	Fixed Business Not Implementing
54	K10	01/24/19	5050 M L KING JR WAY S	Combined sewer basin	No		Motor Oil	Illegal Home Auto Repair
54	K10	04/17/19	MLK Jr Way S & S Brandon St	Combined sewer basin	No		AntiFreeze/Coolant	Motor Vehicle Collision
54	K11	10/16/14	42ND AVE S & S HUDSON ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Illegal Dumping
54	K11	02/10/16	4850 37TH AVE S	Combined sewer basin	Yes	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	K11	05/21/16	S EDMUNDS ST & RAINIER AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	K11	10/05/16	RAINIER AVE S & S FERDINAND ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	K11	03/18/17	39TH AVE S & S DAWSON ST	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	K12	06/09/16	4714 S DAWSON ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Unknown
54	K12	10/24/16	49TH AVE S & S HUDSON ST	Combined sewer basin	No	No	Unknown	Illegal Dumping
54	K2	10/17/17	5442 30TH AVE SW	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	K3	10/01/14	5445 26TH AVE SW	Combined sewer basin	Yes	No	Sediment	Potable Water Line Break
54	K3	09/23/15	5453 26TH AVE SW	Combined sewer basin	No	No	Sediment	Potable Water Line Break
54	K3	10/12/15	PUGET BLVD SW & SW HUDSON ST	Combined sewer basin	No	No	Sediment	Construction

Table E-2: Spill response (2014-2019).

Map No.	Grid No.	Date	Address	Outfall	MS4 Impacted?	Waterbody Impacted?	Pollutant	Cause_of_Problem
54	K3	01/15/16	5221 23RD AVE SW	Combined sewer basin	No	No	Garbage/Debris	Illegal Dumping
54	K3	01/21/16	5445 DELRIDGE WAY SW	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	<Null>
54	K3	01/04/17	SW HUDSON ST & DELRIDGE WAY SW	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	K3	03/11/17	5213 DELRIDGE WAY SW	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Unknown
54	K3	12/24/17	5200 23RD AVE SW	Combined sewer basin	No	No	Other	Other
54	K3	01/09/18	5202 23RD AVE SW	Combined sewer basin	No	No	Sewage	Illicit Connnection
54	K3	09/19/18	5049 PUGET BLVD SW	Combined sewer basin	No		Concrete/Cement	Construction
54	K5	03/06/15	5053 EAST MARGINAL WAY S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Unknown
54	K5	11/12/15	5021 COLORADO AVE S	Combined sewer basin	No	No	Sediment	Illicit Connnection
54	K5	11/22/17	S HUDSON ST & COLORADO AVE S	Combined sewer basin	No	No	Paint	Illegal Dumping
54	K5	02/12/18	S HUDSON ST & COLORADO AVE S	Combined sewer basin	No	No	Drainage	Encampment
54	K6	10/10/14	5517 4TH AVE S	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	K6	01/08/16	300 S BENNETT ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	K6	01/11/16	402 S DAWSON ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	K6	02/04/16	2ND AVE S & S LUCILE ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	K6	02/10/16	206 S BRANDON ST	Combined sewer basin	Yes	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Mobile business not implementing
54	K6	02/20/16	206 S BRANDON ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Mobile business not implementing
54	K6	04/15/16	S BRANDON ST & 3RD AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Mobile business not implementing
54	K6	05/20/16	2ND AVE S & S BRANDON ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
54	K6	06/03/16	3RD AVE S & S BENNETT ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Mobile business not implementing
54	K6	09/04/16	402 S DAWSON ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	K6	12/12/16	2ND AVE S & S BRANDON ST	Combined sewer basin	No	No	None	None
54	K6	05/24/17	UTAH AVE S & S HUDSON ST	Combined sewer basin	No	No	Sewage	RV Dumping
54	K6	06/27/17	UTAH AVE S & S HUDSON ST	Combined sewer basin	No	No	Sewage	RV Dumping
54	K6	09/28/17	3RD AVE S & S BRANDON ST	Combined sewer basin	No	No	Sewage	Illegal Dumping
54	K6	11/13/17	2ND AVE S & S HUDSON ST	Combined sewer basin	No	No	Other	Accidental Spill
54	K6	03/06/18	S DAWSON ST & UTAH AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Illegal Dumping
54	K6	05/17/18	207 S BENNETT ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Illegal Dumping
54	K6	05/18/18	S BRANDON ST & 6TH AVE S	Combined sewer basin	No	No	<Null>	<Null>
54	K6	02/10/19	3RD AVE S & S BRANDON ST	Combined sewer basin	No		Sewage	RV Dumping
54	K6	04/22/19	311 S BRANDON ST	Combined sewer basin	No		Garbage/Debris, Sewage	Illegal Dumping, RV Dumping
54	K6	06/27/19	2ND AVE S & S LUCILE ST	Combined sewer basin	No		Fire Fighting Foam, Sewage	Fire
54	K6	06/28/19	3RD AVE S & S BRANDON ST	Combined sewer basin	Yes		Sewage	RV Dumping
54	K7	12/07/18	DENVER AVE S / S BRANDON ST	Combined sewer basin	No		Garbage/Debris	Encampment
54	K7	12/17/18	Denver Ave S & S Lucile St	Combined sewer basin	No		Diesel	Accidental Spill
54	K8	08/27/14	5511 20TH AVE S	Combined sewer basin	No	No	Sewage	Illegal Dumping
54	K8	01/27/16	18TH AVE S & S BENNETT ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Unknown
54	K8	01/27/16	17TH AVE S & S BENNETT ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Unknown
54	K8	10/22/17	5550 15TH AVE S	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	K9	01/15/17	BEACON AVE S & S DAWSON ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	K9	04/11/17	2203 S FERDINAND ST	Combined sewer basin	Yes	Yes	Unknown	Illegal Dumping
54	K9	03/30/19	4886 BEACON AVE S	Combined sewer basin	Yes		Sewage	Broken/Blocked Side Sewer
54	L10	07/31/15	M L KING JR WAY S & S ORCAS ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Other
54	L10	01/18/17	5620 M L KING JR WAY S	Combined sewer basin	Yes	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
54	L10	04/25/17	5907 M L KING JR WAY S	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	L10	10/05/17	5620 M L KING JR WAY S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)

Table E-2: Spill response (2014-2019).

Map No.	Grid No.	Date	Address	Outfall	MS4 Impacted?	Waterbody Impacted?	Pollutant	Cause_of_Problem
54	L11	12/11/15	4203 S LUCILE ST	Combined sewer basin	No	No	Drainage	Drainage Problem
54	L11	03/24/17	6054 M L KING JR WAY S	Combined sewer basin	Yes	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	L11	04/16/18	4000 S ORCAS ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	L11	03/18/19	39TH AVE S / S ORCAS ST	Combined sewer basin	No		AntiFreeze/Coolant, Hydraulic Oil, Motor Oil	Motor Vehicle Collision
54	L12	03/02/16	5505 WILSON AVE S	Combined sewer basin	No	No	Other	Mobile business not implementing
54	L12	08/02/17	S LUCILE ST & 48TH AVE S	Combined sewer basin	Yes	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	L13	08/05/17	S ORCAS ST & LAKE WASHINGTON BLVD S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
54	L13	05/15/18	5900 LAKE WASHINGTON BLVD S	Combined sewer basin	Yes	Yes	Sewage	DWO/SSO
54	L2	02/13/17	3002 SW CYCLE CT	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	L2	02/13/18	3214 SW GRAHAM ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
54	L2	07/12/18	3214 SW GRAHAM ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Unknown
54	L2	01/08/19	3214 SW GRAHAM ST	Combined sewer basin	No		Motor Oil	Leaking Vehicle
54	L2	03/13/19	3126 SW GRAHAM ST	Combined sewer basin	No		Motor Oil	Leaking Vehicle
54	L3	09/17/15	DELRIDGE WAY SW & 24TH AVE SW	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	L3	09/27/16	5600 DELRIDGE WAY SW	Combined sewer basin	No	No	None	None
54	L3	05/12/17	5600 DELRIDGE WAY SW	Combined sewer basin	No	No	Fats, Oil and Grease (FOG)	Fixed business not implementing E
54	L3	08/25/17	SW JUNEAU ST & 25TH AVE SW	Combined sewer basin	No	No	Garbage/Debris	Illegal Dumping
54	L4	09/05/16	5600 WEST MARGINAL WAY SW	Combined sewer basin	No	Yes	Other	Other
54	L5	03/25/19	East Marginal Way & S Orcas St	Combined sewer basin	No		Hydraulic Fluid	Motor Vehicle Collision
54	L6	11/13/14	622 S Orcas St	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Illegal Dumping
54	L6	03/17/15	6333 1ST AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
54	L6	09/29/15	2ND AVE S & S FIDALGO ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	L6	04/29/16	85 S ORCAS ST	Combined sewer basin	No	No	Sewage	RV Dumping
54	L6	08/14/16	5801 EAST MARGINAL WAY S	Combined sewer basin	No	No	Process Wastewater	Accidental Spill
54	L6	10/07/16	600 S MICHIGAN ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
54	L6	05/15/17	4TH AVE S & S MEAD ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
54	L6	06/03/17	5601 6TH AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	L6	08/01/17	4TH AVE S & S MEAD ST	Combined sewer basin	No	No	Fats, Oil and Grease (FOG)	Fixed business not implementing E
54	L6	08/29/17	1ST AVE S & S ORCAS ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	L6	10/12/17	5TH AVE S & S ORCAS ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	L6	01/11/18	6333 1ST AVE S	Combined sewer basin	Yes	No	Fats, Oil and Grease (FOG)	Broken/Blocked side sewer or pipe
54	L6	03/07/18	6333 1ST AVE S	Combined sewer basin	No	No	Fats, Oil and Grease (FOG)	Accidental Spill
54	L6	03/22/18	6333 1ST AVE S	Combined sewer basin	No	No	Fats, Oil and Grease (FOG)	Accidental Spill
54	L6	04/16/18	6333 1ST AVE S	Combined sewer basin	No	No	Fats, Oil and Grease (FOG)	Accidental Spill
54	L6	09/11/18	6333 1ST AVE S	Combined sewer basin	No		Fats, Oils, orGrease	Accidental Spill
54	L6	09/17/18	6100 5th Ave S	Combined sewer basin	No		Sewage	Encampment
54	L6	09/26/18	6333 1ST AVE S	Combined sewer basin	No		Fats, Oils, orGrease	Accidental Spill
54	L6	11/28/18	5800 4th AVE S	Combined sewer basin	No		Fats, Oils, orGrease	Accidental Spill
54	L6	12/13/18	6333 1ST AVE S	Combined sewer basin	No		Fats, Oils, orGrease	Accidental Spill
54	L6	06/12/19	6333 1ST AVE S	Combined sewer basin	Yes		Fats, Oils, orGrease	Fixed Business Not Implementing
54	L7	09/22/14	CORSON AVE S & S MICHIGAN ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Other
54	L7	01/27/15	AIRPORT WAY S & S LUCILE ST	Combined sewer basin	No	No	Unknown	Unknown
54	L7	05/07/15	6000 6TH AVE S	Combined sewer basin	No	No	None	None
54	L7	06/30/15	AIRPORT WAY S & CORSON AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Illegal Dumping
54	L7	11/13/15	6200 Corson Ave S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
54	L7	02/08/17	CORSON AVE S & S MICHIGAN ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident

Table E-2: Spill response (2014-2019).

Map No.	Grid No.	Date	Address	Outfall	MS4 Impacted?	Waterbody Impacted?	Pollutant	Cause_of_Problem
54	L7	02/16/17	AIRPORT WAY S & CORSON AVE S	Combined sewer basin	No	No	None	Motor Vehicle Accident
54	L7	07/17/17	6219 CARLETON AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
54	L7	10/15/17	CORSON AVE S & S MICHIGAN ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
54	L7	01/27/18	AIRPORT WAY S & S NEBRASKA ST	Combined sewer basin	No	No	Fats, Oil and Grease (FOG)	Accidental Spill
54	L7	02/26/18	S DORIS ST & AIRPORT WAY S	Combined sewer basin	No	No	Paint	Unknown
54	L7	03/20/18	1121 S BAILEY ST	Combined sewer basin	No	No	Sewage	Illegal Dumping
54	L7	06/11/18	6283 ELLIS AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	L7	12/03/18	5951 AIRPORT WAY S	Combined sewer basin	No		AntiFreeze/Coolant	Motor Vehicle Collision
54	L7	03/15/19	Corson Ave S / S Harney St	Combined sewer basin	No		Fire Fighting Foam	Fire
54	L7	03/25/19	6000 6TH AVE S	Combined sewer basin	No		Sewage	RV Dumping
54	L8	10/22/14	16TH AVE S & SWIFT AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
54	L8	05/22/15	S GRAHAM ST & SWIFT AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	L8	10/02/17	SWIFT AVE S & S ALBRO PL	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	L8	03/13/18	6200 13TH AVE S	Combined sewer basin	No	No	Sewage	Illegal Dumping
54	L9	01/29/19	2520 S JUNEAU ST	Combined sewer basin	Yes		Sewage	Broken/Blocked Side Sewer
54	M10	05/20/15	3030 S WILLOW ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
54	M10	05/20/18	6425 32ND AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Illegal Dumping
54	M11	01/30/15	6600 M L KING JR WAY S	Combined sewer basin	Yes	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Fixed business not implementing E
54	M11	04/17/15	6567 38TH AVE S	Combined sewer basin	No	No	Unknown	Unknown
54	M11	01/27/17	42ND AVE S & S ANGEL PL	Combined sewer basin	No	No	Paint	Illegal Dumping
54	M11	03/24/17	S MORGAN ST & M L KING JR WAY S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	M11	12/05/17	4242 S FRONTENAC ST	Combined sewer basin	No	No	None	None
54	M12	11/04/14	4620 S WILLOW ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	M12	06/21/18	4636 S WILLOW ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	M12	09/11/18	6718 RAINIER AVE S	Combined sewer basin	Yes		Sewage	Broken/Blocked Side Sewer
54	M2	05/26/17	7102 28TH AVE SW	Combined sewer basin	No	No	Sewage	RV Dumping
54	M3	12/08/15	21ST AVE SW & SW MYRTLE ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Illegal Dumping
54	M3	04/10/18	24TH AVE SW & SW WILLOW ST	Combined sewer basin	No	No	Unknown	Unknown
54	M3	06/01/19	SW Myrtle St & 23rd Ave SW	Combined sewer basin	Yes		Other	Construction
54	M5	04/18/18	200 SW MICHIGAN ST	Combined sewer basin	No	No	Sewage	Leaking Vehicle (no repair)
54	M6	10/24/14	I-5 Hwy & S Michigan St	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	M6	05/21/15	6701 6TH AVE S	Combined sewer basin	No	No	Process Wastewater	Accidental Spill
54	M6	10/13/15	I-5 Hwy & S Michigan St	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	M6	12/21/15	7100 1ST AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
54	M6	08/12/17	4TH AVE S & S MICHIGAN ST	Combined sewer basin	No	No	Other	Construction
54	M6	11/29/17	6361 1ST AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Encampment
54	M6	03/30/18	I-5 Hwy & S Michigan St	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
54	M6	03/29/19	6714 EAST MARGINAL WAY S	Combined sewer basin	No		Gasoline	Leaking Vehicle
54	M7	05/04/15	906 S EDDY ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Illegal Dumping
54	M7	11/23/16	CORSON AVE S & EAST MARGINAL WAY S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	M7	05/07/17	601 S MYRTLE ST	Combined sewer basin	No	No	Other	Other
54	M7	11/28/17	601 S MYRTLE ST	Combined sewer basin	No	Yes	Chemicals (Solvent, Haz Waste, Acids, etc)	Fixed business not implementing E
54	M7	12/29/17	601 S MYRTLE ST	Combined sewer basin	No	No	Other	Accidental Spill
54	M7	01/03/18	6851 EAST MARGINAL WAY S	Combined sewer basin	No	Yes	Chemicals (Solvent, Haz Waste, Acids, etc)	Accidental Spill
54	M7	05/02/18	6431 CORSON AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
54	M7	06/26/18	601 S MYRTLE ST	Combined sewer basin	No	Yes	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Other

Table E-2: Spill response (2014-2019).

Map No.	Grid No.	Date	Address	Outfall	MS4 Impacted?	Waterbody Impacted?	Pollutant	Cause_of_Problem
54	M7	07/16/18	6449 CARLETON AVE S	Combined sewer basin	No	No	Sewage	RV Dumping
54	M7	03/28/19	912 S WARSAW ST	Combined sewer basin	No		Hydraulic Fluid	Leaking Vehicle
54	N11	04/09/15	45TH AVE S & S OTHELLO ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	N11	08/18/17	7353 M L KING JR WAY S	Combined sewer basin	No	No	Paint	Illegal Dumping
54	N12	09/22/15	46TH AVE S & S FRONTENAC ST	Combined sewer basin	No	No	None	None
54	N12	08/11/16	4646 S MYRTLE ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	N12	10/31/16	4636 S FONTANELLE ST	Combined sewer basin	No	No	Drainage	Drainage Problem
54	N12	01/05/17	RAINIER AVE S & S OTHELLO ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	N12	01/17/17	4636 S MYRTLE ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	N12	02/15/18	7100 RAINIER AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	N12	03/27/19	7200 SEWARD PARK AVE S	Combined sewer basin	No		Motor Oil	Motor Vehicle Collision
54	N2	11/13/17	7322 28TH AVE SW	Combined sewer basin	No	No	Heating Oil	Heating Oil Tank Leak
54	N2	02/14/18	2704 SW KENYON ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Illegal Dumping
54	N3	10/25/15	7345 DELRIDGE WAY SW	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	N3	11/15/15	DELRIDGE WAY SW & SW ORCHARD ST	Combined sewer basin	Yes	Yes	Sewage	Broken/Blocked side sewer or pipe
54	N3	12/11/15	7345 DELRIDGE WAY SW	Combined sewer basin	No	No	Paint	Accidental Spill
54	N3	07/05/16	7345 DELRIDGE WAY SW	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Other
54	N3	12/28/17	7345 DELRIDGE WAY SW	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	N3	04/07/18	7345 DELRIDGE WAY SW	Combined sewer basin	No	No	Paint	Accidental Spill
54	N4	04/27/17	1406 SW HOLDEN ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	N6	08/01/15	605 S RIVERSIDE DR	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Other
54	N7	03/30/15	7400 8TH AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	N7	07/10/15	7400 8TH AVE S	Combined sewer basin	Yes	Yes	Other	Accidental Spill
54	N7	12/10/15	S ORCHARD ST & 8TH AVE S	Combined sewer basin	No	No	Paint	Unknown
54	N7	05/10/16	8TH AVE S & S PORTLAND ST	Combined sewer basin	Yes	No	Process Wastewater	Unknown
54	N7	08/26/16	7400 8TH AVE S	Combined sewer basin	No	No	Sediment	Other
54	N7	12/15/16	8TH AVE S & S PORTLAND ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	N7	01/08/17	8TH AVE S & S PORTLAND ST	Combined sewer basin	No	No	Unknown	Unknown
54	N7	05/14/18	7343 EAST MARGINAL WAY S	Combined sewer basin	No	No	None	None
54	N7	07/14/18	7303 8th Ave S	Combined sewer basin	No	No	Other	Accidental Spill
54	N7	03/12/19	8TH AVE S & S PORTLAND ST	Combined sewer basin	No		Chemicals	Illegal Dumping
54	N8	12/17/14	16TH AVE S & EAST MARGINAL WAY S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Construction
54	N9	03/15/15	SWIFT AVE S & MILITARY RD S	Combined sewer basin	No	No	Other	Motor Vehicle Accident
54	N9	01/12/18	7277 PERIMETER RD S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
54	N9	03/08/18	7300 PERIMETER RD S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	N9	04/21/18	BEACON AVE S & S MYRTLE ST	Combined sewer basin	No	No	<Null>	<Null>
54	O11	03/19/15	42ND AVE S & S THISTLE ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Home Auto Repair/Illegal Auto Rep
54	O11	08/31/15	7939 RENTON AVE S	Combined sewer basin	No	No	None	None
54	O11	09/08/15	7939 RENTON AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	None
54	O11	06/07/16	M L KING JR WAY S & S KENYON ST	Combined sewer basin	Yes	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Illegal Dumping
54	O12	02/12/15	S CHICAGO ST & RAINIER AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Other
54	O13	04/20/16	8600 ISLAND DR S	Combined sewer basin	No	No	Unknown	Unknown
54	O3	07/12/16	20TH AVE SW & SW CLOVERDALE ST	Combined sewer basin	Yes	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	O3	02/20/17	SW KENYON ST & 24TH AVE SW	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	O3	04/18/17	SW KENYON ST & 24TH AVE SW	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	O7	11/08/14	1027 S SOUTHERN ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Home Auto Repair/Illegal Auto Rep

Table E-2: Spill response (2014-2019).

Map No.	Grid No.	Date	Address	Outfall	MS4 Impacted?	Waterbody Impacted?	Pollutant	Cause_of_Problem
54	O7	03/24/15	737 S SULLIVAN ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Illegal Dumping
54	O7	04/06/16	7916 8TH AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	O7	12/12/16	10TH AVE S & S ELMGROVE ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Unknown
54	O7	03/19/18	1024 S THISTLE ST	Combined sewer basin	No	No	Paint	Illegal Dumping
54	P10	08/21/14	BEACON AVE S & S CLOVERDALE ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	P10	01/25/19	8617 BEACON AVE S	Combined sewer basin	Yes		Sewage	Illicit Connection
54	P11	01/06/16	M L KING JR WAY S & S HENDERSON ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	P11	05/04/16	M L KING JR WAY S & BEACON AVE S	Combined sewer basin	Yes	Yes	Sewage	Broken/Blocked side sewer or pipe
54	P11	08/04/17	S TRENTON ST & M L KING JR WAY S	Combined sewer basin	No	No	Sewage	Drainage Problem
54	P11	05/29/19	8837 39TH AVE S	Combined sewer basin	No		Paint	Accidental Spill
54	P12	03/06/15	9000 RAINIER AVE S	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	P12	02/03/16	5327 S HENDERSON ST	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	P12	02/08/16	9200 RAINIER AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
54	P12	03/23/16	9255 SPEAR PL S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	P12	05/02/17	4608 S CLOVERDALE ST	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	P12	03/10/19	50TH AVE S / S BARTON ST	Combined sewer basin	Yes		Gasoline	Leaking Vehicle
54	P13	10/17/15	9468 RAINIER AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Other
54	P13	03/16/16	9508 RAINIER AVE S	Combined sewer basin	No	No	Unknown	Algae/Bacteria Bloom/Natural foam
54	P13	02/23/17	8634 55TH AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Unknown
54	P13	05/31/17	9508 RAINIER AVE S	Combined sewer basin	No	No	Chlorinated Water	Other
54	P13	09/16/17	9508 RAINIER AVE S	Combined sewer basin	No	Yes	Chemicals (Solvent, Haz Waste, Acids, etc)	Other
54	P13	10/10/17	SEWARD PARK AVE S & HAMLET AVE S	Combined sewer basin	Yes	Yes	Chlorinated Water	Potable Water Line Break
54	P13	01/29/18	9061 SEWARD PARK AVE S	Combined sewer basin	No	No	Sewage	Broken/Blocked side sewer or pipe
54	P13	07/16/18	9500 RAINIER AVE S	Combined sewer basin	No	No	Unknown	Unknown
54	P13	09/11/18	9551 RAINIER AVE S	Combined sewer basin	No		Sewage	Encampment
54	P2	04/29/15	26TH AVE SW & SW BARTON ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	P2	12/08/16	8821 28TH AVE SW	Combined sewer basin	No	No	None	None
54	P2	12/14/18	26TH AVE SW & SW BARTON ST	Combined sewer basin	No		AntiFreeze/Coolant	Equipment Failure
54	P3	10/30/14	25TH AVE SW & SW BARTON ST	Combined sewer basin	Yes	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	P3	11/12/14	9000 25TH AVE SW	Combined sewer basin	Yes	No	Chemicals (Solvent, Haz Waste, Acids, etc)	Illegal Dumping
54	P3	04/21/16	8818 18TH AVE SW	Combined sewer basin	No	No	<Null>	<Null>
54	P3	09/21/17	21ST AVE SW & SW CAMBRIDGE ST	Combined sewer basin	No	No	Concrete/Cement	Construction
54	P3	10/20/17	18TH AVE SW & SW HENDERSON ST	Combined sewer basin	No	No	Sediment	Construction
54	P3	06/07/18	9258 24TH AVE SW	Combined sewer basin	Yes	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill
54	P4	07/27/16	11TH AVE SW & SW HENDERSON ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	P4	10/17/16	9257 15TH AVE SW	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Unknown
54	P4	01/17/18	9002 12TH AVE SW	Combined sewer basin	No	No	Sediment	Construction
54	P6	12/01/16	7TH AVE S & S TRENTON ST	Combined sewer basin	No	No	None	<Null>
54	P7	09/16/15	1057 S DONOVAN ST	Combined sewer basin	No	No	Sewage	Illegal Dumping
54	P7	10/15/15	1216 S DONOVAN ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	P8	01/13/16	1417 S HENDERSON ST	Combined sewer basin	No	No	Unknown	Unknown
54	Q12	08/12/15	S PILGRIM ST & 51ST AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	Q12	11/08/15	51ST AVE S & RENTON AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Leaking Vehicle (no repair)
54	Q12	06/26/17	9673 54TH AVE S	Combined sewer basin	No	No	<Null>	<Null>
54	Q13	10/13/16	9280 56TH AVE S	Combined sewer basin	No	No	Sewage	DWO/SSO
54	Q13	12/17/18	5503 S ROXBURY ST	Combined sewer basin	Yes		Sewage	Broken/Blocked Side Sewer

Table E-2: Spill response (2014-2019).

Map No.	Grid No.	Date	Address	Outfall	MS4 Impacted?	Waterbody Impacted?	Pollutant	Cause_of_Problem
54	Q14	07/01/16	9853 RAINIER AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	Q14	09/04/16	RAINIER AVE S & S PILGRIM ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	Q14	01/14/18	9853 RAINIER AVE S	Combined sewer basin	Yes	Yes	Sewage	Broken/Blocked side sewer or pipe
54	Q14	07/15/18	9724 RAINIER AVE S	Combined sewer basin	No	No	<Null>	<Null>
54	Q14	10/08/18	9746 RAINIER AVE S	Combined sewer basin	Yes		Sediment/rock	Construction
54	Q2	10/13/17	2850 SW ROXBURY ST	Combined sewer basin	No	No	Other	Encampment
54	Q4	01/30/17	12TH AVE SW & SW ROXBURY ST	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Home Auto Repair/Illegal Auto Rep
54	Q8	02/13/18	10000 WEST MARGINAL WAY S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Illegal Dumping
54	R13	06/15/16	59TH AVE S & RENTON AVE S	Combined sewer basin	No	No	Other	Other
54	R14	09/26/15	10005 RAINIER AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Motor Vehicle Accident
54	R15	08/27/15	10408 RAINIER AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Illegal Dumping
54	S13	06/09/16	10602 61st Ave S	Combined sewer basin	No	No	Unknown	Unknown
54	S14	03/05/19	10733 66TH AVE S	Combined sewer basin	No		Sewage	RV Dumping
54	T13	02/08/17	S 119TH ST & BEACON AVE S	Combined sewer basin	No	No	Unknown	None
54	T13	04/17/18	11650 BEACON AVE S	Combined sewer basin	No	No	Automotive Fluid (Oil/Gasoline/Antifreeze, etc)	Accidental Spill

Note: Spill locations shown on Maps 31 - 54.

Appendix F: Citywide Programs that Support Source Control

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The City of Seattle has coverage under the 2019 Phase I Municipal Stormwater Permit for stormwater discharges from the City-owned MS4. The permit requires the City to implement programmatic stormwater BMPs to reduce the discharge of pollutants to the maximum extent practicable (MEP) using all known, available and reasonable methods of prevention, control and treatment (AKART). The permit outlines programmatic elements that permittees are required to implement. The City implements these programs City wide where the City-owned MS4 is located. Below are descriptions of the City-wide programs that specifically address source control and are applied in the LDW as part of Seattle's Source Control Implementation Plan.

1. Spill Response Program

The City operates a 24/7 spill response program to respond to spills and discharges that are affecting City infrastructure and receiving water bodies. Calls are dispatched through the City's Operations Response Center. Once the call is received, the on-call responder is paged and reports directly to the site. The role of the responder is to evaluate the scene, including all safety issues, and coordinate cleanup for the affected infrastructure and/or environment. Responders mobilize an on-call clean up contractor when necessary. SPU coordinates closely with Ecology Spill Response, Seattle Fire and Police, WSDOT and Coast Guard in protecting resources. SPU recently worked with WSDOT and Ecology to improve reporting and response on State-owned highways affecting local infrastructure and water bodies. SPU enforces in cases where it is consistent with source control procedures and regularly recovers cleanup costs when a responsible party can be identified.

Between July 1, 2014 and June 30, 2019, SPU responded to 330 spills in the LDW basin. Approximately 18 spills reached the waterway; the remaining 312 spills were contained. The most common complaint involved automobile-related fluids such as gasoline, diesel, oil, and antifreeze (49 percent). The remaining complaints involved a variety of materials including hydraulic oil, concrete/cement, paint, chemicals (e.g., solvents, acids, hazardous materials), and garbage. Spill locations occurring in the LDW are displayed on Maps 31-54 and a list of spills is provided in Appendix E.

2. Water Quality Investigation Program

The City provides a publicly listed Water Quality Hotline and web form http://www2.seattle.gov/util/forms/surfacewater/surfacewaterForm.asp) for the public to report potential stormwater, illicit discharge, and other water quality related problems. SPU maintains the hotline and responds to calls, which are left on a message system that sets off a messaging system to alert responders. This program also receives investigation reports directly from other City departments and agencies. If a spill is reported, the caller is directed to call the Operation Response Center (ORC) at 206-386-1800 to report the spill so that a Spill Coordinator can be dispatched immediately. SPU responds to water quality investigation calls within three business days, most often the same day. The team uses the enforcement process described in Appendix A to determine when enforcement is warranted. If a concern is reported at a business, an inspection is conducted. SPU responded to 296 water quality complaints in the LDW between July 1, 2014 and June 30, 2019. Complaint locations are displayed on Maps 31-54 and a list of complaints is provided in Appendix E.

3. Illicit Discharge Detection and Elimination

The goal of the Illicit Discharge Detection and Elimination (IDDE) Program is aimed at preventing, identifying and eliminating non-stormwater discharges to the City-owned MS4. SPU uses the term IDDE to mean its Dry Weather Screening Program. The City employs a systematic approach to finding illicit discharges and illicit connections using dry weather field screening and source tracing at key locations in the City-owned MS4. Field

screening is designed to identify and characterize dry-weather flows and attempt to identify pollutants which may indicate illicit discharges or connections. The dry weather field screening program uses the following process to find illicit discharges/connections:

- Prioritizing drainage basins for field screening using existing data and basin characteristics to evaluate the potential for illicit discharges and illicit connections.
- Identifying screening parameters to use as indicators of discharges
- Performing field testing using the screening parameters
- Conducting data review to compare screening results to trigger levels
- Source tracing up the drainage where the comparison suggests that problems exist
- Identifying and removing sources of illicit discharges and connections when found.

Drainage basins have been prioritized for field screening using existing data to weight the potential for illicit discharges and illicit connections. Factors considered during prioritization include drainage basin size, previous data collection efforts, areas of the MS4 that discharge to 303(d) listed water bodies, areas of the MS4 that discharge in the vicinity of public water access, and areas where storm drain separation projects have occurred in the past. These screening factors are tabulated and weighted by drainage basin to generate a priority list for IDDE screening.

Field screening consists of visual observations, field measurements, and laboratory analysis of chemical and biological parameters to characterize flowing discharges. When flow is not present, the field screening element relies on visual observations, such as damage or staining of the MS4 infrastructure as an indication of the presence of intermittent or transitory discharges. Table F-1 details the parameters typically used to identify and characterize flow types and to determine if an illicit discharge or illicit connection is suspected at each sample location. Literature has indicated that these screening parameters have been useful for identifying and characterizing residential, commercial, and industrial discharges (Brown, Caraco & Pitt, 2004).

Table F-1: SPU IDDE screening parameters.

Screening Parameter	Parameter Type	Trigger Parameter
Color	Field observation	Yes
Odor	Field observation	Yes
Floatables	Field observation	Yes
Turbidity	Field observation	Yes
Conductivity	Field analysis	Yes
pH	Field analysis	Yes
Temperature	Field analysis	Yes
Estimated flow	Field analysis	No
Fluoride	Laboratory analysis – SPU Water Quality Lab	Yes
Surfactants	Field analysis	Yes
Ammonia	Field analysis	Yes
Potassium	Laboratory analysis – SPU Water Quality Lab	Yes
Fecal Coliform	Laboratory analysis - SPU Water Quality Lab	Yes

The general approach to field screening is to begin at an accessible location at or near the discharge point of a drainage basin, such as an outfall, maintenance hole, ditch, or other drainage structure. Field screening is performed at multiple key locations in most drainage basins instead of relying on one observation at the outfall. The size of the drainage basin is used to determine the number of locations screened. In large basins, key

upstream maintenance holes representing major branches are screened to help detect discharges that may be diluted, and therefore, masked by blended flows at downstream locations. Source control inspection staff are responsible for field sampling and collection of samples for laboratory analyses. Sample collection consists of grab samples of flowing water. Field screening is conducted during the summer months during dry weather conditions.

For the purposes of the IDDE program, dry weather means no more than 0.04 inches of rainfall in the preceding six-hour period, with no more than 0.02 inches of rainfall in any one-hour period. Field screening samples are not collected when stormwater runoff is entering the drainage system, because stormwater will interfere with the sampling and measurement of potential illicit discharges/connections. The sampling schedule must also account for tidal intrusion in areas of the City influenced by tidal flows.

The principal components of SPU's field screening element are (Figure F-1):

- Field observations of the physical and environmental conditions at each site
- Field analyses by in-situ chemical screening
- Source tracing if illicit discharges or illicit connections are suspected based on the field observations or field analyses
- Laboratory analysis of the collected samples for the remaining chemical parameters
- Additional source tracing based on laboratory analyses.

Source tracing in response to a field observation or analysis is initiated when one or more of the trigger levels for parameters listed have been reached. Many of the drainage maintenance holes in the City of Seattle have several inlets; therefore, several samples may be taken at each location which can result in detection of multiple triggers. Thus, the sequence of source tracing at complex sites is prioritized based on public health and safety. For instance, flows with elevated fecal coliform values are prioritized overflows with elevated fluoride values as fecal coliform is an indicator of sewage which has the potential to be a public health risk. Additional source tracing based upon laboratory analysis of samples follows the same process as detailed in the field analysis section. Tracing will generally occur within 3 days after receiving and reviewing laboratory results. After one sub-basin is investigated, staff will return to the remaining areas that exhibited other lower priority triggers until all are investigated.

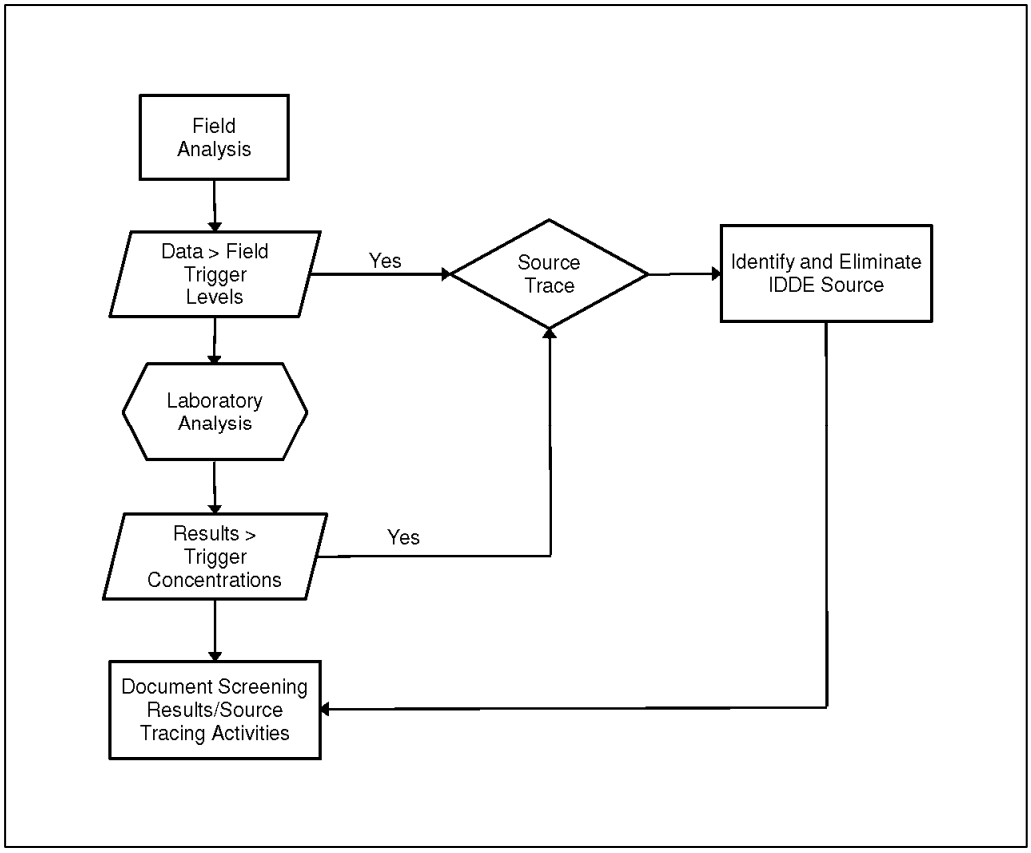

Figure F-1: IDDE process.

Occasionally, source tracing a specific trigger, such as conductivity, does not lead to an obvious pollution source, and SC field staff have reason to believe the trigger source is from a natural occurrence. In these instances, the surrounding area will be investigated visually for any potential pollution source(s), and field and lab data will be carefully reviewed to identify the most likely cause of the trigger to be natural. In some cases, there may be outstanding triggers as the IDDE dry field season ends. In these instances, field staff will review the field and laboratory data to assess each individual trigger in relation to public health and safety. Triggers suspected to be a potential severe threat to human health or the environment will be investigated further into the wet season following 'dry weather' conditions (i.e., maximum of 0.04 inches of rainfall in the preceding six hours, with no more than 0.02 inches of rainfall in any one-hour period). Techniques such as closed-circuit television (CCTV), smoke testing, and basic source tracing (i.e. visual observations, odor etc.) may be used to trace and locate sources.

During this reporting period, SPU conducted IDDE dry weather screening in the City–owned MS4 in the Diagonal Ave S CSO/SD basin in May-September 2018. Findings are described below:

1. Illicit Connection: Diagonal Ave S and 4th Ave S: 1536795_E
   Received and elevated parameter for conductivity at this location which was source traced to 4011 6th Ave S where a cross connection from Field Roast Grain Meat Company was located and repaired. Multiple restrooms and sinks in the building. Also, a process area with two floor drains and an industrial sink.
2. Illicit Connection: Diagonal Ave S and 4th Ave S: 1536795_NE
   Received elevated parameters for fecal coliform (6,090 cfu/100 mL), potassium (8.86 mg/L) and conductivity (968.2 us/cm) which led inspectors to 10 townhomes which were cross connected: 4020 a and b, 4022 a and b, 4024 a and b, 4026 a and b and 4028 a and b.

3. Broken Side Sewer: Rainier Ave S and MLK Jr Way S: 1442065_N
   Received an elevated parameter for fecal coliform (7,640 cfu/100 mL) which led inspectors to 2801 MLK Jr Way S where a broken side sewer from a gas station restroom was discovered.
4. Broken Side Sewer: S Jackson St and 26th Ave S: 1308295
   Elevated fecal coliform (8,910 cfu/100 mL) value was source traced to a catch basin (feakey: 1308118) where sewage was found. The sewage was source traced to 2706 S Jackson St where a broken side sewer was located. Inspectors worked with Seattle Girls School staff to have the repair made.
5. Damaged Sewer Mainline: S Lander St and Airport Way S: 1426796:
   Visual trigger and elevated bacteria (6,910 cfu/100 mL) value was source traced and isolated to a pipe section at S Lander St and Airport Way S. Further investigation revealed that the sanitary sewer mainline was exfiltrating sewage into the adjacent storm mainline. This information was given to SPU Pipe Rehab and is on a list for repair.
6. Illicit Discharge: 2543 Rainer Ave S: 1420338:
   Visual trigger (grease) in a city storm line was source traced to a catch basin where illegal dumping was taking place. The catch basin and impacted city storm line were cleaned.
7. Illicit Discharge: S College St and Rainier Ave S: 1390885:
   Elevated conductivity (781.1 us/cm) and surfactants (3.0 mg/L) led inspectors to 2307 21st Ave S where an RV had plumbed the sewage tank to a nearby catch basin. Inspectors talked to the homeowner and the issue was resolved.
8. Open Investigation: Diagonal Ave S and 1st Ave S: 1555755
   Elevated fluoride (0.64 mg/L) and potassium (10.3 mg/L) was source traced to Charlie's Produce located at 3844 1st Ave S where a business inspection needs to take place.
9. Open Investigation: 15th Ave S and S Dakota St: 1531648_S
   Elevated potassium (6.17 mg/L) and bacteria (4,600 cfu/100 mL) triggers which was source traced to a storm line that is coming from a Parks property. Bacteria values subsided after more sampling. Unknown cause.
10. Closed Investigation: Hiawatha Pl S and S Dearborn St: 1320540
    Elevated bacteria (7,090 cfu/100 mL) was source traced to an apartment complex (the Legacy at the Pratt) where bird feces was found to be the cause of the elevated bacteria. A cross connected washing machine located in the basement was also discovered and corrected.
11. Closed Investigation: 22nd Ave S and S Charles St: 1326278_E
    Elevated potassium (12.5 mg/L) trigger was attributed to construction dewatering upstream.
12. Closed Investigation: 19th Ave S and Mt S Rainier Connect Trail: 1349652
    Elevated fluoride (0.62 mg/L) was attributed to nearby irrigation.
13. Closed Investigation: Ohio Ave S and Diagonal Ave S: 1575391
    Elevated surfactant value (3.0) was attributed to fire-fighting activities which entered a nearby catch basin. Allowable discharge.
14. Closed Investigation: S Bayview St and 13th Ave S: 1406185:
    Elevated fluoride (0.66 mg/L) was attributed to irrigation runoff.
15. Closed Investigation: S Judkins St and Sturgus St: 1339850_N
    Elevated conductivity (958.3 us/cm) and surfactant (3.0 mg/L) triggers. We were unable to locate a source after attempting to source trace.
16. Closed Investigation: MLK Jr Way S and S Winthrop St: 1455906:
    Elevated surfactant (1.5 mg/L) value was attributed to natural sources.
17. Closed Investigation: 6th Ave S and S Charlestown St: 1509203
    Elevated surfactant value attributed to saltwater (interference).
18. Closed Investigation: 3407 Airport Way S: 1474092:

Elevated ammonia (12 mg/L) was attributed to tidally influence groundwater.

19. Closed Investigation: S Grand St and Rainier Ave S: 1365937_N
    Elevated fluoride (0.72 mg/L) attributed to irrigation runoff.
20. Closed Investigation: Rainier Ave S and MLK Jr. Way S: 1442065_E
    Elevated potassium (36.7 mg/L) was attributed to irrigation from a ball field; potential fertilizer.
21. Closed Investigation: S McClellan St and 29th Ave S: 1432797_N
    Elevated fluoride (0.69 mg/L) was attributed to irrigation runoff.

4. Private Facility Maintenance

As required under the City's Phase I Municipal Stormwater permit, the SPU Source Control team inspects private stormwater flow control and treatment facilities throughout the City. In 2011, SPU conducted a study that justified a less frequent inspection of private stormwater facilities and informed Ecology that starting in 2012 SPU would be conducting private stormwater facility inspections for compliance with the permit on a two-year inspection cycle. SPU currently inspects about 576 private facilities in the LDW. SPU facility inspectors require private facilities to be maintained in accordance with Appendix D of the City Stormwater Manual, Volume III. Private facilities in the Duwamish are typically inspected in conjunction with routine business inspections conducted as part of the LDW source control program. Facility inspections use the same enforcement procedures as the Source Control business inspection program. Private flow control and treatment facilities located in the Duwamish area are listed in Appendix M and shown on Map 84.

5. City Drainage/Wastewater Facility Maintenance

SPU's Drainage and Wastewater Line of Business, Drainage and Wastewater Systems Maintenance Division is responsible for operating and maintaining city-owned stormwater drainage assets. Work is conducted in accordance with the current Stormwater Code (2017), and the current Directors' Rule (SDCI 17-2017/SPU DWW 200) City of Seattle Stormwater Manual. Appendix G of the manual (Stormwater Control Operations and Maintenance Requirements) outlines inspection, maintenance, and record keeping requirements for stormwater management facilities, both public and private, in the City. In some cases, the City owns or operates facilities with site-specific maintenance requirements that require facility-specific maintenance standards. For these situations, the City has developed facility specific standard operating procedures that incorporate the inspection and maintenance requirements of Appendix G as well as detailed information such as the location and access restrictions of facilities, necessary equipment, safety procedures and maintenance procedures.

Inspection and maintenance of stormwater drainage assets are managed through routine preventive maintenance (PM) work orders, non-routine service request (SR) work orders, and work orders through the Maximo Asset Management software program, which SPU uses to manage and track drainage and wastewater assets. The Maximo system is tied to City GIS so that work order information in Maximo is tied to the spatial data for the asset in GIS. Work orders are assigned to Drainage and Wastewater System Maintenance Division Crews along with asset information and location. The Drainage and Wastewater System Maintenance Division Crews conduct the work and then document completion of work and additional maintenance needs in a mobile Maximo application. Maximo allows Field Operation Crews and Management to track and report on progress towards permit required operation and maintenance requirements.

Other City Departments, such as Seattle Department of Transportation, Fleets and Facilities (FAS), Seattle Parks and Recreation, and Seattle City Light are responsible for operating and maintaining stormwater facilities and implementing operation and maintenance policies and procedures specific to the properties they manage.

5.1. ANNUAL CATCH BASIN INSPECTION AND MAINTENANCE

SPU annually inspects all catch basins located within the right-of-way and maintains those that exceed the maintenance standards within 6-months. SPU's catch basin inspection program is implemented by two crews, one for inspection and one for maintenance. Inspections are completed by a one-person crew, except on busy arterials where additional crew are needed for traffic control. Each crew inspects all catch basins located within a map grid and utilizes a geographically-based catch basins inspection program to enter data, such as sediment depths measured, and general condition of lids, inlets, and traps. Conditions that indicate follow-up maintenance is necessary (such as solids depths greater than 1.5 feet, which is generally assumed to be equivalent to 60 percent of the sump depth in most catch basins) result in follow-up work orders that are implemented by the underground crew with appropriate equipment (e.g., vactor trucks for removing sediment). During the inspection, crews remove solids from inlets and debris from inlet lines during catch basin inspections.

Evaluation of data collected by SPU crews between 2009 and 2016 indicate that between 12 and 30 percent of catch basins in the LDW required cleaning each year, and 43 percent of all catch basins in the LDW did not require cleaning in any of the eight years for which they were inspected. The average time between catch basin cleanings is 3-years.

5.2. STORMWATER FACILITIES

SPU schedules and coordinates inspection and maintenance of conventional and innovative (e.g., Green Stormwater Infrastructure (GSI)) stormwater facilities owned or operated by the City on an annual basis and following 10-year 24-hour storm events. The Field Operations and Maintenance Division (FOM) at SPU is responsible for inspecting and maintaining stormwater facilities located in the right-of-way and that are owned, operated or maintained by SPU. Stormwater facilities owned by the City, but located outside of the right-of-way, are inspected and maintained by the City Department that manages the property unless there is an agreement between SPU and the City Department.

6. Transportation

SDOT is responsible for maintaining streets and bridges in the City. There are approximately 724 miles of roadway in the LDW. A breakdown of roadways by basin (i.e., MS4 versus combined sewer) and ownership is provided in Table F-2.

Table F-2: Miles of streets in the LDW by basin and ownership.

Owner	MS4 (miles)	Combined sewer area (miles)
City	143	507
County	0	0.3
State	0.02	39.1
Private	0.36	1
Total	177	547

SDOT activities are funded from a variety of sources, including federal and state grants, gas tax revenues, local fees, and the City's General Fund. Federal and state grants must be matched with local funds.

In 2015 Seattle voters passed Move Seattle, a nine-year, $930 million property tax levy which is a significant source of funding for the transportation budget. This levy replaces funds previously obtained from the Bridging

the Gap levy that helped fund SDOT between 2006 and 2015. The Move Seattle funds support on-going pavement maintenance and corridor improvement projects. The Move Seattle 10-year Strategic Vision for Transportation set forth methods for identifying streets as priority corridors for investment and ranking projects proposed for these corridors. The Move Seattle methodology used several factors including leveraging opportunities, funding availability, community support, SDOT's existing commitments, geographic equity, and avoidance of major maintenance to prioritize capital projects. SDOT has identified the Move Seattle priority projects and programs, listed below, that are located within the Lower Duwamish drainage basins and can reduce pollutants in the roadway runoff and/or improve the effectiveness of operational BMPs.

6.1. STREET SWEEPING

Public rights-of-way encompass approximately 26 percent of the total land area draining to the LDW. The City has swept streets in Seattle since the turn of the century to control litter. In 2011, SPU and SDOT modified the street sweeping program to improve pollutant removal capabilities. Sweeping is conducted by SDOT staff with funding for the pollutant removal improvements provided by SPU. Modifications to the street sweeping program included using high efficiency, regenerative air sweepers in areas served by separated storm drains and reducing sweeper speed to enhance particle pickup. Between 2014 and 2019, sweeping was conducted every other week on 20-21 sweeping routes in the LDW. Approximately 57 miles are swept in areas served by the City-owned MS4 and about 126 miles are swept in areas that drain to the combined sewer. Active street sweeping routes in the LDW are shown on Map 81. Except for industrial streets in the South Park neighborhood, the majority of sweeping routes in the LDW are focused on arterial streets, and in the LDW the majority of arterials discharge to the combined sewer.

6.2. CORRIDOR PROJECTS

Corridor projects install a suite of improvements within a specific geographic area. These improvements can focus on bike facilities, safety improvements, utility upgrades, providing greenways, traffic revisions, transit lanes, and freight corridors, but they also include significant pavement improvements. The repaving will reduce the amount of sediment generated and will increase the effectiveness of the sweeping BMP.

6.3. ARTERIAL ASPHALT CONCRETE (AAC) PROGRAM

SDOT's Arterial Asphalt and Concrete Program resurfaces several major arterial streets each year with the larger goal of enhancing both mobility and safety citywide. The projects are prioritized and selected by SDOT's Pavement Engineering and Management Section based on pavement condition, volume and type of traffic, identified needs of residents and businesses, opportunities for coordination with other capital projects, and identified maintenance and liability concerns. These paving projects include enhancements such as improved curb ramps and sidewalks, providing a safer and more convenient pedestrian environment, as well as road markings and signal detectors to help bicycles and vehicles share the road more safely.

6.4. ADDITIONAL PAVING PROGRAMS

In addition to the capital project programs, SDOT operates paving programs that are implemented by SDOT's in-house crews and a slurry sealing program that is normally scheduled each summer if funds are available. Schedule and actual completion of projects depend upon funding, project scopes, and competing work priorities. Because of this uncertainty, projects in these programs are typically planned up to two years in advance.

6.4.1. Arterial Major Maintenance

This is a program implemented by SDOT in-house Maintenance Operations crews. The program typically has funds to repair approximately 8 lane miles per year at about 65 targeted locations. The jobs typically consist of one to three blocks of mill and overlay or replacement of eight to ten concrete panels. No project exceeding $120,000 in value can be constructed by crews, so only projects that do not trigger drainage improvements per Seattle Stormwater Code are undertaken. About 65 percent of work is planned about a year in advance, the remainder is complaint-driven. For the planned portion of AMM projects there are several areas that are repaired annually because they fail repeatedly but have not been upgraded by an AAC project. AMM priority locations are near schools, hospitals, or bike routes or in an area where the work can be combined with other City departments. As much as 35 percent of the AMM budget is spent constructing ramps for ADA compliance.

Improvements to street conditions reduces the generation of solids and enhances the ability of street sweeping to remove solids and associated pollutants before they can enter the drainage system. These maintenance projects typically do not trigger stormwater code-required infrastructure upgrades. However, in some instances SPU may partner with SDOT to upgrade infrastructure.

6.4.2. Non-Arterial Street Resurfacing and Restoration (NASRR)

This is a program operated in the same manner as the AMM program except that the streets repaired are non-arterials. This is the only SDOT maintenance program that addresses pavement conditions on non-arterials, and its budget covers about 2 lane-miles per year. As for the AMM program, improvements to street conditions through the NASRR program reduce the generation of solids and enhances the ability of street sweeping to remove solids and other pollutants before they can enter the drainage system.

6.4.3. Slurry Sealing

Slurry seal is a type of protective seal coat which extends pavement life. It's a thin layer of asphalt emulsion blended with finely crushed stone for traction. The streets chosen for this process are selected based on pavement age, pavement maintenance history and inspection results from Maintenance Operations Division. They are mostly low-volume, non-arterial streets.

6.5. STREET USE PERMITS

SDOT permits all activities in the public rights-of-way; permits are required for any work or occupation of the right-of-way. There are over 60 types of street use permits. SDOT has incorporated stormwater best management practices into the Street Use Permit process to control potential sources of pollutants from leaving the right-of-way and entering the City owned MS4, which helps control and regulate potential sources of pollution and provides an enforcement tool to regulate potential pollutant generating activities. The most common permits associated with source control efforts are listed below:

- Encroachments. Annual/Renewable Street Use Permits are issued for long-term use of the rights-of-way such as signs, retaining walls, structural overhangs, and sidewalk cafes. These permits require an annual fee and in some cases liability insurance or public place indemnity agreements. Although these permits are issued for uses that may seem permanent, they are considered temporary in nature and can be revoked within 30 days. Many businesses in the LDW maintain Annual Street Use Permits to store equipment and other materials in the right-of-way.
- Shoring and Excavation permits are issued for excavations in or near a public right-of-way that could by the nature of the excavation affect the integrity of the right-of-way or utilities located in the right-of-way. SDOT reviews any proposed excavation that would be greater than three feet deep immediately adjacent to any given public right-of-way.

- Street Improvement Permits are required when development activities trigger requirements for street paving, curbs, or sidewalks and include construction of utilities necessary to serve the private property development. These improvements must meet SDOT design criteria.
- Utility permits are issued to private contractors and public agencies for the installation of underground and overhead utility mains and services in the public rights of way. They include power, communication, gas, steam, water, sewer, drainage, and privately owned facilities such as oil pipelines.
- Use of Street and Sidewalks for Construction and Other Purposes. Street Use permits are issued for temporary use of the rights of way during construction such as material storage, scaffolding, crane placement, or crossing curb and sidewalk with heavy equipment. Other types include private uses of the right of way such as planting trees, signs, and block parties, or other special events. These permits are considered temporary in nature and can be revoked within 30 days.
- Gardening in Planting Strip. Street Use permits are not required for gardening activities in the planting strip. However, a permit is required when planting a tree or installing hardscape elements, like raised planting boxes or pavers, in the planting strip. These permits are free.

In 2012, SDOT revised all the street use permits that involve storage of materials in the right-of-way to include requirements for incorporating best management practices to control stormwater. A sample permit is provided in Attachment A. Active Street Use permits for material storage issued for locations in the LDW are shown on Map 85.

6.5.1. Street Use Permit Inspection and Enforcement

Following issuance of a Street Use Permit, SDOT conducts inspection and if warranted, enforcement to require permittees to comply with the stormwater best management practices required by the Street Use Permit.

During an inspection, the SDOT inspectors verify that the installation and use of the required stormwater best management practices at each site are consistent with the permit. Any deviation from compliance is addressed immediately by the SDOT inspector until compliance with the stormwater best management practices in the permit are achieved. Upon closing a Street Use Permit, the SDOT Inspector conducts a final walk-thru to verify that all required temporary stormwater best management practices have been removed, permanent stormwater best management practices (if required) are properly installed and vegetative areas are restored. If there is a violation of the Street Use permit requirements, SDOT inspectors use the following progressive enforcement system to achieve compliance:

- Step 1 - Verbal Warning. A SDOT inspector can issue the permit holder and verbal warning to correct the deficiency to achieve compliance. Verbal warnings are used when the violation or deficiency is minor and there is no impact to the City owned MS4. A follow-up inspection is conducted to determine compliance.
- Step 2 – Written Correction Notice. When an SDOT inspector determines that there are or may be impacts to the City owned MS4 a Written Correction Notice is issued to the permit holder and requires immediate corrective actions. Written Correction Notices specify that a follow-up inspection will be conducted to determine that stormwater best management practices have been implemented and the impact to the City-owned MS4 has been eliminated. If during the follow-up inspection it is determined that the permit holder has not complied, the SDOT inspector may proceed to Step 3 and issue Street Use Citation with penalty.
- Step 3 – Street Use Citation. A SDOT Inspector may issue a Street Use Citation in situations where a direct violation of stormwater best management requirements is observed or if the requirements of a Written Correction Notice are not found to be adequate during a follow up inspection. SDOT Inspectors can issue “Stop Work” orders for violations causing immediate impact to the City-owned MS4.

6.6. TRANSPORTATION PLANNING

Over the next five years, SDOT intends to continue its efforts to maintain and improve streets in Seattle as outlined in the Move Seattle 10-year Strategic Vision for Transportation. In addition to the maintenance and Planned activities that may support the LDW source control program are described in the following sections.

SDOT and SPU coordinate on capital projects thru the mechanisms described in Section 9.4. During future coordination, SPU will use the prioritization described in Appendix J to identify where the best opportunities to meet source control goals align with SDOT transportation goals and recommend partnering projects. This partnering may result in shared projects that result in improved roadways and retrofitting stormwater facilities.

6.6.1. Freight Mobility Study

The Freight Master Plan (FMP), which was adopted by the Seattle City Council on September 26, 2016, is a transportation planning study which identified and prioritized capital and program improvements to maximize the movement of freight in the City and the region. The Duwamish Manufacturing and Industrial Center (MIC), located in the LDW drainage basin, is one of the focal points of the FMP. See the following website for more information:
https://www.seattle.gov/transportation/sdot-document-library/citywide-plans/modal-plans/freight-master-plan.

The Freight Master Plan used a framework for prioritizing projects, which includes environmental considerations (benefits to water quality), when scoring and ranking projects. Projects entering actual project development and design will be scoped to reflect all applicable City code requirements for storm water management and developed in conjunction with Seattle Public Utilities. As a major part of improving freight movement in and out of the Duwamish MIC, the East Marginal Way Corridor Improvement Project (see SCIP Section 7.5.2) was made a top priority for the FMP. Additional smaller projects, in and around the East Marginal Way Improvement project footprint, will complement the work being done on East Marginal Way that will benefit the LDW drainage basin.

7. Stormwater Management/Code

Stormwater management in Seattle is guided by the NPDES Phase I Municipal Stormwater Permit (MS4 permit) and the City Stormwater Code (SMC 22.800-808) and associated technical manuals, known as SPU/DPD Directors' Rules. The MS4 Permit requires that the City have an ordinance and manuals for stormwater management that are equivalent to the Ecology Stormwater Management Manual for Western Washington. To meet this requirement, the Stormwater Code and Directors' Rules were updated in 2017 and determined by Ecology to be equivalent. All Directors' Rules can be downloaded from the following City website:
http://www.seattle.gov/Documents/Departments/SDCI/Codes/DR172017.pdf.

The Stormwater Code contains regulatory requirements that provide for and promote the health, safety, and welfare of the general public and is designed to:

- Protect, to the greatest extent practicable, life, property, and the environment from loss, injury, and damage by pollution, erosion, flooding, landslides, strong ground motion, soil liquefaction, accelerated soil creep, settlement and subsidence, and other potential hazards, whether from natural causes or from human activity.
- Protect the public interest in drainage and related functions of drainage basins, watercourses, and shoreline areas.
- Protect receiving waters from pollution, mechanical damage, excessive flows and other conditions in their drainage basins that will increase the rate of down cutting, streambank erosion, and/or the degree of turbidity, siltation, and other forms of pollution, or which will reduce their flow rates or flow levels to

levels which degrade the environment, reduce recharging of groundwater, or endanger aquatic and benthic life within receiving waters.

- Meet the requirements of state and federal law and the City's municipal stormwater National Pollutant Discharge Elimination System permit.
- Protect the functions and values of environmentally critical areas as required under the state's Growth Management Act and Shoreline Management Act.
- Protect the public drainage system from loss, injury, and damage by pollution, erosion, flooding, landslides, strong ground motion, soil liquefaction, accelerated soil creep, settlement and subsidence, and other potential hazards, whether from natural causes or from human activity.

To support implementation of the Stormwater Code, the Directors of SPU and SDCI have promulgated rules that provide specific technical requirements, criteria, guidelines, and additional information. In addition to the City's Stormwater Code requirements, the SDOT Right-of-Way (ROW) Improvements Manual specifies how drainage features can be incorporated into the streetscape and permitting requirements for use of the right-of-way. Specific references for locating City stormwater-related information are included below:

- Stormwater Manual Volume 1: Project Minimum Requirements describes minimum requirements for all types of land development and redevelopment and provides site assessment and planning steps, as well as drainage control review requirements (City of Seattle 2017a).
- Stormwater Manual Volume 2 Construction Stormwater Control contains temporary erosion and sediment control technical requirements which are required to prevent contaminants from leaving projects during construction. It also provides submittal requirements for drainage control review to help ensure that stormwater controls are appropriately implement during construction (City of Seattle 2017b).
- Stormwater Manual Volume 3: Project Stormwater Control provides approved methods, requirements, criteria, details, and general guidance for analysis and design of flow control, water quality, and GSI facilities (City of Seattle 2017c).
- Stormwater Manual Volume 4: Source Control provides information to help individuals, businesses, and public agencies in Seattle implement appropriate best management practices (BMPs) for controlling pollutants at their source and preventing contamination of stormwater runoff (City of Seattle, 2017d).
- Stormwater Manual Volume 5: Enforcement provides standards, guidelines, and requirements for enforcing the Stormwater Code (City of Seattle, 2017e).
- SDOT Right-of-Way Improvements Manual, Chapter 2 defines permitting procedures for SDOT: http://www.seattle.gov/transportation/rowmanual/manual/.

7.1. NEW AND REDEVELOPMENT REQUIREMENTS FOR STORMWATER TREATMENT

New and redevelopment projects, including public projects, are regulated by the City of Seattle's Stormwater Code, Seattle Municipal Code 22.800-808 and depending on project size and location are required to comply with the on-site stormwater management, water quality, and construction site stormwater pollution prevention requirements of the code. Because the LDW is a large receiving water body, projects are not required to implement flow controls unless they discharge to the combined sewer system.

On-Site Stormwater Management - Parcel-based projects where either the total new plus replaced hard surface is 1,500 square feet or more or the land disturbing activity is 7,000 square feet or more, are required to implement On-Site Stormwater Management BMPs to reduce the runoff volume and pollutants from development using infiltration, dispersion, or retention. On-site Stormwater Management is required for

roadway projects where there are 2,000 square feet or more of new plus replaced hard surfaces or 7,000 square feet or more of land disturbing activity.

The On-site Performance Standards require that the post-development stormwater discharge durations shall match the discharge durations of a pre-developed pasture condition for the range of pre-developed stormwater discharge rates between the 1 percent and 10 percent exceedance values.[1] The On-Site requirements can also be met by selecting from lists of best management practices (BMPs) that have been established for each type project (e.g., single family residential, trail and sidewalk, parcel-based, and roadway). Modelling is typically not required when using the On-Site List approach.

Water Quality Treatment Minimum Requirements Parcel based projects are required to install water quality treatment BMPs if they create greater than or equal to 1,500 square feet of new plus replaced pollution-generating impervious surface (PGIS) or greater than or equal to 7,000 square feet of land disturbing activity and, 1) the replaced hard surface is greater than or equal to 5,000 square feet or more of new plus replaced PGIS or 2) greater than or equal to ¾ acres of pollution-generation pervious surface.

Water quality treatment is required for roadway projects if, 1) the site has less than 35 percent existing hard surface coverage and the hard surface is 5,000 square feet or more, or 2) the site has greater than or equal to 35 percent existing impervious surface and the projects total new pollution-generating hard surface is 5,000 square feet or more, and the total new plus replaced pollution-generating pervious surfaces is ¾ acres or more, and the project discharges stormwater in a natural or man-made conveyance system from the project site.

PGIS is defined as any impervious surface that is considered to be a significant source of pollutants. PGIS include those that are subject to vehicular use, industrial areas that engage in activities such as manufacturing, chemical or waste storage, or storage of leachable or erodible materials. Water quality treatment facilities such as wet/infiltration ponds, vaults, media filters, biofiltration swales/strips are required to remove 80 percent of total suspended solids from runoff. Because many of the pollutants found in urban stormwater tend to adhere to particles, these facilities are also effective in reducing the pollutant load.

7.2. CONTROLLING RUNOFF FROM CONSTRUCTION SITES

All projects are required to implement effective BMPs to control erosion, sediment transport, and other pollutant discharges during construction. Projects that will conduct a significant amount of excavation dewatering are also required to submit a dewatering plan for review and obtain a permit from SDCI as documented in SPU DR 02-04 (Side Sewer Permit for Temporary Dewatering). Construction dewatering involves the removal of groundwater and accumulated stormwater encountered during excavation activities. Depending on the location of the project and site conditions, stormwater and dewatering water may be treated and discharged to the storm drain system or discharged directly to the combined sewer system. It is SPU's policy to treat and discharge water from construction projects to the City drainage system or, if available, a receiving water body to avoid putting extra flow in the sanitary and combined sewer systems. Exceptions can be made for very short duration projects or if construction cannot be economically treated to permit discharge to the City drainage system.

City requirements for temporary dewatering on construction sites are described in Section 5.16 of Volume 2 (Construction Stormwater Control) of the City's Stormwater Manual (City of Seattle, 2017B). Discharges to the combined sewer must obtain a Side Sewer Permit for Temporary Dewatering from the City of Seattle and comply with King County's Industrial Waste Program requirements.

[1] Percent exceedance is the percent of time, over the simulation period (i.e., 158 years), that a given flow is equaled or exceeded.

7.3. CITYWIDE SOURCE CONTROL REQUIREMENTS

The Ecology-issued NPDES Phase I Municipal Stormwater Permit requires that the City enact and enforce ordinance(s) requiring application of source control Best Management Practices (BMPs) that are functionally equivalent to the source control BMPs in Volume IV of the Stormwater Management Manual for Western Washington. The City has enacted the specific requirements for controlling sources of pollutants in urban stormwater in the Stormwater Code and the Directors' Rule Volume 4, Source Control (Seattle 2017d). Ecology has determined that the City's Code and Directors' Rules are functionally equivalent to the state's manual. Seattle's Stormwater Code and Stormwater Manual, which establishes the pollution prevention requirements for all properties, as well as for specific business activities, forms the basis for the business inspection program and enforcement authority that SPU has implemented in the LDW. The following seven BMPs are required for all real property in Seattle:

- Eliminate illicit connections to storm drains
- Perform routine maintenance for drainage system
- Dispose of fluids and wastes properly
- Store solid wastes properly
- Prevent and clean up spills
- Provide oversight and training for staff
- Site maintenance[2].

In addition to the seven citywide BMPs, the City's source control manual (City of Seattle 2017d) also requires certain commercial and industrial activities that drain to the MS4 to implement additional BMPs for site-specific pollution generating activities. SPU inspectors assess onsite activities to determine whether the business is complying with the BMPs identified in the manual. The Stormwater Code also allows for progressive enforcement to achieve compliance, including installation of structural BMPs where operational BMPs are not sufficient to control the discharge of pollutants.

7.4. UTILITY MAPPING PROGRAM

Information about the City's drainage and wastewater collection/conveyance systems is maintained in an ArcGIS® platform, which is managed by the Geographic Information System (GIS) Section of SPU's Information Technology Division. Information is regularly updated, and updates are posted to the system every two weeks. Capital projects are processed through the City's engineering vault. New infrastructure are assigned equipment numbers during project design and entered into GIS as "proposed" structures when projects are advertised. Once project construction is complete and work is accepted by SPU, the new structures are entered into the permanent record. Information on private projects is obtained from SDCI on a weekly basis and posted to GIS every two weeks.

GIS utility information is also regularly revised to incorporate corrections identified by SPU field staff (e.g., IDDE, business inspectors, and sewer rehabilitation staff). Staff submit a drainage/wastewater map correction report to GIS showing the necessary corrections. Corrections are a top priority for the GIS program and are processed ahead of any new infrastructure data.

SPU also implemented a Surface Water Asset Management Program (SWAMP) in 2010 to field verify locations and attributes of surface drainage features (e.g., catch basins, inlets, maintenance holes, ditches, culverts, and biofiltration swales, bioretention cells, and weirs) throughout the City. Structures are located using survey grade geographic positioning system (GPS) equipment. The program has been systematically working through the City

[2] Site maintenance a new citywide BMP that is being added in Seattle's 2016 Stormwater Manual.

following 640-acre City map grids/tiles[3]. Each grid takes about 6 weeks to complete field work, data analysis/entry, and GIS updates. Locations where drainage surveys have been completed in the LDW are shown on Map 86.

8. Public Outreach and Education

Ecology leads the overall public outreach for LDW source control strategy. The City provides education and outreach on stormwater pollution prevention citywide as part of its NPDES Phase I Municipal Permit compliance. Information on these programs can be found in the City's Stormwater Management Plan at:

http://www.seattle.gov/utilities/documents/plans/drainage-and-sewer-plans/stormwater-mgmt-plan

Specific outreach efforts led by City that are focused on the LDW are described in the following sections.

8.1. AUTO MAINTENANCE PROGRAM

The Automotive Maintenance program educates the general public about BMPs for pollutant source control and storage of products related to vehicle maintenance. AMP seeks to educate more residents about the impacts of vehicle fluids on stormwater quality through monthly free auto leaks workshops, leak check events, pedagogical training partnership at South Seattle College, as well as outreach to the general public and through our spill responders. SPU works with our partners in the region (King County, Washington State Department of Ecology, the City of Burien, community-based agencies, and others) on the Don't Drip & Drive campaign, a social media, web, and incentive-based campaign directed at Spanish and English audiences, both professional and public. More information on the auto maintenance program can be found at:

http://www.seattle.gov/utilities/environment-and-conservation/my-home/prevent-pollution/auto-leaks

8.2. PROTECT OUR WATERS COMMUNITY AND YOUTH PROGRAMS

Seattle Public Utilities' Protect Our Waters (POW) youth and public outreach program includes a variety of education and outreach elements targeted at adult and community audiences as well as a robust youth program for schools. These programs engage and partner with audiences to educate and foster behavior change in the general public. The programs increase awareness of the impacts of stormwater flows into surface waters and the impacts associated with impervious surfaces; they provide information and tools about actions an individual can take to reduce their contribution to the problem.

The Urban Watershed School Program is conducted via a partnership between SPU, Seattle Parks and Seattle Public Schools and includes teacher training, stormwater lessons and materials, and an urban creek field trip program. The program is linked closely with school science curriculum and includes community service activities and lesson extensions that disseminate stormwater BMPs into the adult community. Outcomes are measured through teacher evaluations. This program reaches a diverse geographic audience in the City and engages the public in hands-on learning.

Community outreach and education programs engage the public in stewardship and educational activities to promote social and environmental values, encourage behavior change, and build capacity around stormwater BMPs and projects. These programs are audience focused and include direct education, social marketing, partnerships, inclusive engagement and personal stewardship BMPs. The programs aim to promote actions to improve water quality and watershed health. Examples include: fostering the Green Infrastructure Partnership (a collaborative GSI forum) and collaborating to produce the annual Green Infrastructure Summit, public tours of

[3] For mapping purposes, the City has been divided into 640-acre grids/tiles. Each grid corresponds to a full section within a township as defined under the U.S. rectangular survey system.

creek watersheds and stormwater projects, printed materials, interactive learning tools, social media and website, stenciling programs, BMP promotional campaigns, Salmon Steward programming, and public forums and events. More information on these programs can be found at:

http://www.seattle.gov/utilities/environment-and-conservation/our-watersheds/protect-our-waters

8.3. SPILL KITS

To supplement inspections and provide outreach to small businesses, SPU funds the Seattle Green Business Program, a resource conservation program for Seattle businesses, currently being implemented by Cascadia Consulting, under contract with SPU. Under this contract, the program provides site specific technical assistance to businesses, develops targeted outreach materials in multiple languages, organizes and implements SPU's Spill Kit Incentive Program, which provides free spill kits and assistance in developing a spill plan to participating businesses. The spill kit program is promoted on the web, during inspections and as part of the Green Business Program site visits. More information on SPU's spill kit program can be found at:

http://www.seattle.gov/utilities/services/drainage-and-sewer/pollution-control/spill-response/spill-kits

8.4. SEATTLE GREEN BUSINESS PROGRAM

To provide outreach to small businesses, SPU funds the Green Business Program, a free resource conservation program for Seattle businesses, currently being implemented by Cascadia Consulting, under contract with SPU. Under this contract, the Green Business Program provides site specific technical assistance to businesses, develops targeted outreach materials in multiple languages and implements SPU's Spill Kit Incentive Program, which provides spill kits and assistance in developing a spill plan to participating businesses. The program is now part of the new EnviroStars Regional Green Business Program which offers resources and a campaign to publicly recognize businesses taking actions to cut waste, save water and energy, and reduce pollution. The support businesses receive under this program include how to properly use and store chemicals. More information on SPU's Green Business Program can be found at:

http://www.seattle.gov/utilities/businesses-and-key-accounts/green-your-business

9. Interdepartmental Coordination

City departments (e.g., SPU, SCL, SDOT, SDCI) routinely coordinate on projects that affect each other's infrastructure and share in reviewing applications for private projects that involve work in the right-of-way or otherwise affect City infrastructure. The following sections describe the coordination mechanisms currently in place.

9.1. DRAINAGE PLAN/PERMIT REVIEW

Seattle reviews project applications, issues permits for public and private new development and redevelopment projects that involve more than 750 feet square feet of land disturbing activity and inspects permitted projects during construction. Several City departments share responsibility for review, permitting, and inspection activities, based on the type of permit required. Responsible departments include:

- Seattle Department of Construction and Inspection (SDCI)
- Seattle Department of Transportation (SDOT)
- Seattle Public Utilities (SPU).

Table F-3 summarizes the roles and responsibilities for City departments in permitting and enforcing City requirements for new development and redevelopment projects.

Table F-3: City permitting responsibilities.

Permits	Responsible Department	Roles
Projects outside the public right-of way (ROW): - Parcel-based projects, including private development and public projects (Parks Dept., SPU, City Light, etc.) - Trail projects - Single-family residential projects	SDCI	Drainage review, permit issuance, inspection
Projects in the ROW: - Roadway projects - Sidewalk projects - ROW-use projects (e.g., material storage or tree planting) - Utility projects in the ROW	SDOT	Permit issuance, inspection
	SPU	Drainage review
Joint roadway and parcel-based projects	Project thresholds apply individually as noted above to each portion of the project,	

SDCI's permit application and review process is described in detail in the City of Seattle's 2019 Stormwater Management Program.

9.2. POTENTIAL FUTURE IMPROVEMENTS

SPU Business Inspectors occasionally find that structural source controls (e.g., secondary containment for chemical storage tanks, roofing or other covering over outdoor activities, and dumpsters, trash compactors, or other large waste containers located near an existing catch basin) are lacking or inadequate at businesses in the LDW. Retrofitting sites to incorporate structural controls can be expensive. To avoid costly retrofits, it is important that the need for such controls be identified when sites are redeveloped so that structural controls can be incorporated into the overall site design. While many source control problems could be avoided, they are often not discovered until after construction when the site is inspected by the Source Control Team, because the Plan Reviewer focuses on ensuring that the proposed project meets City code (e.g., building and stormwater codes) and is usually unaware of the intended site use. Modifications to the plan review process are needed to correct this problem. The Source Control Team has been and will continue to work with SDCI to incorporate changes to more effectively identify the need for structural controls early during the plan review process.

9.3. NPDES COORDINATION

SPU is the lead department for coordinating Permit and municipal stormwater related activities among City departments, as designated by a mayoral Executive Order dated January 29, 2008. SPU leads inter-departmental meetings to coordinate the City's stormwater management and Permit reporting efforts. These meetings are typically held quarterly and have enabled the different departments to better coordinate stormwater-related policies, programs, and projects.

SPU represents the City at the Phase I Regional Permit Coordinators' Group, which meets to coordinate and discuss implementation of the Permit and coordination of stormwater management activities for shared waterbodies. In addition, the group discusses stormwater related issues; shares permit implementation information and identify solutions and potential future issues. SPU has established external coordination mechanisms with King County, University of Washington and Seattle Public Schools and is coordinating with other Permittees and Secondary Permittees for shared waterbodies.

9.4. INTERDEPARTMENTAL TEAM FOR DEVELOPMENT PROJECTS

Interdepartmental teams are typically assembled to work on large public and private capital projects (e.g., Alaskan Wy viaduct and seawall improvements, Sound Transit, University of Washington development projects) to assist developers in navigating the City permitting process, as well as to work together to ensure that all departments' needs are met. These teams meet regularly throughout the project to coordinate on design issues.

9.5. SPU PROJECT SWITCHBOARD

Initiated in 2010, the project switchboard enables SPU to track emerging projects led by other agencies/departments to allow SPU management to decide whether to participate on these efforts, and to position SPU to provide the lead departments with the necessary input during project design review and/or construction. SPU staff regularly communicates with other departments to determine what projects are on the horizon and at a very high level, evaluate the potential impacts and opportunities associated with each project. This information is distributed to SPU line of business directors and managers who decide how best for SPU to engage. The Switchboard operates as needed based upon input and project timelines from other agencies/departments. SPU anticipates continuing the Switchboard over the next 5-years.

9.6. INTERDEPARTMENTAL TEAM FOR COORDINATED INFRASTRUCTURE

Initiated two years ago, this interdepartmental team comprised of planners and project managers from SDCI, SDOT, SPU, and Seattle City Light (SCL), meets each quarter to share information about upcoming capital projects and long-term planning activities. Because each department has different funding sources and different planning horizons, the City recognized that more coordination was needed to allow departments to take advantage of opportunities afforded by work planned by other departments and to determine how best to work together on projects that affect each other's infrastructure. For example, SDOT conducts major transportation projects through its Bridging the Gap initiative, which typically involve major construction work on arterials where other departments like SPU and SCL own and operate utilities. Sharing information during project planning, allows SPU the time needed to develop hydrologic and/or hydraulic models to evaluate drainage and wastewater needs so the necessary improvements can be designed and constructed in conjunction with planned transportation projects. Synchronizing projects and schedules between departments can result in significant cost savings. This team meets quarterly and SPU anticipates continuing to participate over the next 5-years.

9.7. STORMWATER CODE COORDINATION

SPU helps interpret and provide guidance to other City departments on Stormwater Code compliance issues. SPU staff provides support on new code development (e.g., upcoming revisions to the Stormwater Code) and implementation. They also supports SPU engineers and project managers to ensure that SPU capital projects comply with the code and regularly works with the SPU Source Control Team to aid in interpreting the code and working with SDCI when departmental authorities overlap on source control issues.

10. Managing Contamination on City-Owned Property

Contamination found on City-owned property often is addressed when the property is redeveloped. In some situations, the City remediates its property as an independent cleanup or enters Ecology's Voluntary Cleanup Program (VCP). A few sites are addressed under MTCA orders (e.g., South Park Landfill and the Georgetown Steam Plant). The City has compiled a great deal of information about City-owned properties in the LDW while responding to EPA's information request (under CERCLA Section 104 [e]). Ecology and the City will meet once a year, starting in 2018, to evaluate the information to identify any sites that may be relevant to LDW source

control because they pose a recontamination risk. The City will then coordinate with staff in Ecology's Toxics Program to address the identified sites.

10.1. MANAGING CONTAMINATION IN CITY ROW

SDOT and SPU, the two City departments that frequently work in the ROW, follow a similar process for managing contaminated material in the ROW. Material that needs to be excavated for the project (e.g., for utility installation or roadway grading/construction) is tested and disposed in accordance with solid and dangerous waste regulations.

During the design and permitting of public capital projects, project staff refers to Ecology's Facility/Site Database to determine if there is likely contamination in the project area and assesses the risks of the project disturbing contaminated soil. The City will notify Ecology's source control manager prior to start of construction on a public project if the project will take place in an area with known contamination. Testing may occur before the project is advertised for construction if the contamination may be harmful to workers or if it would impact the project scope due to the cost of waste handling and disposal.

If suspected contaminated soils are encountered during the project's excavation work in locations that were not identified during project development, the City or its consultant profiles or designates the waste, as appropriate, then works with a licensed waste disposal facility to safely dispose of the soils and other construction debris. The City follows MTCA reporting requirements when reporting a discovery of previously unknown contamination to Ecology. When unexpected contamination is found during construction, the City will file an ERTS with Ecology and notify Ecology's designated source control manager within 3 business days of encountering suspected contamination. The results from samples collected to characterize the material for disposal will be provided to Ecology's designated source control manager when received from the analytical laboratory.

SPU has updated the special provisions it uses to supplement the Standard Specifications for Road, Bridge and Municipal Construction for projects where contamination is known or suspected at a site to require collection and analyzation analysis of contaminated soil samples from the sidewalls and bottom of the limits of excavation for reporting to Ecology in cases where previously unknown contamination that is subject to MTCA reporting requirements is discovered during excavation. The update and implementation of the new sample collection requirements will be implemented by 2018.

10.2. CITY PERMITTING OF CLEANUP IN THE ROW AND ECOLOGY COORDINATION

The City is committed to working with Ecology to identify coordination mechanisms to ensure contaminated soil remediation activities in the ROW are permitted and conditioned to protect the environment, the City's infrastructure, mobility, and public access during and after the cleanup. In addition, the Street Use Division of SDOT is developing a Business Procedure for permitting cleanup of contaminated soils in the ROW. This document should be finalized in 2016.

SDOT's Street Use Division issues permits for any work in the ROW, including cleanup of contaminated soils. Applicants must apply for a Street Use permit and place a review deposit to begin the process and cover the costs of reviewing the application and supporting materials. The application includes, but is not limited to, a site plan of the area of excavation, shoring plan, soil and groundwater testing reports, and traffic control plan. SDOT follows their existing review and conditioning process to permit the project in a manner that protects the environment, the City's infrastructure, mobility, and public access during and after the project.

For a site being addressed under an order or decree that has hazardous substance which is located in a roadway, Ecology will require the PLP to notify SDOT's Stormwater Program Manager. The potential liable party (PLP) will be required to consult with SDOT on remedial action alternatives for the roadway. As part of that consultation

and during the Street Use permit review process, SDOT Street Use will consult with the SDOT Stormwater Program Manager to determine the scope of the cleanup and condition the Street Use permit to protect the City's infrastructure, mobility, and public access.

For sites where a hazardous substance is located in a roadway being addressed under Ecology's Voluntary Cleanup Program, Ecology will consult with the City to determine the most appropriate way to address the City's concerns regarding the proposed remedial action design for the ROW. If the City is concerned about a particular site in Ecology's Voluntary Cleanup Program, the City will contact Ecology's source control manager.

The City is committed to continued discussions with Ecology on notification protocol, responsibilities of PLP in the right-of-way, and processes and tracking of contamination and clean-ups in the ROW and other topics that arise during the implementation of the SCIP. The outcome of these discussions will be included in future versions of the SCIP.

11.Agency Coordination

11.1. DUWAMISH INSPECTORS GROUP COORDINATION

In 2008, inspectors working in the Duwamish formed the Duwamish Inspectors Group (DIG). The DIG is made up of staff from Seattle Public Utilities Source Control, King County Industrial Waste, King County Stormwater, Ecology Water Quality, Ecology Toxics Cleanup, Ecology Hazardous Waste, and EPA. The group is a forum to coordinate inspection areas, share inspection priorities, discuss multi-media sites that may involve several agencies and share information regarding cross agency referrals of problems found during inspections. The group currently meets quarterly.

The City anticipates that DIG will continue to meet over the next five years and intends to participate in these group coordination activities.

11.2. LOWER DUWAMISH SOURCE CONTROL GROUP

SPU participates in bi-monthly meetings with EPA, Ecology, King County, and the Port of Seattle to discuss issues and coordinate source control activities. The group, which is led by Ecology, has been meeting since about 2004. SPU provides updates of inspection activities at each meeting and provides an annual summary of source tracing progress.

SPU intends to continue participating on the source control group over the next five years. This group has been successful in coordinating activities, disseminating information about each other's ongoing investigations, and generally keeping LDW source control efforts on track. However, there is always room for improvement. Suggestions include:

- Engaging other resource agencies to participate in the LDW source control program. The LDW Source Control Group has tried, but often failed to gain the support of other agencies like the Puget Sound Clean Air Agency and the local Health Department. Recognizing that these agencies have limited resources and agendas, it is important that all available resources be brought to bear to ensure the long-term success of LDW source control efforts.
- Tackling the larger region-wide source control issues that extend well beyond individual municipality and in some cases, even state authorities. Many of these issues (e.g., product management, air emissions from auto-shredding facilities, and mobile vehicle cleaning operations) are difficult to address using existing source control tools. Expectations for the LDW are high and better tools are needed to realize a significant reduction in loading, particularly for those chemicals that appear to have a regional signature (e.g., PCBs, dioxins/furans, cPAH, and phthalates).

- Refining tools for assessing source control sufficiency. SPU anticipates working with the LDW Source Control Group to develop protocols to determine when source control is sufficient to permit cleanup to begin.

11.3. TACKLING REGIONAL ISSUES

One of the operating principles of Source Control is that it is more effective and less expensive to keep pollutants out of stormwater than to treat stormwater to remove pollutants once they are introduced. Moving closer to the source of pollution, it is likewise more effective to keep pollutants out of the products we use than for government to educate and require best management practices to minimize the impact of those pollutants. This last approach is often referred to as "true" source control or green product formulation.

True source control often affects products over a wide geographic region and can be most effective when addressed on a regional, state, or even national level. Although the City of Seattle represents a small geographic region, it represents a large percent of the Washington State population. As such, Seattle's representation in any regional effort can send an important message to product manufacturers about popular sentiment regarding demand for toxic-free products. Seattle is interested both in advancing regional efforts at true source control and in exploring ways to improve information about alternatives to harmful products so that consumers can make informed purchasing choices.

A diverse set of people and skills is useful in a regional coalition addressing true source control, including research, marketing, economics, industrial chemistry, and risk assessment. Likewise, a diverse set of tasks is involved with true source control. Some of those include the following:

- Determining which products would result in the most benefit as the focus of regional "greening" efforts, considering both the impact and the prevalence in use of the product – would result in creating a "dirty dozen" list
- Determining the practicality of making changes either in product formulation or in identifying substitutes for use
- Understanding the target industry and developing an approach that would yield the desired result (e.g., incentives, regulation, and taxation).
- Determining how best to reach a target consumer audience with messages about "smart, green purchasing".

As one of the steps in helping the work of true source control advance, it would be helpful to focus on a limited number of sources of the Contaminants of Concern in the LDW—a "dirty dozen". Seattle sees this effort as being best led by either Ecology or EPA and would be willing to participate in a workgroup to accomplish this end.

Once a "dirty dozen" list of products is created, it could be helpful to conduct a survey of industries and businesses in the LDW to identify which of the "dirty dozen" products are in widest use. Should the list be formulated within the 5-year planning horizon, Seattle would be willing to begin such a survey, and would be willing to act as the project manager to see that an appropriate scope, schedule and budget are defined. The aggressiveness of the survey work would depend in part on funding resources.

Within the broader, state-wide context, the Governor has laid groundwork for true source control that targets unregulated contaminants like the Contaminant of Concern in the LDW (Office of the Governor 2014). The new approach is coupled with the planned update to Washington State's surface water quality standards for the protection of human health. House and Senate bills (SB 5406 and HB 1472) that would implement the new are part of the 2015 state legislative session and include new state funding. The proposal involves:

- Developing a list of priority Washington chemicals that are either of high concern for children or are present in fish, wildlife, air, water, soil, or sediment
- Preparation of chemical action plans (CAPs) for the highest priority chemicals
- Implementation of an alternatives assessment to identify and compare potential chemical and non-chemical alternatives that could be used to replace the use of priority chemicals.
- Where a safer alternative exists, based on the alternative's assessment, prohibition of sale, distribution, or use of the chemical.

Seattle supports the Governor's proposal and would like to coordinate with Ecology on how our more LDW-focused ideas outlined earlier in this section might interface with this effort.

Phthalates are an example of a chemical where more innovative approaches are needed to have any success in reducing inputs to the LDW. Phthalates, particularly BEHP and butyl benzyl phthalate are commonly found at concentrations above the SMS screening levels in storm drain solids. These chemicals are present in a wide variety of consumer products and standard source control tools, which have been developed to identify specific hotspots, are ineffective when contaminants are widespread. The Sediment Phthalates Work Group developed a number of recommendations to help address phthalates. The recommendations involve the following general areas of potential action (Floyd | Snider 2007):

- Further study and research to validate the Work Group's findings regarding the problem and identify other contaminants that follow pathways similar to phthalates
- Education of appropriate agencies and the community on the Work Group's findings
- Interaction with Puget Sound Partnership and air agencies to address the air–stormwater–sediment pathway
- Evaluation and implementation (where appropriate) of stormwater source control and treatment options
- Management of phthalate recontamination at cleanup sites through site-specific operation and monitoring plans
- Consideration of a Sediment Management Standard (SMS) rule amendment to address phthalates and other pervasive pollutants
- Coordination with other phthalate risk initiatives
- Development of recommendations regarding plasticized polyvinyl chloride (PVC; (alternatives, building material standards, bans, engagement with plastics industry, incentives, etc.).

Progress has been made on some of the Sediment Phthalate Work Group recommendations. For example, the SMS were revised in 2013 and now include the new concepts of regional background and sediment cleanup units. These new concepts help the management of sediment cleanup and source control in areas where chemicals, such as phthalates, are difficult to control. Nevertheless, these new concepts do not directly address true source control.

The Governor's proposal and related legislative bills provide hope for the long-term control of sediment contaminants such as phthalates, although the process for reducing or eliminating the use of phthalates will likely take many years. In addition, because chemicals such as phthalates are so common in consumer products with long life spans, phthalates will continue to be released to the environment for years after a ban is implemented.

11.4. CERCLA COORDINATION

11.4.1. Remedial Design Sampling

Additional sediment sampling will be conducted in the waterway as part of the remedial design for the CERCLA cleanup. The City has two primary roles in this effort in relation to its ongoing source control program:

- Coordinate with the regulatory agencies and parties implementing the sediment remedy to ensure that sediment offshore of City outfalls are adequately characterized.
- Evaluate the sampling results to determine whether any additional source tracing activities are necessary.

If in-waterway surface sediment data are generated over the next five years, SPU will evaluate these data and compare them to City-owned MS4 storm drain solid data to determine whether any additional source tracing or controls are needed in the MS4.

11.4.2. CERCLA Cleanup Schedule and Ecology Source Control Sequencing

The schedule of upcoming CERCLA cleanups is currently unknown. Ecology is developing a sequencing strategy and timeline for source control sufficiency determinations, and Ecology is coordinating directly with EPA to inform the CERCLA schedule.

SPU has always coordinated its source tracing activities with other ongoing Superfund activities (e.g., early action cleanups and Ecology source control area investigations) and fully expects to continue this in the future. Consequently, as the CERCLA cleanup and Source Control timelines are better defined over the next five years, the priorities laid out in this plan may need to change to accommodate that planning.

11.5. MTCA COORDINATION IN THE ROW

The City is committing to the following coordination with the Ecology Toxic Cleanup Program:

- SDOT will coordinate with Ecology so that cleanup orders issued by Ecology to private parties will include ROW cleanup when contamination in the ROW has migrated from private property or the private property is the source in some way.[4] In these instances, SDOT expects Ecology to issue orders to responsible parties and to work closely with SDOT to ensure responsible party obtains City permits to access the ROW.
- SDOT is committed to coordinating with Ecology to ensure parties doing a cleanup through the Voluntary Cleanup Program (VCP) obtain Street Use Permits as needed to clean up contamination that has extended into the ROW when such work is feasible. To facilitate this coordination, SDOT expects Ecology to notify the City of all voluntary clean-ups where contamination from private parcels may have contributed contamination to the ROW. The City also expects Ecology to require the liable party to sample at cleanup boundaries to ensure the cleanup is complete. The City will make a reasonable attempt to coordinate with private parties during their cleanup activities in the ROW. However, if the City cannot issue a Street Use Permit because it is not feasible for the private party to clean up the contamination in the ROW, the City expects Ecology will not release the liable party from liability for the contamination remaining in the ROW and will not issue an unqualified No Further Action letter for the property adjacent to the ROW unless the liable party executes an agreement with SDOT acknowledging continuing liability for the ROW contamination. Situations that would make cleanup in the ROW

[4] Usually the ROW is owned by the adjacent property owners up to the centerline. Sometimes the private property owners have used the ROW in a manner that released contamination there, such as the location for an underground storage tank that leaked.

infeasible are, for example, where the ROW is a major arterial, the cleanup would require rerouting traffic for an extended period of time, and possible detour routes are insufficient.

- The City MTCA coordination will include working with Ecology to develop a process to exchange information and develop protocols for identification and collaboration around MTCA site cleanups. Part of this process should include an Ecology deliverable to the City each year of active cleanup sites in the LDW so that SDOT can coordinate and issue permits and SDCI will be aware when conducting SEPA review and issuing permits.

12.References

Brown, E., Caraco, D., Pitt, R. 2004. Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments. Center for Watershed Protection, Ellicott City, MD & University of Alabama, Tuscaloosa, AL.

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Attachment A-1:

Sample street use permit for material storage in the right-of-way

Seattle Department of Transportation

Issue Date: 6/10/2019
Original Issue Date: 6/10/2019
Application Received Date: 4/11/2006

Billing Date: 7/1/2020

Street Use Permit
Permit Number: SUPSM0000017

Address: 4609 36TH AVE SW

Onsite Contact

Project Description: Material storage in two alley segments: one adjacent to property between SW Snoqualmie St and SW Alaska St; one in alley south of Fauntleroy Way.
Project Name: Material Storage

Owner
Alki Lumber
PO Box 16345
SEATTLE, WA 98116

Applicant
Alki Lumber
PO Box 16345
SEATTLE, WA 98116

Financially Responsible Party
Alki Lumber

PO Box 16345
SEATTLE, WA 98116

Permitted Use(s)

Side of Street	Moblity Type	Closure Type	Permitted Use Description	Use Code	Space	Start Date	Use Area(Sq Ft)
East	Alley	Closed to Public	ALLEY USEAGE SOUTH OF FAUNTLEROY WAY SW. Erect, place and maintain materials for storage in public area	12	a	07/02/1970	480
East	Alley	Closed to Public	USE ALLEY BETWEEN SW SNOQUALMIE ST AND SW ALASKA ST. Erect, place and maintain materials for storage in public right of way.	12	b	07/02/1970	2240

Conditions of Use:

C016: ELIMINATE ILLICIT CONNECTIONS TO STORM DRAINS- Identify all drains on the property, dye or smoke test drains to verify proper connections. Fix improperly plumbed drains. Inspect, maintain function, clean and repair structures, pipe fittings, and containers, and replace as needed. Document corrections.

C017: PERFORM ROUTINE MAINTENANCE FOR STORM DRAINS - Only rainwater is permitted to discharge to the separated sewage system, which reaches surface waters and Puget Sound without treatment.

C018: DISPOSE OF WASTE FLUIDS AND SOLIDS PROPERLY - Label and properly store solid, liquid and waste materials.

C019: BOAT MOORAGE - Add a marine containment boom to Spill Kits. Boat building, maintenance or repairs are prohibited. Move non-water based maintenance activities to shore. Parts containing liquids must be stored as if they are liquids . All liquids must be stored in closed, labeled containers with secure lids, under cover with secondary containment. Do not use any soaps or detergents in or around water. Collect bilge and ballast water and any water with an oily sheen for proper disposal. Routinely clean boat interior, properly disposing of collected materials to prevent accumulated water that drains from the boat from becoming contaminated. Convey sanitary sewage to pump out stations.

C020: SWEEP THE SITE FREQUENTLY RATHER THAN USING WATER TO CLEAN SURFACES - Clean storage areas frequently. Maintain a Spill Prevention and Clean-up plan, which includes maintaining stocked spill kits and a training program. Properly clean-up spills and disposal of all contaminated materials including soils.

C021: PROVIDE OVERSIGHT AND TRAINING FOR STAFF - Training must include source control, pollution prevention and proper clean-up of spills.

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Street Use Permit
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C022: WATER RUNOFF - Rain, surface, or potable water which comes in contact with leachable, spillable or erodable materials, in use or stored, must be collected and treated before being disposed to sanitary, separated or natural drainage systems. Permission to discharge must be requested from King County in the case of sanitary sewer or Dept of Ecology, in the case of separated or natural systems.

C037: SDOT must be notified of changes in property ownership.

GENERAL REQUIREMENTS

1. Nature of permit. This permit is issued according to Seattle Municipal Code ("SMC"), Chapter 15.04, for the use or occupancy of the public right of way in a manner consistent with the terms and conditions in this permit. This permit is wholly of a temporary nature, vests no permanent rights, and is revocable according to SMC Section 15.04.070.
2. Acceptance of terms, conditions, and requirements. The Permittee accepts the terms, conditions, and requirements of this permit and agrees to comply with them to the satisfaction of the Seattle Department of Transportation, Street Use Division ("Street Use"), or such other agency as may be designated by the City. The Permittee further agrees to comply with all applicable City ordinances, including but not limited to SMC Title 15, and all applicable state and federal laws.
3. Copy of permit. A copy of the issued permit and current approved plans shall be on site and available at all times.
4. Expiration of permit. This permit shall remain valid until revoked according to SMC Section 15.04.070; provided that the permit shall expire automatically if the authorized work does not begin within six months from the date the permit is issued. The Permittee is responsible for keeping the permit up to date including submitting updated plans for approval. The Permittee shall submit requests to update a permit in writing or in person, and all requests shall be made to Street Use in a timely manner; otherwise, the Permittee may lose access to requested schedule for continued work in the right of way.
5. Superiority of Street Improvement Permits. When a Street Improvement Permit exists, rights acquired under the Street Improvement Permit supersede those acquired under any other Street Use or Utility Permits. Work not approved under the Street Improvement Permit shall require separate Street Use or Utility Permits and Permittee shall obtain these permits in advance of work.
6. Compliance with technical requirements and standards. All work within the public right of way shall be performed and completed according to the current or subsequently-amended requirements in the following technical documents published by the City: Right-of-Way Improvements Manual; Street Tree Manual; Standard Specifications for Road, Bridge and Municipal Construction; Standard Plans for Municipal Construction; Right of Way Opening and Restoration Rule; and Traffic Control Manual for In-Street Work.
7. Scope of work. The Permittee shall stage equipment or materials and construct or install the improvements and infrastructure reflected in and in accordance with this permit and the City-approved construction plans. Any revisions, omissions, or additions to the scope of work shall be reviewed and approved by the City before implementation.
8. Street Use notification. Construction work may be completed in several phases: site preparation (installing traffic control, saw-cutting, etc.); ground breaking; restoration; and staging of equipment and materials. Before beginning any phase of work in the public right of way, the Permittee shall notify Street Use of each start date. The Permittee shall be responsible for notifying Street Use Job Start at (206-684-5270) or SDOTJobStart@seattle.gov a minimum of 2-business days before starting work and shall provide the following information:
• Permit number;
• Job-site address;
• Start date: please specify if Job Start date is the same as the excavation or ground breaking date. If the dates are different, please provide both dates;
• Brief work description; and
• Job-site contact name and phone number.
Failure to notify Street Use Job Start shall result in a $300 penalty or other amounts according to SMC Section 15.04.074. For Street Improvement Permits and Utility Major Permits, a preconstruction meeting is required before starting construction, and the assigned inspector shall be notified a minimum of 2-business days before required inspections. Construction or utility activity occurring with, but not approved under, a Street Improvement or Utility Major Permit shall be permitted under separate Street Use permits. The Permittee shall apply for and obtain these Street Use permits in advance of work. Failure to do so may subject the Permittee to penalties and additional permit review charges may apply.
9. Underground and overhead utility notification. The Permittee shall notify the following entities, as applicable, 2-business days in advance:
• Utility Underground Locate Center (811 or 1-800-424-5555) before ground disturbance; and
• Seattle City Light (206-684-4911) if working within 10 feet of high-voltage lines.
10. Olympic Pipe Line Company notification. When work in the right of way occurs within 100 feet of an Olympic Pipe Line Company ("OPLC") pipeline, the Permittee shall coordinate the work with OPLC, which may include submitting detailed construction plans to OPLC. The Permittee shall notify OPLC's field coordinator 10-business days in advance of the work (425-981-2506) and an OPLC representative may be required to be onsite during the work.
11. King County Metro notification. The contractor shall notify King County Metro Transit in advance of any construction that may disrupt transit service according to the following schedule.
• Five working days' notice for any work requiring a temporary bus stop.
• Ten working days' notice for relocation of a bus shelter or reroute of bus service.
• King County Metro Transit's electric storage battery Trolley Busses can be activated for weekend outage requires with 15 working days notification. Subject to vehicle and staff support capacity restrictions.
• No two consecutive transit stops may be closed
If trolley wires are present, call 206-477-1150 or email trolley.impacts@kingcounty.gov
If trolley wires are not present, call 206-477-1140 or email construction.coord@kingcounty.gov
12. Public notification. Notification requirements shall comply with following:
• For ROW Management and Major permits on non-arterial streets and Public Space Management Short-term Activity permits, the permittee shall

hand deliver and/or mail a project notification to adjacent residents and businesses at least 2 business days prior to beginning right of way work or activity
• For ROW Management and Major permits on arterial streets in an Urban Center or Urban Village, the permittee shall hand deliver and/or mail a project notification to all potentially affected residents and businesses within a 2-block radius and community organizations at least 10 business days prior to beginning right of way work or activity, including alleys. For multi-family housing units, notifications must be mailed or emailed to each individual unit, posted predominantly in the building common areas and/or distributed to each individual unit by the building manager/owner.
o For projects longer than 6 months in duration, the permittee shall a project notification must be delivered monthly and provide an on-site project notice
o If there is any change of right of way use at any point in the project, an updated project notification must be provided at least 10 business days prior to beginning right of way work or activity
• The project notification shall include the following:
o The name, address, and description of the project
o The duration of the project, with beginning and end dates listed
o Permittee 24-hour contact information (name, phone number, and email)
o List of right of way closures with dates, duration, and hours of closures
 For projects longer than 6 months in duration, the right of way closures shall be represented in a visual map
o SDCI and SDOT permit numbers
o If available, a link to the project website
• For projects longer than 6 months in duration, an on-site project information notice shall be posted and maintained at each closure that is visible to the public that shall include the following:
o The name, address, description, and duration of the project
o Permittee 24-hour contact information (name, phone number, and email)
o List of right of way closures with dates, duration, and hours of closures
o SDCI and SDOT permit numbers
o A reference to 684-ROAD for residents to report safety or mobility concerns
o If available, a link to the project website
• For crosswalk closures longer than two weeks in duration, a crosswalk closure notice must be posted to, and maintained, on each crosswalk closure barricade and include the following:
o The name and address of the project
o Permittee 24-hour contact information (name, phone number, and email)
o The duration and hours of the closure
o A reference to 684-ROAD for residents to report safety or mobility concerns
o If available, a link to the project website
• If the project requires a closure of any portion of an alleyway, the permittee shall notify all impacted residents and businesses at least 10 business days prior to work in the alleyway and coordinate closure dates and times with the following agencies:
o Seattle Public Utilities: Sally Hulsman (206-684-4682 or sally.hulsman@seattle.gov) and Mike Mannery (206-684-9271 or mike.mannery@seattle.gov)
o Seattle Fire Department Special Events Division at 206-386-1450 (this division will provide coordination information for the local fire station)
• If the project will close or reduce down to one general purpose lane an arterial street in the Central Business District, the permittee shall notify King County Metro (construction.coord@kingcounty.gov) and the SDOT Transportation Operations Center (construction.coordination@seattle.gov) at least 10 business days prior to beginning work in the public right of way and coordinate closure dates and times with the following agencies:
o Seattle Fire Department Special Events Division at 206-386-1450 (this division will provide coordination information for the local fire station)
o Seattle Police Department Non-Emergency Division at 206-625-5011 or SPDdispatch@seattle.gov
• If the project is working outside of approved hours due to an emergency event that will impact public health and safety, the contractor must notify the Street Use inspector, inspector lead, and the Transportation Operations Center at TOC@seattle.gov as soon as the issue has been identified
• If a tree has been approved for removal, the permittee shall post a "tree removal" public-notice placard at least 10-business days prior to beginning work
• If an SDOT public notice comment period is required prior to permitting, the permittee shall conduct the public notice outreach prior to commencement of the SDOT public notice comment period. The comment period will occur as part of the SDOT review process.
13. Alley notification. Where this permit authorizes work in an alley, the Permittee shall notify all potentially impacted property owners and businesses prior to any activity occurring in the alley, including and especially those property owners and businesses with tenants using the alley to access parking or for building ingress/egress or deliveries. The Permittee shall schedule work around waste-management-collection days. If this is not possible, the Permittee shall coordinate with waste management services to either provide intermittent alley access during waste pickup or to temporarily establish waste pickup at an alternate location. If an alley is to remain open during permitted work, a minimum 11-foot clear width is required for vehicular access. If an alley is closed to through traffic, the Permittee shall notify the nearest Seattle Fire Department fire station and the Seattle Police Department at the non-emergency numbers prior to commencing work.
14. Coordination of work. In performing work authorized by this permit, the Permittee shall coordinate with other contractors, public agencies and other permitees working in the public right of way to minimize impact to the public. Documented coordination agreements may be required prior to permit issuance and additional notification to the public may be required.
15. Hours of work. Work performed in the public right of way shall occur only during hours authorized under all applicable codes, regulations, rules, and permits.
16. Off-hours work. Work outside of normal working hours, 8:00 AM - 5:00 PM Monday through Friday, is considered "off-hours work" and requires a minimum of 3-business days advanced notice to DOT_StUse_OffHours_Inspection@seattle.gov or the Job Start phone line at 206-684-5270before the off-hours work commences. Off-hours work may also require a separately-approved traffic control plan. A minimum of two hours of inspection time shall be charged for off-hours inspections at the premium rate. A Stop Work order or Citation may be issued for failing to notify Street Use at least 3-business days before the off-hours work.
17. Inspection fees. The Permittee shall pay for City inspections of work authorized under this permit according to the current fee schedule established by SMC Section 15.04.074 and all other associated costs.

18. Billing. All fees and costs billed according to this permit shall be paid to the City of Seattle within 30-calendar days from the invoice date. Past due invoices may be subject to interest charges and may be sent to collections.
19. Deposits, charges, and future billings. The Permittee, also identified as the "Financially Responsible Party" on Street Use permit applications, is responsible and liable for all permit-related charges. If a deposit was made for estimated future Street Use services, any unused portion of the deposit shall be refunded to the Permittee. Any charges in excess of the deposit shall be billed to the Permittee on a monthly basis.
20. Corrective work. The Permittee is responsible for any additional costs incurred by the City resulting from temporary or corrective measures required to bring the work area into compliance with standards that apply, including but not limited to: temporary traffic control, requirements for temporary structures, temporary stabilization, and temporary restoration when the Permittee is not on site.
21. Indemnification. The Permittee agrees to defend, indemnify, and hold harmless the City of Seattle, its officials, officers, employees, and agents; against any liability, claims, causes of action, judgments, or expenses, including reasonable attorney fees; resulting directly or indirectly from any act or omission of the Permittee, its contractors, subcontractors, anyone directly or indirectly employed by them, and anyone for whose acts or omissions they may be liable; arising out of the Permittee's use or occupancy of the public right of way; and all loss by the failure of the Permittee to fully or adequately perform, in any respect, all authorizations or obligations under this Permit.
22. Insurance. The Permittee shall obtain and maintain in full force and effect, at its own expense, public liability insurance in an amount sufficient to protect the City from all potential claims and risks of loss from perils in connection with any activity that may arise from or be related to the Permittee's activity upon or the use or occupation of the public right of way allowed by the permit; and all claims and risks in connection with activities performed by the Permittee by virtue of the permission granted by the permit. The Permittee shall meet all other insurance requirements in SMC 15.04.045.

EXISTING IMPROVEMENTS
1. Costs of damage to City property and improvements. The Permittee shall be responsible for the costs of repairing any damage to City property or improvements, including street trees, resulting from work performed by or on behalf of the Permittee within the public right of way. Damage to street trees is assessed on the value of the tree according to SMC subsection 15.90.018.B.
2. Utility protection. The Permittee shall be responsible for checking locations and providing adequate protection for all utilities in the work area.
3. Utility relocation. The Permittee shall be responsible for notifying affected utilities and requesting any necessary relocation.
4. Survey monuments. Before removing, destroying, disturbing, or covering a survey monument such that the survey point is no longer visible or readily accessible, the Permittee shall obtain a permit from the Department of Natural Resources according to Washington Administrative Code, Chapter 332-120.
5. Protecting, removing, and relocating existing improvements. In addition to General Requirements item 12, the Permittee, at their own cost and expense, shall be responsible for coordinating the removal and relocation of existing improvements within the public right of way that their construction or permitted project may interfere with. These existing improvements include, but are not limited to trees, bike racks, newsstands, bike-share stations, signs, benches, artwork, and waste receptacles.
• For existing improvements, the Permittee shall contact the improvement owner at least 10-business days before starting work to coordinate the temporary removal of the improvement.
• For newsstands, the Permittee shall coordinate temporary relocation during the construction period by posting notice of upcoming construction projects at SeattleNewsstands.org at least 10-business days before starting work.
The Permittee shall be responsible for reinstalling the improvements or coordinating the reinstallation in their original location or at a reasonable alternative location approved by the existing improvement owner and meeting all applicable City requirements. The Permittee is further responsible for protecting all trees within the construction project area and shall contact Urban Forestry to disclose and describe any construction impacts to trees.
Failure to contact the improvement owners or Urban Forestry is cause for Street Use to revoke this permit.
6. Monorail system proximity requirements. The Permittee shall be responsible for coordinating with the Seattle Center when any work, deliveries, or loading/unloading will occur within 14 feet of a Monorail structure or 20 feet of a Monorail foundation or below-ground installation. The Permittee shall contact the Seattle Center at 206-905-2601 at least 10-business days before starting construction. Failure to do so is cause for permit revocation.
7. Monorail system proximity guidelines. Below grade: The restricted digging area includes a 45-degree cone extending outward and downward from the ground level of all monorail piers. Nearby excavations shall be monitored to assure footing stability. At- or above-grade: The piers above ground level cannot be moved, nor can any item like lighting or signage be attached to the piers without prior written consent from the Seattle Center Director. Piers shall not be painted. Landscaping shall not occur adjacent to piers or within 10 feet of a Monorail structure without prior written consent of the Seattle Center Director. Any construction activity in the area of the power rails shall follow OSHA guidelines for working around high voltage. Construction equipment shall be located and operated in awareness of and taking account of beam height and the train’s 14-foot-operational envelope from each side of the beam. Contractors shall string warning lines from pier to pier under the beams as a guide. Spotters shall be employed when any construction activity occurs within 25 feet of the beams.

ENVIRONMENTAL PROTECTION
1. Best management practices required. The Permittee shall be responsible for protecting the public place, including but not limited to protecting existing street trees and green stormwater infrastructure, and controlling surface runoff, erosion and sediment at the construction site, as required by: the Stormwater Code, (SMC Title 22, Subtitle VIII); the Street and Sidewalk Use Code, (SMC Title 15); the Standard Specifications for Road, Bridge, and Municipal Construction; and Department of Planning and Development Director's Rule 21-2015/Seattle Public Utilities DWW 200, or successor rules or provisions. The site and the surrounding area shall generally be kept clean and free of construction debris or other material, including but not limited to mud, dust, rock, asphalt, and concrete. Waste materials shall be collected and disposed of at an appropriate disposal site. These materials shall be prevented from entering any part of the public sewer and storm drain system, and any surface waters.

TRAFFIC CONTROL REQUIREMENTS
1. Compliance with the Traffic Control Manual for In-Street Work. In order to provide safe and effective work areas and to ward, control, protect, and expedite vehicular and pedestrian traffic; signage for all construction within the public right of way shall comply with the City of Seattle Traffic Control Manual for In-Street Work, as amended. When required, the conditions on the traffic control plan shall supersede any conflicting provisions or requirements in the City of Seattle Traffic Control Manual for In-Street Work. A copy of the current City of Seattle Traffic Control Manual for In-Street Work and the approved traffic control plan shall be on site at all times.

Seattle Department of Transportation

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Street Use Permit
Permit Number: SUPSM0000017

2. Lanes to remain open during peak hours. Traffic lanes shall not be closed during the following peak hours: 6:00 AM - 9:00 AM and 3:00 PM - 7:00 PM in the Central Business District; and 7:00 AM - 9:00 AM and 4:00 PM - 6:00 PM for arterials elsewhere in the City, unless specifically noted on the approved traffic control plan.
3. Maintain access. Access to adjoining properties and businesses shall be maintained or accommodated during construction. Pedestrian access around construction sites shall be implemented and maintained per SDOT Director's Rule 10-2015, or successor rule.
4. Width of temporary traffic lanes. Temporary traffic lanes created during the permitted work shall be a minimum of 11 feet in width unless otherwise approved on the traffic control plan.
5. Working within restricted curb spaces. When the project impacts a restricted curb space, such as meters, pay stations, specific use and load zones; the Permittee shall obtain permission from SDOT Traffic Operations and reserve the spaces with the Traffic Operations Permit Counter (206-684-5086) before starting work.
6. Temporary No Parking signs and easels. In areas without parking pay stations or parking meters, or when Traffic Operations allows reserved parking spaces to be controlled with Temporary No Parking signs, establishing a Temporary No Parking Zone requires placing type R7-T38 (T-38) or R7-T39 (T-39) easels and completing an online verification form in conformance with the Traffic Control Manual for In-Street Work. In high impact areas, the Central Business District, and in areas where construction projects are densely clustered (such as in City-designated "Construction Hubs"), additional requirements for establishing a Temporary No Parking Zone may apply.
7. Nighttime illumination. Four or more Type B warning lights of sufficient brilliance to be seen from 500 feet shall be maintained at all times during the hours of darkness at the points of obstruction or excavation of any right of way.
8. Work in alleys. For work occurring in alleys that impedes vehicular access, including but not limited to egress, ingress, or through travel; "Street Closed" signs shall be placed at each end of the alley. Property owners adjacent to the alley shall be contacted, and their access concerns shall be addressed and mitigated if possible. This may require alternative work scheduling in the case of Solid Waste collection days and hours.

Appendix G:

Business Inspections Completed By SPU

(July 1, 2014 - June 30, 2019)

Appendix G: Business inspected (2014-2019).

Map No.	Grid No.	Business Name	Address	Sewer Class	Date	Basin
31	F3	Cucina Fresca Inc.	8300 MILITARY RD S	Separated	08/29/17	KCIA SD#1
31	F3	Swan USA Net, LLC	8300 MILITARY RD S	Separated	11/05/18	KCIA SD#1
32	G5	Van Asselt Elementary School	8311 BEACON AVE S	Separated	07/26/18	S Norfolk St CSO/PS#17/EOF/SD
32	M9	Emerald Tree Service Inc	9251 M L KING JR WAY S	Partially Separated Non-Specific	05/29/18	S Norfolk St CSO/PS#17/EOF/SD
32	M9	PACIFIC PAVEMENT PROTECTION INC - no longer at this address	9243 Martin Luther King Jr Wy S	Separated	06/08/15	S Norfolk St CSO/PS#17/EOF/SD
32	M9	Root Cause LLC	9250 M L KING JR WAY S	Separated	05/29/18	S Norfolk St CSO/PS#17/EOF/SD
32	M9	SPECIAL ASPHALT PRODUCTS INC	9243 Martin Luther King Jr Wy S	Separated	05/26/15	S Norfolk St CSO/PS#17/EOF/SD
32	N10	Coluccio & Company LLC	9600 Martin Luther King Jr Wy S	Partially Separated Non-Specific	06/29/15	S Norfolk St CSO/PS#17/EOF/SD
32	N9	JACKS AUTO PARTS INC	9423 M L KING JR WAY S	Separated	03/30/15	S Norfolk St CSO/PS#17/EOF/SD
32	N9	Marine Vacuum Service Inc	9401 M L KING JR WAY S	Separated	06/21/18	S Norfolk St CSO/PS#17/EOF/SD
32	N9	Ohno Construction Company	9416 Martin Luther King Jr Wy S	Separated	06/29/15	S Norfolk St CSO/PS#17/EOF/SD
32	O9	Chen Bao C & Qiao	9637 M L KING JR WAY S	Separated	06/15/15	S Norfolk St CSO/PS#17/EOF/SD
32	O9	Fujimoto Ronald M - 5725 S Norfolk St	9639 M L KING JR WAY S	Separated	07/27/15	S Norfolk St CSO/PS#17/EOF/SD
32	O9	Gaston Bros Excavating	9639 M L KING JR WAY S	Partially Separated Non-Specific	12/05/18	S Norfolk St CSO/PS#17/EOF/SD
32	P10	Classic Foundry LLC	9688 M L KING JR WAY S	Partially Separated Mixed	03/31/15	S Norfolk St CSO/PS#17/EOF/SD
32	P10	Diesel Dudes	9650 M L KING JR WAY S	Partially Separated Non-Specific	04/30/19	S Norfolk St CSO/PS#17/EOF/SD
32	P10	Guardian Towing - 9650 MLK Jr Way S	9650 M L KING JR WAY S	Partially Separated Non-Specific	04/30/19	S Norfolk St CSO/PS#17/EOF/SD
32	P10	NORTHWEST KIDNEY CTR - 9700 M L KING JR WAY S	9700 M L KING JR WAY S	Separated	06/15/15	S Norfolk St CSO/PS#17/EOF/SD
32	P10	NRC Environmental Services Inc.	9650 M L KING JR WAY S	Partially Separated Non-Specific	07/07/15	S Norfolk St CSO/PS#17/EOF/SD
32	P9	JCM U-Link, Joint Venture	9645 M L KING JR WAY S	Separated	06/22/15	S Norfolk St CSO/PS#17/EOF/SD
32	P9	Nelson Trucking Co Inc	9747 M L KING JR WAY S	Separated	05/27/15	S Norfolk St CSO/PS#17/EOF/SD
32	Q10	Affordable Auto Wrecking - 9750 M L KING JR WAY S	9750 M L KING JR WAY S	Partially Separated Mixed	07/31/14	S Norfolk St CSO/PS#17/EOF/SD
32	Q7	Kroger	3701 S NORFOLK ST	Separated	06/17/15	S Norfolk St CSO/PS#17/EOF/SD
32	Q7	MacDonald-Miller Facility Solutions Inc - 3701 S NORFOLK ST	3701 S NORFOLK ST	Separated	10/06/16	S Norfolk St CSO/PS#17/EOF/SD
32	Q8	Engineered Products A Pape Co	9800 40TH AVE S	Separated	06/25/15	S Norfolk St CSO/PS#17/EOF/SD
32	Q9	GTS Drywall Supply Co.	9830 40TH AVE S	Partially Separated Non-Specific	03/13/15	S Norfolk St CSO/PS#17/EOF/SD
32	Q9	Transportation Demand Management Inc.	9801 Martin Luther King Jr Way S	Separated	07/21/14	S Norfolk St CSO/PS#17/EOF/SD
32	R5	Unified Grocers Inc. - 3301 S Norfolk St	3301 S Norfolk St	Separated	04/16/15	S Norfolk St CSO/PS#17/EOF/SD
32	R8	DIVERSIFICATION INC	9877 40TH AVE S	Separated	05/08/19	S Norfolk St CSO/PS#17/EOF/SD
32	R8	Engineered Products A Pape Company	9883 40TH AVE S	Separated	06/25/15	S Norfolk St CSO/PS#17/EOF/SD
32	R8	Fairn & Swanson Inc.	9875 40TH AVE S	Separated	05/02/19	S Norfolk St CSO/PS#17/EOF/SD
32	R9	Frank Coluccio Construction Co. -9845 M L King Jr Way S	9845 M L KING JR WAY S	Separated	09/01/15	S Norfolk St CSO/PS#17/EOF/SD
32	R9	HD Supply Waterworks LTD	10013 M L KING JR WAY S	Partially Separated Non-Specific	06/13/17	S Norfolk St CSO/PS#17/EOF/SD
32	R9	Noble Wines LTD	9860 40TH AVE S	Separated	08/05/15	S Norfolk St CSO/PS#17/EOF/SD
32	S8	Pape Material Handling Inc. - 9892 40TH AVE S	9892 40TH AVE S	Separated	11/17/15	S Norfolk St CSO/PS#17/EOF/SD
32	S9	Steeler Inc	10023 M L KING JR WAY S	Separated	10/09/14	S Norfolk St CSO/PS#17/EOF/SD
35	C10	Progressive Fastening Inc	837 S DIRECTOR ST	Separated	11/26/14	S 96th St SD
35	D10	King Electrical Mfg. Company	9131 10TH AVE S	Separated	12/07/17	S 96th St SD
35	D9	Gary Merlino Construction Co. - 9215 10th Ave S	9125 10TH AVE S	Separated	10/22/15	S 96th St SD
35	D9	Johnson Western Gunite Company	833 S DIRECTOR ST	Separated	08/29/17	S 96th St SD
35	E10	Atacs Products Inc.	850 S CAMBRIDGE ST	Separated	10/11/16	S 96th St SD
35	E10	Avidex Industries LLC	860 S CAMBRIDGE ST	Separated	04/25/17	S 96th St SD
35	E10	National Products Inc - 9243 10th Ave S	9243 10TH AVE S	Separated	04/25/17	S 96th St SD
35	E10	Samson Tug and Barge Co Inc - 9228 10th Ave S	9228 10TH AVE S	Separated	01/27/15	S 96th St SD
35	E9	Puget Sound Coatings LLC	9220 8TH AVE S	Separated	05/22/15	S 96th St SD
35	E9	THC PARTNERS LLC	9369 8TH AVE S	Separated	12/20/18	S 96th St SD
36	H7	Fittings Inc	5979 4th Ave S	Direct	10/15/15	Head of Slip 2 SD
37	G4	Evergreen Tractor	164 S Michigan St	Separated	05/15/17	1st Ave S SD, east
38	B4	Toth Construction Inc	6506 2nd Ave S	Separated	03/07/15	S River St SD
38	B5	Bemis Cullen G	6501 EAST MARGINAL WAY S	Separated	03/16/15	S River St SD
38	B5	Jet City Imaging	6501 E Marginal Wy S	Separated	03/16/15	S River St SD
38	B5	Seattle Cabinet & Design LLC	6533 3RD AVE S	Separated	02/23/16	S River St SD
38	B5	Swanson Tyson	6501 EAST MARGINAL WAY S	Separated	03/19/15	S River St SD
38	C3	Algas-SDI International LLC	151 S Michigan St	Separated	04/01/16	S River St SD
38	C4	Commercial Floor Distributors Inc	210 S RIVER ST	Separated	03/25/19	S River St SD
38	C7	Matts Enterprises Inc.	6615 EAST MARGINAL WAY S	Separated	09/27/15	S River St SD
38	D3	Ben Butler Property	150 S RIVER ST	Separated	02/05/18	S River St SD
38	D3	V.Van Dyke, Inc.	150 S RIVER ST	Separated	02/23/16	S River St SD
38	D3	WW Trailers Inc	150 S RIVER ST	Separated	06/06/18	S River St SD
39	E7	Amazon.com DSE2 - 6705 EAST MARGINAL WAY S	6705 EAST MARGINAL WAY S	Separated	07/18/17	S Brighton St SD
39	E7	American Northwest Distributor	6733 EAST MARGINAL WAY S	Separated	07/17/17	S Brighton St SD
39	E7	Area Distributors Northwest	6719 EAST MARGINAL WAY S	Separated	01/28/15	S Brighton St SD
39	E7	Marchest LLC	6767 EAST MARGINAL WAY S	Direct	12/02/15	S Brighton St SD
39	E7	Marwest LLC	6767 EAST MARGINAL WAY S	Separated	07/18/17	S Brighton St SD
39	E7	Pacific Office Automation	6729 EAST MARGINAL WAY S	Separated	07/17/17	S Brighton St SD
39	E7	Pike Brewing Co.	6725 EAST MARGINAL WAY S	Separated	06/21/18	S Brighton St SD
39	E7	Rosanna Imports	6755 EAST MARGINAL WAY S	Separated	08/03/17	S Brighton St SD
39	E7	Seattle Distribution Center	6701 EAST MARGINAL WAY S	Separated	06/21/18	S Brighton St SD
39	E7	Stumptown Coffee Roasters	6779 EAST MARGINAL WAY S	Separated	10/18/17	S Brighton St SD
39	F2	Delta Marine Industries	6701 Fox Ave S	Separated	04/21/16	S Brighton St SD
39	F2	Seatac Marine Services LLC	6701 FOX AVE S	Partially Separated Mixed	10/28/15	S Brighton St SD
39	F6	Emerson Enterprises LLC	525 S BRIGHTON ST	Separated	11/07/14	S Brighton St SD
39	F6	Mathno Yousof	525 S BRIGHTON ST	Separated	10/28/14	S Brighton St SD
39	F9	Emerald Services Inc. - 6851 East Marginal Way S	6851 E Marginal Wy S	Separated	08/20/14	S Brighton St SD
39	H8	Newco Inc.	6900 FOX AVE S	Separated	08/30/16	S Brighton St SD
40	B6	Seattle Iron & Metals Corp	730 S Myrtle St	Partially Separated Mixed	06/29/17	S Myrtle St SD
40	C5	Commercial Welding & Fabrication, Inc.	711 S MYRTLE ST	Separated	07/12/15	S Myrtle St SD
40	C5	GOGOCAMPERS LLC	719 S MYRTLE ST	Separated	03/07/19	S Myrtle St SD
40	C5	MBG Unlimited LLC	719 S MYRTLE ST	Separated	03/07/19	S Myrtle St SD
40	C5	Sea Native USA Inc.	745 S MYRTLE ST	Separated	07/12/16	S Myrtle St SD
40	C6	United Rentals Trench Safety - 765 S Myrtle St	765 S MYRTLE ST	Partially Separated Mixed	02/22/19	S Myrtle St SD
40	D4	Big Dipper Wax Works Inc.	700 S ORCHARD ST	Separated	11/08/18	S Myrtle St SD
41	D9	United Rentals Trench Safety - 7135 8th Ave S	7135 8TH AVE S	Separated	07/07/15	S Garden St SD
42	G6	UltraBlock Inc.	1615 S Graham St	Separated	01/06/15	I-5 SD at Slip 4
42	G7	Tire Distribution Systems - 6311 CORGIAT DR S	6311 CORGIAT DR S	Direct	07/17/14	I-5 SD at Slip 4
42	M1	SFD - Fire Station #27 - 1000 S Myrtle St	1000 S MYRTLE ST	Separated	10/06/15	I-5 SD at Slip 4
42	N1	Kochina Corp.	7200 EAST MARGINAL WAY S	Direct	03/27/15	I-5 SD at Slip 4
43	H1	Boiling Point Restaurant Inc	1001 S MYRTLE ST	Partially Separated Mixed	02/27/15	Georgetown SD
43	I2	Aero Motel Inn	7240 EAST MARGINAL WAY S	Separated	03/22/19	Georgetown SD
44	C4	Tank Wise LLC	5405 W Marginal Wy SW	Separated	10/04/17	SW Kenny St SD/T115 CSO
44	E5	Alaska Marine Lines Inc. - 5600 West Marginal Way SW	5600 WEST MARGINAL WAY SW	Partially Separated Non-Specific	11/05/15	SW Kenny St SD/T115 CSO
44	F5	Alaska Marine Lines Inc. - 5615 West Marginal Way SW	5615 WEST MARGINAL WAY SW	Separated	04/12/16	SW Kenny St SD/T115 CSO
44	H5	Stericycle Environmental Solutions, Inc.	5955 WEST MARGINAL WAY SW	Separated	11/01/17	SW Kenny St SD/T115 CSO
44	J5	Emswiler Construction Inc.	6045 WEST MARGINAL WAY SW	Separated	12/29/15	SW Kenny St SD/T115 CSO
44	K5	Catholic Printery Inc.	6327 WEST MARGINAL WAY SW	Separated	11/14/17	SW Kenny St SD/T115 CSO
44	M6	Krueger Sheet Metal Co.	6515 WEST MARGINAL WAY SW	Separated	07/18/14	SW Kenny St SD/T115 CSO
44	M6	Pacific Rim Trench & Shoring Inc. - no longer at this address	6515 WEST MARGINAL WAY SW	Separated	08/30/16	SW Kenny St SD/T115 CSO
45	C7	Associated Petroleum Products Inc. - 6760 West Marginal Way SW	6760 WEST MARGINAL WAY SW	Partially Separated Mixed	10/15/15	Highland Wy SW SD

Appendix G: Business inspected (2014-2019).

Map No.	Grid No.	Business Name	Address	Sewer Class	Date	Basin
45	E6	Pioneer Human Services	7000 HIGHLAND PARK WAY SW	Separated	09/29/17	Highland Wy SW SD
45	E8	Pacific Plumbing Supply Co. LLC - 7115 W MARGINAL WAY SW	7115 WEST MARGINAL WAY SW	Separated	07/21/14	Highland Wy SW SD
45	M5	A & E AUTO REPAIR & SALES LLC	7902 9TH AVE SW	Partially Separated Non-Specific	01/04/19	Highland Wy SW SD
46	C5	WASTE MANAGEMENT OF WA INC - 7201 W MARGINAL WAY SW	7201 WEST MARGINAL WAY SW	Partially Separated Non-Specific	10/07/14	1st Ave S SD, west
46	D4	Versatile Drilling Contractors Inc.	7201 DETROIT AVE SW	Separated	10/25/16	1st Ave S SD, west
46	G6	Bay Area Concrete LLC	7245 W MARGINAL WY SW	Separated	07/27/18	1st Ave S SD, west
46	G6	Jones Stevedoring Company	7245 W Marginal Wy SW	Separated	10/17/14	1st Ave S SD, west
46	G6	Odyssey Enterprises Inc - 7245 W Marginal Way SW - Storage	7245 WEST MARGINAL WAY SW	Separated	07/02/15	1st Ave S SD, west
46	G6	Seattle Housing Authority - 7500 DETROIT AVE SW	7500 DETROIT AVE SW	Separated	05/09/17	1st Ave S SD, west
46	I5	MacDonald-Miller Facility Solutions Inc - 7707 DETROIT AVE SW	7707 DETROIT AVE SW	Separated	08/26/14	1st Ave S SD, west
46	I6	First Student Inc. -7739 1st Ave S	7739 1st Ave S	Partially Separated Non-Specific	10/29/15	1st Ave S SD, west
46	I6	PACIFIC RIM TRENCH & SHORING	7745 1ST AVE S	Separated	12/31/18	1st Ave S SD, west
46	I6	W & O Supply Inc - No longer at this address	7745 1ST AVE S	Separated	11/16/16	1st Ave S SD, west
46	J10	Associated Petroleum Products - 241 S Chicago St	241 S CHICAGO ST	Separated	06/09/17	1st Ave S SD, west
46	J10	Kidder Mathews - 241 S Chicago St	241 S CHICAGO ST	Separated	06/09/17	1st Ave S SD, west
46	J10	Non Ferrous Metal Inc.	230 S CHICAGO ST	Separated	04/29/16	1st Ave S SD, west
46	J7	Christensen West LLC	7800 Detroit Ave SW	Partially Separated Non-Specific	10/05/16	1st Ave S SD, west
46	J7	DJP Enterprises Inc.	7801 Detroit Ave SW	Separated	09/12/14	1st Ave S SD, west
46	K11	Federal Marine & Defense Services, LLC	8000 5TH AVE S	Separated	05/08/19	1st Ave S SD, west
46	K6	WM - Healthcare Solutions, Inc.	149 SW KENYON ST	Separated	11/04/16	1st Ave S SD, west
46	K7	Beacon Sales Acquisition Inc.	7901 1ST AVE S	Separated	03/01/18	1st Ave S SD, west
46	K8	International Lubricants Inc.	7930 OCCIDENTAL AVE S	Separated	06/13/17	1st Ave S SD, west
46	K9	New Western Stud Welding	127 S KENYON ST	Separated	10/31/17	1st Ave S SD, west
46	K9	T H Seafood	7901 2ND AVE S	Separated	10/31/17	1st Ave S SD, west
46	L10	SDOT - 8100 2nd Ave S	8100 2ND AVE SW	Separated	04/21/15	1st Ave S SD, west
46	L11	Pierce Aluminum Co Inc	501 S ELMGROVE ST	Separated	07/24/17	1st Ave S SD, west
46	L12	Five Stars Body Shop LLC	523 S ELMGROVE ST	Separated	06/22/17	1st Ave S SD, west
46	L12	Modern Machine Co.	524 S SOUTHERN ST	Separated	04/12/18	1st Ave S SD, west
46	L7	WASTE MANAGEMENT OF WA INC - 8101 1st Ave S	8101 1ST AVE S	Separated	10/24/17	1st Ave S SD, west
46	L7	WASTE MANAGEMENT OF WA INC - 8111 1ST AVE S	8101 1ST AVE S	Separated	07/12/16	1st Ave S SD, west
46	L8	International Construction Equipment	8101 OCCIDENTAL AVE S	Separated	08/27/14	1st Ave S SD, west
46	L8	W.G. Clark Construction Co.	7958 OCCIDENTAL AVE S	Separated	03/02/18	1st Ave S SD, west
46	M11	First Student Inc. - 8249 5th Ave S	8249 5TH AVE S	Separated	01/10/18	1st Ave S SD, west
46	M7	Magnetic and Penetrant Services Co., Inc.	8135 1ST AVE S	Separated	09/29/16	1st Ave S SD, west
46	M7	Standard Steel Fabricating Co. Inc.	8155 1ST AVE S	Separated	10/28/15	1st Ave S SD, west
46	M8	Demolition Man Inc.	8151 OCCIDENTAL AVE S	Separated	01/26/18	1st Ave S SD, west
46	M8	Demolition Man Inc. - 8129 Occidental Ave S	8129 OCCIDENTAL AVE S	Separated	01/25/18	1st Ave S SD, west
46	M8	North Star Ice Equipment Corporation	8151 OCCIDENTAL AVE S	Separated	01/25/18	1st Ave S SD, west
46	N10	Bartlett Tree Experts	300 S SULLIVAN ST	Separated	03/01/18	1st Ave S SD, west
46	N7	Lion Trucking, Inc.	8425 1ST AVE S	Separated	07/06/17	1st Ave S SD, west
46	N7	Old Dominion Freight Line Inc. - no longer at this address	8425 1ST AVE S	Separated	10/11/16	1st Ave S SD, west
46	T6	Public Storage Inc - 9200 Olson Pl SW	9200 OLSON PL SW	Separated	10/05/17	1st Ave S SD, west
47	C4	Western Marine Construction	7245 2ND AVE S	Separated	08/12/16	2nd Ave S SD
47	D2	Kerry Inc	7224 1ST AVE S	Separated	10/15/15	2nd Ave S SD
47	E2	LBA Realty	7272 WEST MARGINAL WAY S	Separated	08/10/18	2nd Ave S SD
47	E2	Northwest Center	7272 WEST MARGINAL WAY S	Separated	04/26/16	2nd Ave S SD
47	E4	Bill's Mobile Service	7265 2nd Ave S	Separated	05/14/15	2nd Ave S SD
47	E6	Oppenheimer Cine Rental LLC	7400 3RD AVE S	Separated	08/06/15	2nd Ave S SD
47	F4	PACO Ventures LLC - 7400 2nd Ave S	7400 2ND AVE S	Separated	04/15/15	2nd Ave S SD
47	F6	American Environmental Construction LLC	7417 4TH AVE S	Partially Separated Proximity	03/25/19	2nd Ave S SD
47	G3	David N. Brown Inc.	7501 2ND AVE S	Separated	10/06/16	2nd Ave S SD
47	G3	Metro Industries LLC	7500 WEST MARGINAL WAY S	Separated	09/27/16	2nd Ave S SD
47	G6	Cunningham Manufacturing	318 S WEBSTER ST	Separated	10/24/17	2nd Ave S SD
47	G7	Sound Windows and Door Inc.	7433 5TH AVE S	Separated	03/29/16	2nd Ave S SD
47	H3	PACO Ventures LLC - 7601 2nd Ave S	7601 2ND AVE S	Separated	04/15/15	2nd Ave S SD
47	H4	PACO Ventures LLC -7560 2nd Ave S	7560 2ND AVE S	Separated	04/15/15	2nd Ave S SD
47	I4	Book It Repertory Theatre	7620 2ND AVE S	Separated	08/14/17	2nd Ave S SD
47	I4	Cam Grinders Inc.	7622 2ND AVE S	Separated	08/25/17	2nd Ave S SD
47	I4	Pro Fab, Inc.	211 S AUSTIN ST	Separated	09/12/16	2nd Ave S SD
47	J5	Pacific Western Agencies	7700 2ND AVE S	Separated	04/22/15	2nd Ave S SD
48	A6	Urban Delivery Service LLC	301 S WEBSTER ST	Separated	08/16/17	7th Ave S SD
48	B6	Fire King of Seattle, Inc.	240 S Holden St	Separated	03/28/17	7th Ave S SD
48	B6	Modern Coach/Modern Pattern	255 S AUSTIN ST	Separated	05/18/16	7th Ave S SD
48	B6	Northwest Building Tech Inc.	215 S AUSTIN ST	Separated	09/15/16	7th Ave S SD
48	B7	Meadowbrook Manufacturing LLC	7619 5TH AVE S	Separated	11/06/17	7th Ave S SD
48	B7	Prism Graphics, INC.	7609 5TH AVE S	Separated	05/19/16	7th Ave S SD
48	B7	Prohibition Gold LLC	7510 5TH AVE S	Separated	05/27/16	7th Ave S SD
48	B7	The Design Garage Inc.	7601 5TH AVE S	Separated	05/18/16	7th Ave S SD
48	B8	Industrial Tire of Wa Inc.	540 S Holden St	Separated	05/21/15	7th Ave S SD
48	B8	Machinists Inc. - 7600 5th Ave S	7600 5TH AVE S	Separated	10/16/18	7th Ave S SD
48	B8	Schuchart Corp.	530 S HOLDEN ST	Partially Separated Proximity	02/26/16	7th Ave S SD
48	B9	Pacific Pile & Marine LP	700 S RIVERSIDE DR	Separated	04/07/15	7th Ave S SD
48	C10	In Spades Development LLC	719 S RIVERSIDE DR	Partially Separated Proximity	12/07/15	7th Ave S SD
48	C10	Machinists Inc. - 707 S Riverside St	707 S RIVERSIDE DR	Separated	10/16/18	7th Ave S SD
48	C10	The Gear Works Seattle Inc. - 707 S Riverside Dr Building	707 S RIVERSIDE DR	Separated	08/21/15	7th Ave S SD
48	C6	Custom Crating Company inc.	233 S Holden St	Separated	03/20/15	7th Ave S SD
48	C6	Dead Center Cycles LTD	233 S HOLDEN ST	Separated	03/25/16	7th Ave S SD
48	C6	Northwest Laboratories	241 S HOLDEN ST	Separated	10/21/14	7th Ave S SD
48	C7	Manufacturing Technology Inc	7709 5TH AVE S	Separated	11/06/15	7th Ave S SD
48	C8	Fabrication Specialties Ltd	527 S PORTLAND ST	Partially Separated Proximity	05/01/19	7th Ave S SD
48	C8	GILS ALUMINUM & SHELL CORE SHOP LLC	533 S Holden St	Separated	09/23/14	7th Ave S SD
48	C8	Machinists Inc. - 500 South Portland St	500 S PORTLAND ST	Separated	10/16/18	7th Ave S SD
48	C8	Seattle Heat Treaters	521 S Holden St	Separated	03/16/15	7th Ave S SD
48	C8	The Gear Works Seattle Inc	500 S PORTLAND ST	Separated	08/21/15	7th Ave S SD
48	C9	Washington Liftruck Inc	700 S CHICAGO ST	Partially Separated Proximity	07/18/16	7th Ave S SD
48	C9	West Coast Wire Rope & Rigging Inc	7777 7TH AVE S	Separated	09/18/14	7th Ave S SD
48	C9	Windows 101 LLC	722 S PORTLAND ST	Separated	08/29/17	7th Ave S SD
48	D10	Graham Trucking Inc.	743 S CHICAGO ST	Partially Separated Proximity	08/04/16	7th Ave S SD
48	D6	Flamespray Northwest Inc	250 S CHICAGO ST	Separated	03/28/19	7th Ave S SD
48	D6	New Leaf Enterprises, LLC	460 S KENYON ST	Separated	06/16/15	7th Ave S SD
48	D7	Rogers Machinery Co Inc	7800 5TH AVE S	Separated	04/29/16	7th Ave S SD
48	D7	Sea Mar Community Health Centers	7801 5TH AVE S	Separated	08/19/15	7th Ave S SD
48	D8	LUMBER MARKET INC	525 S CHICAGO ST	Partially Separated Mixed	08/12/15	7th Ave S SD
48	D8	Machinists Inc - 516 S CHICAGO ST	516 S CHICAGO ST	Separated	10/16/18	7th Ave S SD
48	D8	The Gear Works Seattle Inc - 516 S Chicago St Building	516 S CHICAGO ST	Separated	08/21/15	7th Ave S SD
48	D9	DMH Industrial Electric, Inc.	7800 7TH AVE S	Separated	03/16/18	7th Ave S SD
48	D9	HAZARD FACTORY LLC	7800 7TH AVE S	Separated	03/31/18	7th Ave S SD

Appendix G: Business inspected (2014-2019).

Map No.	Grid No.	Business Name	Address	Sewer Class	Date	Basin
48	D9	Lumenomics Inc	7800 7TH AVE S	Partially Separated Non-Specific	04/02/18	7th Ave S SD
48	E7	Alaska Logistics, LLC	327 S KENYON ST	Separated	07/07/15	7th Ave S SD
48	E8	American Plastic Manufacturing Inc.	526 S MONROE ST	Combined	05/13/15	7th Ave S SD
48	E8	Tierney Electric Mfg Co	7901 7TH AVE S	Separated	10/19/16	7th Ave S SD
48	E9	Mechanical Agents Inc.	550 S Monroe St	Partially Separated Proximity	06/03/15	7th Ave S SD
48	F8	HGH Metalworks	8009 7TH AVE S	Separated	06/03/16	7th Ave S SD
48	F8	Machinists Inc. - 8101 7th Ave S	8101 7TH AVE S	Separated	10/16/18	7th Ave S SD
48	F8	New Standard Building Materials	521 S MONROE ST	Separated	06/05/15	7th Ave S SD
48	F8	Olsson Manufacturing Inc.	525 S ELMGROVE ST	Separated	03/31/16	7th Ave S SD
48	F9	Beeline Tours LTD	8110 7th Ave S	Partially Separated Non-Specific	02/28/18	7th Ave S SD
48	F9	Innovative Repairs LLC	8110 7TH AVE S	Separated	07/28/14	7th Ave S SD
48	G8	Aces Four Construction Co.	537 S SOUTHERN ST	Separated	02/28/18	7th Ave S SD
48	G8	Left Coast Services LLC	515 S SOUTHERN ST	Separated	06/19/17	7th Ave S SD
48	G8	Machinists Inc - 8201 7th Ave S	8201 7TH AVE S	Separated	10/16/18	7th Ave S SD
48	G8	Scenic Bound Tours Co.	8221 7TH AVE S	Partially Separated Non-Specific	02/28/18	7th Ave S SD
48	H7	Coast Crane Company	8250 5th Ave S	Partially Separated Mixed	05/12/15	7th Ave S SD
48	H7	Pallis Demetre H	8230 5TH AVE S	Partially Separated Mixed	06/03/16	7th Ave S SD
48	I6	Bessemer Trading Inc.	424 S CLOVERDALE ST	Separated	04/29/16	7th Ave S SD
48	I6	Full Circle Farm Inc.	432 S CLOVERDALE ST	Separated	06/16/16	7th Ave S SD
48	I6	Molly's Salads LLC	432 S CLOVERDALE ST	Separated	06/16/16	7th Ave S SD
48	I6	Pacific Logistics Inc.	424 S Cloverdale St	Separated	06/16/16	7th Ave S SD
48	J11	Seattle Public Library - South Park	8604 8TH AVE S	Combined	06/11/15	7th Ave S SD
48	K5	Ahab Shipping	309 S CLOVERDALE ST	Separated	10/27/16	7th Ave S SD
48	K5	Akers Landscaping	309 S CLOVERDALE ST	Separated	03/21/17	7th Ave S SD
48	K5	Allen Mark H	309 S CLOVERDALE ST	Separated	10/05/16	7th Ave S SD
48	K5	Applewhite Aero LLC	309 S CLOVERDALE ST	Separated	10/27/16	7th Ave S SD
48	K5	Baxter Gerard T	309 S CLOVERDALE ST	Separated	06/20/16	7th Ave S SD
48	K5	Carevacations USA Inc	309 S CLOVERDALE ST	Separated	03/03/17	7th Ave S SD
48	K5	DBA Euroimport Co Inc	309 S CLOVERDALE ST	Separated	03/03/17	7th Ave S SD
48	K5	Direct Mail Network - 309 S Cloverdale St	309 S CLOVERDALE ST	Separated	01/25/17	7th Ave S SD
48	K5	Eden Labs LLC	309 S CLOVERDALE ST	Separated	10/11/16	7th Ave S SD
48	K5	Gourmondo Catering Co.	309 S CLOVERDALE ST	Separated	12/21/15	7th Ave S SD
48	K5	Gray Collective LLC	309 S CLOVERDALE ST	Separated	08/04/16	7th Ave S SD
48	K5	Harsch Investment Properties	309 S Cloverdale St	Separated	09/27/17	7th Ave S SD
48	K5	Knife Technology Inc	309 S CLOVERDALE ST	Separated	08/12/16	7th Ave S SD
48	K5	La Toscanella LLC	309 S CLOVERDALE ST	Separated	03/03/17	7th Ave S SD
48	K5	Lisa Lucas Design LLC	309 S CLOVERDALE ST	Separated	02/01/17	7th Ave S SD
48	K5	Little Rae's Bakery Inc.	309 S Cloverdale St	Separated	04/23/15	7th Ave S SD
48	K5	Loki Fish Company	309 S CLOVERDALE ST	Separated	03/20/16	7th Ave S SD
48	K5	Mavam Espresso LLC	309 S CLOVERDALE ST	Separated	10/27/16	7th Ave S SD
48	K5	Mercury Commercial Cleaning Inc	309 S CLOVERDALE ST	Separated	07/23/14	7th Ave S SD
48	K5	Michaelo Espresso	309 S CLOVERDALE ST	Separated	01/25/17	7th Ave S SD
48	K5	Ochsner Auto Body	309 S CLOVERDALE ST	Separated	06/20/16	7th Ave S SD
48	K5	Pacific Lawrence Company	309 S CLOVERDALE ST	Separated	10/05/16	7th Ave S SD
48	K5	Paguette Leisa & Roy	309 S CLOVERDALE ST	Separated	08/15/16	7th Ave S SD
48	K5	Phil's Custom Bindery	309 S CLOVERDALE ST	Separated	02/04/16	7th Ave S SD
48	K5	Piroshky Baking Company LLC	309 S CLOVERDALE ST	Separated	12/15/16	7th Ave S SD
48	K5	Puget Sound Inflatables Inc	309 S CLOVERDALE ST	Separated	03/21/17	7th Ave S SD
48	K5	Resound Energy LLC	309 S CLOVERDALE ST	Separated	10/05/16	7th Ave S SD
48	K5	RGB Soda LLC	309 S CLOVERDALE ST	Separated	12/16/16	7th Ave S SD
48	K5	Sea Technology Construction Inc	309 S CLOVERDALE ST	Separated	03/16/17	7th Ave S SD
48	K5	Seatle Custom Plastics	309 S CLOVERDALE ST	Separated	03/03/17	7th Ave S SD
48	K5	Seattle Environmental Construction INC	309 S CLOVERDALE ST	Separated	01/23/17	7th Ave S SD
48	K5	Seattle Tree Preservation Inc	309 S CLOVERDALE ST	Separated	01/25/17	7th Ave S SD
48	K5	SGS US Seattle Diving LLC	309 S CLOVERDALE ST	Separated	01/23/17	7th Ave S SD
48	K5	Simmon S Jayne M	309 S CLOVERDALE ST	Separated	10/07/16	7th Ave S SD
48	K5	South Paw Screen Printing Inc	309 S CLOVERDALE ST	Separated	09/10/14	7th Ave S SD
48	K5	Synergy Logistics Inc	309 S CLOVERDALE ST	Separated	01/23/17	7th Ave S SD
48	K5	Tatoosh Distillery LLC	309 S CLOVERDALE ST	Separated	01/23/17	7th Ave S SD
48	K5	The Pasta Guy	309 S CLOVERDALE ST	Separated	03/24/17	7th Ave S SD
48	K5	Tin Dog Brewing LLC	309 S CLOVERDALE ST	Separated	07/07/16	7th Ave S SD
48	K5	Vic's Seafood	309 S CLOVERDALE ST	Separated	01/23/17	7th Ave S SD
48	L6	Rasmussen Wire Rope & Rigging	8727 5TH AVE S	Partially Separated Mixed	11/30/16	7th Ave S SD
49	C8	SEATTLE TUNNEL PARTNERS A JOINT VENTURE	44 S NEVADA ST	Separated	11/09/15	S Nevada St SD
49	D6	B & G Machine Inc.	11 S NEVADA ST	Separated	11/01/17	S Nevada St SD
49	D7	Grand Central Bakery Co.	21 S NEVADA ST	Separated	06/27/17	S Nevada St SD
50	8	Hisaye Inc.	927 RAINIER AVE S	Separated	05/09/17	Diagonal Ave S CSO/SD
50	8	Seaself Storage LLC	1100 POPLAR PL S	Separated	12/10/18	Diagonal Ave S CSO/SD
50	8	The Recycling Depot Inc - 851 Rainier Ave S	851 RAINIER AVE S	Separated	08/11/14	Diagonal Ave S CSO/SD
50	AA14	Affordable Tire & Brake II - 3300 M L KING JR WAY S	3300 M L KING JR WAY S	Separated	09/29/16	Diagonal Ave S CSO/SD
50	AC13	Asian Counseling and Referral Service - 3639 M L KING JR WAY S	3639 M L KING JR WAY S	Separated	07/01/14	Diagonal Ave S CSO/SD
50	J12	Seattle Public Library - Douglass Truth	2300 E YESLER WAY	Separated	05/09/16	Diagonal Ave S CSO/SD
50	J6	Bailey Gazert Elementary School	1301 E YESLER WAY	Separated	11/18/14	Diagonal Ave S CSO/SD
50	J8	Nikkei Concerns	1601 E YESLER WAY	Separated	06/05/19	Diagonal Ave S CSO/SD
50	K11	Community House Mental Health Agency	2212 S JACKSON ST	Separated	10/15/14	Diagonal Ave S CSO/SD
50	K11	Seattle Central Community College - 2120 S JACKSON ST	2120 S JACKSON ST	Separated	04/20/17	Diagonal Ave S CSO/SD
50	K11	Wenceslao G Melegrito	301 23RD AVE S	Separated	04/15/16	Diagonal Ave S CSO/SD
50	K12	AutoZone Stores Inc. - 306 23rd Ave S	306 23RD AVE S	Separated	05/27/16	Diagonal Ave S CSO/SD
50	K12	Catholic Community Services of King County - 100 23rd Ave S	100 23RD AVE S	Separated	11/05/18	Diagonal Ave S CSO/SD
50	K12	City Investors LLC	306 23RD AVE S	Separated	09/12/18	Diagonal Ave S CSO/SD
50	K12	JNI Enterprises Inc.	306 23RD AVE S	Separated	08/15/16	Diagonal Ave S CSO/SD
50	K12	Walgreen Co - 2400 S Jackson St	2400 S JACKSON ST	Separated	11/01/18	Diagonal Ave S CSO/SD
50	K7	Island Detail	308 14TH AVE S	Separated	11/05/18	Diagonal Ave S CSO/SD
50	K7	S Jackson Building LLC	1400 S JACKSON ST	Separated	03/05/15	Diagonal Ave S CSO/SD
50	K7	SD Computer Repair and Wireless	1400 S JACKSON ST	Separated	03/05/15	Diagonal Ave S CSO/SD
50	K7	Seattle Indian Center Inc	1265 S MAIN ST	Partially Separated Proximity	11/03/17	Diagonal Ave S CSO/SD
50	K7	The Melding Pot	1440 S JACKSON ST	Separated	07/21/17	Diagonal Ave S CSO/SD
50	K9	Pratt Fine Arts Center	1902 S MAIN ST	Separated	04/15/16	Diagonal Ave S CSO/SD
50	K9	Seattle Parks Dept - Pratt Park	1902 S MAIN ST	Separated	03/25/19	Diagonal Ave S CSO/SD
50	L10	A&H Restaurant Corporation	1919 S JACKSON ST	Separated	07/08/14	Diagonal Ave S CSO/SD
50	L10	Golden Carriage Inc.	1917 S JACKSON ST	Separated	12/11/18	Diagonal Ave S CSO/SD
50	L10	Northwest Tofu Inc	1911 S JACKSON ST	Separated	10/25/18	Diagonal Ave S CSO/SD
50	L10	United States Bakery Inc. - 2006 S Weller St	2006 S WELLER ST	Separated	06/18/15	Diagonal Ave S CSO/SD
50	L11	Seattle Public Schools - Washington Middle School	2101 S JACKSON ST	Separated	06/25/19	Diagonal Ave S CSO/SD
50	L12	23rd and Jackson Development	2301 S JACKSON ST	Separated	02/08/17	Diagonal Ave S CSO/SD
50	L12	Rose & Associates LLC	2301 S JACKSON ST	Separated	09/25/15	Diagonal Ave S CSO/SD
50	L13	House of Ruff LLC	2603 S JACKSON ST	Partially Separated Non-Specific	06/18/18	Diagonal Ave S CSO/SD
50	L13	SFD - Fire Station #6 - 405 M L KING JR WAY S	405 M L KING JR WAY S	Separated	08/30/18	Diagonal Ave S CSO/SD
50	L13	Standard Brewing LLC -2504 S Jackson St #C	2504 S JACKSON ST	Separated	04/20/17	Diagonal Ave S CSO/SD

Appendix G: Business inspected (2014-2019).

Map No.	Grid No.	Business Name	Address	Sewer Class	Date	Basin
50	L6	IPS Group	1222 S WELLER ST	Separated	05/24/17	Diagonal Ave S CSO/SD
50	L6	Kim Ling Investment Co.	1222 S WELLER ST	Separated	05/24/17	Diagonal Ave S CSO/SD
50	L6	King's Oriental Foods Co. Ltd -1238 S Weller - No longer at this address	1238 S WELLER ST	Separated	10/11/16	Diagonal Ave S CSO/SD
50	L6	MJ Takisaki Inc.	1312 S WELLER ST	Separated	06/08/17	Diagonal Ave S CSO/SD
50	L6	Wrenchman Automotive Inc	1216 S WELLER ST	Separated	07/22/16	Diagonal Ave S CSO/SD
50	L7	Chau Hung	509 RAINIER AVE S	Separated	04/17/15	Diagonal Ave S CSO/SD
50	L9	Jergens Lawrence C	417 18TH AVE S	Separated	06/07/18	Diagonal Ave S CSO/SD
50	M6	Seattle Goodwill Industries - 1400 S LANE ST	1400 S LANE ST	Partially Separated Mixed	08/01/14	Diagonal Ave S CSO/SD
50	M6	The Seattle Indian Services Commission	606 12TH AVE S	Separated	07/11/14	Diagonal Ave S CSO/SD
50	N14	Seattle Housing Authority - 810 Martin Luther King Jr Way S	810 M L KING JR WAY S	Separated	04/28/17	Diagonal Ave S CSO/SD
50	N7	12th AVENUE IRON INC	1423 S DEARBORN ST	<Null>	02/06/15	Diagonal Ave S CSO/SD
50	N7	KELLANS AUTOBODY & SVCS INC	1501 S DEARBORN ST	Separated	01/23/18	Diagonal Ave S CSO/SD
50	N7	Ralphs Concrete Pumping - 816 Poplar Pl S	816 Poplar Pl S	Separated	06/14/16	Diagonal Ave S CSO/SD
50	N7	Yuen Lui Studio	1407 S DEARBORN ST	Separated	10/30/17	Diagonal Ave S CSO/SD
50	N8	ARS Fresno LLC - 852 Rainier Ave S	852 RAINIER AVE S	Separated	05/03/17	Diagonal Ave S CSO/SD
50	N8	Budd & Company Inc	800 RAINIER AVE S	Separated	04/26/17	Diagonal Ave S CSO/SD
50	N8	Dr Debra Nicholson DVM PS	815 RAINIER AVE S	Separated	05/04/17	Diagonal Ave S CSO/SD
50	N8	Emerald City Cleaners Inc	850 RAINIER AVE S	Separated	11/05/18	Diagonal Ave S CSO/SD
50	N8	SME Electrical Contractors	828 POPLAR PL S	Separated	04/07/16	Diagonal Ave S CSO/SD
50	N8	The Recycling Depot - 840 Poplar Pl S	840 POPLAR PL S	Separated	02/28/17	Diagonal Ave S CSO/SD
50	N8	Uli's Famous Sausage Inc.	843 RAINIER AVE S	Separated	10/17/18	Diagonal Ave S CSO/SD
50	O11	Seattle Parks Dept - Judkins Park	2150 S NORMAN ST	Separated	01/26/17	Diagonal Ave S CSO/SD
50	O6	Pacific Tower	1200 12TH AVE S	Separated	04/10/18	Diagonal Ave S CSO/SD
50	P8	Big Leaf Manufacturing Co.	1128 POPLAR PL S	Partially Separated Non-Specific	06/14/17	Diagonal Ave S CSO/SD
50	P8	Blokable Inc	1136 POPLAR PL S	Separated	01/17/18	Diagonal Ave S CSO/SD
50	P8	Plantscapes Inc.	1127 POPLAR PL S	Combined	11/24/14	Diagonal Ave S CSO/SD
50	R10	Oberto Sausage Company	1715 RAINIER AVE S	Separated	05/31/17	Diagonal Ave S CSO/SD
50	R10	Ralph's Concrete Pumping - 1511 Rainier Ave S	1511 RAINIER AVE S	Partially Separated Mixed	06/14/16	Diagonal Ave S CSO/SD
50	R12	Urban League of Metropolitan Seattle	2300 S MASSACHUSETTS ST	Separated	03/26/15	Diagonal Ave S CSO/SD
50	R9	Eritrean Association of Greater Seattle	1528 VALENTINE PL S	Separated	02/03/17	Diagonal Ave S CSO/SD
50	S10	A-1 Auto Repair & Towing, Inc.	1821 Rainier Ave S	Separated	05/28/15	Diagonal Ave S CSO/SD
50	S10	Allied Furniture Clinic	1716 21ST AVE S	Separated	09/15/16	Diagonal Ave S CSO/SD
50	S10	Davis Door Service, Inc.	2021 S GRAND ST	Separated	11/30/16	Diagonal Ave S CSO/SD
50	S10	Rainier Auto Repair Service	1801 RAINIER AVE S	Separated	04/19/17	Diagonal Ave S CSO/SD
50	S10	Seattle Collision Center Inc	1752 RAINIER AVE S	Separated	07/07/15	Diagonal Ave S CSO/SD
50	S10	Split Fountain LLC	2112 S HOLGATE ST	Separated	05/08/17	Diagonal Ave S CSO/SD
50	S10	Stewart Lumber Co.	1761 RAINIER AVE S	Separated	06/05/19	Diagonal Ave S CSO/SD
50	S11	Dere Auto Inc - 1818 Rainier Ave S	1818 RAINIER AVE S	Separated	04/20/15	Diagonal Ave S CSO/SD
50	S11	Seattle Children's Play Garden	1745 24TH AVE S	Separated	07/16/14	Diagonal Ave S CSO/SD
50	T10	ABM Janitorial Services Northwest	2001 22ND AVE S	Separated	06/29/18	Diagonal Ave S CSO/SD
50	T10	Bokrosh Studio LTD	1905 22ND AVE S	Separated	07/19/17	Diagonal Ave S CSO/SD
50	T10	C & G Wines	2028 21ST AVE S	Separated	05/01/17	Diagonal Ave S CSO/SD
50	T10	Cash and Carry Stores LLC - 1915 21st Ave S	1915 21ST AVE S	Separated	11/08/16	Diagonal Ave S CSO/SD
50	T10	J Cubed Enterprises Inc.	2021 22ND AVE S	Separated	09/19/14	Diagonal Ave S CSO/SD
50	T10	Johnson & Barrow Inc - 2024 21st Ave S	2024 21ST AVE S	Separated	07/02/18	Diagonal Ave S CSO/SD
50	T10	Kusak Cut Glass Works, Inc.	1911 22ND AVE S	Separated	11/30/16	Diagonal Ave S CSO/SD
50	T10	Rainier Development Group LLC	2021 22ND AVE S	Separated	09/17/14	Diagonal Ave S CSO/SD
50	T10	Saffron Spice - 1901 Rainier Ave S	1901 RAINIER AVE S	Separated	03/02/18	Diagonal Ave S CSO/SD
50	T10	Skeeter's Auto Rebuild, Inc.	2104 S PLUM ST	Separated	07/02/15	Diagonal Ave S CSO/SD
50	T10	Treehouse2 Collective Garden LLC	1901 RAINIER AVE S	Separated	05/25/17	Diagonal Ave S CSO/SD
50	T10	Xtracted Laboratories 502 Inc.	2021 22ND AVE S	Separated	09/17/14	Diagonal Ave S CSO/SD
50	T11	Budget Batteries Inc.	2006 RAINIER AVE S	Separated	04/08/16	Diagonal Ave S CSO/SD
50	T11	Burger King - Rainier	2021 RAINIER AVE S	Separated	12/15/15	Diagonal Ave S CSO/SD
50	T11	Tung Enterprises Inc.	2009 RAINIER AVE S	Separated	10/02/15	Diagonal Ave S CSO/SD
50	T12	American Red Cross	1900 25TH AVE S	Separated	08/03/17	Diagonal Ave S CSO/SD
50	T12	Seattle Lighthouse for the Blind Foundation	2501 S PLUM ST	Separated	10/09/14	Diagonal Ave S CSO/SD
50	U11	Atlantic Veterinary Hospital PS	2115 23rd Ave S	Separated	11/08/16	Diagonal Ave S CSO/SD
50	U11	Buddha Bruddah LLC	2201 RAINIER AVE S	Partially Separated Non-Specific	04/09/18	Diagonal Ave S CSO/SD
50	U11	Dungeness Resources LLC - 2101 23rd Ave S	2101 23RD AVE S	Separated	11/02/17	Diagonal Ave S CSO/SD
50	U11	Hui-Intertrading Inc.	2100 22ND AVE S	Separated	07/27/15	Diagonal Ave S CSO/SD
50	U11	Johnson & Barrow -2203 23rd Ave S	2203 23RD AVE S	Separated	07/02/18	Diagonal Ave S CSO/SD
50	U11	Johnson & Barrow Inc -2202 22nd Ave	2202 22ND AVE S	Separated	12/14/18	Diagonal Ave S CSO/SD
50	U11	M & M Auto Repair	2116 22ND AVE S	Separated	10/30/18	Diagonal Ave S CSO/SD
50	U11	Najun Enterprises LLC	2107 23RD AVE S	Separated	05/17/16	Diagonal Ave S CSO/SD
50	U11	Nguyen's Pharmacy	2120 RAINIER AVE S	Separated	08/28/18	Diagonal Ave S CSO/SD
50	U11	Seattle Rockeries & Construction	2200 22ND AVE S	Separated	12/14/18	Diagonal Ave S CSO/SD
50	U11	TEKLESUS FSAHAYE A	2114 22ND AVE S	Separated	10/30/18	Diagonal Ave S CSO/SD
50	U12	Taco Time - 2212 Rainier Ave S	2212 RAINIER AVE S	Separated	04/20/17	Diagonal Ave S CSO/SD
50	V12	Bartell Drug Company - 2345 Rainier Ave S	2345 RAINIER AVE S	Separated	09/17/14	Diagonal Ave S CSO/SD
50	V12	Catholic Community Services of King County - 2329 Rainier Ave S	2329 RAINIER AVE S	Separated	08/30/18	Diagonal Ave S CSO/SD
50	V12	CDK Investment Partnership	2326 RAINIER AVE S	Separated	08/16/17	Diagonal Ave S CSO/SD
50	V12	D LARK INC - CORP	2336 25TH AVE S	Separated	07/12/16	Diagonal Ave S CSO/SD
50	V12	Liberty Motors LLC	2310 RAINIER AVE S	Separated	08/16/17	Diagonal Ave S CSO/SD
50	V12	Mediterranean Market Inc -2307 RAINIER AVE S	2307 RAINIER AVE S	Separated	03/05/15	Diagonal Ave S CSO/SD
50	V12	Mutual Fish Co. Inc. - 2335 RAINIER AVE S	2335 RAINIER AVE S	Separated	09/17/14	Diagonal Ave S CSO/SD
50	V13	Bottling Group LLC	2300 26TH AVE S	Separated	08/30/17	Diagonal Ave S CSO/SD
50	W12	BURGER MANAGEMENT SYSTEMS WASHINGTON INC - 2543 Rainier Ave S	2543 RAINIER AVE S	Separated	09/25/15	Diagonal Ave S CSO/SD
50	W12	Deeny Construction Co. Inc.	2545 Rainier Ave S	Separated	04/21/15	Diagonal Ave S CSO/SD
50	W12	U-Haul Center of Rainier	2515 Rainier Ave S	Separated	02/26/16	Diagonal Ave S CSO/SD
50	W7	Kornmesser Allen S	2524 BEACON AVE S	Separated	06/02/17	Diagonal Ave S CSO/SD
50	W7	Santa Cruz Bros Corp	2500 BEACON AVE S	Partially Separated Proximity	03/25/19	Diagonal Ave S CSO/SD
50	W8	El Centro de la Raza	2524 16TH AVE S	Separated	10/26/17	Diagonal Ave S CSO/SD
50	X12	QUALITY FOOD CENTERS QFC 849 - 2707 RAINIER AVE S	2707 RAINIER AVE S	Separated	03/02/17	Diagonal Ave S CSO/SD
50	X12	Rainier Plaza #2 LLC	2707 RAINIER AVE S	Separated	10/21/16	Diagonal Ave S CSO/SD
50	X12	Thrifty Payless Inc.	2707 RAINIER AVE S	Separated	04/26/17	Diagonal Ave S CSO/SD
50	X13	Amazon.com - 2646 RAINIER AVE S	2646 RAINIER AVE S	Separated	11/18/14	Diagonal Ave S CSO/SD
50	X13	Lowes Home Improvement Warehouse	2700 RAINIER AVE S	Separated	11/14/17	Diagonal Ave S CSO/SD
50	X15	Action Design LLC	2914 S MCCLELLAN ST	Separated	10/14/14	Diagonal Ave S CSO/SD
50	Y13	BP West Coast Products LLC -2802 Rainier Ave S	2802 RAINIER AVE S	Separated	07/12/17	Diagonal Ave S CSO/SD
50	Y13	Maraka Inc. - no longer at this address	2802 RAINIER AVE S	Separated	10/02/15	Diagonal Ave S CSO/SD
50	Y13	O'REILLY AUTO PARTS - 2805 Rainier Ave S	2805 RAINIER AVE S	Partially Separated Non-Specific	08/26/15	Diagonal Ave S CSO/SD
50	Y13	University of Washington Consolidated Laundry	2901 27TH AVE S	Separated	06/05/19	Diagonal Ave S CSO/SD
50	Y13	US Bank	2910 RAINIER AVE S	Separated	04/26/17	Diagonal Ave S CSO/SD
50	Y14	ABERA HILINA - no longer at this address	2814 M L KING JR WAY S	Separated	10/20/15	Diagonal Ave S CSO/SD
50	Y14	Charles E Harrington - no longer at this address	2822 M L KING JR WAY S	Separated	10/13/15	Diagonal Ave S CSO/SD
50	Y14	KHAMPHONGPHANH KEN	2820 M L KING JR WAY S	Separated	10/20/15	Diagonal Ave S CSO/SD
50	Y14	Nova Oil Company	2801 M L KING JR WAY S	Separated	04/20/17	Diagonal Ave S CSO/SD

Appendix G: Business inspected (2014-2019).

Map No.	Grid No.	Business Name	Address	Sewer Class	Date	Basin
50	Y14	STARBUCKS COFFEE #3302	2921 M L KING JR WAY S	Separated	07/13/17	Diagonal Ave S CSO/SD
50	Y14	White Knuckle LLC	2822 M L KING JR WAY S	Separated	07/12/17	Diagonal Ave S CSO/SD
50	Y8	Jefferson Park Family Medicine - no longer at this address	2902 Beacon Ave S	Separated	07/17/14	Diagonal Ave S CSO/SD
50	Y8	Lee Sang H	3002 BEACON AVE S	Separated	12/12/18	Diagonal Ave S CSO/SD
50	Z13	Buck & Buck Inc	3111 27TH AVE S	Separated	03/20/19	Diagonal Ave S CSO/SD
50	Z14	SFD - Fire Station #30 - 2931 S Mt Baker Blvd	2931 S MOUNT BAKER BLVD	Separated	10/06/15	Diagonal Ave S CSO/SD
51	E10	SPU OCC - 2700 Airport Way S	2700 Airport Way S	Separated	09/11/17	Diagonal Ave S CSO/SD
51	E9	MacDonald Meat Company, LLC	2709 AIRPORT WAY S	<Null>	08/18/17	Diagonal Ave S CSO/SD
51	F10	Rainier Commons LLC	3100 AIRPORT WAY S	Separated	11/10/15	Diagonal Ave S CSO/SD
51	F13	Emperor of the Dragon	2901 17TH AVE S	Separated	03/06/17	Diagonal Ave S CSO/SD
51	F13	Seattle Public Library - Beacon Hill	2821 BEACON AVE S	Separated	06/11/15	Diagonal Ave S CSO/SD
51	F9	ID Label Inc	2755 AIRPORT WAY S	Separated	11/14/17	Diagonal Ave S CSO/SD
51	G13	Veloship	3067 BEACON AVE S	Separated	08/03/17	Diagonal Ave S CSO/SD
51	G7	Alaskan Copper Companies Inc. - 3223 6th Ave S	3223 6TH AVE S	Partially Separated Mixed	05/25/16	Diagonal Ave S CSO/SD
51	G7	Second Use Building Materials Inc.	3223 6TH AVE S	Partially Separated Mixed	05/09/19	Diagonal Ave S CSO/SD
51	G8	Alaskan Copper Companies Inc. - 3200 6th Ave S	3200 6TH AVE S	Separated	05/25/16	Diagonal Ave S CSO/SD
51	H14	Montiel Juan & Elena S	3211 BEACON AVE S	Separated	02/02/17	Diagonal Ave S CSO/SD
51	H14	Vibe Coffee Group Inc - 3215 Beacon	3215 BEACON AVE S	Separated	10/05/17	Diagonal Ave S CSO/SD
51	H7	Alaskan Copper Companies Inc. - 3317 6th Ave S	3317 6TH AVE S	Separated	05/25/16	Diagonal Ave S CSO/SD
51	H7	Alaskan Copper Companies Inc. - 3405 6th Ave S 1E	3405 6TH AVE S	Separated	05/25/16	Diagonal Ave S CSO/SD
51	H8	Alaskan Copper Companies Inc. - 3300 6th Ave S	3300 6TH AVE S	Separated	05/25/16	Diagonal Ave S CSO/SD
51	H9	BUZZINI PHYLLIS L	3429 Airport Wy S	Separated	05/14/19	Diagonal Ave S CSO/SD
51	H9	Red Soul LLC	3433 AIRPORT WAY S	Separated	10/29/14	Diagonal Ave S CSO/SD
51	H9	Sound Transit Operations and Maintenance Facility	3407 AIRPORT WAY S	Separated	03/16/17	Diagonal Ave S CSO/SD
51	H9	UAF INC	3429 Airport Wy S	Separated	06/18/19	Diagonal Ave S CSO/SD
51	I12	Thai Columbian Apts	1410 S COLUMBIAN WAY	Separated	03/05/15	Diagonal Ave S CSO/SD
51	I14	SFD Fire Station #13 - 3601 BEACON AVE S	3601 Beacon Ave S	Partially Separated Non-Specific	08/30/18	Diagonal Ave S CSO/SD
51	I7	Lamar Company LLC The	3601 6TH AVE S	Separated	08/18/16	Diagonal Ave S CSO/SD
51	I8	Cellco Partnerships	3440 6TH AVE S	Separated	12/07/18	Diagonal Ave S CSO/SD
51	I8	KT BUILDING SUPPLY INC - 3614 6TH AVE S	3614 6TH AVE S	Separated	07/11/14	Diagonal Ave S CSO/SD
51	I8	Skyline Electric & MFG. Company	3619 7TH AVE S	Separated	03/28/18	Diagonal Ave S CSO/SD
51	I8	Solstice Group Inc	640 S SPOKANE ST	Separated	08/04/16	Diagonal Ave S CSO/SD
51	I9	M&R Equipment, Inc.	3626 Airport Wy S	Combined	10/21/15	Diagonal Ave S CSO/SD
51	J14	Seattle Parks Dept - Jefferson Park Community Center	3801 BEACON AVE S	Separated	08/16/17	Diagonal Ave S CSO/SD
51	J5	Triple B. Corp. Co.	3844 1ST AVE S	Separated	05/23/16	Diagonal Ave S CSO/SD
51	J7	Beyene Bereket N	3800 DIAGONAL AVE S	Separated	03/08/18	Diagonal Ave S CSO/SD
51	J7	KT BUILDING SUPPLY INC - 3623 6TH AVE S	3623 6TH AVE S	Separated	02/26/18	Diagonal Ave S CSO/SD
51	J7	Northwest Consolidated Investments	3828 4TH AVE S	Separated	06/01/16	Diagonal Ave S CSO/SD
51	J7	Northwest Frozen	3623 6TH AVE S	Separated	08/10/16	Diagonal Ave S CSO/SD
51	J7	Pius Kitchen and Bath - 3623 6TH AVE S	3623 6TH AVE S	Separated	02/26/18	Diagonal Ave S CSO/SD
51	J7	Road Construction NW	3834 4TH AVE S	Separated	04/04/17	Diagonal Ave S CSO/SD
51	J7	Seattle Brewing Company - no longer at this address	3828 4TH AVE S	Separated	08/29/14	Diagonal Ave S CSO/SD
51	J7	Seattle Stair & Design	3810 4TH AVE S	Separated	10/07/16	Diagonal Ave S CSO/SD
51	J7	Seattle Towing LLC	3834 4TH AVE S	Separated	09/26/18	Diagonal Ave S CSO/SD
51	J8	Applus Technologies, Inc.	3820 6TH AVE S	Separated	12/07/15	Diagonal Ave S CSO/SD
51	J8	Atlas Supply	611 S CHARLESTOWN ST	Separated	06/19/17	Diagonal Ave S CSO/SD
51	J8	D.P. Nicoli Inc	3700 6TH AVE S	Separated	10/09/14	Diagonal Ave S CSO/SD
51	J8	Ed Wyse & Company Inc.	3701 7TH AVE S	Separated	08/18/17	Diagonal Ave S CSO/SD
51	J8	International Leasing Co. Inc.	3801 7th Ave S	Separated	04/07/15	Diagonal Ave S CSO/SD
51	J8	The Field Roast Grain Meat Co.	3901 7TH AVE S	Separated	07/01/14	Diagonal Ave S CSO/SD
51	J9	North Star Casteel - 820 S Bradford St	820 S BRADFORD ST	Partially Separated Proximity	05/14/19	Diagonal Ave S CSO/SD
51	J9	Western Peterbilt LLC	3707 AIRPORT WAY S	Separated	10/13/15	Diagonal Ave S CSO/SD
51	J9	WSDOT - Signal Shop	3700 9TH AVE S	Separated	10/03/18	Diagonal Ave S CSO/SD
51	K13	Jefferson Park Horticulture	1600 S DAKOTA ST	Separated	07/10/17	Diagonal Ave S CSO/SD
51	K4	Hat Rack Wines	3861 1st Ave S	Separated	05/02/18	Diagonal Ave S CSO/SD
51	K4	ICLICK INC	3931 1ST AVE S	Separated	05/29/19	Diagonal Ave S CSO/SD
51	K4	Lost Luggage	3849 1ST AVE S	Separated	05/02/18	Diagonal Ave S CSO/SD
51	K4	R 2 Productions LLC	3911 1ST AVE S	Separated	10/04/16	Diagonal Ave S CSO/SD
51	K4	Schooner Exact LLC	3901 1ST AVE S	Separated	10/07/16	Diagonal Ave S CSO/SD
51	K4	Seltzery, LLC	3849 1ST AVE S	Separated	06/18/19	Diagonal Ave S CSO/SD
51	K4	Southern Wine & Spirits of Washington LLC	4101 1ST AVE S	Separated	05/07/18	Diagonal Ave S CSO/SD
51	K4	Structure Cellars LLC	3849 1ST AVE S	Separated	11/08/16	Diagonal Ave S CSO/SD
51	K5	Cascade Designs Inc - 4000 1st Ave S	4000 1ST AVE S	Partially Separated Mixed	05/09/19	Diagonal Ave S CSO/SD
51	K5	Crosscut Hardwoods	4100 1st Ave S	Separated	03/22/18	Diagonal Ave S CSO/SD
51	K7	Applied Industrial Technologies Inc.	4021 6TH AVE S	Separated	03/25/19	Diagonal Ave S CSO/SD
51	K7	FleetPride Inc.	600 S DAKOTA ST	Separated	11/07/16	Diagonal Ave S CSO/SD
51	K7	Rodda Paint Co. - 3838 4TH AVE S	3838 4TH AVE S	Separated	09/17/14	Diagonal Ave S CSO/SD
51	K7	Safelite Fulfillment Inc - 4005 6th Ave S	4005 6TH AVE S	Separated	05/07/18	Diagonal Ave S CSO/SD
51	K8	ABC Towing	710 S DAKOTA ST	Separated	07/28/17	Diagonal Ave S CSO/SD
51	K8	Arrows Automotive LLC	3922 7TH AVE S	Separated	01/14/19	Diagonal Ave S CSO/SD
51	K8	Dakota Street LLC	655 S Andover St	Separated	12/07/18	Diagonal Ave S CSO/SD
51	K8	Davis Sign	4025 7th Ave S	Separated	03/04/15	Diagonal Ave S CSO/SD
51	K8	EH Enterprises Management Inc.	3922 6TH AVE S	Separated	09/27/16	Diagonal Ave S CSO/SD
51	K8	Modelwerks Inc.	655 S Andover St	Separated	10/05/18	Diagonal Ave S CSO/SD
51	K8	Phelps Tire Co. Inc.	3922 7TH AVE S	Separated	09/03/14	Diagonal Ave S CSO/SD
51	K8	Schwartz Brothers Restaurants - no longer at this address	3922 6TH AVE S	Separated	02/19/16	Diagonal Ave S CSO/SD
51	K8	Stella Color	620 S DAKOTA ST	Separated	10/19/16	Diagonal Ave S CSO/SD
51	K8	Stusser Electric Co.	660 S Andover St	Separated	02/24/15	Diagonal Ave S CSO/SD
51	K8	THOUSND OAKS PARK GROUP INC	4000 7TH AVE S	Separated	09/03/14	Diagonal Ave S CSO/SD
51	K8	Trefethen & Co Inc.	601 S Andover St	Separated	03/10/17	Diagonal Ave S CSO/SD
51	K8	Wilcor Grounding Systems	4045 7TH AVE S	Separated	10/05/17	Diagonal Ave S CSO/SD
51	K9	Trade-Marx Sign and Display Corp.	818 S DAKOTA ST	Separated	04/03/17	Diagonal Ave S CSO/SD
51	L1	Karla'sHand Bindery	4 S IDAHO ST	Separated	02/24/15	Diagonal Ave S CSO/SD
51	L2	Great Western Pacific Inc	14 S IDAHO ST	Separated	02/02/18	Diagonal Ave S CSO/SD
51	L2	R H BROWN CO	12 S IDAHO ST	Separated	01/30/15	Diagonal Ave S CSO/SD
51	L3	DOF Inc	24 S IDAHO ST	Separated	06/09/17	Diagonal Ave S CSO/SD
51	L3	Mercer Distribution Services LLC	4050 EAST MARGINAL WAY S	Separated	06/11/15	Diagonal Ave S CSO/SD
51	L3	The Bartell Drug Co - Shipping Warehouse	4140 EAST MARGINAL WAY S	Separated	11/06/15	Diagonal Ave S CSO/SD
51	L3	Union Bank	24 S IDAHO ST	Separated	06/09/17	Diagonal Ave S CSO/SD
51	L5	Daniel Smith Inc.	4150 1st Ave S	Separated	06/14/18	Diagonal Ave S CSO/SD
51	L5	Lantern Press LLC	4225 2ND AVE S	Separated	05/13/19	Diagonal Ave S CSO/SD
51	L6	Amy Bistro LLC	4119 4TH AVE S	Separated	11/28/18	Diagonal Ave S CSO/SD
51	L6	COSTCO WHOLESALE CORP	4401 4TH AVE S	Separated	06/24/15	Diagonal Ave S CSO/SD
51	L6	Song & Jenny Inc.	4117 4TH AVE S	Separated	11/06/18	Diagonal Ave S CSO/SD
51	L7	Attilio A Merlino and Associates Inc.	4100 4TH AVE S	Separated	07/16/15	Diagonal Ave S CSO/SD
51	L7	Bamboo Hardwoods Inc.	4100 4TH AVE S	Separated	06/30/15	Diagonal Ave S CSO/SD
51	L8	3D Systems Inc.	620 S Industrial Wy	Separated	09/23/16	Diagonal Ave S CSO/SD
51	L8	Imagine Visual Service LLC	665 S DAKOTA ST	Separated	08/20/14	Diagonal Ave S CSO/SD
51	L8	L.N. Curtis & Sons	629 S INDUSTRIAL WAY	Separated	02/18/15	Diagonal Ave S CSO/SD
51	L8	Mallory & Church Washington LLC	676 S Industrial Wy	Separated	10/28/14	Diagonal Ave S CSO/SD

Appendix G: Business inspected (2014-2019).

Map No.	Grid No.	Business Name	Address	Sewer Class	Date	Basin
51	L8	MDE Engineers, Inc. - no longer at this address (might have been bought out)	700 S Industrial Wy	Separated	02/18/15	Diagonal Ave S CSO/SD
51	L8	Refrigeration Supplies Distributor Total Control	625 S INDUSTRIAL WAY	Separated	02/24/15	Diagonal Ave S CSO/SD
51	L8	Snorkel Hot Tubs Inc	4216 6TH AVE S	Separated	10/08/18	Diagonal Ave S CSO/SD
51	L8	Superior Imprints Inc.	4226 6th Ave S	Separated	03/31/16	Diagonal Ave S CSO/SD
51	L8	The Dog Resort LLC - 629 S Industrial Way	629 S INDUSTRIAL WAY	Separated	09/21/18	Diagonal Ave S CSO/SD
51	L9	A Better Roofing Company Inc.	4126 Airport Way S	Separated	08/14/17	Diagonal Ave S CSO/SD
51	L9	AV PRO INC	812 S ADAMS ST	Separated	03/27/15	Diagonal Ave S CSO/SD
51	L9	Botanical Designs Inc.	4201 AIRPORT WAY S	Separated	08/27/14	Diagonal Ave S CSO/SD
51	L9	Emergency Response Training Institute	812 S ADAMS ST	Separated	09/21/17	Diagonal Ave S CSO/SD
51	L9	Jon Don Inc	4111 AIRPORT WAY S	Separated	05/19/16	Diagonal Ave S CSO/SD
51	L9	Perine Danforth LLC	820 S ADAMS ST	Separated	06/01/16	Diagonal Ave S CSO/SD
51	L9	Seattle DOT - Sunny Jim	4200 Airport Wy S	Separated	01/13/17	Diagonal Ave S CSO/SD
51	L9	Tuxedo and Tennis Shoes Catering Inc.	4101 AIRPORT WAY S	Separated	08/20/14	Diagonal Ave S CSO/SD
51	M1	ConGlobal Industries	1 S IDAHO ST	Separated	07/13/16	Diagonal Ave S CSO/SD
51	M2	Direct Connect Group DCG LLC	4401 EAST MARGINAL WAY S	Separated	11/30/16	Diagonal Ave S CSO/SD
51	M3	DHL Express	4450 EAST MARGINAL WAY S	Separated	01/24/17	Diagonal Ave S CSO/SD
51	M3	Whole Foods Market - Shipping Warehouse	4250 EAST MARGINAL WAY S	Separated	01/24/17	Diagonal Ave S CSO/SD
51	M4	RSVP International Inc.	4435 COLORADO AVE S	Separated	01/20/17	Diagonal Ave S CSO/SD
51	M7	A1 Building Supply - 4408 4th Ave S	4408 4TH AVE S	Separated	10/17/18	Diagonal Ave S CSO/SD
51	M7	Carpet Liquidators Inc.	4400 4TH AVE S	Separated	07/19/17	Diagonal Ave S CSO/SD
51	M7	Iron Mountain Information Management	4521 6TH AVE S	Separated	10/03/17	Diagonal Ave S CSO/SD
51	M7	K2 Corp	4201 6TH AVE S	Separated	02/20/15	Diagonal Ave S CSO/SD
51	M7	Pedersen's Event Rentals LLC	4500 4TH AVE S	Separated	02/18/15	Diagonal Ave S CSO/SD
51	M7	Prologis Seattle	4201 6TH AVE S	Separated	10/03/17	Diagonal Ave S CSO/SD
51	M7	United Parcel Service - 4201 6th Ave S	4201 6TH AVE S	Separated	01/03/18	Diagonal Ave S CSO/SD
51	M8	Auto-Chlor Systems of Washington Inc.	4315 7th Ave S	Separated	04/28/15	Diagonal Ave S CSO/SD
51	M8	Oversea Casing Company LLC	601 S NEVADA ST	Separated	08/25/16	Diagonal Ave S CSO/SD
51	M8	United Parcel Service - 4329 7th Ave S	4329 7TH AVE S	Separated	09/25/17	Diagonal Ave S CSO/SD
51	M8	United Parcel Service - 4455 7TH AVE S	4455 7TH AVE S	Separated	11/15/16	Diagonal Ave S CSO/SD
51	M9	Airgas USA LLC	4401 AIRPORT WAY S	Separated	06/21/16	Diagonal Ave S CSO/SD
51	M9	Precision Welder & Engine Repair	4429 AIRPORT WAY S	Separated	08/17/16	Diagonal Ave S CSO/SD
51	M9	Western Waterproofing Co., Inc.	4429 Airport Wy S	Separated	08/01/14	Diagonal Ave S CSO/SD
51	N12	Presbytery of Seattle	1625 S COLUMBIAN WAY	Separated	07/17/15	Diagonal Ave S CSO/SD
51	N12	Torah Day School	1625 S COLUMBIAN WAY	Separated	07/17/15	Diagonal Ave S CSO/SD
51	N14	Veterans Affairs Puget Sound Health Care System Seattle	1660 S COLUMBIAN WAY	Separated	05/31/17	Diagonal Ave S CSO/SD
51	N3	Aria Style	4616 OHIO AVE S	Separated	08/06/15	Diagonal Ave S CSO/SD
51	N3	Cascade Machinery & Electric, Inc.	4600 EAST MARGINAL WAY S	Separated	05/08/17	Diagonal Ave S CSO/SD
51	N3	Henry Products	4632 OHIO AVE S	Separated	08/06/15	Diagonal Ave S CSO/SD
51	N3	Kelly Paper Company	4616 OHIO AVE S	Separated	09/17/15	Diagonal Ave S CSO/SD
51	N3	No Junk Inc.	4634 EAST MARGINAL WAY S	Separated	07/15/14	Diagonal Ave S CSO/SD
51	N3	Resource 3 NW	4632 OHIO AVE S	Separated	09/10/15	Diagonal Ave S CSO/SD
51	N3	South Seattle Business Park	4634 E Marginal Wy S	Separated	07/15/14	Diagonal Ave S CSO/SD
51	N4	OpenSquare	4600 UTAH AVE S	Separated	06/27/17	Diagonal Ave S CSO/SD
51	N4	Resolute	4617 COLORADO AVE S	Separated	08/06/15	Diagonal Ave S CSO/SD
51	N7	FSI	4601 6TH AVE S	Separated	03/22/19	Diagonal Ave S CSO/SD
51	N7	Plymouth Poultry Co	4604 4TH AVE S	Separated	01/19/18	Diagonal Ave S CSO/SD
51	N7	S.A. Thompson LLC	4604 4TH AVE S	Separated	01/19/18	Diagonal Ave S CSO/SD
51	N7	Uwajimaya - 4601 6th Ave S unit A	4601 6th Ave S	Separated	10/09/18	Diagonal Ave S CSO/SD
51	N8	Downtown Cannabis Co, LLC	612 S ALASKA ST	Separated	09/27/16	Diagonal Ave S CSO/SD
51	N8	Evoqua Water Technologies LLC	601 S SNOQUALMIE ST	Separated	03/25/19	Diagonal Ave S CSO/SD
51	N8	Franks Quality Produce Inc.	612 S Alaska St	Separated	08/27/14	Diagonal Ave S CSO/SD
51	N8	King County Sheriff	4623 7TH AVE S	Separated	09/26/17	Diagonal Ave S CSO/SD
51	N8	Plymouth Poultry Co.	4500 7TH AVE S	Separated	08/17/16	Diagonal Ave S CSO/SD
51	O3	Bread & Circuses LLC	4660 OHIO AVE S	Separated	08/14/17	Diagonal Ave S CSO/SD
51	O3	Choice Linens	4700 OHIO AVE S	Separated	09/10/15	Diagonal Ave S CSO/SD
51	O3	Fulcrum Coffee LLC	4660 OHIO AVE S	Separated	09/17/15	Diagonal Ave S CSO/SD
51	O3	Grand Image LTD	4730 OHIO AVE S	Separated	09/10/15	Diagonal Ave S CSO/SD
51	O3	IsGood Woodworks, LLC	4660 EAST MARGINAL WAY S	Separated	11/08/18	Diagonal Ave S CSO/SD
51	O3	Jon Rosichelli Design Limited	4660 OHIO AVE S	Separated	09/10/15	Diagonal Ave S CSO/SD
51	O3	Madonna Properties, LLC	4660 EAST MARGINAL WAY S	Separated	11/08/18	Diagonal Ave S CSO/SD
51	O3	Seattle Granite Countertops Inc	4700 OHIO AVE S	Separated	06/06/19	Diagonal Ave S CSO/SD
51	O3	Two Beers Brewing Co. LLC	4700 Ohio Ave S	Separated	06/21/16	Diagonal Ave S CSO/SD
51	O3	Victor's Granite & Marble LLC	4660 EAST MARGINAL WAY S	Separated	04/01/16	Diagonal Ave S CSO/SD
51	O4	Acme Construction Supply Co., Inc.	4747 1ST AVE S	Separated	11/03/16	Diagonal Ave S CSO/SD
51	O4	G S Building Supply Inc	4727 DENVER AVE S	Separated	07/07/17	Diagonal Ave S CSO/SD
51	O4	Gent Components	4701 COLORADO AVE S	Separated	09/25/15	Diagonal Ave S CSO/SD
51	O4	Seattle Cider Company LLC	4701 COLORADO AVE S	Separated	07/28/17	Diagonal Ave S CSO/SD
51	O4	Steve Withycombe LLC	4701 COLORADO AVE S	Separated	10/23/15	Diagonal Ave S CSO/SD
51	O4	WASTE MANAGEMENT OF WA INC - 70 S ALASKA ST	70 S ALASKA ST	Separated	12/05/14	Diagonal Ave S CSO/SD
51	O6	Hudson Bay Insulation Co	4800 DENVER AVE S	Separated	02/01/18	Diagonal Ave S CSO/SD
51	O6	McKinstry Company	4800 DENVER AVE S	Separated	08/31/16	Diagonal Ave S CSO/SD
51	O6	Puget Sound Pipe & Supply Co	4800 Denver Ave S	Partially Separated Proximity	01/31/17	Diagonal Ave S CSO/SD
51	O7	Sunic's Food Inc.	4715 6TH AVE S	Separated	08/26/14	Diagonal Ave S CSO/SD
51	O8	Emerald City Bindery	4809 AIRPORT WAY S	Separated	11/06/18	Diagonal Ave S CSO/SD
51	O8	Federal Express - Corp	651 S ALASKA ST	Separated	08/11/17	Diagonal Ave S CSO/SD
51	O8	MacMillan Piper Inc. - 655 S Edmunds St	655 S EDMUNDS ST	Partially Separated Mixed	08/04/15	Diagonal Ave S CSO/SD
51	O8	Northwest Container Services Inc.	635 S EDMUNDS ST	Separated	08/09/17	Diagonal Ave S CSO/SD
51	O9	El Hot Metal Fabrication	4740 AIRPORT WAY S	Separated	12/01/16	Diagonal Ave S CSO/SD
51	O9	Rainier Cycle	4740 AIRPORT WAY S	Separated	12/14/16	Diagonal Ave S CSO/SD
51	O9	Seattle Barrel Company - 4716 Airport Way S	4716 Airport Way S	Partially Separated Proximity	08/30/16	Diagonal Ave S CSO/SD
51	O9	Transmission Warehouse LLC	4750 AIRPORT WAY S	Separated	12/02/16	Diagonal Ave S CSO/SD
51	P3	3 Form Inc.	4770 OHIO AVE S	Separated	04/27/17	Diagonal Ave S CSO/SD
51	P3	Four Below LLC	4750 OHIO AVE S	Separated	04/04/17	Diagonal Ave S CSO/SD
51	P3	Koch Holdings Inc.	36 S HUDSON ST	Separated	10/06/16	Diagonal Ave S CSO/SD
51	P3	SEATTLEHAUNTS LLC	5000 EAST MARGINAL WAY S	Separated	04/22/16	Diagonal Ave S CSO/SD
51	P3	TEK Machining Inc.	4770 OHIO AVE S	Separated	03/31/15	Diagonal Ave S CSO/SD
51	P4	Century Link - 4755 1st Ave S	4755 1ST AVE S	Separated	09/17/16	Diagonal Ave S CSO/SD
51	P4	Lantern Press	4773 COLORADO AVE S	Separated	09/17/15	Diagonal Ave S CSO/SD
51	P4	Urban Hardwoods Inc.	4755 COLORADO AVE S	Separated	09/17/15	Diagonal Ave S CSO/SD
51	P6	HERC RENTALS	5055 4TH AVE S	Partially Separated Mixed	08/06/14	Diagonal Ave S CSO/SD
51	P6	McKinstry CO LLC	210 S HUDSON ST	Separated	08/31/16	Diagonal Ave S CSO/SD
51	P6	W.W. Grainger, Inc.	4930 3RD AVE S	Separated	08/25/16	Diagonal Ave S CSO/SD
51	Q3	Brickhouse Industries	5018 OHIO AVE S	Separated	06/23/16	Diagonal Ave S CSO/SD
51	Q3	Dale M Shafman LLC	5024 OHIO AVE S	Partially Separated Proximity	03/03/16	Diagonal Ave S CSO/SD
51	Q3	L Room Fabrication	5030 OHIO AVE S	Partially Separated Proximity	03/03/16	Diagonal Ave S CSO/SD
51	Q3	Seattle Radiator LLC	5011 OHIO AVE S	Separated	10/22/15	Diagonal Ave S CSO/SD
51	Q4	Big Brothers Big Sisters of Puget Sound	5023 COLORADO AVE S	Combined	06/22/16	Diagonal Ave S CSO/SD
51	Q4	Cheryl Zahniser Studio	5019 COLORADO AVE S	Separated	06/23/16	Diagonal Ave S CSO/SD
51	Q4	KR Powell & Co LLC	5017 Colorado Ave S	Combined	03/04/15	Diagonal Ave S CSO/SD

Appendix G: Business inspected (2014-2019).

Map No.	Grid No.	Business Name	Address	Sewer Class	Date	Basin
51	Q4	Miramare LLC	5021 COLORADO AVE S	Separated	04/27/16	Diagonal Ave S CSO/SD
51	Q8	Shortround Corp.	5200 DENVER AVE S	Separated	03/29/16	Diagonal Ave S CSO/SD
51	R8	Acco Engineered Systems Inc	5300 DENVER AVE S	Separated	01/09/18	Diagonal Ave S CSO/SD
52	C2	Global Diving and Salvage Inc.	3801 MARGINAL PL SW	Separated	06/28/18	SW Dakota St SD
52	E4	Tryg Winquist Construction Co.	3839 WEST MARGINAL WAY SW	Separated	06/23/17	SW Dakota St SD
52	F4	Active Environmental Inc	4001 16TH AVE SW	Partially Separated Proximity	09/25/14	SW Dakota St SD
52	G4	Heathco International Inc	4033 16TH AVE SW	Separated	09/23/16	SW Dakota St SD
52	G4	Penthouse Drapery	4033 16TH AVE SW	Separated	08/14/17	SW Dakota St SD
52	H5	Aquatic Enterprises, Inc. - 4101 W MARGINAL WAY SW	4101 W Marginal Wy SW	Separated	04/15/16	SW Dakota St SD
52	H5	BBLL LLC - 4101 W Marginal Way SW	4101 WEST MARGINAL WAY SW	Separated	08/10/16	SW Dakota St SD
52	H5	Creo LLC	4101 WEST MARGINAL WAY SW	Separated	04/08/16	SW Dakota St SD
52	I7	Ferguson Enterprises Inc	4100 W Marginal Way SW	Partially Separated Mixed	08/27/14	SW Dakota St SD
52	K5	Seattle Parks Dept - Westbridge Maintenance Facility - 4209 WEST MARGINAL WAY SW	4209 WEST MARGINAL WAY SW	Separated	02/26/19	SW Dakota St SD
53	C4	New Finishes Electrostatic, Inc.	4235 WEST MARGINAL WAY SW	Separated	11/09/17	SW Idaho St SD
53	C4	Pacifica Marine Inc.	4233 WEST MARGINAL WAY SW	Separated	10/09/14	SW Idaho St SD
53	C4	Visko Enterprises	4235 WEST MARGINAL WAY SW	Separated	11/09/17	SW Idaho St SD
53	D4	Continental Van Lines Inc.	4501 WEST MARGINAL WAY SW	Separated	10/28/14	SW Idaho St SD
53	F5	Airclean Technologies Inc	4725 WEST MARGINAL WAY SW	Separated	04/28/16	SW Idaho St SD
53	G5	Salmon Bay Barge Line Inc.	4749 WEST MARGINAL WAY SW	Separated	04/28/16	SW Idaho St SD
53	H5	Chaldea LLC	4845 WEST MARGINAL WAY SW	Separated	04/28/16	SW Idaho St SD
53	H5	David and Eugenie Jack	4835 WEST MARGINAL WAY SW	Separated	04/28/16	SW Idaho St SD
53	H5	Evergreen Building Products LLC	4835 WEST MARGINAL WAY SW	Separated	04/28/16	SW Idaho St SD
53	H5	Fog-Tite Meter Seal Co. Inc.	4819 WEST MARGINAL WAY SW	Separated	05/03/17	SW Idaho St SD
53	I5	Holcim Inc - 5101 West Marginal Way Southwest	5101 WEST MARGINAL WAY SW	Partially Separated Proximity	01/17/17	SW Idaho St SD
53	Q4	South Seattle College - 6001 16th Ave SW	6000 16TH AVE SW	Separated	09/07/17	SW Idaho St SD
54	C7	Bright Horizons Childrens Centers Inc	1002 E SENECA ST	Partially Separated Non-Specific	12/08/16	<Null>
54	C7	Heritage Distilling Company Inc - 1201 10TH AVE # 100	1201 10TH AVE	Separated	12/15/16	<Null>
54	C7	IHOP Restaurant #612	950 E Madison St	<Null>	03/31/16	<Null>
54	C7	JJKD Inc	952 E SENECA ST	<Null>	07/20/16	<Null>
54	C7	Meat & Bread Capitol Hill LLC	1201 10TH AVE	Separated	07/20/16	<Null>
54	C9	City Neighbor Inc	665 23RD AVE	Partially Separated Proximity	01/18/19	<Null>
54	D7	UW Medicine and King County - Harborview	325 9TH AVE	Partially Separated Mixed	04/03/15	<Null>
54	D9	Garfield High School	400 23RD AVE	Partially Separated Non-Specific	07/01/15	<Null>
54	F2	Crowley Marine Services Inc.	1102 SW MASSACHUSETTS ST	Direct	06/12/15	<Null>
54	F2	Rainier Petroleum Corporation	1711 13TH AVE SW	Partially Separated Non-Specific	06/23/15	<Null>
54	G2	Allied Fuel LLC	2400 HARBOR AVE SW	Separated	07/10/14	<Null>
54	G2	P R Inc	2429 HARBOR AVE SW	Separated	12/06/18	<Null>
54	G3	Petrocard Systems Inc - 1617 SW Lander St	1617 SW LANDER ST	Separated	12/07/18	<Null>
54	G3	Seaport Midstream Partners LLC	1652 SW LANDER ST	Separated	08/31/18	<Null>
54	G4	Equilon Enterprises LLC	2555 13TH AVE SW	Separated	07/14/15	<Null>
54	G4	Kinder Morgan Liquid Terminals LLC	2720 13th Ave SW	<Null>	05/04/17	<Null>
54	G4	Pacific Coast Container Inc.	1830 13TH AVE SW	<Null>	01/31/17	<Null>
54	G4	Port of Seattle Parking Lots - 2406 13TH AVE SW	2406 13TH AVE SW	Separated	09/09/14	<Null>
54	G4	Rolls Royce Marine North America Inc.	1731 13TH AVE SW	<Null>	09/17/15	<Null>
54	G4	South Seattle College Welding School	1719 13TH AVE SW	<Null>	09/17/15	<Null>
54	G4	Vigor Shipyards Inc	1801 16TH AVE SW	Partially Separated Mixed	10/14/15	<Null>
54	G8	888 Beacon Hill LLC	2400 BEACON AVE S	Separated	01/19/18	<Null>
54	G8	Agabi, Inc.	2424 Beacon Ave S	<Null>	06/27/17	<Null>
54	G8	RIOS & WONG LLC	2503 BEACON AVE S	<Null>	02/24/15	<Null>
54	G8	Sunny Mony & Rajan Inc.	2415 BEACON AVE S	Separated	08/28/14	<Null>
54	H10	Ben Thanh Corporation	2815 S Hanford St	<Null>	07/22/16	<Null>
54	H10	Ginkgo LLC	2815 S HANFORD ST	Separated	04/24/18	<Null>
54	H10	Golden Dragon HK Inc	3300 RAINIER AVE S	<Null>	07/25/16	<Null>
54	H10	LL Teriyaki Corp	3224 RAINIER AVE S	<Null>	08/05/16	<Null>
54	H10	Rainier Golden Center	3224 RAINIER AVE S	<Null>	09/19/16	<Null>
54	H10	Thuy Sang LLC	3226 Rainier Ave S	<Null>	08/05/16	<Null>
54	H10	Van Burg Co	3300 Rainier Ave S	<Null>	07/26/16	<Null>
54	H10	Wilson Distributing	3151 RAINIER AVE S	Separated	10/08/15	<Null>
54	H2	ActivSpace LLC - 3400 HARBOR AVE SW	3400 HARBOR AVE SW	Separated	08/25/14	<Null>
54	H4	Hardware Specialty Co.	3419 11TH AVE SW	Separated	10/19/17	<Null>
54	H4	YOUNG CORP - 3444 13TH AVE SW	3444 13TH AVE SW	Separated	07/19/18	<Null>
54	H8	Bank of America NA - 2555 Beacon Ave S	2555 BEACON AVE S	Separated	02/22/19	<Null>
54	H8	Delite Bakery Inc	2701 15th Ave S	Separated	06/26/18	<Null>
54	I10	1Greencheck.com LLC	3761 RAINIER AVE S	Separated	05/17/19	<Null>
54	I10	Darigold Inc	4058 RAINIER AVE S	Partially Separated Mixed	12/03/15	<Null>
54	I10	Gary Sayers	3809 RAINIER AVE S	Separated	12/12/18	<Null>
54	I10	Glant Textiles Corporation	3031 S WALDEN ST	Separated	05/02/19	<Null>
54	I10	Hai Nugyen	3867 RAINIER AVE S	Separated	06/05/15	<Null>
54	I10	Jane Nguyen & Le Pham Corporation	3330 Rainier Ave S	<Null>	07/22/16	<Null>
54	I10	Kaleb Group Property Management	3330 RAINIER AVE S	<Null>	07/22/16	<Null>
54	I10	Magic Dragon	3820 RAINIER AVE S	Separated	04/25/18	<Null>
54	I10	New Millenium	3867 RAINIER AVE S	Separated	06/04/15	<Null>
54	I10	Rainier Ave Cleaners	3820 RAINIER AVE S	Separated	04/25/18	<Null>
54	I10	Ross Dress for Less #1319	3820 RAINIER AVE S	Separated	04/25/18	<Null>
54	I10	SAFEWAY INC - 3820 Rainier Ave S	3820 RAINIER AVE S	Separated	01/14/16	<Null>
54	I10	Service King Paint & Body LLC	3711 RAINIER AVE S	Partially Separated Non-Specific	06/16/17	<Null>
54	I10	THE HERTZ CORPORATION - 3711 RAINIER AVE S	3711 RAINIER AVE S	Partially Separated Mixed	06/21/17	<Null>
54	I3	Bit Investment Fifty-Seven LLC	4040 26TH AVE SW	Separated	04/17/15	<Null>
54	I3	Island Tug and Barge Co	3546 W Marginal Wy SW	Direct	10/13/15	<Null>
54	I3	Nucor Steel	2424 SW Andover St	Partially Separated Non-Specific	08/05/14	<Null>
54	I3	Pacific Northwest Theatre Associates, Inc.	2414 SW Andover St	Separated	01/29/19	<Null>
54	I3	PENULTIMA INC	3803 Delridge Wy SW	<Null>	10/30/14	<Null>
54	I3	Sea Pac Transport Services LLC	3544 WEST MARGINAL WAY SW	Direct	07/07/14	<Null>
54	I3	SFD - Fire Station #36 - 3600 23rd Ave SW	3600 23RD AVE SW	Separated	02/26/19	<Null>
54	I4	Pacific Sheet Metal & Fabrication LLC	1128 SW SPOKANE ST	Separated	09/25/15	<Null>
54	I4	Sequential Environmental Services LLC	4034 WEST MARGINAL WAY SW	Separated	09/23/16	<Null>
54	I4	Sky High Gardens - no longer at this address	1128 SW SPOKANE ST	Separated	04/15/16	<Null>
54	I4	The Dutchman LLC	1128 SW SPOKANE ST	Separated	12/16/15	<Null>
54	I4	Westway Feed Products LLC	1002 SW SPOKANE ST	Separated	05/01/19	<Null>
54	I5	Ash Grove Cement Company	3801 EAST MARGINAL WAY S	Partially Separated Mixed	06/23/16	<Null>
54	I5	Gary Merlino Construction - 3803 East Marginal Way S	3803 EAST MARGINAL WAY S	Separated	01/09/18	<Null>
54	I5	OLYMPIC TUG & BARGE INC	910 SW SPOKANE ST	Direct	10/13/15	<Null>
54	I5	RD United LLC - 3670 East Marginal Way S	3670 EAST MARGINAL WAY S	Separated	08/07/14	<Null>
54	I6	Cascade Designs Inc - 3800 1st Ave S	3800 1ST AVE S	Partially Separated Mixed	05/09/19	<Null>
54	I6	Seattle City Light - South Service Center - 3613 4th Ave S	3613 4TH AVE S	Partially Separated Mixed	09/09/15	<Null>
54	J1	JIFFY LUBE #2232	4000 SW ALASKA ST	Combined	05/25/17	<Null>
54	J1	KFC	3501 SW AVALON WAY	Combined	02/12/15	<Null>
54	J10	Darigold Inc. - 4100 Rainier Ave S	4100 RAINIER AVE S	Separated	04/28/17	<Null>
54	J10	Genesee Plaza	4400 RAINIER AVE S	Separated	04/29/19	<Null>

Appendix G: Business inspected (2014-2019).

Map No.	Grid No.	Business Name	Address	Sewer Class	Date	Basin
54	J10	Rainier Vista Boys and Girls Club	4520 M L KING JR WAY S	<Null>	08/04/15	<Null>
54	J10	Seattle Parks Dept - Rainier Playfield	3700 S ALASKA ST	<Null>	01/26/17	<Null>
54	J10	Walgreen Co - 4412 Rainier Ave S	4412 RAINIER AVE S	Separated	05/13/19	<Null>
54	J11	Genesee Fuel & Heating Co Inc - 3616 S GENESEE ST	3616 S GENESEE ST	Separated	12/05/18	<Null>
54	J11	MARTIN MONETTI	4135 39TH AVE S	Partially Separated Mixed	04/03/15	<Null>
54	J11	Nguyen Inc.	3611 S GENESEE ST	Separated	12/10/14	<Null>
54	J11	Seattle Parks Dept - Genesee Park Headquaters - 4420 S GENESEE ST	4420 S GENESEE ST	Partially Separated Non-Specific	12/04/18	<Null>
54	J2	Premier Golf-West Seattle	4470 35TH AVE SW	Partially Separated Mixed	08/24/15	<Null>
54	J2	Seattle Parks Dept - West Seattle Golf Course	4470 35TH AVE SW	Separated	07/27/15	<Null>
54	J3	Buckingham William D	4700 25TH AVE SW	Separated	01/02/19	<Null>
54	J3	Seattle Parks Dept - Delridge Community Center	4501 DELRIDGE WAY SW	Separated	11/30/15	<Null>
54	J3	Youngstown Cultural Art Center	4408 DELRIDGE WAY SW	Separated	06/11/15	<Null>
54	J6	Alaskan Copper Companies Inc - 4700 Colorado Ave S	4700 COLORADO AVE S	Combined	05/25/16	<Null>
54	J9	Phan Hai	2050 S COLUMBIAN WAY	Separated	12/13/18	<Null>
54	J9	YR CORPORATION - 4800 BEACON AVE S	4800 BEACON AVE S	Separated	12/13/18	<Null>
54	K10	EXPRESS TIRES & AUTO SVCS CTR INC - 5000 M L KING JR WAY S	5000 M L KING JR WAY S	Separated	11/20/18	<Null>
54	K10	Puget Consumers Co-Op - Columbia City	3610 S EDMUNDS ST	Separated	09/09/16	<Null>
54	K11	Bilaal Mini Market LLC	5041 RAINIER AVE S	<Null>	06/01/17	<Null>
54	K11	Columbia City Ale House Inc	4914 RAINIER AVE S	<Null>	12/07/16	<Null>
54	K11	Columbia City Eateries LLC	4918 RAINIER AVE S	<Null>	09/09/16	<Null>
54	K11	Duong H & Le X	5020 RAINIER AVE S	Separated	12/07/16	<Null>
54	K11	Empire Espresso LLC	3829 S EDMUNDS ST	<Null>	12/06/16	<Null>
54	K11	Flying Lion Brewing LLC	5041 RAINIER AVE S	<Null>	07/07/17	<Null>
54	K11	Full Tilt Columbia City LLC	5101 RAINIER AVE S	<Null>	12/07/16	<Null>
54	K11	Hands LLC	3820 S FERDINAND ST	Separated	12/07/16	<Null>
54	K11	Hatfield Plumbing And Heating Inc	3704 S FERDINAND ST	Separated	12/07/16	<Null>
54	K11	Island Soul LLC	4869 RAINIER AVE S	<Null>	01/04/16	<Null>
54	K11	Jus Bar LLC	4908 RAINIER AVE S	<Null>	09/09/16	<Null>
54	K11	Kagira Jane W	5041 RAINIER AVE S	<Null>	06/01/17	<Null>
54	K11	Lavana Lounge	5041 RAINIER AVE S	<Null>	06/01/17	<Null>
54	K11	Marination LLC	3714 S HUDSON ST	<Null>	12/06/16	<Null>
54	K11	Moton Alton N - no longer at this address	5223 RAINIER AVE S	Separated	04/20/15	<Null>
54	K11	Nguyen Anthony M	5223 RAINIER AVE S	Separated	05/08/17	<Null>
54	K11	Nguyen Nima	4732 RAINIER AVE S	Separated	07/26/16	<Null>
54	K11	Pagliacci Pizza Inc	4901 RAINIER AVE S	<Null>	12/06/16	<Null>
54	K11	PH International LLC	4909 RAINIER AVE S	<Null>	12/07/16	<Null>
54	K11	Rainier5101LLC	5101 RAINIER AVE S	<Null>	07/06/17	<Null>
54	K11	Salted Sea Inc	4915 RAINIER AVE S	<Null>	12/06/16	<Null>
54	K11	Sardine Sardine LLC	4857 RAINIER AVE S	<Null>	12/15/17	<Null>
54	K11	Shags Inc	4872 RAINIER AVE S	Separated	12/06/16	<Null>
54	K11	The Hummingbird Saloon LLC	5101 RAINIER AVE S	<Null>	06/01/17	<Null>
54	K12	Whitworth Elementary School	5215 46th Ave S	<Null>	12/17/14	<Null>
54	K2	Seattle Parks Dept - Camp Long	5200 35TH AVE SW	Separated	08/06/15	<Null>
54	K5	CDSRVS LLC	53 S DAWSON ST	Combined	01/15/19	<Null>
54	K5	J.A. Jack & Sons, Inc.	5427 OHIO AVE S	Infiltration	12/20/17	<Null>
54	K5	Manson Construction Co.	5053 EAST MARGINAL WAY S	Direct	08/06/15	<Null>
54	K6	McKinstry Co LLC	220 S HUDSON ST	Partially Separated Proximity	08/31/16	<Null>
54	K6	Union Pacific Railroad Company - 402 S DAWSON ST	402 S Dawson St	Separated	02/21/19	<Null>
54	K6	United Recycling Seattle	74 S HUDSON ST	Combined	06/14/16	<Null>
54	K9	Seattle Super Market Inc	4801 BEACON AVE S	Separated	06/21/17	<Null>
54	K9	Urban Feed & Garden LLC	4878 BEACON AVE S	<Null>	06/21/17	<Null>
54	L10	Amara Parenting & Adoption Services	5907 M L KING JR WAY S	Separated	01/28/19	<Null>
54	L10	BP West Coast Products LLC - 5620 Martin Luther King Jr Way S	5620 M L KING JR WAY S	<Null>	01/14/16	<Null>
54	L10	FIRESTONE COMPLETE AUTO CARE STORE 012424 - 5601 M L KING JR WAY S	5601 M L KING JR WAY S	Separated	07/02/14	<Null>
54	L10	Nazareth Market LLC	5418 M L KING JR WAY S	<Null>	04/14/16	<Null>
54	L11	Ackley Enterprises Inc - 5600 Rainier Ave S	5600 RAINIER AVE S	<Null>	06/27/17	<Null>
54	L11	Big Chickie Inc	5520 RAINIER AVE S	Separated	01/23/18	<Null>
54	L11	Center Seattle Management LLC	6008 M L KING JR WAY S	Separated	11/29/18	<Null>
54	L11	D&H Investments Inc	6040 Martin Luther King Jr Wy S	<Null>	08/25/14	<Null>
54	L11	DKJ LI Corp	6030 M L KING JR WAY S	Separated	08/04/16	<Null>
54	L11	Island Pacific Seattle Inc	6040 M L KING JR WAY S	<Null>	03/18/16	<Null>
54	L11	John & Jennie Inc	6008 M L KING JR WAY S	Separated	11/29/18	<Null>
54	L11	Le Phan Investment Corporation	6020 M L KING JR WAY S	Separated	05/17/16	<Null>
54	L11	Meianna Bakery & Cafe Inc	6008 M L KING JR WAY S	Separated	09/09/16	<Null>
54	L11	NORTHWEST PEAKS BREWERY, LLC	5718 RAINIER AVE S	Partially Separated Mixed	09/27/18	<Null>
54	L11	Quang Quoc Huynh	3818 S Graham St	<Null>	01/21/16	<Null>
54	L11	Seattle Parks Dept - Brighton Playfield	6000 39TH AVE S	<Null>	01/26/17	<Null>
54	L11	SFD - Fire Station #28 - 5968 RAINIER AVE S	5968 RAINIER AVE S	Separated	08/30/18	<Null>
54	L11	Southgate Building & Investments Inc.	6044 Martin Luther King Jr Way S	Separated	11/29/18	<Null>
54	L11	Thanh Thao Restuarant Inc	6012 M L KING JR WAY S	Separated	06/02/16	<Null>
54	L11	Tin Umbrella Coffee LLC	5600 RAINIER AVE S	<Null>	06/27/17	<Null>
54	L11	Wanchi - no longer at this location	4411 S MEAD ST	Separated	06/28/17	<Null>
54	L11	West Africa Market Imports	5997 RAINIER AVE S	Partially Separated Proximity	01/10/19	<Null>
54	L3	Camp Crockett LLC	5611 DELRIDGE WAY SW	Partially Separated Proximity	01/10/19	<Null>
54	L3	KBM Seattle	5604 DELRIDGE WAY SW	<Null>	06/16/15	<Null>
54	L3	Quintanilla Jose S	5621 DELRIDGE WAY SW	Partially Separated Proximity	03/20/19	<Null>
54	L5	Ardagh Glass Inc	5801 EAST MARGINAL WAY S	Direct	01/21/16	<Null>
54	L5	Gene Summy Lumber	6000 WEST MARGINAL WAY SW	Separated	09/27/17	<Null>
54	L5	Strategic Materials Inc	5801 EAST MARGINAL WAY S	Direct	01/19/15	<Null>
54	L6	Chevron Stations Inc - 5940 East Marginal Way S	5940 EAST MARGINAL WAY S	Combined	02/05/18	<Null>
54	L6	General Biodiesel Seattle LLC	6333 1ST AVE S	Direct	10/02/14	<Null>
54	L6	Glacier Northwest Inc - 5975 EMWS	5975 E Marginal Wy S	Separated	07/20/15	<Null>
54	L6	Great Sun Corp	5930 1ST AVE S	Separated	01/30/15	<Null>
54	L6	Skillet Street Food Inc.	5701 6TH AVE S	Combined	08/01/17	<Null>
54	L7	Carland Auto	751 S MICHIGAN ST	Combined	08/24/16	<Null>
54	L7	Honest Trucking Line LLC	5950 6TH AVE S	Combined	07/23/18	<Null>
54	L7	JAMESInc	5919 AIRPORT WAY S	Combined	02/08/18	<Null>
54	L7	La Catrina of Wa Inc	5905 AIRPORT WAY S	Combined	03/13/18	<Null>
54	M10	Co Lam Temple	3503 S GRAHAM ST	Separated	10/05/15	<Null>
54	M11	AZMERA LLC	6464 M L KING JR WAY S	Partially Separated Non-Specific	01/02/19	<Null>
54	M11	BUI LUAN C	6464 M L KING JR WAY S	Partially Separated Non-Specific	01/02/19	<Null>
54	M11	Deland Rob H	6500 M L KING JR WAY S	Separated	10/05/15	<Null>
54	M11	Grand Auto Sales LLC	6501 M L KING JR WAY S	Separated	03/31/15	<Null>
54	M11	Guru Inc	6056 M L KING JR WAY S	Separated	11/29/18	<Null>
54	M11	Martin Luther King Jr Elementary School	6725 45TH AVE S	Separated	07/26/18	<Null>
54	M11	Otto Rosenau & Associates Inc	6747 M L KING JR WAY S	Separated	05/15/18	<Null>

Appendix G: Business inspected (2014-2019).

Map No.	Grid No.	Business Name	Address	Sewer Class	Date	Basin
54	M11	SKS Petroleum III Inc - 6600 M L KING JR WAY S	6600 M L KING JR WAY S	Separated	09/26/14	<Null>
54	M11	Taqueria Los Portrillos	6211 Rainier Ave S	Separated	04/05/18	<Null>
54	M11	Thai Nguyen My	6227 RAINIER AVE S	Separated	03/21/18	<Null>
54	M11	U-Haul Co of Washington - 6403 M L King Jr Way S	6403 M L KING JR WAY S	Separated	12/13/18	<Null>
54	M11	U-Haul Company of Washington	6403 M L KING JR WAY S	Separated	01/14/19	<Null>
54	M12	Asmera LLC - 6815 RAINIER AVE S	6815 RAINIER AVE S	Separated	07/21/14	<Null>
54	M12	Auto Speed Corp	6924 RAINIER AVE S	Separated	01/14/15	<Null>
54	M12	Avole Coffee LLC	6630 RAINIER AVE S	<Null>	05/18/16	<Null>
54	M12	Japanese American Auto Repair	6911 RAINIER AVE S	Separated	01/04/16	<Null>
54	M12	JUNIOR TRANSMISSION REPAIR LLC	6901 RAINIER AVE S	Separated	12/17/18	<Null>
54	M12	Lakshmi Inc	6230 RAINIER AVE S	Partially Separated Non-Specific	06/19/18	<Null>
54	M12	LSK Motor Corporation - no longer at this address	6924 RAINIER AVE S	Separated	01/14/15	<Null>
54	M12	N & B CORP	6907 Rainier Ave S	<Null>	02/19/16	<Null>
54	M12	Nguyen Han - 6905 RAINIER AVE S	6905 RAINIER AVE S	Separated	12/24/18	<Null>
54	M12	Nguyen Qui N	6924 RAINIER AVE S	Separated	01/14/15	<Null>
54	M12	Peter Pan Auto Glass Corp	6903 RAINIER AVE S	Separated	04/28/16	<Null>
54	M12	Rainier Auto Body	6355 RAINIER AVE S	Separated	12/17/18	<Null>
54	M12	Storer Enterprises Inc.	6355 RAINIER AVE S	Separated	12/17/18	<Null>
54	M12	TQ Auto Repair & Sales Inc	6924 RAINIER AVE S	Separated	01/18/18	<Null>
54	M2	Seattle Parks Dept - High Point Community Center	6920 34TH AVE SW	Separated	12/11/15	<Null>
54	M2	Uniservice Corp	6701 30TH AVE SW	Separated	04/30/19	<Null>
54	M5	Northland Services Inc.	6700 WEST MARGINAL WAY SW	Partially Separated Non-Specific	10/20/15	<Null>
54	M5	Northwest SeaFood Processors Inc.	206 SW Michigan St	Direct	08/30/17	<Null>
54	M5	SeaFreeze Acquisition LLC	206 SW Michigan St	Direct	08/30/17	<Null>
54	M6	Alaska Marine Lines, Inc. - 7100 1st Ave S	7100 1ST AVE S	Partially Separated Non-Specific	11/10/15	<Null>
54	M6	Dawn Food Products, INC	6901 Fox Ave S	Direct	04/10/15	<Null>
54	M6	Jaym Enterprises LLC	6527 4TH AVE S	Combined	06/19/18	<Null>
54	M6	Ribhi Faraj	6722 FOX AVE S	Separated	04/27/17	<Null>
54	M6	Samson Tug and Barge - 6361 1st Ave S	6361 1ST AVE S	Direct	09/25/18	<Null>
54	M6	Windows Doors & More Inc	6783 EAST MARGINAL WAY S	Direct	06/27/17	<Null>
54	M6	Work Space Development LLC	303 S RIVER ST	Partially Separated Non-Specific	01/19/18	<Null>
54	M7	EVERSON NATHAN T	1115 S ELIZABETH ST	Direct	10/13/15	<Null>
54	N10	New Holly Neighborhood Campus	7050 32ND AVE S	<Null>	04/17/15	<Null>
54	N11	Ba Mien Seafood LLC	6951 M L KING JR WAY S	Separated	11/06/14	<Null>
54	N11	Bank of America NA - 7153 M L King Jr Way S	7153 M L KING JR WAY S	Separated	11/30/18	<Null>
54	N11	Cafe Red LLC	7148 M L KING JR WAY S	Separated	02/08/18	<Null>
54	N11	Hai Thanh Le	7119 Martin Luther King Jr Wy S	<Null>	06/02/16	<Null>
54	N11	Hannan Corporation	7126 M L KING JR WAY S	Separated	06/03/19	<Null>
54	N11	HUNG HOA LLC	7101 M L KING JR WAY S	Separated	10/22/14	<Null>
54	N11	JP Morgan Chase Bank NA - 7100 MLK Jr Way S	7100 M L KING JR WAY S	Separated	11/30/18	<Null>
54	N11	K-Computer	7131 M L KING JR WAY S	<Null>	06/02/16	<Null>
54	N11	King Plaza Laundry	7101 M L KING JR WAY S	Separated	10/20/14	<Null>
54	N11	King Square Enterprises LLC	7136 M L KING JR WAY S	Separated	07/31/17	<Null>
54	N11	Le Scot C	7101 M L KING JR WAY S	Separated	10/20/14	<Null>
54	N11	Les & Abdulmalik	7101 M L KING JR WAY S	Separated	10/20/14	<Null>
54	N11	Nguyen An & Dung	7126 M L KING JR WAY S	Separated	06/20/19	<Null>
54	N11	Nguyen Tam Thi	7127 M L KING JR WAY S	<Null>	06/02/16	<Null>
54	N11	Olympic Express Restaurant INC	7101 M L KING JR WAY S	Separated	04/08/19	<Null>
54	N11	Othello Les Deli Corporatoin	4219 S OTHELLO ST	Separated	03/27/18	<Null>
54	N11	Pham Kim	7101 M L KING JR WAY S	Separated	10/22/14	<Null>
54	N11	Safeway Inc - 3900 S OTHELLO ST	3900 S Othello St	<Null>	01/24/17	<Null>
54	N11	Sahra Corporation - (No longer at this address)	7126 M L KING JR WAY S	Separated	07/27/17	<Null>
54	N11	Seattle Housing Authority - 6931 Martin Luther King Jr Way S	6931 M L KING JR WAY S	Separated	04/17/15	<Null>
54	N11	Tacos El Asadero #2	7300 M L KING JR WAY S	<Null>	12/18/14	<Null>
54	N11	TCP Corp	7101 M L KING JR WAY S	Separated	03/30/18	<Null>
54	N11	Tran Khac D	7136 M L KING JR WAY S	Separated	06/17/19	<Null>
54	N11	Union Gospel Mission	3800 S OTHELLO ST	Separated	07/15/14	<Null>
54	N11	Venus Sao Mai Seafood Resturant LLC	7101 M L KING JR WAY S	Separated	10/15/14	<Null>
54	N11	VGT LLC	7136 M L KING JR WAY S	Separated	06/19/19	<Null>
54	N11	Vina Investments LLC	7101 M L KING JR WAY S	Separated	10/15/14	<Null>
54	N12	CLAUDIA MUNOZ DIAZ-7219 Rainier Ave S	7219 RAINIER AVE S	Separated	01/09/19	<Null>
54	N12	Dynamic Automotive Distributors Inc	7269 Rainier Ave S	<Null>	10/06/17	<Null>
54	N12	GREEN ANNE LLC	7262 RAINIER AVE S	Separated	11/29/18	<Null>
54	N12	Jacksons Catfish Corner LLC - No longer at this address	7216 RAINIER AVE S	Partially Separated Proximity	07/15/16	<Null>
54	N12	Jose Zelaya	7000 RAINIER AVE S	Separated	01/10/18	<Null>
54	N12	Los Tinos Mexican Restaurant Corp	7300 Rainier Ave S	<Null>	11/16/16	<Null>
54	N12	LSK Motor Corp	7100 RAINIER AVE S	<Null>	04/27/17	<Null>
54	N12	Mi Ranchito LLC	7636 Rainier Ave S	<Null>	03/18/16	<Null>
54	N12	Royal Detail & Cafe	7216 RAINIER AVE S	Partially Separated Proximity	04/10/19	<Null>
54	N12	Tesema Million T	7202 RAINIER AVE S	Separated	01/10/18	<Null>
54	N13	Caroline Kline Galland Home	7500 Seward Park Ave S	<Null>	07/20/15	<Null>
54	N2	Navos	2600 SW HOLDEN ST	Separated	05/01/15	<Null>
54	N3	Anik Vahora Inc	7301 DELRIDGE WAY SW	Separated	02/14/17	<Null>
54	N3	HOME DEPOT USA INC - 7345 DELRIDGE WAY SW	7345 DELRIDGE WAY SW	Separated	12/07/15	<Null>
54	N3	Public Storage 7133 Delridge Way SW	7133 DELRIDGE WAY SW	Separated	04/10/19	<Null>
54	N3	Sun Hyon Corporation	7132 DELRIDGE WAY SW	Partially Separated Non-Specific	10/25/16	<Null>
54	N3	The Sherwin Williams Co - #8658 - Delridge	7305 DELRIDGE WAY SW	Separated	01/10/19	<Null>
54	N4	Gill Enterprises Inc	1600 SW HOLDEN ST	Separated	12/05/18	<Null>
54	N4	Saejin LLC	1513 SW Holden St	<Null>	07/28/15	<Null>
54	N4	SFD - Fire Station #11 - 1514 SW HOLDEN ST	1514 SW HOLDEN ST	Partially Separated Non-Specific	02/26/19	<Null>
54	N4	Space Kitty Universal Inc	1600 SW HOLDEN ST	Separated	02/06/19	<Null>
54	N7	Cedar Grove Composting, Inc - 7343 EAST MARGINAL WAY S	7343 E Marginal Wy S	Direct	12/14/17	<Null>
54	N7	Drywall Recycling Services Inc.	7201 EAST MARGINAL WAY S	Combined	02/13/15	<Null>
54	N7	WASTE MANAGEMENT NATIONAL SERVICES INC - 7400 8TH AVE S	7400 8TH AVE S	Separated	11/17/17	<Null>
54	O10	H & Q Corp - 7750 Beacon Ave S	7750 BEACON AVE S	<Null>	01/14/16	<Null>
54	O12	CY&Y Enterprises LLC	8320 RAINIER AVE S	Separated	12/10/18	<Null>
54	O12	DABAL MINI MARKET	8300 WABASH AVE S	Separated	06/03/19	<Null>
54	O12	Dough Girl Productions LLC	7820 RAINIER AVE S	<Null>	06/27/17	<Null>
54	O12	King Philly Cheesesteaks	7820 RAINIER AVE S	<Null>	06/26/17	<Null>
54	O12	Nalas Mane LLC	7820 RAINIER AVE S	<Null>	06/27/17	<Null>
54	O2	Chief Sealth International High School	2600 SW THISTLE ST	Separated	08/31/15	<Null>
54	O2	Seattle Parks Dept - Southwest Teen Life Center	2801 SW THISTLE ST	Separated	09/01/15	<Null>
54	O3	8136 Delridge Way SW	8136 DELRIDGE WAY SW	Separated	01/27/15	<Null>
54	O3	8144 Delridge Way SW	8144 DELRIDGE WAY SW	Separated	01/27/15	<Null>
54	O6	Schubert Floorcovering Co.	8305 7TH AVE S	Partially Separated Proximity	02/27/16	<Null>
54	O7	ASM LLC DBA All Service Moving	747 S Monroe St	Combined	04/08/16	<Null>
54	O7	BFC Architectural Metals Inc.	8300 7th Ave S	Partially Separated Non-Specific	02/28/18	<Null>
54	O7	Green Day Trading and Recycling Co.	747 S Monroe St	Combined	07/08/14	<Null>
54	O7	Herrera Venancio	740 S Monroe St	Partially Separated Proximity	04/30/15	<Null>

Appendix G: Business inspected (2014-2019).

Map No.	Grid No.	Business Name	Address	Sewer Class	Date	Basin
54	O7	National Products Inc - 1025 S Elmgrove St	1025 S ELMGROVE ST	Combined	01/23/19	<Null>
54	O7	Stereotypical Brewing LLC	8103 8TH AVE S	Combined	03/20/15	<Null>
54	O7	United Site Services of Nevada Inc	1024 S ELMGROVE ST	Direct	09/20/16	<Null>
54	P10	Evergreen Truck Driving School	8500 PERIMETER RD S	Direct	06/15/15	<Null>
54	P11	Cornerstone Fil-Am Baptist Church	9065 M L KING JR WAY S	<Null>	06/23/15	<Null>
54	P11	Thai Kia V	9001 RENTON AVE S	Separated	05/08/17	<Null>
54	P11	Vegetable Bin LLC	8825 Martin Luther King Jr Wy S	<Null>	07/28/17	<Null>
54	P12	Ahmed, Mohamed K	8808 RAINIER AVE S	<Null>	01/31/17	<Null>
54	P12	B W Memorial Corp	9021 RAINIER AVE S	Separated	12/11/18	<Null>
54	P12	Bank of America N.A. - 9019 Rainier Ave S	9019 RAINIER AVE S	Separated	12/07/18	<Null>
54	P12	Complete Mobile LLC	8738 RAINIER AVE S	<Null>	01/08/16	<Null>
54	P12	D Lark Inc - 9304 Rainier Ave S	9304 RAINIER AVE S	Separated	12/07/18	<Null>
54	P12	Dollar Tree Stores Inc - 9000 Rainier Ave S	9000 RAINIER AVE S	<Null>	05/17/17	<Null>
54	P12	Lopez Bartolome	9000 RAINIER AVE S	<Null>	05/18/17	<Null>
54	P12	New Star Minimart Inc	8600 RAINIER AVE S	Partially Separated Mixed	12/10/18	<Null>
54	P12	OMH Inc	9000 RAINIER AVE S	<Null>	06/02/17	<Null>
54	P12	Saar's Inc	9000 RAINIER AVE S	<Null>	05/17/17	<Null>
54	P12	Safeway Inc - 9262 RAINIER AVE S	9262 RAINIER AVE S	Separated	01/15/16	<Null>
54	P12	Seattle Public Library - Rainier Beach	9125 RAINIER AVE S	<Null>	04/26/16	<Null>
54	P12	The Sherwin Williams Co - 8824 Rainier Ave S	8824 RAINIER AVE S	Separated	01/04/19	<Null>
54	P12	Thiet Dinh Nguyen	9150 Rainier Ave S	<Null>	06/02/16	<Null>
54	P12	Thrifty Payless Inc	9000 Rainier Ave S	<Null>	05/17/17	<Null>
54	P13	DRAES LAKE ROUTE EATERY	9261 57th Ave S	<Null>	05/12/16	<Null>
54	P13	Royal Auto Repair & Sales LLC	9479 RAINIER AVE S	Separated	04/30/19	<Null>
54	P13	Spinnaker Bay Condominiums	9500 RAINIER AVE S	Direct	06/01/17	<Null>
54	P2	Hairmaster #6285	9027 25th Ave SW	<Null>	10/07/14	<Null>
54	P2	McDonalds Restaurants of WA Inc - SW Barton St	2580 SW BARTON ST	<Null>	10/20/14	<Null>
54	P2	QUALITY FOOD CENTERS QFC 825 - 2500 SW BARTON ST	2500 SW BARTON ST	Separated	03/02/17	<Null>
54	P2	Target Corp	2800 SW BARTON ST	Separated	09/05/17	<Null>
54	P2	Thrifty Payless Inc - 2600 SW BARTON ST # H1	2600 SW BARTON ST	Separated	05/22/19	<Null>
54	P2	USPS Post Office - SW Trenton St	2721 SW TRENTON ST	Separated	06/08/17	<Null>
54	P3	Bens Automotive	9025 DELRIDGE WAY SW	Separated	11/27/18	<Null>
54	P3	Envision Remodels	9010 DELRIDGE WAY SW	<Null>	06/02/17	<Null>
54	P3	Lee Byung C	9001 DELRIDGE WAY SW	Separated	05/07/18	<Null>
54	P3	MK &EC Inc	9009 DELRIDGE WAY SW	<Null>	05/30/17	<Null>
54	P3	Stan's Mt View Towing Inc	9000 DELRIDGE WAY SW	Partially Separated Proximity	05/30/17	<Null>
54	P3	STAPLES THE OFFICE SUPERSTORE LLC - 2501 SW TRENTON ST	2501 SW TRENTON ST	Separated	06/03/19	<Null>
54	P4	Fuel Tank Installation Co. Inc.	9403 15th Ave SW	Combined	03/06/17	<Null>
54	P8	Petrocard Systems Inc. - 9014 14th Ave S	9014 14TH AVE S	Partially Separated Non-Specific	03/01/18	<Null>
54	P8	Queen Anne Group	1414 S DIRECTOR ST	Separated	04/14/16	<Null>
54	Q12	2 Pa Choi Inc	9625 RENTON AVE S	Separated	12/07/18	<Null>
54	Q12	Chau's Auto Repair	9601 RENTON AVE S	Separated	10/29/18	<Null>
54	Q12	Key Bank National Association - 9255 Rainier Ave S	9255 RAINIER AVE S	Separated	12/06/18	<Null>
54	Q12	Rossoe Energy Systems Inc	9367 Rainier Ave S	<Null>	01/14/16	<Null>
54	Q12	Seattle Best Cleaners LLC - 9305 Rainier Ave S #C	9305 RAINIER AVE S	Separated	05/29/19	<Null>
54	Q12	SFD - Fire Station #33 - 9645 RENTON AVE S	9645 RENTON AVE S	Separated	04/10/19	<Null>
54	Q12	Washington Federal - 9325 Rainier Ave S	9325 RAINIER AVE S	Separated	12/06/18	<Null>
54	Q13	Autozone Stores Inc -9741 Rainier Ave S	9471 Rainier Ave S	<Null>	05/10/16	<Null>
54	Q4	Walgreen Co - 9456 16th Ave SW	9456 16TH AVE SW	<Null>	08/07/14	<Null>

Appendix H:

Notices of Violation Issued to Businesses in the LDW (2014-2019)

Appendix H: Notices of violations issued in LDW (2014-2019).

Date	Responsible Party	Address	Outfall	Violation	Penalty
	UPPER REACH				
09/13/16	Steeler Inc.	10023 Martin Luther King Jr Way S	S Norfolk St CSO/PS17 EOF/SD	Failure to comply with BMPs	$2,000
04/20/18	Frank Coluccio Construction Co	9600 M L King Jr Way S	S Norfolk St CSO/PS17 EOF/SD	Illicit connection	$1,000
10/01/18	Puget Sound Coatings Inc	9220 8th Ave S	S 96th St SD	Failure to comply with BMPs	Deferred
	MIDDLE REACH				
11/13/14	Emerson Enterprises LLC.	525 S Brighton St	S Brighton St SD	Illicit connection	Deferred
02/09/18	Cascade Columbia	6900 Fox Ave S	S Brighton St SD	Illicit discharge	$1,500
12/20/17	Seattle Iron and Metals Corp.	601 S Myrtle St	S Myrtle St SD	Illicit discharge	$3,500
01/14/16	Emswiler Construction, Inc.	6045 West Marginal Way SW	SW Kenny St SD/T115 CSO	Failure to comply with BMPs	$2,000
11/28/17	Gene Summy Lumber Co	6000 West Marginal Way SW	SW Kenny St SD/T115 CSO	Failure to comply with BMPs	Deferred
11/10/16	Seaport Petroleum	7800 Detroit Ave SW	1st Ave S SD (West)	Failure to comply with BMPs	$4,000
03/28/18	Demolition Man Inc.	8129 Occidental Ave S	1st Ave S SD (West)	Failure to comply with BMPs	Deferred
10/25/18	Bay ARea Concrete LLC	7245 W Marginal Way SW	1st Ave S SD (West)	Failure to comply with BMPs	Deferred
03/08/19	Pacific Rim Trench & Shoring	7745 1st Ave S	1st Ave S SD (West)	Failure to comply with BMPs	Deferred
05/16/19	Waste Management	8111 1st Ave S	1st Ave S SD (West)	Failure to report spill	$2,000
07/29/15	Bills Mobile Service LLC	7265 2nd Ave S	2nd Ave S SD	Failure to comply with BMPs	$1,500
10/05/18	Aurelio Garcia	706 S Monroe St	7th Ave S SD	Illicit discharge/side sewer	$500
	LOWER REACH				
01/20/16	Port of Seattle	44 S Nevada St	S Nevada St SD	Illicit connection	Deferred
08/04/14	Peter Livingston	1352 Martin Luther King Jr Way S	Diagonal Ave S CSO/SD	Illicit connection	Deferred
08/04/14	Ernest Elmore	1356 Martin Luther King Jr Way S	Diagonal Ave S CSO/SD	Illicit connection	Deferred
08/04/14	Dylan Green & Katheryn Durkee	1362 Martin Luther King Jr Way S	Diagonal Ave S CSO/SD	Illicit connection	Deferred
08/04/14	Deborah Kelley	2705 S Irving St	Diagonal Ave S CSO/SD	Illicit connection	Deferred
08/04/14	Jerry Verhoff	2707 S Irving St	Diagonal Ave S CSO/SD	Illicit connection	Deferred
08/04/14	Lisa Mamon	2709 S Irving St	Diagonal Ave S CSO/SD	Illicit connection	Deferred
08/12/14	Franz Family Bakeries	2006 S Weller St	Diagonal Ave S CSO/SD	Illicit connection	Deferred
10/09/14	Lois Webb	3101 25th Ave S	Diagonal Ave S CSO/SD	Broken side sewer	Deferred
10/23/14	Gregory Garetson	3828 4th Ave S	Diagonal Ave S CSO/SD	Illicit connection	Deferred
03/26/15	Eastlake Management Inc.	4400 4th Ave S	Diagonal Ave S CSO/SD	Illicit discharge	Deferred
05/01/15	Sanderson Safety Supply Co.	2600 Airport Way S	Diagonal Ave S CSO/SD	Illicit discharge	$250
07/24/15	Rong Li	1903 S Bayview St	Diagonal Ave S CSO/SD	Broken side sewer	Deferred
12/08/16	Pacific Millennial Realty	3623 6th Ave S	Diagonal Ave S CSO/SD	Blocked side sewer	$2,500
03/10/17	Acme Construction Supply Co. Inc	4747 1st Ave S	Diagonal Ave S CSO/SD	Failure to comply with BMPs	Deferred
05/08/17	Metal Works Northwest	3834 4th Ave S	Diagonal Ave S CSO/SD	Illicit connection	Deferred
06/09/17	Trade Marx Sign and Display	818 S Dakota St	Diagonal Ave S CSO/SD	Failure to comply with BMPs	Deferred
06/13/17	Veterans Affairs Puget Sound Health Care Sy	1660 S Columbian Way	Diagonal Ave S CSO/SD	Illicit connection	Deferred
06/14/17	Rite Aid	2707 Rainier Ave S	Diagonal Ave S CSO/SD	Failure to comply with BMPs	Deferred
10/23/17	Starbucks Coffee Company	2921 Martin Luther King Jr Way	Diagonal Ave S CSO/SD	Failure to comply with BMPs	Deferred
01/29/18	Grease Monkey	2101 23rd Ave S	Diagonal Ave S CSO/SD	Failure to comply with BMPs	Deferred
03/21/18	Dere Auto	1818 Rainier Ave S	Diagonal Ave S CSO/SD	Failure to report spill	$250
05/08/18	Michael Roland	918 29th Ave S	Diagonal Ave S CSO/SD	Broken side sewer	Deferred
05/31/18	Jonathan Jaffe	911 Yakima Ave S	Diagonal Ave S CSO/SD	Broken side sewer	Deferred
05/31/18	Kathleen Stout & Richard Brusseau	925 Yakima Ave S	Diagonal Ave S CSO/SD	Broken side sewer	Deferred
06/06/18	Spear Investments	4011 6th Ave S	Diagonal Ave S CSO/SD	Broken side sewer	Deferred
06/20/18	Paul Johnson	2801 Martin Luther King Jr Way S	Diagonal Ave S CSO/SD	Illicit connection	Deferred

Appendix H: Notices of violations issued in LDW (2014-2019).

Date	Responsible Party	Address	Outfall	Violation	Penalty
08/16/18	Sage Homes Northwest LLC	4022 Martin Luther King Jr Way S	Diagonal Ave S CSO/SD	Illicit connection	Deferred
10/10/18	The Dog Resort	629 S Industrial Way	Diagonal Ave S CSO/SD	Illicit connection/failure to comply with E	Deferred
12/17/18	Buenavista Services Inc	2700 Airport Way S	Diagonal Ave S CSO/SD	Illicit discharge	$500
12/18/18	KT Building Supply Inc	3614 6th Ave S	Diagonal Ave S CSO/SD	Illicit discharge	$1,000
06/12/19	Seattle Girls School	2706 S Jackson St	Diagonal Ave S CSO/SD	Broken side sewer	Deferred
01/10/17	Jimmy Nguyen	1505 SW Morgan St	SW Idaho St SD	Illicit discharge	$500
02/13/17	Holcim Inc.	5101 West Marginal Way SW	SW Idaho St SD	Illicit discharge	Deferred

Appendix I:

Businesses Referred to Other Agencies (2014 – 2019)

Appendix I: Sites referred to other agencies between 2014 and 2019.

Address	Inspection Date	King County Hazardous Waste	King County Industrial Waste	Ecology Water Quality	Ecology Hazardous Waste	City Dept	Other Referral	Other Referral Agency	Outfall
UPPER REACH									
10023 M L KING JR WAY S	10/09/14			10/09/14					Norfolk CSO/PS17 EOF/SD
9600 Martin Luther King Jr Wy S	06/29/15	06/29/15							Norfolk CSO/PS17 EOF/SD
9700 M L KING JR WAY S	08/13/15				08/13/15				Norfolk CSO/PS17 EOF/SD
9220 8th Ave S	05/22/15		06/03/15						S 96th St SD
9243 10TH AVE S	04/25/17					04/26/17		Dept of Licensing	S 96th St SD
9369 8th Ave S	12/20/18			12/20/18					S 96th St SD
MIDDLE REACH									
6333 1st Ave S	01/11/18		01/11/18						Direct, Slip 2
6361 1st Ave S	10/31/18					10/31/18		SDCI complaint	Direct, Slip 2
6501 EAST MARGINAL WAY S	03/19/15	03/23/15					03/23/15	Puget Sound Clean Air Agency	S River St SD
525 S BRIGHTON ST	10/28/14			11/17/14					S Brighton St SD
525 S BRIGHTON ST	11/07/14		03/06/15	11/17/14					S Brighton St SD
6701 FOX AVE S	10/28/15					08/05/16		GIS corrections	S Brighton St SD
745 S MYRTLE ST	07/12/16		07/14/16	07/14/16		07/14/16		Green Business Assist	S Myrtle St SD
745 S MYRTLE ST	09/27/18						09/27/18	Business Licensing	S Myrtle St SD
700 S Orchard St	11/08/18			11/09/18					S Myrtle St SD
6045 WEST MARGINAL WAY SW	12/29/15					12/29/15	12/30/15	SDCI Complaint	SW Kenny St SD/T115 CSO
6515 W Marginal Way SW	01/15/19					01/15/19		SPU Drainage	SW Kenny St SD/T115 CSO
7245 West Marginal Way SW	10/03/18						10/03/18	Public Health	Highland Park Wy SW SD
432 S CLOVERDALE ST	06/16/16					06/17/16		Licensing	1st Ave S SD (west)
8135 1st Ave S	09/29/16						09/30/16	SPU GIS	1st Ave S SD (west)
309 S CLOVERDALE ST	10/05/16			10/17/16					1st Ave S SD (west)
309 S CLOVERDALE ST	10/07/16		10/11/16	10/11/16					1st Ave S SD (west)
309 S CLOVERDALE ST	10/11/16		10/17/16	10/17/16					1st Ave S SD (west)
309 S CLOVERDALE ST	01/23/17			01/24/17					1st Ave S SD (west)
309 S CLOVERDALE ST	03/03/17			03/17/17					1st Ave S SD (west)
309 S CLOVERDALE ST	03/16/17	03/21/17	03/23/17						1st Ave S SD (west)
8425 1ST AVE S	07/06/17		07/13/17	07/13/17		07/11/17			1st Ave S SD (west)
8249 5TH AVE S	01/10/18					01/24/18		GIS Map Correction	1st Ave S SD (west)
7400 2nd Ave S	04/15/15		04/21/15						2nd Ave S SD
540 S Holden St	05/21/15	05/29/15			05/29/15	05/29/15		SDOT Street Use	7th Ave S SD
215 S Austin St	09/15/16		09/26/16						7th Ave S SD
521 S MONROE ST	03/21/17					03/31/17		SDOT Street Use Permit	7th Ave S SD
240 S Holden St	03/28/17	03/31/17	03/31/17						7th Ave S SD
8110 7TH AVE S	02/28/18			03/09/18		03/09/18	03/09/18	Spill Kit	7th Ave S SD
7800 7th Ave S, Unit Y	03/16/18		03/16/18						7th Ave S SD
LOWER REACH									
44 S NEVADA ST	11/09/15				03/22/16				S Nevada St SD
3901 7TH AVE S	06/30/14						06/30/14	SPU GIS	Diagonal Ave S CSO/SD
4140 E Marginal Wy S	11/06/15				11/06/15				Diagonal Ave S CSO/SD
5030 OHIO AVE S	03/03/16	03/16/16							Diagonal Ave S CSO/SD
1511 Rainier Ave S	06/14/16					06/17/16		SDCI complaint	Diagonal Ave S CSO/SD
5018 OHIO AVE S	06/23/16			06/30/16					Diagonal Ave S CSO/SD
3623 6th Ave S	08/10/16		08/10/16						Diagonal Ave S CSO/SD
1716 21st Ave S	09/15/16				09/15/16				Diagonal Ave S CSO/SD
3849 1ST AVE S	11/08/16		11/14/16	11/14/16					Diagonal Ave S CSO/SD
4401 EAST MARGINAL WAY S	11/30/16					12/02/16		GIS Map Correction	Diagonal Ave S CSO/SD
4740 AIRPORT WAY S	12/01/16	12/02/16							Diagonal Ave S CSO/SD
4740 AIRPORT WAY S	12/14/16	12/15/16							Diagonal Ave S CSO/SD
2504 S JACKSON ST	04/20/17		04/21/17	04/21/17		04/21/17		GIS Map Correction	Diagonal Ave S CSO/SD
4770 OHIO AVE S	04/27/17			05/04/17					Diagonal Ave S CSO/SD
1905 22nd Ave S	07/19/17		07/24/17						Diagonal Ave S CSO/SD
4701 COLORADO AVE S	07/28/17			08/04/17					Diagonal Ave S CSO/SD

Appendix I: Sites referred to other agencies between 2014 and 2019.

Address	Inspection Date	King County Hazardous Waste	King County Industrial Waste	Ecology Water Quality	Ecology Hazardous Waste	City Dept	Other Referral	Other Referral Agency	Outfall
635 S Edmunds St	08/09/17		08/09/17						Diagonal Ave S CSO/SD
2700 Airport Wy S	09/11/17					09/15/17		Map Correction	Diagonal Ave S CSO/SD
4045 7th Ave S	10/05/17			10/05/17					Diagonal Ave S CSO/SD
3619 7th Ave S	03/28/18			03/28/18					Diagonal Ave S CSO/SD
4025 1st Ave S	05/10/18		05/10/18						Diagonal Ave S CSO/SD
1911 S Jackson St	10/25/18					10/25/18		SPU Solid Waste	Diagonal Ave S CSO/SD
3922 6th Ave S	12/01/18		12/01/18						Diagonal Ave S CSO/SD
3849 1st Ave S	06/18/19			06/18/19					Diagonal Ave S CSO/SD
3429 Airport Way S	06/18/19						06/18/19	ECOSS	Diagonal Ave S CSO/SD
5801 East Marginal Way S	06/02/19			06/02/19					Direct, East btwn Slip 1 and 2
4101 WEST MARGINAL WAY SW	04/08/16		04/14/16	04/14/16			04/14/16		SW Dakota St SD

Appendix J:

Basin Prioritization Process

Appendix J: Basin Prioritization

CONTENTS

TABLES

MAPS

Appendix J describes how the City prioritized drainage basins and work activities to be conducted over the next 5 years as part of Seattle's Source Control Implementation Plan to support LDW cleanup actions. The City used multiple lines of evidence to prioritize drainage basins/systems so that future activities could be focused on the most critical areas. There are no hard and fast rules for prioritizing basins. Instead, the City used fairly simple criteria to establish priorities recognizing that things often change as a result of sampling results (a new problem area can be identified at any time), business inspections, water quality complaints, spills, and other drivers.

1. OVERVIEW OF PRIORITIZATION PROCESS

The prioritization process is summarized in Figure J-1. It utilizes two key data sets, storm drain solids samples collected by the City, in-waterway sediment sampling data collected and compiled for Tasks 2 and 3 of the third amendment to the Administrative Order on Consent for the remedial investigation/feasibility study of the Lower Duwamish Waterway (EPA 2016). Prioritization focuses on identifying discharges that could contribute to exceedances of the RALs for contaminants of concern identified in waterway sediment. The following three basic steps were used in the process:

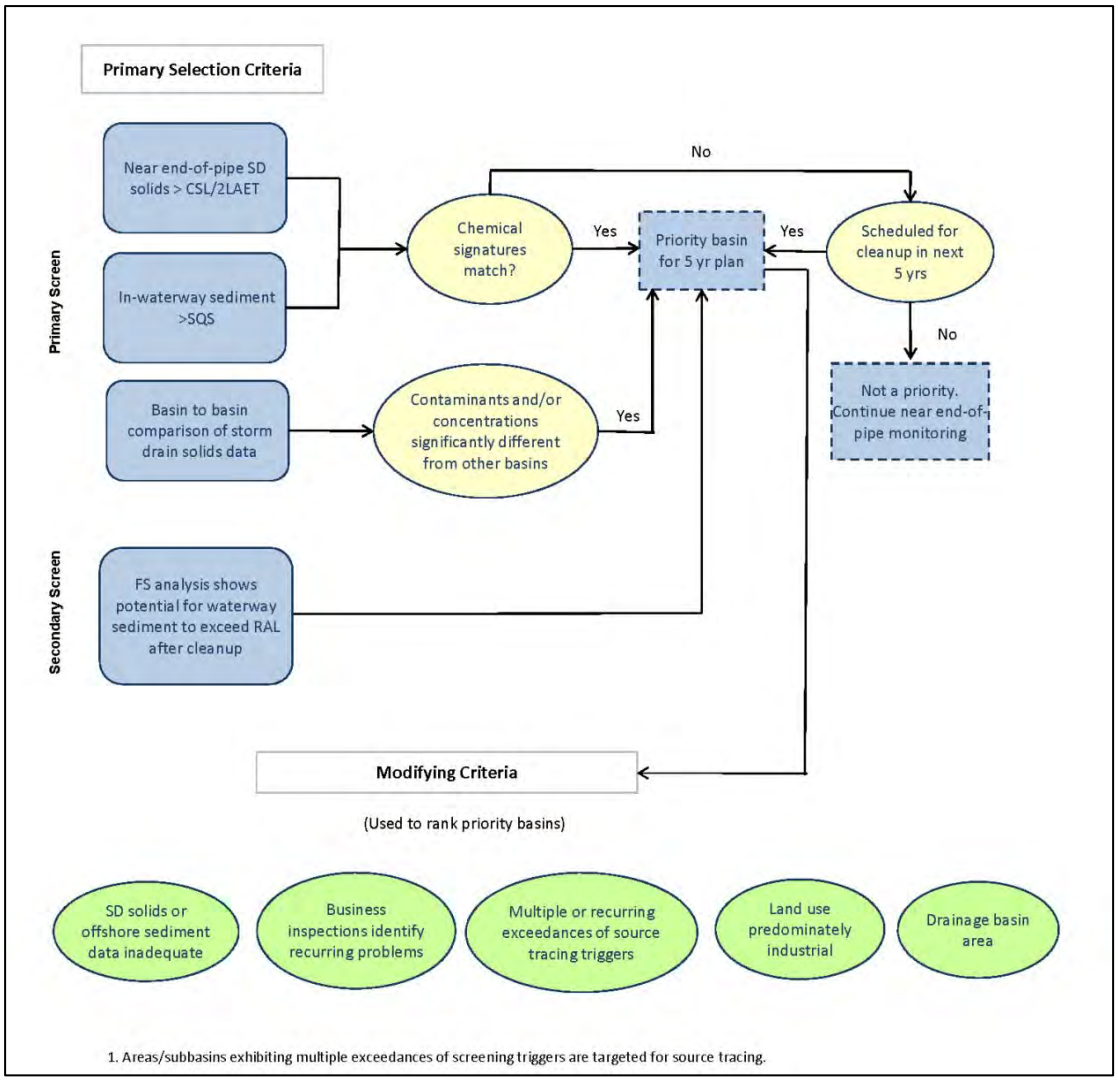

Figure J-1: Basin prioritization process.

- Primary screen. Storm drains were first screened based on storm drain solids to offshore sediment and storm drain to storm drain comparisons. The solids to sediment screening was performed to identify where elevated levels of contaminants were found in both offshore sediment in the vicinity of the outfall and storm drain solids samples collected from near the end of pipe or point of discharge to the waterway. When matches were found, the basins were identified as a source control priority. Methods used in this analysis are described in more detail in Section 3.2.

  Storm drain to storm drain comparisons were conducted to assess whether one storm drain exhibited a different contaminant signature than other drains in the LDW. Differences in either the contaminants present, or the levels of contaminants present can indicate the presence of a unique source(s) in that basin. Systems that exhibited higher concentrations of chemicals than other drains in the LDW were flagged as priorities regardless of whether the chemicals exceeded the CSL/2LAET trigger.
- Secondary screen. A secondary screen was conducted to capture other relevant criteria such as results of the sediment transport/bed composition model (ST/BCM) that was developed during the Feasibility Study to assess recontamination potential (see Appendix J of the Feasibility Study, AECOM 2012b) and the cleanup schedule which will drive priorities in the future.
- Ranking. Basins that are identified as priority basins based on the primary and secondary screening process are informally ranked based on the following modifying criteria:
  - Knowledge of ongoing sources and pollution-generating activities in each drainage basin that has been gained through the business inspection program.
  - Drainage basin size, which provides an indication of pollutant loading potential.
  - Multiple and recurring exceedances of the primary screen source tracing triggers for COCs identified in waterway sediment, which indicates need for additional source tracing.
  - Land use characteristics such as percentage of industrial use in the basin.

  The informal rankings are used to help schedule source control activities.

2. STORM DRAIN SOLIDS DATA

The City has collected over 1,200 samples of storm drain solids from 24 drainage systems in the LDW. As shown on Map J-1, these samples are geographically distributed throughout the drainage basins that discharge to the LDW. From a source perspective, these data form the City's basis of understanding of the types and levels of pollutants that could affect waterway sediment after cleanup.

The potential for stormwater discharges to affect the quality of offshore sediments is a function of a number of criteria, including chemical concentrations in the storm drain solids, drainage basin area, and volume of stormwater discharged, as well as the physical conditions offshore of the outfall. Storm drain solids chemistry varies, and certain chemicals are more of a concern than others. Based on data collected to date, chemical parameters can be broken into the following three general categories:

a. Chemicals that rarely exceed the SCO/LAET screening levels. Because the Remedial Action Levels (RAL) established for most chemicals in the LDW are based on the SCO, chemicals that fall into this category are very unlikely to cause waterway sediment to exceed the RALs following cleanup. Chemicals found in storm drain solids that fall into this category include arsenic, copper, lead, mercury, and LPAH. These chemicals are below the SCO/LAET screening levels in 92-98 percent of the samples collected to date. However, there are a few individual drains

where some of these chemicals are still considered a concern, because concentrations are significantly different than in other storm drains. These exceptions are described in Section 2.2.

b. Chemicals that exceed the SCO/LAET screening levels, but rarely exceed the CSL/2LAET screening levels. Chemicals that fall into this category are also believed to have a relatively low likelihood of causing waterway sediment to exceed the RALs after cleanup because storm drain discharges rapidly disperse and mix with suspended sediment and bedded sediment within the waterway. One possible exception is offshore of large outfalls where storm drain solids could accumulate in quantities sufficient enough to affect sediment quality. Zinc, PCBs, and most phthalates (except BEHP), which exceed the SCO/LAET screening levels in 48-75 percent but are below the CSL/2LAET in 78-90 percent of the samples collected to date, fall into this category.

c. Chemicals that frequently exceed the CSL/2LAET screening levels. These chemicals are considered to have a greater chance of causing waterway sediment to exceed the RALs. BEHP is the only chemical that falls into this category. It exceeded the CSL/2LAET screening level in nearly 70 percent of the storm drain solids samples collected to date.

Screening levels used to assess source tracing storm drain solids are listed in Table J-1.

Table J-1: Screening levels used for storm drain solids.

Chemical	SCO/LAET	CSL/2LAET
Metals (mg/kg)		
Arsenic	57	93
Copper	390	390
Lead	450	530
Mercury	0.41	0.59
Zinc	410	960
Total Petroleum Hydrocarbons (mg/kg)		
TPH-diesel	2,000[a]	2,000[a]
TPH-oil	2,000[a]	2,000[a]
LPAH (ug/kg dw)		
Acenaphthene	500	500
Acenaphthylene	1,300	1,300
Anthracene	960	960
Fluorene	540	540
Naphthalene	2,100	2,100
Phenanthrene	1,500	1,500
LPAH	5,200	5,200
HPAH (ug/kg dw)		
Benzo(a)anthracene	1,300	1,600
Benzo(a)pyrene	1,600	1,600
Benzo(g,h,i)perylene	670	720
Chrysene	1,400	2,800
Dibenz(a,h)anthracene	230	230
Fluoranthene	1,700	2,500
Indeno(1,2,3-cd)pyrene	600	690
Pyrene	2,600	3,300

Chemical	SCO/LAET	CSL/2LAET
Total benzofluoranthenes	3,200	3,600
HPAH	12,000	17,000
cPAH (ug TEQ/kg)	1,000[b]	1,000[b]
Phthalates (ug/kg dw)		
Bis(2-ethylhexyl)phthalate	1,300	1,900
Butyl benzyl phthalate	63	900
Diethyl phthalate	200	
Dimethyl phthalate	71	160
Di-n-butylphthalate	1,400	1,400
Di-n-octylphthalate	6,200	
Total PCBs (ug/kg dw)	130	1,000
Other organics (ug/kg dw)		
1,2,4-Trichlorobenzene	31	51
1,2-Dichlorobenzene	35	50
1,4-Dichlorobenzene	110	110
2,4-Dimethylphenol	29	29
2-Methylnaphthalene	670	670
2-Methylphenol	63	63
4-Methylphenol	670	670
Benzoic acid	650	650
Benzyl alcohol	57	73
Dibenzofuran	540	540
Hexachlorobenzene	22	70
Hexachlorobutadiene	11	120
N-Nitrosodiphenylamine	28	40
Pentachlorophenol	360	690
Phenol	420	1,200

a. MTCA Method A soil cleanup level for unrestricted use
b. Sediment remedial action level.

2.1. NEAR END-OF-PIPE SAMPLES

SPU collects inline samples (grabs and or sediment traps) from maintenance holes located near the downstream end of the system in many of the storm drains owned or used by the City that discharge to the LDW. Samples are collected as close as possible to the downstream end of the City MS4. These so-called near end-of-pipe (NEP) samples are used to roughly characterize the quality of solids discharged from the City MS4 to the LDW. The City considers these samples to be representative of what is discharged to the LDW from City storm drains, because they are a composite of the material discharged throughout the basin. Other samples, such as catch basin samples and inline samples located farther upstream in the system represent conditions in specific locations or sub-basins within the larger drainage basin and are not necessarily representative of what is discharged to the waterway. For example, catch basin samples represent contributions from very small areas (usually less than 10,000 square feet) and screening level exceedances in these samples is not expected to affect offshore sediment. Consequently, near-end-of-pipe inline grabs and traps were selected as most representative. Ideally, a single NEP location would be sampled in each drainage system. However, due to the

configuration of the City's MS4, multiple locations are often needed to capture representative solids samples. Lack of sediment accumulation in the system can also be problematic. In these situations, SPU sometimes collects grab samples from catch basins to represent portions of the drainage system where inline sampling was not feasible.

The near end-of-pipe samples selected for this analysis are listed in Table J-2 and shown on Map J-2. Only samples collected since the most recent cleaning were used in the analysis because samples collected before the lines were cleaned are not considered representative of current conditions. Chemicals exceeding the CSL/2LAET are summarized in Table J-13.

Table J-2: Near end-of-pipe inline samples used in the prioritization process.

Outfall	Near end-of-pipe inline station(s)
Upper Reach	
16th Ave S SD (east)	MH201
	MH203
KCIA SD#2/PS 78 EOF	No samples[a]
KCIA SD#1	MH47
S Norfolk CSO/EOF/SD	NST2[b]
	NST5
I5 SD at S Ryan St	MH215
16th Ave S SD (west)	No samples[c]
17th Ave S SD	17th-ST1
S 96th St SD	MH244
Duwamish substation SD#3	DS-CB-I3[d]
Duwamish substation SD#2	DS-CB-H1[d]
Duwamish substation SD#1	No samples
W Marginal Pl S SD	DS-TD-01[d]
Middle Reach	
Head of Slip 2 SD	MH38
1st Ave S SD (east)	MH39
	MH264
	MH265
S River St SD	MH211
S Brighton St SD	MH222
	MH223
S Myrtle St SD	MYR-ST1
	MH100
S Garden St SD	RCB146
I5 SD at Slip4	SL4-T6
	RCB-D071039
	RCB-D071041
	MH32
Georgetown SD	MH23
North Boeing Field SD	No samples[e]
KCIA SD #3/PS44 EOF	No samples[a]
SW Kenny St SD/T115 CSO	KN-ST1

Outfall	Near end-of-pipe inline station(s)
Middle Reach (cont.)	
Highland Park Wy SW SD	HP-ST4
	HP-ST6
1st Ave S SD (west)	1st-ST1
	1st-ST2
2nd Ave S SD	MH241
West Seattle reservoir overflow	No samples[f]
S Webster St SD	RCB298
7th Ave S SD	7th-ST1
	MH20
Lower Reach	
S Nevada St SD	RCB312
	MH206
Diagonal Ave S CSO/SD	ST1
SW Dakota St SD	RCB200A
SW Idaho St SD	ID-ST2
South Operations Center SD	No samples[g]

a. No MS4 connections; emergency sanitary sewer overflow.
b. Cleaned in 2018. Post-cleaning samples not available yet.
c. Runoff from MS4 passes through King County bioretention system before discharging to LDW.
d. Due to small size of drainage basins, catch basin samples assumed to be representative of inline solids.
e. Storm drain no longer active.
f. No MS4 connections; overflow for drinking water reservoir.
g. Tried to sample pre-settling vault and oil/water separator in 2018, but not enough material present for analysis.

2.2. BASIN TO BASIN COMPARISONS

Storm drain solid data used for the basin to basin comparisons included samples collected between August 18, 2003 to June 30, 2019 that were in the MS4 and identified as non-ODS samples (outside the drainage system, which include soil, surface dirt, and paint samples). In addition, to account for line cleaning activities, samples that were collected at any time in lines that have "never been cleaned" and samples that were collected "post cleaning" in lines that have been cleaned in the past 10 years, were used in the analysis. Samples collected prior to cleaning were excluded from the analysis because these samples are no longer representative of conditions in the drainage system.

Storm drain solids data were compiled by outfall and data summarized in the form of box plots to facilitate comparisons between basins. Box plots are provided in Appendix B. A visual review of each box plot was performed to identify obvious differences between drains. Varying levels of differences were noted. However, storm drains where the median concentration of a chemical in one storm drain was considerably higher than at the others in the LDW were prioritized because these differences suggest a higher level of source contributions in these systems. For this analysis, differences were noted when the median concentration was greater than 2 times the median of the median concentrations measured in all outfalls sampled. Median concentrations measured in City MS4 storm drains are listed in Table J-3. Table J-4 lists the storm drains that exhibited higher concentrations than other drains in the LDW.

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Table J-3: Median concentrations measured in samples collected from City-owned or used storm drains.

Outfall	No. of samples	Arsenic	Copper	Lead	Mercury	Zinc	Diesel	Oil	LPAH	HPAH	cPAH	BEHP	BBP	DMP	PCBs
UPPER REACH															
16th Ave S SD, east	1	13.8	234	144	0.358	1,340	2,060	12,100	1,430	8,582	840	29,300	100	125	463
KCIA SD#2/PS 78 EOF	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
KCIA SD#1	3	8	44.2	36	0.0581	161	64	620	100	496	67	660	640	60	20
Norfolk CSO/PS17 EOF/SD	56	11.8	93.8	62	0.08	434	573	2,500	418	3,070	382	3,070	205	120	66
I-5 SD at S Ryan St	3	10	52.6	330	0.04	201	56	570	72	230	52	350	60	60	20
16th Ave S SD (west)	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17th Ave S SD[g]	5	20	104	38	0.0755	551	535	2,605	320	3,701	437	13,650	416	166	80
S 96th St SD	4	16.	66.7	35	0.075	650	446	1,974	930	1,945	488	2,888	4,260	109	34
Duwamish substation SD #3	1	4.9	82	48	0.019	240	--	--	310	2,300	300	<11,000	<3,600	260	35
Duwamish substation SD #2	1	10	120	150	0.05	550	--	--	39,000	140,000	18,000	<19,000	<6,500	390	62
Duwamish substation SD #1	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
W Marginal Pl S SD	1	17	320	500	0.061	4,200			1,500	9,400	1,300	7,200	1,300	<1,600	77
MIDDLE REACH															
Head of Slip 2 SD	1	14.8	62.5	79.8	0.0282	198	145	494	208	227	85	458	<94.3	<94.3	27.3
1st Ave S SD, east	3	7	185	115	0.04	550	260	1,200	752	3,147	389	2,600	350	64	109
S River St SD	18	16	104	72	0.065	434	750	3,000	813	5,836	703	4,005	295	200	142
S Brighton St SD	6	11	66.	116	0.08	362	65	415	192	912	216	825	232	39	158
S Myrtle St SD	13	20	657	557	1.04	3,890	1,795	7,525	1,454	6,246	788	21,500	2,055	650	1,483
S Garden St SD	1	10	67.8	52	0.03	201	84	760	58	112	88	360	58	35	60
I-5 SD at Slip 4	30	10	91.6	98	0.0502	447	275	1,300	749	3,833	442	4,610	335	98	125
Georgetown SD	4	9.2	136	112	0.142	552	362	2,560	3,073	26,628	3,390	10,600	795	223	241
SW Kenny St SD/T115 CSO	2	20.2	70.8	50.2	0.1725	400	432	2,065	488	3,473	409	3,665	147	99	146
Highland Park Wy SW SD	15	16	113	129	0.1678	660	468	2,380	607	2,813	264	4,120	240	100	209
1st Ave S SD, west	46	10	110	79.5	0.12	551	680	3,000	405	3,075	359	8,100	280	130	97
2nd Ave S SD	23	10	151	87	0.11	452	750	3,610	443	2,085	253	6,600	250	130	122
S Webster St SD	1	8	66.3	19	0.3	201	400	1,700	8,390	62,100	7,893	2,400	280	280	75
7th Ave S SD	36	10	101	45	0.06	319	390	1,830	270	1,696	236	3,630	111	98	104
LOWER REACH															
S Nevada St SD	5	11	110	92	0.0919	794	935	3,740	6,187	24,253	2,653	10,300	733	126	394
Diagonal Ave S CSO/SD	397	10	116	80	0.0844	435	501	2,500	537	2,700	343	5,905	293	119	113
SW Dakota St SD	4	10	138	111	0.13	932	492	2,530	777	5,729	593	9,900	895	197	241
SW Idaho St SD	21	11	31.5	46	0.0764	225	79	371	142	88	129	924	84	61	40
South Operations Center SD	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Median	4	10	104	84	0.078	449	446	2,380	572	3,111	399	4,063	287	120	106
2 x Median	--	20	208	167	0.156	899	892	4,760	1,144	6,222	798	8,125	573	240	213
Min	0	4.9	32	19	0.019	161	56	371	58	88	52	350	58	35	20
Max	397	20	657	557	1.04	4,200	2,060	12,100	39,000	140,000	18,000	29,300	4,260	650	1,483

Includes samples collected 2003 – 2019 that have not been affected by line cleaning (e.g., samples tagged as “never been cleaned” or “post cleaning”) and that were collected from the City MS4 (i.e., does not include sampled tagged as “NDS”)

Table J-4: Storm drains exhibiting elevated levels of chemicals compared to other outfalls in the LDW.

	Outfall	No. of samples[a]	Median 2 times greater than other outfalls
Upper Reach	16th Ave S SD (east)	1	Cu, Hg, Zn, LPAH, HPAH, cPAH, PCBs, BEHP, diesel, oil
	KCIA SD #1	3	BBP
	I-5 SD at S Ryan St	4	Pb
	17th Ave S SD	5	BEHP
	S 96th St SD	4	BBP
	Duwamish Substation SD#3	1	DMP
	Duwamish Substation SD #2	1	LPAH, HPAH, cPAH, DMP
	W Marginal Pl S SD	1	Cu, Zn, LPAH, HPAH, cPAH
Middle Reach	S Myrtle St SD	13	Cu Hg, Pb, Zn, PCBs, LPAH, DMP, BEHP, BBP, diesel, oil
	Georgetown SD	4	LPAH, HPAH, cPAH, PCBs, BEHP, BBP, DMP, PCBs
	SW Kenny St SD/T115 CSO	2	As, Hg
	S Webster St SD	1	Hg, LPAH, HPAH, cPAH, DMP
Lower Reach	S Nevada St SD	5	LPAH, HPAH, cPAH, PCBs, BEHP, BBP, diesel
	SW Dakota St SD	3-4	Zn, PCBs, BEHP, BBP

As = arsenic
Cu = copper
Hg = mercury
Zn = zinc
BBP = butyl benzyl phthalate
DMP = dimethyl phthalate
BEHP = bis(2-ethylhexyl)phthalate
PCB = polychlorinated biphenyls
cPAH = carcinogenic polycyclic aromatic hydrocarbons
LPAH = low molecular weight polycyclic aromatic hydrocarbons
HPAH = high molecular weight polycyclic aromatic hydrocarbons

a. Includes all samples collected in the MS4 that have not been affected by cleaning operations (i.e., data flagged as "never been cleaned" or "post cleaning"). Does not include ODS (outside the drainage system) samples, which consist of surface dirt, soil, or other materials (e.g., paint, caulk).

3. IN-WATERWAY SEDIMENT DATA

Available waterway sediment data were reviewed to identify locations where chemical concentrations in samples collected near outfalls exceeded the Washington State Sediment Management Standards sediment cleanup objective (SCO). This type of analysis does not indicate causality but can be used to focus source control activities on those outfalls and chemicals with actual potential for recontamination above the sediment remedial action levels (RALs), the goal established by Ecology for source control in the LDW (Ecology 2016). SCOs are listed in and RALs are listed in Table J-6.

Table J-5: Sediment cleanup objectives.

Chemical	Sediment Cleanup Objective
Metals (mg/kg)	
Arsenic	57
Copper	390
Lead	450
Mercury	0.41
Zinc	410
LPAH (mg/kg organic carbon)	
Acenaphthene	16
Acenaphthylene	66
Anthracene	220
Fluorene	23
Naphthalene	99
Phenanthrene	100
LPAH	370
HPAH (mg/kg organic carbon)	
Benzo(a)anthracene	110
Benzo(a)pyrene	99
Benzo(g,h,i)perylene	31
Chrysene	110
Dibenz(a,h)anthracene	12
Fluoranthene	160
Indeno(1,2,3-cd)pyrene	34
Pyrene	1,000
Total benzofluoranthenes	230
HPAH	960
Phthalates (mg/kg organic carbon)	
Bis(2-ethylhexyl)phthalate	47
Butyl benzyl phthalate	4.9
Diethyl phthalate	61
Dimethyl phthalate	53
Di-n-butylphthalate	220
Di-n-octylphthalate	58
Total PCBs (mg/kg organic carbon)	12
Other organics (mg/kg organic carbon)	
1,2,4-Trichlorobenzene	0.81
1,2-Dichlorobenzene	2.3
1,4-Dichlorobenzene	3.1
2,4-Dimethylphenol[a]	29
2-Methylnaphthalene	38
2-Methylphenol[a]	63
4-Methylphenol[a]	670

Chemical	Sediment Cleanup Objective
Benzoic acid[a]	650
Benzyl alcohol[a]	57
Dibenzofuran	15
Hexachlorobenzene	0.38
Hexachlorobutadiene	3.9
N-Nitrosodiphenylamine	11
Pentachlorophenol[a]	360
Phenol[a]	420

a. SCO values are based on ug/kg dw concentrations)

Table J-6: Sediment remedial action levels.

Chemical	Units	Remedial Action Level	
		LDW-wide	Intertidal
Arsenic	mg/kg	57	28
PCBs	mg/kg	12	65
	µg/kg dw	130[b]	1,000[b]
cPAH	µg TEQ/kg dw	1,000	900
Dioxins/furans	ng TEQ/kg dw	25	28
Benthic SMS	--	2 x SCO[c]	--

a. Source: EPA (2014).
b. Approximate dry-weight equivalent of the organic carbon normalized value.
c. 10-year post-construction target to meet SCO.

Sediment samples located different distances from the outfall are considered in the analysis to account for the wide range of outfalls/drainage basins associated with the City MS4. Outfalls serving the City MS4 range in size from 8 to 144 inches diameter and serve drainage basins ranging from <5 to 2,600 acres. The offshore area that may be affected by storm drain discharges is expected to be considerably different for small systems compared to larger systems. In a study by Ecology that was conducted to characterize the quality of LDW surface sediment near stormwater and CSO outfalls, in-waterway samples were collected 50 feet offshore of outfalls that were equal to or less than 24 inches in diameter and 100 feet offshore of outfalls greater than 24 inches (SAIC 2011).

3.1. DATA USED IN ANALYSIS

Data from the following studies were compiled:[1]

- Ecology outfall study (SAIC 2011). In 2011, Ecology collected 162 samples offshore of 75 outfalls in the LDW to characterize the quality of surface sediment in areas where no data previously existed (SAIC 2011). In most cases, these samples represent relatively small drainage systems (i.e., less than about 100 acres). Where possible, three samples were collected offshore of each outfall, one upriver, one downriver, and one directly across from the outfall. Samples were analyzed for TOC, metals, SVOC, and PCBs.

[1] Waterway sediment data were obtained from Windward LDW Nov 2019 data base.

- LDW remedial investigation/feasibility study (RI/FS). Sediment sampling conducted for the LDW RI/FS (AECOM 2012) did not necessarily target locations offshore of outfalls; however, a number of surface sediment samples were collected in the vicinity of some outfalls, particularly the larger drainage systems (e.g., greater than 100 acres).
- LDW pre-design study data compilation (Windward 2018). Under AOC amendment 3, the Lower Duwamish Waterway Group (LDWG) compiled relevant data collected after April 2010 that was not already included in the RI/FS. Results from samples of surface and subsurface sediment, surface water, tissue, porewater, and seep samples were compiled and entered into the LDW data base. The results for surface sediment samples compiled from 55 different studies were included in this analysis.
- LDW pre-design study surface sediment samples (Windward 2019). Under AOC amendment 3, LDWG also collected sediment and bank samples from the LDW between February and June 2018. Results for individual surface sediment samples (not composites) were used in this analysis.

Sediment samples collected within 200 feet an outfall owned by or used by the City of Seattle that were used in the analysis are shown on Maps J-3 through J-5. At least one sediment sample has been collected within 200 feet of each outfalls owned or used by the City.

In areas where early action cleanups have occurred (e.g., Diagonal/Duwamish, Norfolk, Slip 4, and Boeing Plant 2 Early Action Areas), only the post-cleanup sampling results were included to better match the time period over which source samples have been collected. Chemicals exceeding the SCO in samples collected within 200 feet of an outfall are provided in Attachment J-1.

No chemicals exceeded SCO in sediment samples collected within 50 to 200 feet of the following outfalls:

- I-5 SD at S Ryan St
- 16th Ave S SD (west)
- 17th Ave S SD
- Duwamish Substation SD#1
- Duwamish Substation SD #3
- W Marginal Pl SD
- S Nevada St SD
- South Operations Center SD

Only benzyl alcohol, 2,4-dimethylphenol, or phenol exceeded SCO in sediment samples collected within 50 feet of the following outfalls:

- Duwamish Substation SD #2
- SW Idaho St SD.

Multiple chemicals exceed SCO in samples collected within 200 feet of the remaining 21 outfalls. SCO exceedances in sediment samples collected offshore of outfalls owned or used by Seattle are provided in Attachment Table A-1.

3.2. STORM DRAIN SOLIDS TO WATERWAY SEDIMENT COMPARISONS

City storm drains are one of many potential sources of the contaminants found in the LDW sediment. To check for possible links between storm drain solids and waterway sediment contaminants, SPU compared the chemistry data for waterway surface sediment samples collected within 200-feet of an outfall with chemistry from the near end-of-pipe storm drain solids samples. Inline samples where CSL/2LAET exceedances match corresponding SCO exceedances in the nearby in-waterway sediment samples are flagged.

Source samples used in the analysis are listed in Table J-2 and shown on Map J-2. As listed in Table J-7, there were only three outfalls where near end-of-pipe samples have not been collected.

Table J-7: Outfalls where no near end-of-pipe storm drain solids samples have been collected.

Outfall	Area (Ac)[a]	Offshore sediment samples distance from outfall (ft)		
		0-50	50-100	100-200
S Garden St SD[b]	1.5	✓	✓	✓
Duwamish substation SD #1	0.6	✓	✓	✓
South Operations Center SD	6	✓	✓	✓

a. City MS4 basin. Does not include areas served by non-MS4 systems.
b. No inline samples collected since system was last cleaned.

Results of the analysis are summarized in Table J-8. Of the 18 outfalls where there were corresponding near end-of-pipe inline data and surface sediment samples within 200 feet of the outfall, only nine locations matched the selection criteria (≥CSL in inline sample and ≥SCO in waterway sediment within specified distance from outfall). BEHP was the chemical that had the most matches between in- pipe and in-waterway sediment sample results. Select PAH compounds (Norfolk CSO/PS #17 EOF/SD, 7th Ave S SD, Diagonal Ave S CSO/SD) and
PCBs (Diagonal Ave S CSO/SD and 7th Ave S SD) also matched the criteria at a few outfalls. A brief discussion of locations where there were corresponding matches between chemicals exceeding the CSL in the inline samples and SCO in the waterway sediment is provided below.

Table J-8: Chemicals with concentrations above screening levels in both near end-of-pipe storm drain solids samples and nearby waterway sediment.

Outfall	Basin area (acres)[a]	Distance from outfall (feet)		
		0 – 50	51 - 100	101 - 200
UPPER REACH				
16th Ave S SD (east)	3.2	--	--	Zn, benzoic acid
Norfolk CSO/PS 17 EOF/SD	649	BEHP	BEHP	
MIDDLE REACH				
S River St SD	6.5	Benzyl alcohol	No samples	--
S Myrtle St SD	6.2	Hg, Zn, BEHP, BBP, PCBs	No samples	Zn
I-5 SD at Slip4	65	BEHP, BBP	Zn, BEHP, BBP, PCBs[b], benzyl alcohol	BEHP
Georgetown SD	5.9	BEHP, BBP, benzyl alcohol	BEHP, BBP	BEHP
SW Kenny St SD/T115 CSO	154	--	Benzyl alcohol	Benzyl alcohol
Highland Park Wy SW SD	289	--	BEHP	--
1st Ave S SD (west)	603	--	--	BBP
2nd Ave S SD	18.4	Zn, BEHP, benzyl alcohol	Zn, BEHP	Zn
7th Ave S SD	238	BEHP, benzyl alcohol, benzo(g,h,i)perylene, dibenz(a,h)anthracene, fluoranthene	BEHP, benzo(g,h,i)perylene, dibenz(a,h)anthracene, fluoranthene	Benzyl alcohol, dibenz(a,h)anthracene, fluoranthene

Outfall	Basin area (acres	Distance from outfall (feet)		
		0 – 50	51 - 100	101 - 200
LOWER REACH				
Diagonal Ave S CSO/SD	2,665	No samples	PCBs, BEHP, BBP, DMP, 1,4-dichlorobenzene	BEHP, BBP
SW Dakota St SD	47	BEHP, benzyl alcohol	No samples	No samples
SW Idaho St SD	423	--	--	Benzyl alcohol

BEHP = bis(2-ethylhexyl)phthalate, BBP = butyl benzyl phthalate, DMP = dimethyl phthalate
Waterway sediment > SCO and near end-of-pipe inline sample >CSL/2LAET

a. Area served by City-owned pipes discharging to outfall.
b. One of 20 samples exceeded 2LAET in the near end-of-pipe samples. PCBs exceeded SCO in waterway sediment in 2015, 2017, and 2019 post-cleanup samples collected from the waterway channel (WC samples).

4. RECONTAMINATION ASSESSMENT FROM THE LDW FEASIBILITY STUDY

The potential for sediments to re-contaminate following cleanup was evaluated in the LDW Feasibility Study (AECOM 2012b). Results from this analysis have been included in the prioritization process as another line of evidence. The Feasibility Study (FS) defined "recontamination" as contaminant concentrations in surface sediments that return to levels above the sediment quality objectives (SCO). Multiple lines of evidence were used to predict the range of contaminant concentrations that surface sediments in the LDW would be predicted to achieve, or equilibrate to, over the long term following remedial actions and source control. Predictions were developed using the sediment transport model (in conjunction with the bed composition model (BCM) developed for the FS. The sediment transport model analyzed the physical transport of sediment in the LDW to assess where particles from river inputs at the upstream boundary of the LDW study area, erosion of bedded sediments, and discharges from lateral sources (i.e., storm drains and combined sewer overflows) would deposit in the waterway. The BCM attaches chemistry values to the particles deposited in the waterway. Data from source tracing samples collected through June 2009 were used in the model. Three scenarios were evaluated to account for different levels of source control

- High. A conservative representation of current conditions assuming modest continued levels of source control and management of high priority sources already identified by the Source Control Work Group.
- Model Input (Base Case). A pragmatic assessment of what might be achieved in the future with anticipated continued levels of source control. This value is based on mean/median concentrations observed in the lateral dataset after control of medium priority sources.
- Low. A best case that might be achievable in 30 to 40 years with increased coverage and continued aggressive source control.

Model inputs for the major risk drivers are shown in Table J-9.

Table J-9: Chemistry inputs to the FS recontamination analysis.

Chemical	BCM Input Values			Basis for BCM Input and Sensitivity Values
	Base Case	Low	High	
Arsenic[a] (mg/kg dw)	13	9	30	Screened the source tracing dataset to exclude concentrations above assumed SMS-based source control levels (93 and 57 mg/kg dw) **Input:** Mean excluding values >93 mg/kg (the CSL). **High:** 90th percentile excluding values >93 mg/kg (the CSL). **Low:** Median of all samples, excluding values >57 mg/kg (the SCO)[a].
Total PCBs[a] (µg /kg dw)	300	100	1,000	Used a range of screening concentrations to reflect potential levels of source control that could occur over time. **Input:** Mean of flow-weighted dataset excluding values >5,000 µg/kg dw. **High:** 90th percentile of flow-weighted source tracing dataset excluding values >10,000 µg/kg dw. **Low:** Median of flow-weighted source tracing dataset excluding values >2,000 µg/kg dw.[a]
cPAH[a] (µg TEQ/kg dw)	1,400	500	3,400	Screened the source tracing dataset to exclude concentrations above an assumed source control level. cPAHs are expected to be difficult to control due to the petroleum-based economy, intensity of urbanization in the LDW and myriad ongoing sources. **Input:** Mean of source tracing dataset excluding values >25,000 ug TEQ/kg dw. **High:** 90th percentile of source tracing dataset excluding values >25,000 ug TEQ/kg dw. **Low:** Median of source tracing dataset excluding values >25,000 ug TEQ/kg dw.[a].
Dioxins and Furans[b] (nq TEQ/kg dw)	20	10	40	Based on combined Greater Seattle sediment and SPU catch basin solids datasets. [b] **Input:** Mean. **Low:** Median (rounded to10). **High:** UCL95.

Reference: AECOM (2012b).

a. Used Lower Duwamish Waterway source tracing dataset (compiled by SPU) through June 2009 as the primary basis for establishing lateral BCM parameter values for arsenic, total PCBs, and cPAH. The dataset was screened to remove concentrations using various source control practicability assumptions (best professional judgment). Total PCB data were flow-weighted before generating statistics because PCBs exhibit a distinct geographic distribution with hotspots identified in Terminal 117, NBF/GTSP, Rainer Commons, and Boeing Plant 2. These three areas have been extensively sampled and make up a significant portion of the overall source tracing dataset. Therefore, these source tracing data were flow-weighted to avoid skewing the summary statistics used in the BCM model. Arsenic and cPAH data were not flow-weighted prior to the statistical analysis because these chemicals lack a pronounced geographic dependency that would warrant flow-weighting.

b. Parameter estimation for dioxins and furans was based on the Greater Seattle sediment and SPU catch basin solids datasets. The summary statistics used to estimate parameter values correspond to the combined datasets, as supported by statistical analysis.

BCM = bed composition model; cPAH = carcinogenic polycyclic aromatic hydrocarbon; CSL = cleanup screening level; FS = feasibility study; GTSP = Georgetown Steam Plant; NBF = North Boeing Field; PCB = polychlorinated biphenyl; SPU = Seattle Public Utilities; TEQ = toxic equivalent; SCO = sediment quality standard; UCL95 = 95% upper confidence limit on the mean

Particle deposition was modeled using the Sediment Transport Model, which tracked the movement of solids from upriver (e.g., upstream of the LDW project area), re-suspension and transport of in-waterway sediment, and "lateral sources" (e.g., discharges from storm drains and combined sewers in the LDW). It did not take into account potential contributions from groundwater and bank erosion. Because drainage areas were not available for all of the 200 or so outfalls that discharge to the LDW, the

STM model aggregated inputs from multiple smaller outfalls to a single location as shown in Table J-10 and Map J-6.

Table J-10: Lateral inputs to the LDW sediment transport model.

Modeled outfall	Area[a] (acres)	Modeled outfall	Area[a] (acres)
East side of waterway		***West side of waterway***	
Diagonal Ave S CSO/SD	2,620	SW Idaho St SD	655
Slip 4 outfalls[b]	495	SW Kenny St SD/T1115 CSO	164
King County Airport SD #2	236	Highland Park Wy SW SD	491
King County Airport SD #1	64	1st Ave S SD, west	328
Norfolk CSO/EOF/SD	826	Waterfront 6[c]	94
Remaining public SDs	226	Waterfront 7[c]	37
Waterfront 1[c]	46	Waterfront 8[c]	56
Waterfront 2[c]	71	Waterfront 9[c]	47
Waterfront 3[c]	43	Waterfront 10[c]	58
Waterfront 4[c]	210	Waterfront 11[c]	120
Waterfront 5[c]	101		

a. Basin areas used in the FS analysis.
b. Includes I-5 SD at Slip 4, North Boeing Field SD, Georgetown SD, and King County SD #3/PS 44 EOF.
c. Waterfront discharges include the nearshore areas draining to the waterway via individual outfalls. Solids loading inputs to the model were distributed evenly along that segment of the waterway.

To isolate potential effects from lateral inputs, the BCM was run for a 10-year period starting with in-waterway sediment concentrations post-remediation set to zero (AECOM 2012b). The results shown on Map J-7, indicate that phthalates (i.e., BEHP and butyl benzyl phthalates) are the primary risk driver predicted to have a greater potential to exceed the SCO in waterway sediments and generally only in the vicinity of the larger outfalls/source inputs at year 10. Other risk drivers predicted to exceed SCO at year 10 are PCBs and zinc offshore of the Diagonal Ave S CSO/SD outfall.

5. SUMMARY RANKINGS

Results of the basin prioritization process are provided in Table J-11 (metals) and Table J-12 (organic chemicals). Also see Appendix C for a description of what is currently known about each outfall and specific source tracing activities planned in each basin over the next five years. These tables list the percent of samples that exceed the SMS screening levels in all relevant storm drain samples2, near end-of-pipe samples, and offshore sediment samples collected within 200 feet of each outfall for metals (arsenic, copper, lead, mercury, and zinc, LPAH, HPAH, cPAH, PCBs, and phthalates (bis[2-ethylhexyl]phthalate, butyl benzyl phthalate, and dimethyl phthalate). Chemicals are then assigned a high, medium, or low priority for the purposes of source tracing.

Table J-13 summarizes results for all lines of evidence (e.g., outfall to outfall comparisons, inline near-end-of-pipe storm drain solids to waterway sediment comparisons, and FS recontamination predictions)

[2] Includes all samples collected in the MS4 that have not been affected by the 2005 cleaning operations (i.e., data flagged as "never been cleaned" or "post cleaning"). Does not include ODS (outside the drainage system) samples, which include surface

and lists the source control/tracing activities planned for each outfall over the next 5 years. Outfalls are also assigned a priority ranking. The highest priority outfalls include 16th Ave S SD (east), S Myrtle St SD, S Garden St SD, Georgetown SD, S Nevada St SD, and Diagonal Ave S CSO/SD. A brief discussion of each of these high priority outfalls is provided in the following sections. Detailed descriptions of planned activities in other storm drains owned by or used by the City of Seattle are provided in Appendix C.

16th Ave S SD (east)

The 16th Ave S SD (east) serves a 3.2-acre basin west of E Marginal Wy S. This system mostly collects roadway runoff from short sections of 16th Ave S and E Marginal Wy S plus runoff from a portion of an industrial parcel located at the southwest corner of 16th Ave S and E Marginal Wy S within the City of Seattle (Map 4).

Multiple chemicals in a near end-of-pipe inline grab sample collected in 2019, after the line was cleaned in 2013 exhibited higher concentrations than observed in other storm drains in the LDW (mercury, PCBs, LPAH, HPAH, and cPAH). Although likely a minor contributor to sediment recontamination due its relatively small drainage area, this outfall was selected because it is in the upper basin, which is scheduled to begin cleanup during the timeframe covered by this SCIP. SPU intends to complete the following activities in this basin:

- Establish a long-term monitoring station near the downstream end of the City-owned portion of this system to monitor the quality of storm drain solids discharged to the LDW.
- Inspect business at corner of E Marginal Wy S and 16th Ave S and if possible, collect sample from private onsite catch basin.
- Clean entire system after completing source tracing.

S Myrtle St SD

The S Myrtle St SD, which serves an 8.6-acre industrial basin located between Slip 3 and Slip 4 (Map 16), is heavily impacted by activities at an adjacent metal recycling facility located on the south side of S Myrtle St and its storage yard located on the north side of S Myrtle St. See the discussion of Seattle Iron and Metals Company (SIMC) in Appendix D for more details.

Chemicals that exceeded both the CSL/2LAET in near end-of-pipe inline samples and SCO in offshore sediment included mercury, zinc, PCBs, bis(2-ethylhexyl)phthalate, and butyl benzyl phthalate. SPU is hopeful that source control actions required of SIMC by the 2019 Consent Decree (U.S. District Court 2019) will significantly reduce the amount of pollutants released to the neighboring area served by the S Myrtle St SD. Actions that the City will take in this basin over the next five years include:

- Continue to annually sample the sediment trap located near the downstream end of the system.[3]
- SPU will continue working with SIMC to control track out issues from their site and will continue to inspect the two Filterra™ stormwater treatment units that SIMC installed to the driveway on S Myrtle St to ensure that SIMC maintains these units.
- Continue to monitor sediment levels in the catch basins on S Myrtle St each quarter and clean when sediment depths reach 60 percent of the sump depth.
- SDOT will continue to sweep S Myrtle St on a bi-weekly basis as part of the City's ongoing Street Sweeping for Water Quality Program.

[3] SPU intends to leave the new style sediment trap for long term monitoring and remove all the others used in the recent pilot test.

- After SIMC completes the source control actions required under the 2019 Consent Decree, SPU will jet and clean the S Myrtle St drainage system to remove residual contaminants

S Garden St SD

The S Garden St SD serves a 12-acre industrial basin located between Slip 3 and Slip 4 (Map 17), but only 1.5 acres is within the City MS4 drainage system. The remaining area is part of the Seattle Iron and Metals Corporation's private drainage system and outfall. Like the S Myrtle St SD, the City's portion of this drainage system is also heavily impacted by metal recycling operations. See the discussion of Seattle Iron and Metals Company (SIMC) in Appendix D for more details.

Although SPU did not collect any samples from this drainage system in the 2014-2019 reporting period, SPU anticipates that this system experiences similar problems as the S Myrtle St drainage system described above. SCO exceedances have been observed in eight of the 11 samples collected offshore of this outfall (PCBs, dibenzofuran, acenaphthene, and benzyl alcohol). Actions that the City will take in this basin over the next five years include:

- Establish a routine monitoring station in the maintenance hole located near the west end of the City right-of-way on S Garden St. Inline solids samples will be collected each year using either an inline sediment trap or by collecting inline grabs if sufficient sediment accumulates in the system.
- Monitor track out of auto shredding residuals on S Garden St and require controls, as necessary
- Coordinate with Ecology inspectors on SIMC inspections and conduct joint inspections, as necessary.
- Continue to inspect the other active business in this drainage basin, which has a high priority ranking.
- Inspect the Filterra™ unit to make sure it is maintained appropriately.
- SDOT will continue to sweep S Garden St on a bi-weekly basis as part of the City's ongoing Street Sweeping for Water Quality Program.
- After SIMC completes the source control actions required under the 2019 Consent Decree, SPU will jet and clean the S Garden St MS4 drainage system to remove residual contaminants.

Georgetown SD

The Georgetown SD, constructed in 2009 to replace the old flume from the Georgetown Steam Plant, serves an area of about 4.5 acres, which includes the roof of the Georgetown Steam Plant, a short section of S Myrtle St and adjacent parcels, and areas immediately adjacent to the storm drain (catch basin in parking lot at Washington National Guard property and service drains from the motel at the downstream end of the system.

Inline samples collected from the new drainage system between 2014 and 2019 exhibited elevated concentrations of LPAH (2,829 – 24,500 ug/kg dw), HPAH (22,913-146,000 ug/kg dw), and cPAH (2,965 – 21,520 ug TEQ/kg). Seattle City Light suspects that PAHS may be associated with roofing material at the old steam plant and plans to replace the roof in 2020. Over the next five years, SPU intends to conduct the following activities in the Georgetown SD basin:

- Install a sediment trap in MH23 near the downstream end of the system.
- SPU and SCL will jet and clean the Georgetown SD after roof replacement is completed.

S Nevada St SD

The Nevada St SD serves an area of approximately 26 acres, most of which is occupied by a large warehouse and associated parking on the Port of Seattle's Terminal 106 (Map 25). The west end of S Nevada St was vacated to the Port in 1970.

SPU has observed illegal dumping of concrete waste has observed on several occasions in catch basins on S Nevada St and has taken measures to track the illegal dumping problem but has not yet determined the source. In addition, elevated levels of LPAH (6,187 – 96,672 ug/kg dw), HPAH (24,253 – 425,890 ug/kg dw), and cPAH (2,700 – 47,000 ug TEQ/kg) have been found in three right-of-way catch basin samples collected in 2018-2019. Although no chemicals exceeded the SCO in the one sediment sample collected offshore of this outfall, the sample was collected in 2005, before SPU observed these problems.

Over the next 5 years, SPU intends to conduct the following activities in the S Nevada St SD basin:

- Evaluate the potential to install a sediment trap near the downstream end of the system to improve long term monitoring
- Continue to investigate illegal discharges of concrete slurry in this system.
- Track sources of PAHs found in the 2019 samples
- Continue to inspect businesses.

Diagonal Ave S CSO/SD

The Diagonal Ave S CSO/SD drainage basin, which covers an area of about 2,666 acres, is the largest drainage basin in the City (Maps 26 and 27). . Land use in the basin is a mixture of residential (23 percent), commercial (9 percent), industrial (19 percent), vacant/park (10 percent), and right-of-way (39 percent). The upper portion of the basin east of I-5 is mostly residential with commercial businesses clustered along the major transportation corridors (Rainier Ave S, Beacon Ave S, and S Jackson St). The lower portion of the basin west of I-5 is mostly industrial.

SPU has conducted extensive source tracing in this basin over the past 17 years, and although overall concentrations in the Diagonal Ave S CSO/SD drainage system have been comparable to other storm drains in the LDW, given the large area served, this outfall likely contributes a significant load of chemical pollutants to the waterway. Most of the spills and water quality complaints that SPU receives occur in this basin. SPU also continues to look for sources of PCBs and mercury in the S Snoqualmie St sub-basin.

Over the next five years, SPU intends to conduct the following activities in the Diagonal Ave S CSO/SD drainage basin:

- Continue to monitor the sediment traps currently installed in this system (ST1, ST2, ST09, ST10).
- Continue inspecting businesses in the basin.
- Resample City mainline in Airport Wy S downstream of the Rainier Commons property at 3100 Airport Wy S and if necessary, require Rainier Commons to jet and clean onsite and affected MS4 to remove PCBs discharged from the site.
- Sample the 144-inch diameter trunkline downstream of Denver Ave S and the Denver Ave S sub-basin to monitor PCB levels following the cleanup of the spill that occurred in 2019.
- Monitor mercury and PCBs in the S Snoqualmie St sub-basin to assess whether source control actions have been effective.
- Conduct source tracing in the Bush Pl sub-basin to locate source(s) of HPAHs.

- Clean maintenance hole at ST2 (EQNUM 597066) where elevated lead levels were found in 2019 inline grab sample and inspect adjacent property.
- Conduct source tracing along Beacon Ave where elevated levels of lead were recently found in an inline sample.
- Work with businesses where elevated levels of mercury, LPAH, and HPAH have been found in private onsite catch basins to identify and control the source of these chemicals.

Table J-11: Prioritization results for metals.

	Outfall	Area[a] (acres)	Owner	No. of SD samples[h]	No. of near end of pipe samples	No. of offshore samples[i]	Arsenic						Copper						Lead					
							Storm drain solids		Near end-of-pipe		% Offshore Samples > SCO[m]	Source Tracing Priority	Storm drain solids		Near end-of-pipe		% Offshore Samples > SCO[m]	Source Tracing Priority	Storm drain solids		Near end-of-pipe		% Offshore Samples > SCO[m]	Source Tracing Priority
							% >SCO	% >CSL	% >SCO	% >CSL			% >SCO	% >CSL	% >SCO	% >CSL			% >SCO	% >CSL	% >SCO	% >CSL		
Upper Reach	16th Ave S SD, east	12	Tukwila	1	1	4	0	0	0	0	0	L	0	0	0	0	ND	L	0	0	0	0	0	L
	KCIA SD#2/PS 78 EOF	0[j]	King County	0	0	15-32	ND	ND	ND	ND	9	L	ND	ND	ND	ND	ND	L	ND	ND	ND	ND	0	L
	KCIA SD#1	86	King County	3	1	19	0	0	0	0	0	L	0	0	0	0	ND	L	0	0	0	0	0	L
	Norfolk CSO/PS17 EOF/SD	676	Tukwila	56	27	36	0	0	0	0	0	L	7	7	0	0	0	L	0	0	0	0	0	L
	I-5 SD at S Ryan St	55	WSDOT	3	1	3	0	0	0	0	0	L	0	0	0	0	0	L	0	0	0	0	0	L
	16th Ave S SD (west)[k]	3.5	King County	0	0	9	ND	ND	ND	ND	0	L	ND	ND	ND	ND	ND	L	ND	ND	ND	ND	0	L
	17th Ave S SD[g]	3	SPU	5	0	5	0	0	ND	ND	0	L	0	0	ND	ND	0	L	0	0	ND	ND	0	L
	S 96th St SD	42	Unknown	4	1	2	0	0	0	0	0	L	0	0	0	0	0	L	0	0	0	0	0	L
	Duwamish substation SD #3	2	SCL	1	1	3	0	0	0	0	0	L	0	0	0	0	0	L	0	0	0	0	0	L
	Duwamish substation SD #2	1	SCL	1	1	11	0	0	0	0	0	L	0	0	0	0	0	L	0	0	0	0	0	L
	Duwamish substation SD #1	<1	SCL	0	0	7	ND	ND	ND	ND	0	L	ND	ND	ND	ND	ND	M	ND	ND	ND	ND	0	M
	W Marginal Pl S SD	5	Tukwila	1	0	1	0	0	ND	ND	0	L	0	0	ND	ND	0	L	100	0	ND	ND	0	M
Middle Reach	Head of Slip 2 SD	12	Private	1	1	2	0	0	0	0	0	L	0	0	0	0	ND	L	0	0	0	0	0	L
	1st Ave S SD, east	15	SPU	3	3	2	0	0	0	0	0	L	33	33	33	33	ND	H	0	0	0	0	0	L
	S River St SD	6	SPU	18	4	5	0	0	0	0	0	L	0	0	0	0	ND	L	0	0	0	0	0	L
	S Brighton St SD	17	SPU	6	2	4	0	0	0	0	0	L	0	0	0	0	ND	L	0	0	0	0	0	L
	S Myrtle St SD[b]	6	SPU	13	7	6	0	0	0	0	0	L	77	77	100	100	ND	H	69	62	100	86	0	M
	S Garden St SD[bf]	12	Private	1	0	25	0	0	ND	ND	0	L	0	0	ND	ND	ND	H	0	0	ND	ND	0	M
	I-5 SD at Slip 4	150	WSDOT	30	25	6-8	0	0	0	0	0	L	7	7	4[l]	4[l]	0	L	0	0	0	0	0	L
	Georgetown SD	6	SPU	4	3	6-8	0	0	0	0	0	L	0	0	0	0	0	L	0	0	0	0	0	L
	SW Kenny St SD/T115 CSO	154	SPU	2	2	8	0	0	0	0	0	L	0	0	0	0	ND	L	0	0	0	0	0	L
	Highland Park Wy SW SD	289	SPU	15	11	5	0	0	0	0	0	L	0	0	0	0	ND	L	0	0	0	0	0	L
	1st Ave S SD, west	603	WSDOT	46	32	10	0	0	0	0	0	L	0	0	0	0	ND	L	0	0	0	0	0	L
	2nd Ave S SD	38	Private	23	2	29	0	0	0	0	0	L	17	17	0	0	4	M	9	9	0	0	41	M
	S Webster St SD[c]	<1	SPU	1	1	5	0	0	0	0	0	L	0	0	0	0	ND	L	0	0	0	0	0	L
	7th Ave S SD	238	SPU	36	10	5-6	0	0	0	0	0	L	3	3	0	0	ND	L	0	0	0	0	0	L
Lower Reach	S Nevada St SD[d]	23	Port	5	1	1	0	0	0	0	0	L	0	0	0	0	ND	L	0	0	0	0	0	L
	Diagonal Ave S CSO/SD	2,664	SPU	397	35	21	2	1	0	0	0	L	7	7	0	0	0	L	5	3	0	0	0	L
	SW Dakota St SD	45	SPU	7	2	1	0	0	0	0	0	L	0	0	0	0	ND	L	0	0	0	0	0	L
	SW Idaho St SD	423	SPU	21	8	7	0	0	0	0	0	L	0	0	0	0	ND	L	0	0	0	0	0	L
	South Operations Center SD	6	SPU	0	0	5	ND	ND	ND	ND	0	L	ND	ND	ND	ND	0	L	ND	ND	ND	ND	0	L

H = high priority
M = medium priority
L = low priority
ND = no data available
EOF = emergency overflow (sanitary pump station).
CSO = combined sewer overflow SD = storm drain

a. Seattle MS4 drainage area. Does not include areas outside of the City
b. Source identified
c. Single catch basin on S Riverside Dr connected to this outfall.
d. Only one waterway sediment sample within 200 ft of outfall (LDW-SS13). No SMS exceedences.
e. SPU continuing to investigate source of mercury in S Snoqualmie St sub-basin
f. Follow-up sampling after cleaning
g. Outfall installed in 2015.
h. Samples collected in City MS4. Samples collected outside the City MS4 not included.
i. Sediment samples collected after EAA cleanup:
Boeing Plant 2: 2015 and 2016 post-dredge samples
Diagonal/Duwamish: after 2004.
Slip 4: after February 2012
Norfolk: after Boeing 2003 dredge
T117: after April 2015.
j. No City MS4 drainage. EOF is only City connection. No overflows reported in past 10 years.
k. Runoff treated in King County's bioretention system at South Park Bridge
l. 6,320 mg/kg copper in catch basin adjacent to dust collection system at a metal finishing facility and 720 mg/kg in downstream catch basin on mainline.
Dust collection system was removed when the business closed in 2015.
m. Exceedance counts do not include non-detected samples when reporting limit >SCO.

	Outfall	Area[a] (acres)	Owner	No. of SD samples[h]	No. of near end of pipe samples	No. of offshore samples[i]	Mercury						Zinc					
							Storm drain solids		Near end-of-pipe		% Offshore Samples > SCO[m]	Source Tracing Priority	Storm drain solids		Near end-of-pipe		% Offshore Samples > SCO[m]	Source Tracing Priority
							% >SCO	%>CSL	% >SCO	% >CSL			% >SCO	% >CSL	% >SCO	% >CSL		
Upper Reach	16th Ave S SD, east	12	Tukwila	1	1	4	0	0	0	0	0	L	100	100	100	100	ND	L
	KCIA SD#2/PS 78 EOF	0[j]	King County	0	0	15-32	ND	ND	ND	ND	0	L	ND	ND	ND	ND	6	L
	KCIA SD#1	86	King County	3	1	19	0	0	0	0	0	L	0	0	0	0	0	L
	Norfolk CSO/PS17 EOF/SD	676	Tukwila	56	27	36	0	0	0	0	0	L	51	27	14	0	0	L
	I-5 SD at S Ryan St	55	WSDOT	3	1	3	0	0	0	0	0	L	0	0	0	0	0	L
	16th Ave S SD (west)[k]	3.5	King County	0	0	9	ND	ND	ND	ND	0	L	ND	ND	ND	ND	0	L
	17th Ave S SD[g]	3	SPU	5	0	5	0	0	ND	ND	0	L	100	25	ND	ND	0	M
	S 96th St SD	42	Unknown	4	1	2	0	0	0	0	0	L	100	25	100	0	0	L
	Duwamish substation SD #3	2	SCL	1	1	3	0	0	0	0	0	L	0	0	0	0	0	L
	Duwamish substation SD #2	1	SCL	1	1	11	0	0	0	0	0	L	100	0	100	0	0	L
	Duwamish substation SD #1	<1	SCL	0	0	7	ND	ND	ND	ND	0	M	ND	ND	ND	ND	0	L
	W Marginal Pl S SD	5	Tukwila	1	0	1	0	0	ND	ND	0	L	100	100	ND	ND	0	L
Middle Reach	Head of Slip 2 SD	12	Private	1	1	2	0	0	0	0	0	L	0	0	0	0	0	L
	1st Ave S SD, east	15	SPU	3	3	2	0	0	0	0	0	L	100	33	100	33	0	L
	S River St SD	6	SPU	18	4	5	6	6	0	0	0	L	61	17	75	0	0	L
	S Brighton St SD	17	SPU	6	2	4	0	0	0	0	0	L	50	17	50	50	0	L
	S Myrtle St SD[b]	6	SPU	13	7	6	70	70	100	100	17	M	100	92	100	100	33	M
	S Garden St SD[bf]	12	Private	1	0	25	0	0	ND	ND	0	M	0	0	ND	ND	0	L
	I-5 SD at Slip 4	150	WSDOT	30	25	6-8	0	0	0	0	0	L	60	7	56	4	25	M
	Georgetown SD	6	SPU	4	3	6-8	0	0	0	0	0	L	100	0	100	0	25	M
	SW Kenny St SD/T115 CSO	154	SPU	2	2	8	0	0	0	0	0	L	50	0	50	0	0	L
	Highland Park Wy SW SD	289	SPU	15	11	5	0	0	0	0	0	L	67	13	64	9	0	L
	1st Ave S SD, west	603	WSDOT	46	32	10	7	2	0	0	0	M	63	24	50	22	0	L
	2nd Ave S SD	38	Private	23	2	29	22	22	0	0	48	H	57	22	100	50	25	M
	S Webster St SD[c]	<1	SPU	1	1	5	0	0	0	0	0	L	0	0	0	0	0	L
	7th Ave S SD	238	SPU	36	10	5-6	0	0	0	0	0	L	42	6	40	0	0	L
Lower Reach	S Nevada St SD[d]	23	Port	5	1	1	0	0	0	0	0	L	100	40	100	100	0	L
	Diagonal Ave S CSO/SD	2,664	SPU	397	35	21	8[e]	5[e]	11[e]	6[e]	0	M	53	16	51	3	0	L
	SW Dakota St SD	45	SPU	7	2	1	0	0	0	0	0	L	100	33	100	0	100	M
	SW Idaho St SD	423	SPU	21	8	7	0	0	0	0	0	L	24	14	0	0	0	L
	South Operations Center SD	6	SPU	0	0	5	ND	ND	ND	ND	0	M	ND	ND	ND	ND	0	M

H = high priority
M = medium priority
L = low priority
ND = no data available
EOF = emergency overflow (sanitary pump station).
CSO = combined sewer overflow SD = storm drain

b. Seattle MS4 drainage area. Does not include areas not served by City MS4.
b. Source identified
c. Single catch basin on S Riverside Dr connected to this outfall.
d. Only one waterway sediment sample within 200 ft of outfall (LDW-SS13). No SMS exceedences.
e. SPU continuing to investigate source of mercury in S Snoqualmie St sub-basin
h. Follow-up sampling after cleaning
h. Samples collected in City MS4. Samples collected outside the City MS4 not included.
i. Outfall installed in 2015.
i. Sediment sampled collected within 200 feet of outfall and collected after EAA cleanup:
Boeing Plant 2: 2015 and 2016 post-dredge samples
Diagonal/Duwamish: after 2004.
Slip 4: after February 2012
Norfolk: after Boeing 2003 dredge
T117: after April 2015.
k. No City MS4 drainage. EOF is only City connection. No overflows reported in past 10 years.
k. Runoff treated in King County's bioretention system at South Park Bridge
l. 6,320 mg/kg copper in catch basin adjacent to dust collection system at a metal finishing facility and 720 mg/kg in downstream catch basin on mainline.
Dust collection system was removed when the business closed in 2015
m. Exceedance counts do not include non-detected samples when reporting limit >SCO.

Table J-12: Prioritization results for organic chemicals.

	Outfall	Area[a] (acres)	Owner	No. of SD samples[g]	No. of near end of pipe samples	No. of offshore samples[h]	LPAH						HPAH						cPAH					
							Storm drain solids		Near end-of-pipe		% Offshore Samples > SCO[l]	Source Tracing Priority	Storm drain solids		Near end-of-pipe		% Offshore Samples > SCO[l]	Source Tracing Priority	Storm drain solids		Near end-of-pipe		% Offshore Samples > SCO[l]	Source Tracing Priority
							% >LAET	% >2LAET	% >LAET	% >2LAET			% >LAET	% >2LAET	% >LAET	% >2LAET			% >LAET	% >2LAET	% >LAET	% >2LAET		
Upper Reach	16th Ave S SD (east)[j]	12	Tukwila	1	1	4	0	0	0	0	0	L	0	0	0	0	0	L	0	0	0	0	0	L
	KCIA SD#2/PS 78 EOF	0[i]	King County	0	0	16	ND	ND	ND	ND	6	L	ND	ND	ND	ND	25	L	ND	ND	ND	ND	44	L
	KCIA SD#1	86	King County	3	1	10-12	0	0	0	0	0	L	0	0	0	0	0	L	0	0	0	0	25	L
	Norfolk CSO/PS17 EOF/SD	676	Tukwila	53	21	36	9	9	5	5	0	M	11	11	5	5	0	M	17	17	10	10	0	M
	I-5 SD at S Ryan St	55	WSDOT	3	1	3	0	0	0	0	0	L	0	0	0	0	0	L	0	0	0	0	0	L
	16th Ave S SD (west)[j]	3.5	King County	0	0	3-16	ND	ND	ND	ND	0	L	ND	ND	ND	ND	0	L	ND	ND	ND	ND	0	L
	17th Ave S SD[f]	3	SPU	4	1	4-16	0	0	ND	ND	0	L	0	0	ND	ND	0	L	0	0	ND	ND	0	L
	S 96th St SD	42	Unknown	4	1	2	0	0	0	0	0	L	0	0	0	0	0	L	25	25	0	0	0	M
	Duwamish substation SD #3	2	SCL	1	1	3-5	0	0	0	0	0	L	0	0	0	0	0	L	0	0	0	0	0	L
	Duwamish substation SD #2	1	SCL	1	1	11	100	100	100	100	0	L	100	100	100	100	0	H	100	100	100	100	0	H
	Duwamish substation SD #1	<1	SCL	0	0	7	ND	ND	ND	ND	0	M	ND	ND	ND	ND	0	M	ND	ND	ND	ND	0	M
	W Marginal Pl S SD	5	Tukwila	1	0	1-2	0	0	ND	ND	0	L	0	0	ND	ND	0	M	100	100	ND	ND	0	H
Middle Reach	Head of Slip 2 SD	12	Private	1	1	2-3	0	0	0	0	0	L	0	0	0	0	0	L	0	0	0	0	0	L
	1st Ave S SD, east	15	SPU	3	3	2	0	0	0	0	0	L	0	0	0	0	0	L	0	0	0	0	0	L
	S River St SD	6	SPU	18	4	5-6	0	0	0	0	0	M	17	11	25	25	0	H	22	22	50	50	0	H
	S Brighton St SD	17	SPU	4	2	4-6	0	0	0	0	0	L	0	0	0	0	0	L	0	0	0	0	100	M
	S Myrtle St SD[b]	6	SPU	10	4	6	0	0	0	0	0	L	0	0	0	0	0	L	30	30	50	50	0	M
	S Garden St SD[be]	12	Private	1	0	7-26	0	0	ND	ND	0	L	0	0	ND	ND	0	L	0	0	ND	ND	0	L
	I-5 SD at Slip 4	150	WSDOT	30	25	5-10	3	3	0	0	0	L	3	3	0	0	0	L	3	3	0	0	0	M
	Georgetown SD	6	SPU	4	3	10	25	25	33	33	0	H	75	75	100	100	0	H	75	75	100	100	0	H
	SW Kenny St SD/T115 CSO	154	SPU	2	2	8	0	0	0	0	0	L	0	0	0	0	0	L	0	0	0	0	12	M
	Highland Park Wy SW SD	289	SPU	15	11	6-11	0	0	0	0	0	L	0	0	0	0	0	L	0	0	0	0	0	L
	1st Ave S SD, west	603	WSDOT	44	30	10	0	0	0	0	0	L	7	0	3	0	0	L	9	9	3	3	0	M
	2nd Ave S SD	38	Private	23	2	24-27	0	0	0	0	8	L	0	0	0	0	12	L	4	4	0	0	17	M
	S Webster St SD[c]	<1	SPU	1	1	5-7	100	100	100	100	0	M	100	100	100	100	0	M	100	100	100	100	0	M
	7th Ave S SD	238	SPU	35	10	5-6	0	0	0	0	33	M	3	0	0	0	33	M	9	9	0	0	100	M
Lower Reach	S Nevada St SD[d]	23	Port	5	1	1	60	60	0	0	0	H	60	60	0	0	0	H	60	60	0	0	0	H
	Diagonal Ave S CSO/SD	2,664	SPU	392	35	21	7	7	0	0	5	M	13	10	6	3	0	M	21	21	20	20	0	M
	SW Dakota St SD	45	SPU	4	2	1	0	0	0	0	0	L	0	0	0	0	0	L	0	0	0	0	0	L
	SW Idaho St SD	423	SPU	22	8	7	0	0	0	0	0	L	0	0	0	0	0	L	14	14	0	0	0	M
	South Operations Center SD	6	SPU	0	0	5	ND	ND	ND	ND	0	H	ND	ND	ND	ND	0	H	ND	ND	ND	ND	0	H

H = high priority
M = medium priority
L = low priority
ND = no data available
EOF = emergency overflow (sanitary pump station).
CSO = combined sewer overflow SD = storm drain

c. Seattle MS4 drainage area. Does not include areas outside of the City
b. Source identified. NPDES industrial stormwater permitted site. Ecology lead for source control
c. Single catch basin on S Riverside Dr connected to this outfall.
d. Only one waterway sediment sample within 200 ft of outfall (LDW-SS13). No SMS exceedences.
e. Follow-up sampling after cleaning
f. Outfall installed in 2015.
g. Samples collected in City MS4. Samples collected outside the City MS4 not included.
h. Sediment sampled collected within 200 feet of outfall and collected after EAA cleanup:
Boeing Plant 2: 2015 and 2016 post-dredge samples
Diagonal/Duwamish: after 2004.
Slip 4: after February 2012
Norfolk: after Boeing 2003 dredge
T117: after April 2015.
i. No City MS4 drainage. EOF is only City connection. No overflows reported in past 10 years.
j. Runoff treated in King County's bioretention system at South Park Bridge
k. Exceedance counts do not include non-detected samples when reporting limit >SCO.

	Outfall	Area[a] (acres)	Owner	No. of SD samples[g]	No. of near end of pipe samples	No. of offshore samples[h]	PCBs						Bis(2-ethylhexyl)phthalate						Butyl benzyl phthalate					
							Storm drain solids		Near end-of-pipe		% Offshore Samples > SCO[l]	Source Tracing Priority	Storm drain solids		Near end-of-pipe		% Offshore Samples > SCO[l]	Source Tracing Priority	Storm drain solids		Near end-of-pipe		% Offshore Samples > SCO[l]	Source Tracing Priority
							% >LAET	% >2LAET	% >LAET	% >2LAET			% >LAET	% >2LAET	% >LAET	% >2LAET			% >LAET	% >2LAET	% >LAET	% >2LAET		
Upper Reach	16th Ave S SD (east)[j]	12	Tukwila	1	1	4	100	0	100	0	0	M	100	100	100	100	0	L	0	0	0	0	0	L
	KCIA SD#2/PS 78 EOF	0[i]	King County	0	0	16	ND	ND	ND	ND	58	L	ND	ND	ND	ND	25	L	ND	ND	ND	ND	19	L
	KCIA SD#1	86	King County	3	1	10-12	0	0	0	0	0	L	33	33	0	0	25	L	67	0	100	0	0	L
	Norfolk CSO/PS17 EOF/SD	676	Tukwila	53	21	36	25	2	25	0	22	L	60	53	24	14	8	L	70	8	43	0	3	L
	I-5 SD at S Ryan St	55	WSDOT	3	1	3	33	0	0	0	0	L	33	33	100	100	0	L	33	0	100	0	0	L
	16th Ave S SD (west)[j]	3.5	King County	0	0	3-16	ND	ND	ND	ND	0	L	ND	ND	ND	ND	3	L	ND	ND	ND	ND	0	L
	17th Ave S SD[f]	3	SPU	4	1	4-16	40	0	100	0	0	M	100	100	ND	ND	0	L	75	25	ND	ND	0	L
	S 96th St SD	42	Unknown	4	1	2	0	0	0	0	0	L	50	50	100	0	0	L	100	50	100	0	0	L
	Duwamish substation SD #3	2	SCL	1	1	3-5	0	0	0	0	0	L	ND	ND	ND	ND	0	L	ND	ND	ND	ND	0	L
	Duwamish substation SD #2	1	SCL	1	1	11	100	0	100	0	0	M	ND	ND	ND	ND	0	L	ND	ND	ND	ND	0	L
	Duwamish substation SD #1	<1	SCL	0	0	7	ND	ND	ND	ND	0	M	ND	ND	ND	ND	0	L	ND	ND	ND	ND	0	L
	W Marginal Pl S SD	5	Tukwila	1	0	1-2	0	0	ND	ND	0	L	100	100	ND	ND	0	L	100	100	ND	ND	0	L
Middle Reach	Head of Slip 2 SD	12	Private	1	1	2-3	0	0	0	0	33	L	0	0	0	0	0	L	0	0	0	0	0	L
	1st Ave S SD, east	15	SPU	3	3	2	33	0	33	0	50	M	67	67	67	67	0	L	100	0	100	0	0	L
	S River St SD	6	SPU	18	4	5-6	56	0	75	0	17	M	100	100	100	100	0	L	100	6	100	0	0	L
	S Brighton St SD	17	SPU	4	2	4-6	57	0	50	0	0	L	33	33	50	50	0	L	83	0	100	0	0	L
	S Myrtle St SD[b]	6	SPU	10	4	6	100	83	100	100	17	M	100	100	100	100	17	M	100	80	100	100	17	M
	S Garden St SD[be]	12	Private	1	0	7-26	0	0	ND	ND	12	M	0	0	ND	ND	0	L	0	0	ND	ND	0	L
	I-5 SD at Slip 4	150	WSDOT	30	25	5-10	50	3	44	4	25	M	73	73	72	72	50	M	80	7	76	8	38	L
	Georgetown SD	6	SPU	4	3	10	83	0	100	0	25	M	100	100	100	100	50	M	100	50	100	67	38	M
	SW Kenny St SD/T115 CSO	154	SPU	2	2	8	100	0	100	0	0	L	100	100	100	100	0	L	50	0	50	0	12	L
	Highland Park Wy SW SD	289	SPU	15	11	6-11	73	7	64	0	50	M	87	87	82	82	33	M	80	7	73	0	33	L
	1st Ave S SD, west	603	WSDOT	44	30	10	39	2	34	0	40	M	80	78	74	74	0	L	73	13	65	13	10	L
	2nd Ave S SD	38	Private	23	2	24-27	48	4	100	0	96	M	96	83	100	100	25	M	91	9	100	0	25	L
	S Webster St SD[c]	<1	SPU	1	1	5-7	0	0	0	0	0	L	100	100	100	100	0	L	100	0	100	0	0	L
	7th Ave S SD	238	SPU	35	10	5-6	46	2	40	0	22	M	61	58	60	60	40	M	58	3	40	0	40	L
Lower Reach	S Nevada St SD[d]	23	Port	5	1	1	80	0	100	0	0	L	80	80	100	100	0	L	60	40	100	0	0	L
	Diagonal Ave S CSO/SD	2,664	SPU	392	35	21	46	8	64	6	24	H	77	71	63	54	52	M	79	20	43	6	33	L
	SW Dakota St SD	45	SPU	4	2	1	100	0	100	0	100	M	100	100	100	100	100	M	100	50	100	0	100	L
	SW Idaho St SD	423	SPU	22	8	7	35	0	25	0	0	L	45	45	13	13	0	L	45	14	25	13	0	L
	South Operations Center SD	6	SPU	0	0	5	ND	ND	ND	ND	0	L	ND	ND	ND	ND	0	L	ND	ND	ND	ND	0	L

H = high priority
M = medium priority
L = low priority
ND = no data available
EOF = emergency overflow (sanitary pump station).
CSO = combined sewer overflow SD = storm drain

d. Seattle MS4 drainage area. Does not include areas outside of the City
b. Source identified
c. Single catch basin on S Riverside Dr connected to this outfall.
d. Only one waterway sediment sample within 200 ft of outfall (LDW-SS13). No SMS exceedences.
e. Follow-up sampling after cleaning
g. Outfall installed in 2015.
g. Samples collected in City MS4. Samples collected outside the City MS4 not included.
h. Sediment sampled collected within 200 feet of outfall and collected after EAA cleanup:
Boeing Plant 2: 2015 and 2016 post-dredge samples
Diagonal/Duwamish: after 2004.
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Norfolk: after Boeing 2003 dredge
T117: after April 2015.
l. No City MS4 drainage. EOF is only City connection. No overflows reported in past 10 years.
m. Runoff treated in King County's bioretention system at South Park Bridge
n. Exceedance counts do not include non-detected samples when reporting limit >SCO.

	Outfall	Area[a] (acres)	Owner	No. of SD samples[g]	No. of near end of pipe samples	No. of offshore samples[h]	Dimethyl phthalate					
							Storm drain solids		Near end-of-pipe		% Offshore Samples > SCO[i]	Source Tracing Priority
							% >LAET	% >2LAET	% >LAET	% >2LAET		
Upper Reach	16th Ave S SD (east)[j]	12	Tukwila	1	1	4	100	0	100	0	0	L
	KCIA SD#2/PS 78 EOF	0[i]	King County	0	0	16	ND	ND	ND	ND	0	L
	KCIA SD#1	86	King County	3	1	10-12	0	0	0	0	10	L
	Norfolk CSO/PS17 EOF/SD	676	Tukwila	53	21	36	40	17	29	14	0	L
	I-5 SD at S Ryan St	55	WSDOT	3	1	3	0	0	0	0	0	L
	16th Ave S SD (west)[j]	3.5	King County	0	0	3-16	ND	ND	ND	ND	0	L
	17th Ave S SD[f]	3	SPU	4	1	4-16	75	25	ND	ND	0	L
	S 96th St SD	42	Unknown	4	1	2	25	25	0	0	0	L
	Duwamish substation SD #3	2	SCL	1	1	3-5	100	100	100	100	0	L
	Duwamish substation SD #2	1	SCL	1	1	11	100	100	100	100	0	L
	Duwamish substation SD #1	<1	SCL	0	0	7	ND	ND	ND	ND	0	L
	W Marginal Pl S SD	5	Tukwila	1	0	1-2	ND	ND	ND	ND	0	L
Middle Reach	Head of Slip 2 SD	12	Private	1	1	2-3	0	0	0	0	0	L
	1st Ave S SD, east	15	SPU	3	3	2	0	0	0	0	0	L
	S River St SD	6	SPU	18	4	5-6	83	33	75	25	0	L
	S Brighton St SD	17	SPU	4	2	4-6	17	17	0	0	0	L
	S Myrtle St SD[b]	6	SPU	10	4	6	90	80	100	100	0	L
	S Garden St SD[be]	12	Private	1	0	7-26	0	0	ND	ND	0	L
	I-5 SD at Slip 4	150	WSDOT	30	25	5-10	50	7	48	4	0	L
	Georgetown SD	6	SPU	4	3	10	75	50	100	67	0	L
	SW Kenny St SD/T115 CSO	154	SPU	2	2	8	0	0	0	0	0	L
	Highland Park Wy SW SD	289	SPU	15	11	6-11	60	13	45	0	17	L
	1st Ave S SD, west	603	WSDOT	44	30	10	51	22	39	13	0	L
	2nd Ave S SD	38	Private	23	2	24-27	57	22	0	0	21	L
	S Webster St SD[c]	<1	SPU	1	1	5-7	100	0	100	0	0	L
	7th Ave S SD	238	SPU	35	10	5-6	33	11	0	0	0	L
Lower Reach	S Nevada St SD[d]	23	Port	5	1	1	60	20	100	0	0	M
	Diagonal Ave S CSO/SD	2,664	SPU	392	35	21	50	24	37	14	5	M
	SW Dakota St SD	45	SPU	4	2	1	75	50	100	50	0	L
	SW Idaho St SD	423	SPU	22	8	7	23	5	0	0	0	L
	South Operations Center SD	6	SPU	0	0	5	ND	ND	ND	ND	0	L

H = high priority
ND = no data available
e. Seattle MS4 drainage area. Does not include areas outside of the City
b. Source identified
c. Single catch basin on S Riverside Dr connected to this outfall.
d. Only one waterway sediment sample within 200 ft of outfall (LDW-SS13). No SMS exceedences.
e. Follow-up sampling after cleaning
h. Outfall installed in 2015.

M = medium priority
EOF = emergency overflow (sanitary pump station).
g. Samples collected in City MS4. Samples collected outside the City MS4 not included.
h. Sediment sampled collected within 200 feet of outfall and collected after EAA cleanup:
Boeing Plant 2: 2015 and 2016 post-dredge samples
Diagonal/Duwamish: after 2004.
Slip 4: after February 2012
Norfolk: after Boeing 2003 dredge
T117: after April 2015.

L = low priority
CSO = combined sewer overflow SD = storm drain
o. No City MS4 drainage. EOF is only City connection. No overflows reported in past 10 years.
p. Runoff treated in King County's bioretention system at South Park Bridge
q. Exceedance counts do not include non-detected samples when reporting limit >SCO.

Table J-13: Summary of priority and planned activities by outfall.

	Outfall	Area[a] (acres)	Owner	No. of SD samples[h]	No. of near end of pipe samples	No. of offshore samples[i]	Inline NEP to Offshore Exceedance Matches (CSL/2LAET inline to SCO offshore)[a]	Inline NEP to Offshore Exceedance Matches (SCO/LAET inline to SCO offshore)[a]	SCO exceedances in offshore sediment within 200 feet	Median > 2x Median in Other Outfalls[b]	Recontamination Prediction after 10 yrs[f]
Upper Reach	16th Ave S SD (east)[j]	3.2	Tukwila	1	1	17	Zn [m]	Zn, PCBs	Zn, HPAH, cPAH, PCBs, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene	Cu, Hg, Pb, Zn, PCBs, LPAH, HPAH, cPAH, BEHP, TPH-oil, TPH-diesel	--
	KCIA SD#2/PS 78 EOF	0[k]	King County	0	0	16	No Data	No Data	As, Zn, LPAH, HPAH, cPAH, PCBs, BEHP, BBP, acenaphthene, benzo(a)anthracene, benzo(a)pyrene, benzo(g,h,i)perylene, total benzofluoranthenes, chrysene, dibenz(a,h)anthracene, dibenzofuran, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, phenanthrene, benzyl alcohol, benzoic acid	No Data	--
	KCIA SD#1	86	King County	3	1	10-12	--	BAI	cPAH, BEHP, DMP, benzo(g,h,i)perylene, dibenz(a,h)anthracene), fluoranthene, indeno(1,2,3,cd)perylene, benzyl alcohol, benzoic acid, phenol	BBP	--
	Norfolk CSO/PS17 EOF/SD	676	Tukwila	56	21	36	BEHP	PCBs (1), BEHP, BBP, DMP	PCBs [q], BEHP, BBP, 1,4-dichlorobenzene, fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, phenanthrene	--	--
	I-5 SD at S Ryan St	55	WSDOT	3	1	3	--	--	PCBs [r]	Pb	--
	16th Ave S SD (west)[l]	3.5	King County	0	0	3-16	No Data	No Data	--	No Data	--
	17th Ave S SD[gj]	2.9	SPU	5	1	4-16	--[d]	PCBs	None post cleanup	As, BEHP	--
	S 96th St SD	42	Unknown	4	1	2	--	BBP	BBP, dioxins/furans in 2013 Corps composite sample	BBP	BEHP, BBP
	Duwamish substation SD #3	2	SCL	1	1	3-5	--	--	--	DMP	--
	Duwamish substation SD #2	1	SCL	1	1	11	--	--	Benzyl alcohol	LPAH, HPAH, cPAH, DMP	--
	Duwamish substation SD #1	<1	SCL	0	0	7	No Data	No Data	--	No Data	--
	W Marginal Pl S SD	5	Tukwila	1	0	1-2	--	--	Benzyl alcohol	Cu, Pb, Zn, LPAH, HPAH, cPAH, BBP	--
Middle Reach	Head of Slip 2 SD	12	Private	1	1	2-3	--	--	PCBs in one 1997 sample, No hit in 2011 sample from similar location, benzyl alcohol in 2011	--	--
	1st Ave S SD, east	15	SPU	3	3	2	--	PCBs	PCBs in one sample 150 downstream and opposite the Michigan CSO	--	--
	S River St SD	6	SPU	18	4	5-6	BAI (2)	PCBs, BAI(2)	PCBs, benzyl alcohol	--	--
	S Brighton St SD	17	SPU	6	2	4-6	--	--	cPAH, fluoranthene, hexachlorobenzene, benzyl alcohol	--	--
	S Myrtle St SD	6	SPU	9-14	4	6	Hg, Zn, PCBs, BEHP, BBP	Hg, Zn, PCBs, BEHP, BBP	Hg, Zn, BEHP, BBP, PCBs, benzoic acid, benzyl alcohol, hexachlorobenzene	Cu, Pb, Hg, Zn, PCBs, LPAH, HPAH, cPAH, BEHP, BBP, DMP, TPPH-diesel, TPH-oil	--
	S Garden St SD	12	Private	1	0	7-26	No Data	No Data	PCBs, acenaphthene, dibenzofuran, benzyl alcohol	--	--
	I-5 SD at Slip 4	150	WSDOT	30	25	5-10	Zn, PCBs[j], BEHP, BBP, BAI	Zn, PCBs, BEHP, BBP, BAI	Zn, BEHP, BBP, benzyl alcohol (multiple yrs), PCBs (2015, 2017, 2019)	--	BEHP, BBP
	Georgetown SD	6	SPU	4	3	10	BEHP, BBP, BAI (2)	Zn, BEHP, BBP, BAI (2)	Same as I5 SD at Slip 4	LPAH, HPAH, cPAH, PCBs, BEHP, BBP	BEHP, BBP
	SW Kenny St SD/T115 CSO	154	SPU	2	2	8	BAI	BBP, BAI	cPAH, BBP, benzyl alcohol, hexachlorobenzene	As, Hg	--
	Highland Park Wy SW SD	289	SPU	15	11	6-11	BEHP	PCBs (8), BEHP, BBP, DMP	PCBs, BEHP, BBP, DMP	Hg	BEHP, BBP
	1st Ave S SD, west	603	WSDOT	46	30	10	BBP	PCBs (2), BBP	PCBs, BBP	--	BEHP
	2nd Ave S SD	38	Private	23	2	24-27	Zn, BEHP, BAI	Zn, BEHP, BBP, BAI	Cd, Cr, Cu, Pb, Hg, Ag, Zn, LPAH, HPAH, cPAH, PCBs, SVOCs[s]	--	--
	S Webster St SD	<1	SPU	1	1	5-7	--	--	Benzyl alcohol (1 sample)	LPAH, HPAH, cPAH, DMP	--

	Outfall	Area[a] (acres)	Owner	No. of SD samples[h]	No. of near end of pipe samples	No. of offshore samples[i]	Inline NEP to Offshore Exceedance Matches (CSL/2LAET inline to SCO offshore)[a]	Inline NEP to Offshore Exceedance Matches (SCO/LAET inline to SCO offshore)[a]	SCO exceedances in offshore sediment within 200 feet	Median > 2x Median in Other Outfalls[b]	Recontamination Prediction after 10 yrs[f]
	7th Ave S SD	238	SPU	36	10	5-6	BEHP, BAI (8)	PCBs (4), BEHP, BAI (8)	Hg, LPAH, HPAH, cPAH, PCBs, BEHP, BBP, benzyl alcohol, benzyl n-butyl phthalate, hexachlorobenzene [n], SVOCs	--	--
Lower Reach	S Nevada St SD	23	Port	5	1	1	--	--	None in sample collected 60 feet offshore	PCBs, LPAH, HPAH, cPAH, BEHP, BBP,TPH-diesel	--
	Diagonal Ave S CSO/SD	2,664	SPU	397	35	21	PCBs[e], cPAH (7), BEHP, BBP, DMP, 1,4-DCB	PCBs (23), cPAH (7), BEHP, BBP, DMP, 1,4-DCB, phenol (1)	2-methylnaphthalene, acenaphthene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, dibenzofuran, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, phenanthrene, total benzofluoranthenes, 2,4-dimethylphenol, hexachlorobenzene	--	--
	SW Dakota St SD	45	SPU	4	2	1	BEHP, BAI	Zn, PCBs (2), BEHP, BBP, BAI	Zn, PCBs, BEHP, BBP, benzyl alcohol	Zn, PCBs [o], BEHP, BBP, DMP	--
	SW Idaho St SD	423	SPU	21	8	7	BAI	BAI	2,4-dimethylphenol, benzyl alcohol, phenol [p]	--	BEHP, BBP
	South Operations Center SD	6	SPU	0	0	5	No Data	No Data	--	No data	--

SD = storm drain CSO = combined sewer overflow EOF = emergency overflow PS = pump station NEP = near end-of-pipe

a. CSL exceedance in near end-of-pipe inline sample and SCO exceedance in waterway sediment sample located within 200 feet of outfall
b. Median concentration in all MS4 samples not affected by line cleaning exceeds 2x the median concentration measured in all outfalls
c. Relocate NST-2 pending redevelopment at 3303 S Norfolk St property (Prologis)
d. Near end-of-pipe sample data available only for PCBs
e. 3 of 21 post cleanup samples exceeded SCO for PCBs within 200 feet of the outfall . 1 each in 2005 and 2006 and one in 2011 at DUD_1A. The 2012 sample at DUD-1A did not exceed SCO
f. Recontamination model prediction from LDW Feasibility Study. See Figure J-9A in Appendix J.
g. Basin impacted by emissions from large metal recycling facility. SPU will cooperate on identified elements in the 2019 site Consent Decree.
h. Elevated PAHs may be from Steam Plant roof. City Light replacing roof in 2020
i. Numerous SCO exceedances identified in 2012 investigation conducted by waterfront property.
j. One of 25 near end-of-pipe samples (from 2005) exceeded the 2LAET.
k. Some sources have been identified, but there are likely others in this large drainage basin.
l. Waterway sediment sample located 160 feet downstream, directly opposite the Michigan CSO.
m. Waterway sample located 170 feet upstream of outfall
n. Exceedances in sample collected 50 feet offshore. Other chemicals exceed SCO in samples collected 70-185 feet downstream of outfall. 2-methylnaphthalene, acenaphthene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, dibenzofuran, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, phenanthrene, total benzofluoranthenes, 2,4-dimethylphenol, hexachlorobenzene
o. Site median = 241 ug/kg dw PCBs, 2 x median for other outfalls = 207 ug/kg dw.
p. Exceedances in sample collected 180 feet upstream. No exceedances in samples collected 60-70 feet offshore.
q. PCB exceedances all occurred in samples collected 90 - 120 feet downstream of outfall or directly offshore in area that was not dredged in 1999.
r. One sample located 40 feet upstream of outfall
s. 1,4-dichlorobenzene, 1,2-dichlorobenzene, 1,2,4-trichlorobenzene, 2-methylphenol, 4-methyl phenol, 2,4-dimethylphenol, 2-methyl naphthalene, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, fluorene, fluoranthene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, pyrene, total benzofluoranthenes, dibenzofuran, di-n-butylphthalate, pentachlorophenol, phenol, n-nitrosodiphenylamine

	Outfall	Area[a] (acres)	Current Owner	Priority	Source(s) identified	Maintain existing traps	Resample following cleaning	Sample to fill data gap	Source tracing	Install NEP traps
Upper Reach	16th Ave S SD (east)[j]	3.2	Tukwila	Y	No				X	X
	KCIA SD#2/PS 78 EOF	0[k]	King County	N	--					
	KCIA SD#1	86	King County	N	No					
	Norfolk CSO/PS17 EOF/SD	676	Tukwila	N	No	X	X		X	X[c]
	I-5 SD at S Ryan St	55	WSDOT	N	No			X		X[c]
	16th Ave S SD (west)[l]	3.5	King County	N	No			X		
	17th Ave S SD[gj]	2.9	SPU	N	No	X			X	
	S 96th St SD	42	Unknown	N	No				X	X
	Duwamish substation SD #3	2	SCL	N	No		X			
	Duwamish substation SD #2	1	SCL	N	No		X			
	Duwamish substation SD #1	<1	SCL	N	No		X			
	W Marginal Pl S SD	5	Tukwila	N	No		X			
Middle Reach	Head of Slip 2 SD	12	Private	N	No					
	1st Ave S SD, east	15	SPU	N	No					X
	S River St SD	6	SPU	N	Yes					X
	S Brighton St SD	17	SPU	N	No					X
	S Myrtle St SD	6	SPU	Y	Yes[g]	X				
	S Garden St SD	12	Private	Y	Yes[g]			X	X	X
	I-5 SD at Slip 4	150	WSDOT	N	No	X				
	Georgetown SD	6	SPU	Y	Yes[h]		X			X
	SW Kenny St SD/T115 CSO	154	SPU	N	No	X				
	Highland Park Wy SW SD	289	SPU	N	No	X			X	
	1st Ave S SD, west	603	WSDOT	N	No					

	Outfall	Area[a] (acres)	Current Owner	Priority	Source(s) identified	Maintain existing traps	Resample following cleaning	Sample to fill data gap	Source tracing	Install NEP traps
	2nd Ave S SD	38	Private	N	Yes[j]				X	
	S Webster St SD	<1	SPU	N	No		X			
	7th Ave S SD	238	SPU	N	No	X			X	
Lower Reach	S Nevada St SD	23	Port	Y	No				X	X
	Diagonal Ave S CSO/SD	2,664	SPU	Y	No[k]	X	X		X	
	SW Dakota St SD	45	SPU	N	No					X
	SW Idaho St SD	423	SPU	N	No	X				
	South Operations Center SD	6	SPU	N	No			X		

6. REFERENCES

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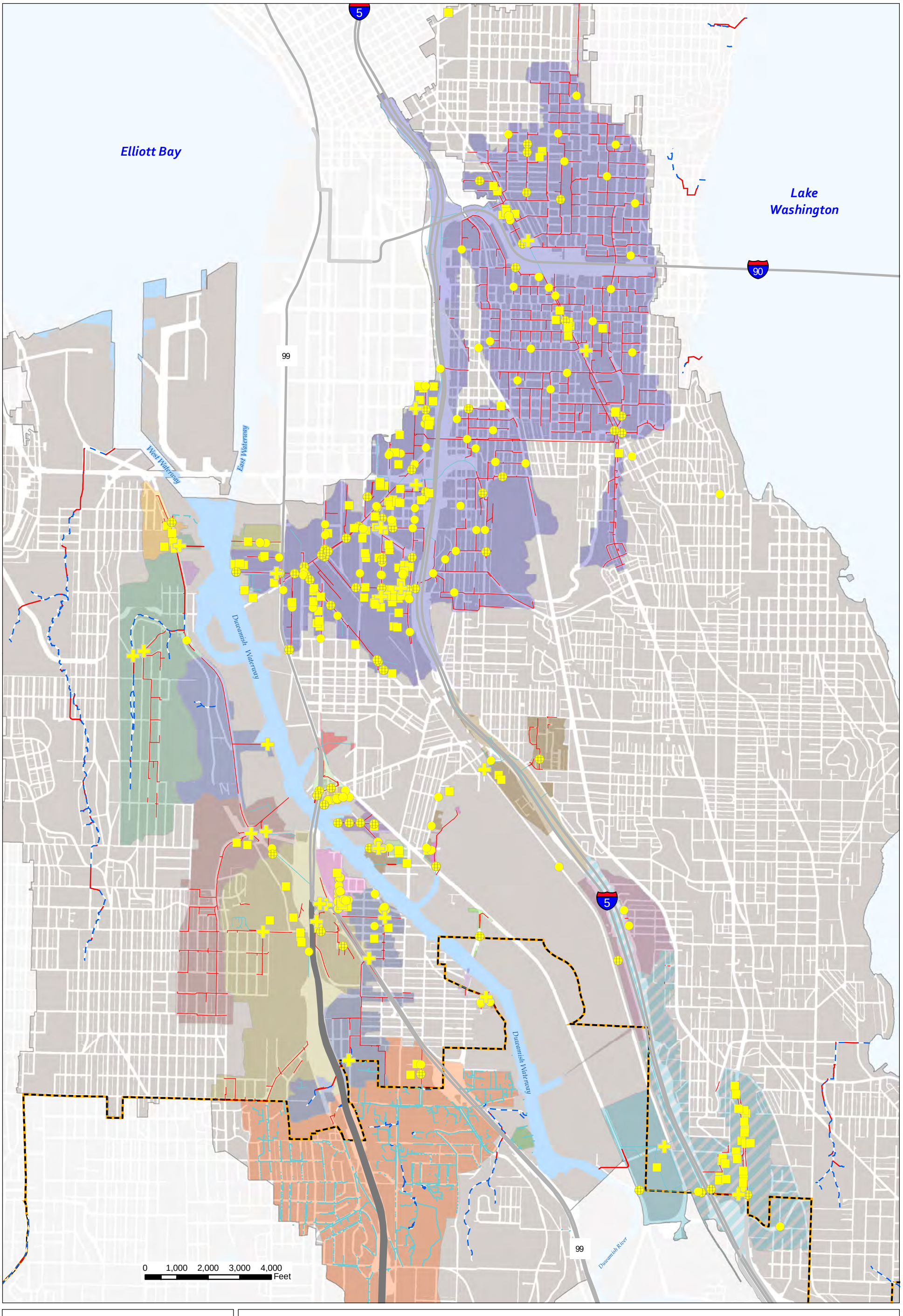
Appendix J:

Maps



Lower Duwamish Waterway

Map No. J-1 - Source Tracing Samples in Storm Drain Basins

Seattle

N

Storm Drains
- MS4
- Non-MS4
- Unknown
- Seattle City Limits
- Stream

Drainage basins
- 16th Ave S SD (east)
- 16th Ave S SD, west
- 17th Ave S SD
- 1st Ave S SD (east)
- 1st Ave S SD (west)
- 2nd Ave S SD
- 7th Ave S SD
- Diagonal Ave S CSO/SD
- Duwamish substation SDs
- Georgetown SD
- Head of Slip 2 SD
- Highland Park Wy SW SD
- I-5 SD at S Ryan St
- I-5 SD at Slip 4
- KC SD#1
- S 96th St SD
- S Brighton St SD
- S Garden St SD
- S Myrtle St SD
- S Nevada St SD
- S Norfolk St CSO/PS17 EOF/SD
- S River St SD
- SW Dakota St SD
- SW Idaho St SD
- SW Kenny St SD/T115 CSO
- South Operations Center SD
- W Marginal Pl S SD

Source tracing samples*
- Private onsite catch basin
- Inline grab
- Right-of-way catch basin
- Inline sediment trap

* Includes samples used in the prioritization analysis: non-ODS, MS4, post-cleaning, and never been cleaned.

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West Waterway
East Waterway
Lower Duwamish Waterway
RCB200A
ID-ST2
RCB312
MH206
ST1
KN-ST1
MH38
MH265
MH264
MH39
MH211
MH222
MH223
HP-ST4
HP-ST6
MH100
Myr-ST1
RCB146
MH241
RCB298
1st-ST2
1st-ST1
MH20
7th-ST1
1st-ST3
SL4-T6
RCB-D071039
RCB-D071041
MH23
MH201
MH203
MH47
17th-ST1
MH41
MH244
NST4
MH215
NST1
NST2
5
0
4,000
Feet
99

Lower Duwamish Waterway

Map J-2- Near end-of-pipe samples

Seattle

N

Near end of pipe samples
- Inline grab
- Inline sediment trap
- Right-of-way catch basin
- Seattle City Limits

Storm drains
- MS4
- non-MS4
- Combined sewer basin

Duwamish drainage basins
- 16th Ave S SD (east)
- 16th Ave S SD, west
- 17th Ave S SD
- 1st Ave S SD (east)
- 1st Ave S SD (west)
- 2nd Ave S SD
- 7th Ave S SD
- Diagonal Ave S CSO/SD
- Duwamish substation SDs
- Georgetown SD
- Head of Slip 2 SD
- Highland Park Wy SW SD
- I-5 SD at S Ryan St
- I-5 SD at Slip 4
- KC SD#1
- S 96th St SD
- S Brighton St SD
- S Garden St SD
- S Myrtle St SD
- S Nevada St SD
- S Norfolk St CSO/PS17 EOF/SD
- S River St SD
- SW Dakota St SD
- SW Idaho St SD
- SW Kenny St SD/T115 CSO
- South Operations Center SD
- W Marginal Pl S SD

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16th Ave S SD (east)

16th Ave S SD (west)

17th Ave S SD

KCIA SD#2/PS 78 EOF

KCIA SD #1

S 96th St SD

Duwamish substation SD #3

Duwamish substation SD #2

Duwamish substation SD #1

W Marginal Pl S SD

Norfolk CSO/SD/PS17 EOF

I-5 SD at S Ryan St

0

Feet
0 125 250 500

City of Seattle

Lower Duwamish Waterway

Map No. J-3 - Waterway sediment samples Upper reach

Seattle

N

Legend

- Sediment sample, exceeds Sediment Cleanup Objective
- Sediment sample, no exceedance
- 200-foot buffer around outfall
- LDW upper reach
- Seattle City Limits

Outfalls

- Abandoned
- CSO-KC
- CSO/EOF/SD-SPU/KC
- CSO/SD-SPU/KC
- Channel/ditch
- EOF-KC
- EOF/SD-SPU/KC
- SD
- SD-City
- SD-KC
- SD-Port
- SD-Tukwila
- SD-WSDOT
- SD-WSDOT/City
- SD-private
- Seep
- Unknown
- Water supply overflow

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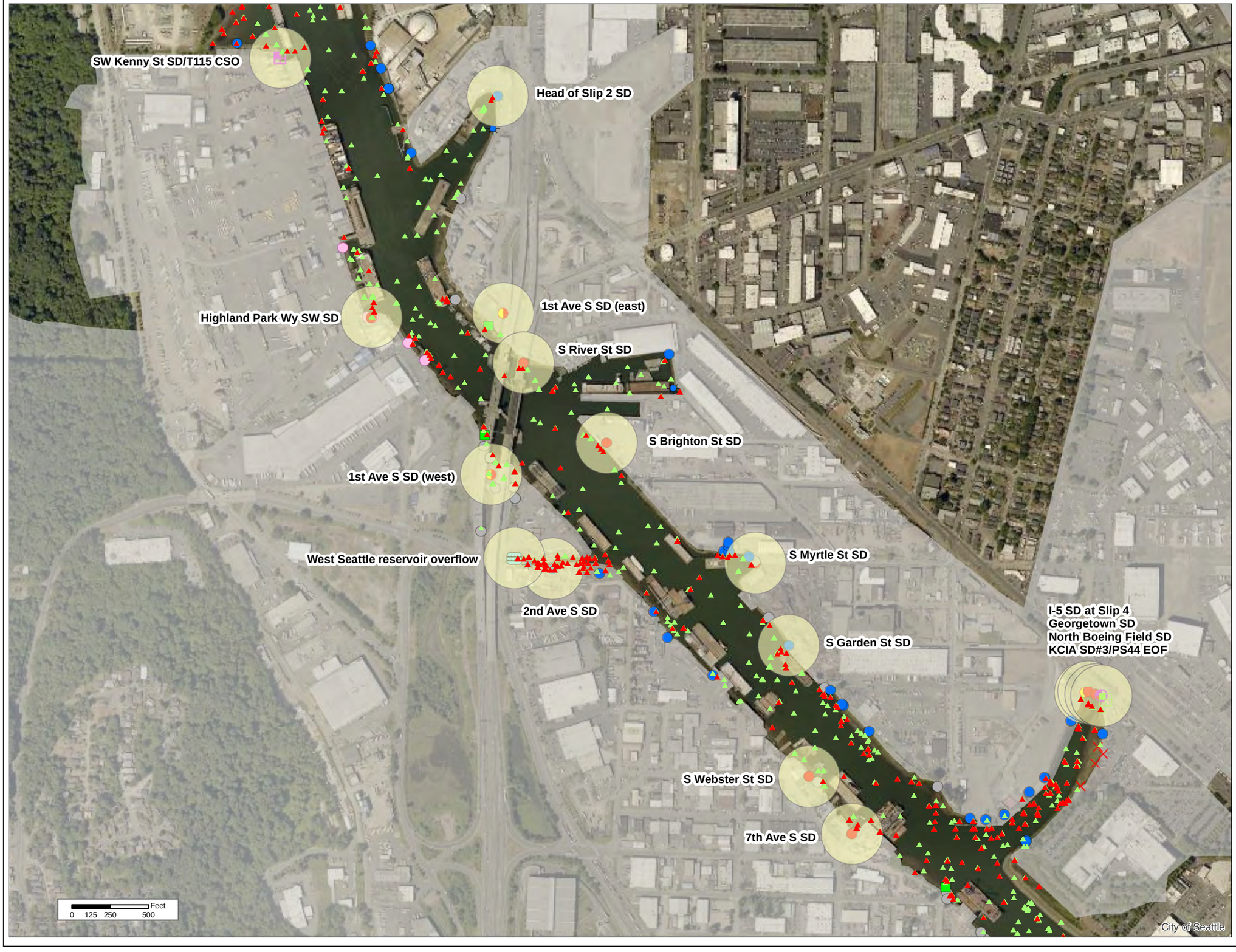

Legend

- Sediment sample, exceeds Sediment Cleanup Objective
- Sediment sample, no exceedance
- 200-foot buffer around outfall owned or used by City

Outfalls

- Abandoned
- CSO-KC
- CSO/EOF/SD-SPU/KC
- CSO/SD-SPU/KC
- Channel/ditch
- EOF-KC
- EOF/SD-SPU/KC
- SD
- SD-City
- SD-KC
- SD-Port
- SD-Tukwila
- SD-WSDOT
- SD-WSDOT/City
- SD-private
- Seep
- Unknown
- Water supply overflow
- LDW Middle Reach

Lower Duwamish Waterway

Map No. J-4 - Waterway sediment samples
Middle reach

Seattle

N

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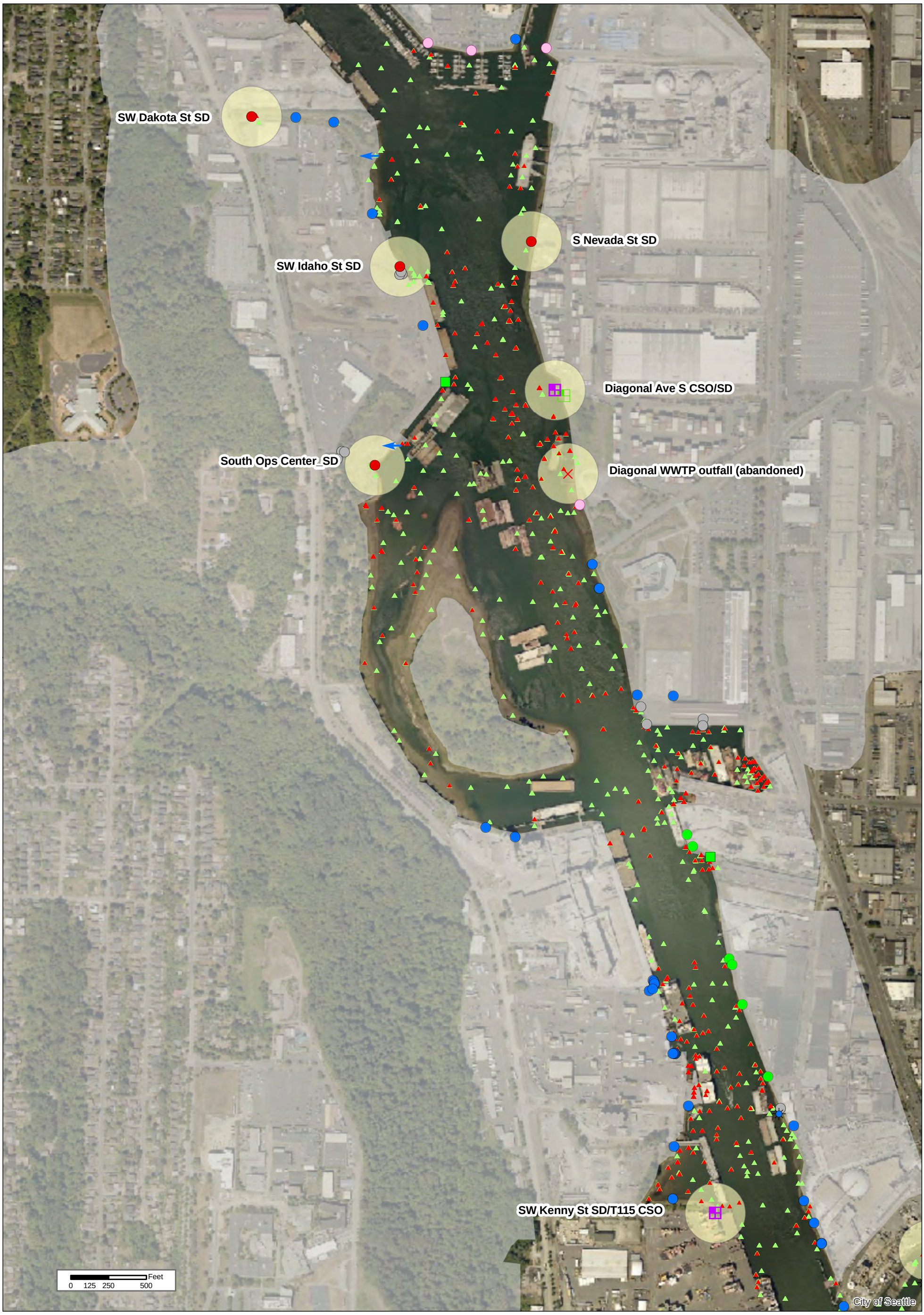

Lower Duwamish Waterway

Map No. J-5 - Waterway sediment samples Lower reach

Seattle

N

LEGEND

- Sediment sample, exceeds Sediment Cleanup Objective
- Sediment sample, no exceedance
- 200-foot buffer around outfall owned or used by City
- LDW lower reach

Outfalls

- Abandoned
- CSO-KC
- CSO/EOF/SD-SPU/KC
- CSO/SD-SPU/KC
- Channel/ditch
- EOF-KC
- EOF/SD-SPU/KC
- SD
- SD-City
- SD-KC
- SD-Port
- SD-Tukwila
- SD-WSDOT
- SD-WSDOT/City
- SD-private
- Seep
- Unknown
- Water supply overflow

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Map J-6: Outfalls and Basins Used in the LDW Sediment Transport Model.

Legend

Streets
- Arterials
- State Highway
- Interstate Freeway
- City limits

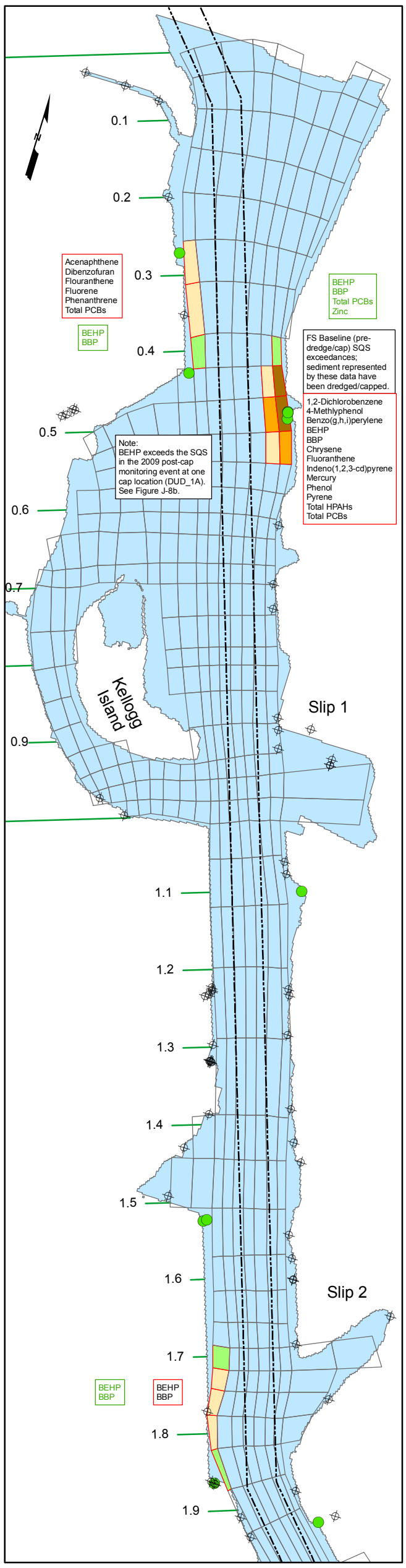
Outfalls
- CSO-KC
- CSO/SD-City
- CSO/SD-SPU/KC
- SD-City
- SD-KC
- SD-Port
- SD-WSDOT/City
- Private SD
- Unknown
- Abandoned

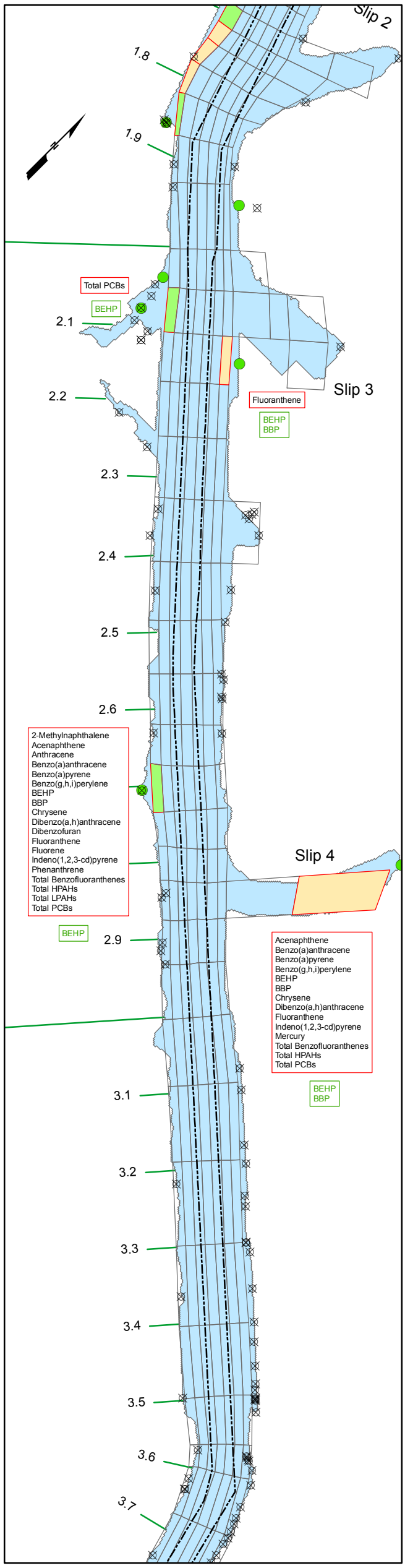
Stormwater lateral load locations
- #1: Diagonal CSO/SD
- #2: Norfolk SD
- #3: Slip 4 SDs
- #4: 7th Ave S SD
- #5, #6, #7, #13: West side public storm drains
- #8: Hamm Creek
- #9: Central KC Airport
- #10: South KC Airport
- #11: Remaining east side public SDs
- #12: S96th St SD
- Private waterfront drains (evenly distribute)

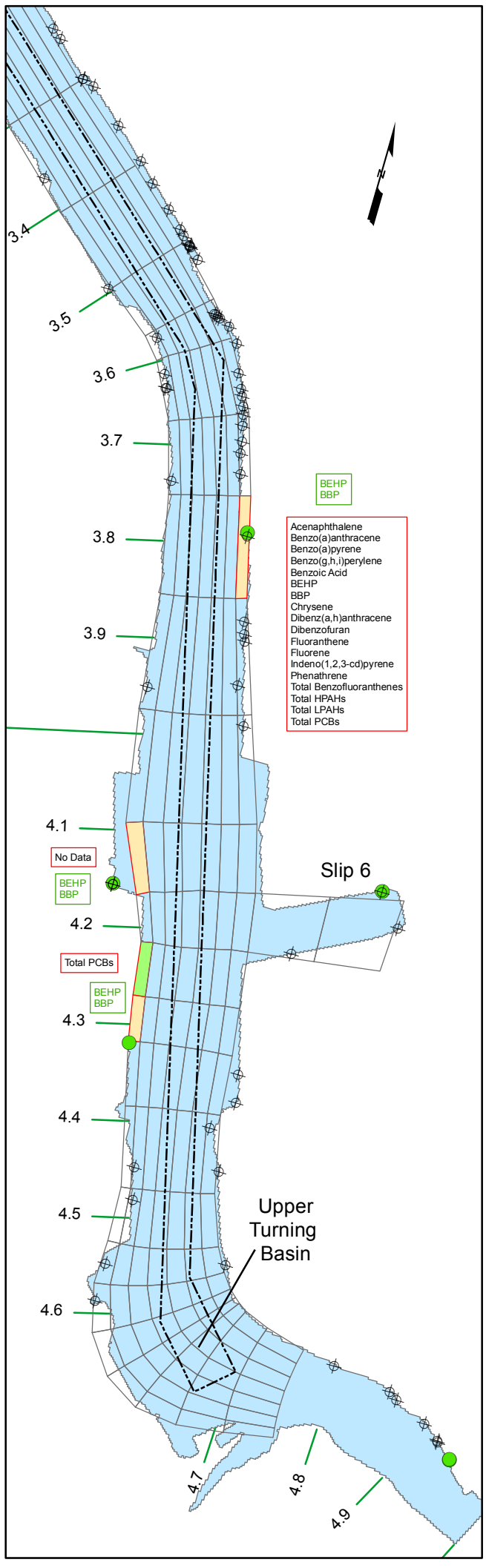
0.2 0 0.2 Miles

load_model_area_stas_mod_2-08.apr

Elliott Bay
Lake Washington
Puget Sound
WF-1
WF-2
WF-3
WF-4
WF-5
WF-6
WF-7
WF-8
WF-9
WF-10
WF-11
E CHERRY ST
S JACKSON ST
E MARGINAL WY S
1ST AV S
4TH AV S
6TH AV S
RAINIER AV S
15TH AV S
BEACON AV S
M L KING JR WY S
AIRPORT WY S
W MARGINAL WY SW
35TH AV SW
DELRIDGE WY SW
16TH AV SW
9TH AV SW
S 112TH ST
SW 116TH ST
SW 128TH ST
PACIFIC HY S







Legend

Risk Drivers Predicted to have Greater Potential to Exceed SQS at Year 10

- None
- BEHP
- BEHP and BBP
- BEHP, BBP, and Total PCBs
- BEHP, BBP, Total PCBs, and Zinc
- Grid Cell with ≥ 5.4% Lateral Source at Year 10

Modeled Redistributed Lateral Load Discharge Location

- Individual Discharge Location (CSOs, Storm Drains, and Tributaries)
- Waterfront Area Modeled Location
- Navigation Channel
- River Mile Marker

Notes:
1. STM GIS shapefile from 10-year run (QEA Feb. 2009); see Section 5.
2. Calculations to determine the minimum lateral percentage required to result in a Year 10 exceedance of the SQS, when the bed concentration is assumed to be zero.
3. Used high BCM lateral values for total PCBs and arsenic and recommended BCM input parameters for other risk drivers. These vary by risk driver; see Table J-8.
4. BEHP = bis(2-ethylhexyl)phthalate; BBP = butylbenzyl phthalate; CSO = combined sewer overflow; HPAHs = high molecular weight polycyclic aromatic hydrocarbons; LPAHs = low molecular weight polycyclic aromatic hydrocarbons; STM = sediment transport model.

Risk Driver	Estimated Lateral Percentage (required to cause possible SQS exceedance)
BEHP	5.4
Butyl Benzyl Phtalate	9.1
Total PCB	21.5
Zinc	62.2

Feet
0 200 400 800

Risk drivers predicted to exceed SQS with year 10 predictions — BEHP, BBP

BEHP, BBP, Total PCBs — Risk drivers exceeding the SQS in the FS dataset, in grid cells predicted to have greater recontamination potential

AECOM

Lower Duwamish Waterway Group
Port of Seattle / City of Seattle / King County / The Boeing Company

Lower Duwamish Waterway
Final Feasibility Study
60150279-14.48

STM Grid Cells With Greater Potential for Recontamination

DATE: 10/31/12 | DWRN:DE/sea | Revision: 0 | **Map J-7**

L:\Lower Duwamish FS\FS_Final_GIS\Oct2012\FS_GIS_MXDs_Oct12\Appendix J\FigureJ-9a_10YSTMLateralbyChem.mxd

Attachment J-1:

Pipe to Waterway Sediment Comparison Details

Attachment J-1: Details for pipe to waterway sediment comparisons.

Outfall	Near end-of-pipe station(s)	N	Chemicals exceeding SCO/LAET in NEP sample[a]	Chemicals exceeding CSL/2/LAET in NEP sample[a]	Offshore sediment station(s)			Chemicals exceeding SCO in offshore sediment
					Sta No.	Dist from outfall	Direction from outfall	
UPPER REACH								
16th Ave S SD, east	MH201	1	Zn, TPH-O, TPH-D, PCBs, benzoic acid, BEHP, DMP, benzyl alcohol, phenol, n-	Zn, TPH-D, TPH-O, BEHP, 2-methylphenol, benzoic acid, benzyl alcohol, n-	LDW-SS535	40	Downstream	
					SD-DUW08	120	Downstream	PCBs
					SD-PCM026	120	Downstream	
					SPB-3	160	Downstream	PCBs
					SD-DUW60	200	Downstream	PCBs
					SD-DUW24	40	Opposite	PCBs
					SD-PCM006	130	Upstream	
					SD-PCM016	170	Upstream	
					SD-04107	170	Upstream	PCBs
					SD-04108	170	Upstream	PCBs, Zn
					SD-04109	180	Upstream	cPAH
					SD-04108	180	Upstream	cPAH
					SD-04107	180	Upstream	
					SD-DUW33	180	Upstream	PCBs
					SD-DUW34	190	Upstream	PCBs
					DUW09	200	Upstream	
					SPB-4	200	Upstream	PCBs
					SD-04109	200	Upstream	HPAH, PCBs, Benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene
KCIA SD#2/ PS 78 EOF	No samples		--	--	R23	30	Downstream	LPAH, HPAH, cPAH, PCBs, BEHP, BBP, acenaphthene, benzo(a)anthracene, benzo(a)pyrene,
					LDW-SS157	40	Downstream	cPAH, BBP, benzoic acid
					LDW-SS115	40	Downstream	HPAH, cPAH, chrysene, dibenzo(a,h)anthracene, fluoranthene, phenanthrene
					LDW-SC51	40	Downstream	HPAH, cPAH, BEHP, acenaphthene, benzo(g,h,i)perylene, chrysene, fluoranthene, indeno(1,2,3-
					EST148	70	Downstream	PCBs
					R22	100	Downstream	As, HPAH, cPAH,PCBs, BEHP, benzo(a,h)anthracene, benzo(a)pyrene, benzo(g,h,i)perylene,
					RARE_2_B_1	115	Downstream	Zn
					SD-506G	130	Downstream	As, HPAH, cPAH, PCBs, BEHP, benzo(a,h)anthracene, benzo(a)pyrene, benzo(g,h,i)perylene,
					SD507G	150	Downstream	
					EST147	170	Downstream	PCBs
					LDW-SS114	180	Downstream	As, cPAH, PCBs, BEHP, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene
					EST162	190	Downstream	PCBs
					LDW-SS158	110	Opposite	
					LDW-SS116	160	Upstream	
					SD-510G	160	Upstream	PCBs
					R26	190	Upstream	PCBs, BBP
					EIT060	200	Upstream	PCBs
KCIA SD #1	MH47	1	BBP, benzyl alcohol	--	23-intsed-1	20	Downstream	
					23-intsed-3	70	Downstream	
					LDW-SS128	70	Downstream	
					SB-3	90	Downstream	cPAH
					LDW-SS2078-U	100	Downstream	Benzyl alcohol
					LDW-SS2078-A	120	Downstream	Benzyl alcohol
					SB-4	170	Downstream	Benzoic acid, BEHP, dibenzo(a,h)anthracene, phenol
					LDW-SS2078-D	170	Downstream	Benzyl alcohol
					DR241	175	Downstream	
					LDW-SSS2080-A	30	Opposite	Dimethylphthalate, benzyl alcohol
					SB-17	80	Opposite	
					SB-3	90	Opposite	BEHP, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, phenol
					EST129	130	Opposite	
					SB-1	140	Opposite	Benzo(g,h,i)perylene, BEHP, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene
					DR242	140	Opposite	
					SB-1	140	Opposite	cPAH
					23-intsed-2	40	Upstream	
					LDW-SS127	40	Upstream	
					KC-intsed-1	100	Upstream	
					KC-intsed-3	100	Upstream	
					R41	120	Upstream	cPAH
					KC-intsed-2	130	Upstream	

Attachment J-1: Details for pipe to waterway sediment comparisons.

Outfall	Near end-of-pipe station(s)	N	Chemicals exceeding SCO/LAET in NEP sample[a]	Chemicals exceeding CSL/2/LAET in NEP sample[a]	Offshore sediment station(s)			Chemicals exceeding SCO in offshore sediment
					Sta No.	Dist from outfall	Direction from outfall	
					LDW-SS129	190	Upstream	
Norfolk CSO/PS17 EOF/SD[a]	NST1	2	Zn, BEHP, BBP, PCBs (1), benzyl alcohol (1), hexachlorobenzene (1), hexachlorobutadiene (1)	BEHP, benzyl alcohol (1)	R88	10	Downstream	1,4-dichlorobenzene
	NST2	0			14	40	Downstream	
	NST4	20	Zn (2), LPAH (1), HPAH (1), cPAH (2), BEHP, BBP (8), DMP (6), PCBs (5), 1,4-dichlorobenzene (1), benzoic acid (3), benzyl alcohol (6)	LPAH (1), HPAH (1), cPAH (2), BEHP (1), DMP (3), 1,4-dichlorobenzene (1) benzoic acid (3), benzyl alcohol (4)	15	40	Downstream	
					16	40	Downstream	
					NFK503	90	Downstream	PCBs (2001 - 2004)
					S1	110	Downstream	PCBs
					7	110	Downstream	PCBs
					S2	120	Downstream	PCBs
					5	120	Downstream	PCBs
					S3	150	Downstream	
					NFK004A	10	Opposite	PCBs, BEHP, BBP, fluoranthene
					NFK501	50	Opposite	BBP
					NFK502	100	Opposite	BBP, PCBs (both in 2001), BEHP (2002)
					NFK016	180	Opposite	
					NK005	60	Upstream	BEHP
					NFK204	110	Upstream	
					NFK006	150	Upstream	Dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, phenanthrene
					OS-01	150	Upstream	
					NFK010	170	Upstream	
					NFK014	170	Upstream	
					NFK017	200	Upstream	
I-5 SD at S Ryan St	MH215	1	BEHP, BBP, PCBs	BEHP, BBP	OR-05	80	Downstream	
					OS-05	40	Downstream	
					OS-04	175	Downstream	
					EIT048	10	Opposite	
					OR-06	40	Opposite	
					LDW-SSRWSD-A	70	Opposite	
					DR-04	120	Opposite	
					OS-06	40	Upstream	PCBs
					EST104	130	Upstream	
					DRB-116	150	Upstream	
					EST098	190	Upstream	
16th Ave S SD (west)	No samples				LDW-SS107	100	Opposite	
					SPB-2	150	Opposite	
					SD-PER301	190	Opposite	
					DR205	90	Upstream	
					SC-06	110	Upstream	
					DR227	110	Upstream	
					WST32	120	Upstream	
					SC-02	170	Upstream	
					SC-01	170	Upstream	
17th Ave S SD	17th-ST1	1	PCBs		T117-SG-C3	60	Downstream	
					T117-SG-C1	50	Opposite	
					T117-SG-C2	50	Opposite	
					T117-SG-B1	60	Upstream	
					T117-SG-B2	70	Upstream	
					T117-SG-A1	80	Upstream	
					T117-SG-B3	80	Upstream	
					T117-SG-A2	90	Upstream	
					T117-SG-A3	100	Upstream	
					PERIM-5-LTM(P5)	100	Downstream	As
S 96th St SD	MH41	1	Zn, BBP, benzoic acid, benzyl alcohol, phenol	benzoic acid, benzyl alcohol	LDW18-2100A-1	40	Opposite	
					LDW18-2100A-2	80	Opposite	
					DMMU6[c]	100-200	Opposite	BBP, dioxins/furans (open water disposal)
Duwamish substation SD#3[b]	DS-CB-I3	1	DMP	DMP	WIT260	140	Downstream	
					LDW18-DuwSD3	10	Upstream	

Attachment J-1: Details for pipe to waterway sediment comparisons.

Outfall	Near end-of-pipe station(s)	N	Chemicals exceeding SCO/LAET in NEP sample[a]	Chemicals exceeding CSL/2/LAET in NEP sample[a]	Offshore sediment station(s)			Chemicals exceeding SCO in offshore sediment
					Sta No.	Dist from outfall	Direction from outfall	
					WIT261	50	Upstream	
					DR265	130	Upstream	
					LDW-SS139	200	Upstream	
Duwamish substation SD#2	DS-CB-H1	1	Zn, LPAH, HPAH, cPAH, DMP, PCBs	LPAH, HPAH, cPAH, DMP	LDW-SS2099-D	40	Downstream	Benzyl alcohol
					DR-266	70	Downstream	
					LDW-SS140	90	Downstream	
					WST304	100	Downstream	
					LDW-SS139	140	Downstream	
					LDW-SS2099-A	40	Opposite	
					WST305	40	Opposite	
					LDW-SS2099-U	50	Opposite	
					LDW-SS140	110	Upstream	
					LDW-SS2098-D	140	Upstream	
					DR266	140	Upstream	
					LDW-SS2098-A	170	Upstream	
					CH003	170	Upstream	
					WST305	180	Upstream	
					WST306	180	Upstream	
Duwamish substation SD#1	No samples		--	--	LDW-SS2098-D	50	Downstream	
					DR266	70	Downstream	
					LDW-SS140	110	Downstream	
					WST305	40	Opposite	
					LDW-SS2098-A	40	Opposite	
					LDW-SS2098-U	50	Upstream	
					DR-287	170	Upstream	
					WST306	180	Upstream	
					DR-267	190	Upstream	
W Marginal Pl S SD	DS-TD-01	1	Cd, Ag, Zn, cPAH, BEHP, BBP	Cd, Ag, Zn, cPAH, BEHP, BBP	LDW-SS2200-D	80	Downstream	Benzyl alcohol
					WIT256	120	Downstream	
					LDW-SS2200-A	90	Opposite	Benzyl alcohol
					LDW-SS141	60	Upstream	
					LDW-SS2201-D	120	Upstream	Benzyl alcohol
					LDW-SS2201-A	200	Upstream	Benzyl alcohol
MIDDLE REACH								
Head of Slip 2 SD	MH38	1	--	--	EIT079	30	Opposite	PCBs
					LDW-SS2019-A	50	Opposite	Benzyl alcohol
					LDW-SS520	110	Opposite	
					LDW-SS63	120	Opposite	
					DR097	130	Opposite	
1st Ave S SD, east	MH264	1	Zn, BBP		LDW-SS71	160	Downstream	PCBs
	MH265	1	Cu, Zn, BEHP, BBP	Cu, BEHP	LDW-SS2503-A	140	Opposite	
	MH39	1	Zn, BEHP, BBP, PCBs, n-nitrsodiphenylamine	Zn, BEHP, n-nitrosodiphenylamine				
S River St SD	MH211	4	Zn, HPAH (1), cPAH (2), BEHP, BBP, DMP, PCBs (3), 4-methylphenol (1), benzoic acid (1), benzyl alcohol (2), phenol (1)	HPAH (1), cPAH (2), BEHP, DMP, 4-methylphenol (1), benzoic acid (1), benzyl alcohol (2)	LDW-SSRVSTSD-D	40	Downstream	Benzyl alcohol
					LDW-SSRVSTSD-A	30	Opposite	Benzyl alcohol
					LDW-SS329	150	Downstream	PCBs
					LDW-SS74	50	Upstream	
					DR105	140	Upstream	
					EST190	200	Upstream	
S Brighton St SD	MH222	1	BBP		LDW-SSBRSTSD-D	60	Downstream	Benzyl alcohol
	MH223	1	Zn, BEHP, BBP, PCBs	Zn, BEHP	LDW-SS524	100	Downstream	
					DR112	140	Downstream	cPAH, fluoranthene
					EST187	160	Downstream	
					LDW-SSBRSTSD-A	50	Opposite	Benzyl alcohol, hexachlorobenzene
					LDW-SSBRSTSD-U	60	Upstream	cPAH, benzyl alcohol
					EST188	180	Upstream	
S Myrtle St SD	Myr-ST1, MH100	7	Cu, Pb, Hg, Zn, cPAH, BEHP, BBP, DMP, PCBs, n-nitrosodiphenylamine (1)	Cu, Pb, Hg, Zn, cPAH, BEHP, BBP, DMP, PCBs, n-nitrosodiphenylamine	LDW-SS83	80	Downstream	

Attachment J-1: Details for pipe to waterway sediment comparisons.

Outfall	Near end-of-pipe station(s)	N	Chemicals exceeding SCO/LAET in NEP sample[a]	Chemicals exceeding CSL/2/LAET in NEP sample[a]	Offshore sediment station(s)			Chemicals exceeding SCO in offshore sediment
					Sta No.	Dist from outfall	Direction from outfall	
					SS2030-U	140	Downstream	Zn, benzoic acid, benzyl alcohol, hexachlorobenzene
					SS2032-A	175	Downstream	Benzyl alcohol
					SS2030-A	180	Downstream	Benzyl alcohol
					SS2027-A	30	Opposite	Hg, Zn, BEHP, BBP, PCBs, benzoic acid, benzyl alcohol
					DR116	120	Opposite	Hexachlorobenzene
S Garden St SD	No samples	0	--	--	LDW-SS2035-D	50	Downstream	Benzyl alcohol
					DR118	110	Downstream	
					SS2034-U	180	Downstream	Benzyl alcohol
					LDW-SS2035-A	60	Opposite	Benzyl alcohol
					SD-PER101	90	Opposite	PCBs
					EST185	140	Opposite	
					LDW-SS2035-U	50	Upstream	Acenaphthene, dibenzofuran, benzyl alcohol
					DR119	120	Upstream	PCBs
					SD-PER103	140	Upstream	PCBs
					LDW-SS87	200	Upstream	
I-5 SD at Slip 4[a]	MH32	1	--	--	WC-1	80	Downstream	Zn, BEHP, BBP, benzyl alcohol (multiple yrs), PCBs (2015, 2017, 2019)
	RCB-D071039	1	Cu	Cu	WC-2	100	Downstream	PCB (2019), BEHP, benzyl alcohol
	RCB-D071041	1	--	--	SC-2	50	Downstream	BEHP, BBP (2017)
	SL4-T6	22	Zn, BEHP, BBP, DMP, PCBs (11), 1,2,4-trichlorozbenzene (1), 4-methylphenol (7), benzoic acid (4), benzyl alcohol (7), hexachlorbenzene (1), hexachlorobutadiene (1)	Zn (1), BEHP, BBP (2), DMP (1), PCBs (1), 4-methylphenol (7), benzoic acid (4), benzyl alcohol (7), hexachlorobenzene (1)	SC-3	150	Downstream	BEHP (2017)
Georgetown SD[a]	MH23	3	Zn, LPAH, HPAH, cPAH, BEHP, BBP, DMP, PCBs, benzoic acid (2), benzyl alcohol (2), phenol (1)	LPAH, HPAH, cPAH, BEHP, BBP, DMP, benzoic acid (2), benzyl alcohol (2)	Same as I-5 at Slip 4			
SW Kenny St SD/T115 CSO	KN-ST1	2	Zn, BEHP, BBP, PCBs (2), benzyl alcohol (2)	BEHP, benzyl alcohol (1)	LDW-SS59	50	Downstream	
					DR124	100	Downstream	cPAH
					DR126	110	Downstream	BBP
					SED-SS-19	120	Downstream	Hexachlorobenzene
					SED-SS-13	180	Downstream	
					SED-SS-01	70	Opposite	Benzyl alcohol
					SED-SS-12	180	Opposite	Benzyl alcohol
					DR152	190	Upstream	
Highland Park Wy SW SD	HP-ST4	4	BEHP, BBP, PCBs (1), 4-methylphenol (2), benzyl alcohol (1)	BEHP, 4-methylphenol (2), benzyl alcohol (1)	T115-SS01	10	Downstream	
	HP-ST6	7	Zn, BEHP, BBP, DMP, PCBs (6), benzoic acid (4), benzyl alcohol (7), n-nitrosodiphenylamine (1)	Zn (1), BEHP, benzoic acid (3), benzyl alcohol (4), n-nitrosodiphenylamine (1)	LDW-SS331	20	Downstream	
					R3	40	Downstream	PCBs, BEHP, BBP, DMP
					LDW-SS70	70	Downstream	BEHP
					DR131	70	Downstream	
					R4	100	Downstream	PCBs, BBP
					SG01	140	Downstream	
					T115-SS02	140	Downstream	
					WST351	160	Downstream	
1st Ave S SD, west	1st-ST1	15	Zn, HPAH (1), cPAH (1), BEHP, BBP, DMP, PCBs (9), 4-methylphenol (2), benzoic acid, benzyl alcohol, n-nitrosodiphenylamine, phenol (1)	Zn, BEHP, BBP, DMP, 4-methylphenol (2), benzoic acid (5), benzyl alcohol (9), n-nitrosodiphenylamine (4)	LDW-SS331	20	Downstream	
	1st-ST2	13	Zn, BEHP, BBP, DMP, PCBs (2),4-methylphenol(2) benzoic acid (4), benzyl alcohol	BEHP, BBP, DMP, 4-methylphenol (2), benzoic acid (4), benzyl alcohol (4)	LDW-SS2512-A	130	Downstream	BBP
	1st-ST3	4	BBP, 1,2,4-trichlorobenzene, benzyl alcohol (1), 2-methylphenol (1), hexachlorobenzene (1),	2-methylphenol (1), hexachlorobenzene (1)	LDW18-SS-091	80	Opposite	PCBs
					LDW-SS2512-U	90	Opposite	
					B6a	150	Opposite	PCBs
					LDW-SSB6a	155	Opposite	PCBs
					LDW18-2507	60	Upstream	
					LDW-SS332	85	Upstream	
					C6	120	Upstream	
					LDW18-2509	170	Upstream	PCBs

Attachment J-1: Details for pipe to waterway sediment comparisons.

Outfall	Near end-of-pipe station(s)	N	Chemicals exceeding SCO/LAET in NEP sample[a]	Chemicals exceeding CSL/2/LAET in NEP sample[a]	Offshore sediment station(s)			Chemicals exceeding SCO in offshore sediment
					Sta No.	Dist from outfall	Direction from outfall	
2nd Ave S SD	MH241	2	Zn, BEHP, BBP, PCBs, benzoic acid (1), benzyl alcohol (2)	Zn, BEHP, benzoic acid (1), benzyl alcohol (2)	2154-DSS-11	20	Downstream	Pb, Hg, PCBs
					LDW-SS84	30	Downstream	Pb, Hg, Zn, dibenzo(a,h)anthracene, BEHP, PCBs,
					2154-DSS-12	40	Downstream	Cr, Pb, Zn, LPAH, HPAH, cPAH, BEHP, BBP, 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(g,h,i)perylene, total benzofluoranthenes, chrysene, dibenzo(a,h)anthracene, dibenzofuran, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, pyrene, di-n-butylphthalate, 1,2-dichlorobenzene, 2,4-dimethylphenol, benzyl alcohol, n-nnitrosodiphenylamine, pentachlorophenol, phenol
					2154-DSS-13	60	Downstream	PCBs
					EAA-SED-3	80	Downstream	PCBs
					2154-DSS-15	80	Downstream	PCBs
					2154-DSS-14	100	Downstream	PCBs
					2154-DSS-17	110	Downstream	PCBs
					EAA-SED-4	140	Downstream	BEHP, Hg, PCBs
					2154-DSS-23	160	Downstream	Fluorene, PCBs
					2154-DSS-10	20	Upstream	PCBs
					EAA-SED-2	50	Upstream	Cd, Cr, Pb, Hg, Zn, HPAH, cPAH, PCBs, BEHP, 1,4-dichlorobenzene, benzo(a)anthracene, benzo(a)pyrene, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, pyrene, total benzofluoranthenes, total DDTs
					SED2	50	Upstream	Cr, Pb, Hg, PCBs
					2154-DSS-09	50	Upstream	Cd, Cr, Pb, Hg, Zn, LPAH, HPAH, cPAH, BEHP, BBP, PCBs, 2-methylnaphthalene, acenaphthene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(g,h,i)perylene, total benzofluoranthenes, chrysene, debenzo(a,h)anthracene, dibenzofuran, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, phenanthrene, pyrene, naphthalene, di-n-butylphthalate, 1,2,4-trichlorobenzene, 1,2-dichlorobenzene, 1,4-dichlorobenzene, 2,4-dimethylphenol, 2-methylphenol, 4-methylphenol, benzyl alcohol, n-nitrosodiphenylamine, pentachlorophenol, phenol
					2154-DSS-08	70	Upstream	Hg, pentachlorophenol, PCBs
					SED1	90	Upstream	Cd, Cr, Pb, Hg, PCBs
					2154-DSS-07	90	Upstream	PCBs
					EAA-SED-1	100	Upstream	Cd, Cr, Cu, Pb, Hg, Ag, Zn, cPAH, PCBs, BEHP, BBP, 1,2,4-trichlorobenzene, 1,2-dichlorobenzene, 2-methylnaphthalene, benzo(g,h,i)perylene, dibenzo(a,h)anthracene, dimethyl phthalate, indeno(1,2,3-cd)pyrene, pentachlorophenol, phenol, DDT
					2154-DSS-06	100	Upstream	Cr, Pb, Hg, pentachlorophenol, PCBs
					2154-DSS-05	130	Upstream	PCBs
					2154-DSS-04	160	Upstream	Cd, Pb, Hg, Zn, BBP,. 2,4-dimethylphenol, PCBs
					2154-DSS-03	170	Upstream	Hg, PCBs
S Webster St SD	RCB298		LPAH, HPAH, cPAH, BEHP, BBP, 4-	LPAH, HPAH, cPAH, BEHP, 4-methylphenol	WIT279	180	Downstream	
					WST340	190	Downstream	
					LDW-SS91	70	Opposite	
					LDW-SS90	120	Opposite	
					LDW-SS2113-A	100	Upstream	Benzyl alcohol
					DR190	100	Upstream	
					LDW-SS2113-U	120	Upstream	
7th Ave S SD	7th-ST1	10	Zn, BEHP, BBP, PCBs (4), 2-methylphenol (1), 4-methylphenol (3), benzoic acid (2), benzyl alcohol (8)	BEHP, 2-methylphenol (1), 4-methylphenol (3), benzoic acid (2), benzyl alcohol (8)	LDW-SS335	70	Downstream	cPAH, BEHP, BBP, fluoranthene
					LDW-SS530	100	Downstream	LPAH, HPAH, cPAH, PCBs, 2-methylnaphthalene, acenaphthene, benzo(a)anthracene,

Attachment J-1: Details for pipe to waterway sediment comparisons.

Outfall	Near end-of-pipe station(s)	N	Chemicals exceeding SCO/LAET in NEP sample[a]	Chemicals exceeding CSL/2/LAET in NEP sample[a]	Offshore sediment station(s)			Chemicals exceeding SCO in offshore sediment
					Sta No.	Dist from outfall	Direction from outfall	
					LDW-SS93	120	Downstream	
					TRI-095T	160	Downstream	2,4-dimethylphenol, benzyl alcohol
					LDW-SS2112-A	50	Opposite	Hg, PCBs, benzyl alcohol, benzyl n-butyl phthalate, BEHP, hexachlorobenzene
					LDW-SS95	185	Opposite	LPAH, HPAH, cPAH, acenaphthene, anthracene, benz(a)anthracene, chrysene, dibenzofuran,
LOWER REACH								
S Nevada St SD	RCB312	1	Zn, BEHP,BBP, DMP, PCBs, 4-methylphenol, n-nitrosodiphenylamine	Zn, BEHP, 4-methylphenol, n-nitrosodiphenylamine	LDW-SS13	60	Opposite	
Diagonal Ave S CSO/SD[a]	ST1	34	Hg (4), Zn, HPAH (3), cPAH (7), BEHP, BBP, DMP, PCBs (23), 1,4-dichlorobezene (3), 4-methylphenol (8), benzoic acid (4), benzyl alcohol (4), n-nitrosodiphenylamine (1), phenol (1)	Hg (3), Zn (1), HPAH (1), cPAH (7), BEHP, BBP, DMP, PCBs (2), 1,4-dichlorobenzene (3), 4-methylphenol (8), benzoic acid (4), benzyl alcohol (4), n-nitrosodiphenylamine (1)	DUD_A	170	Downstream	
					DUD_1A	100	Opposite	PCBs (2005, 2006, 2011), cPAH, benzyl alcohol, benzoic acid, BEHP, DMP, BBP, chrysene, fluoranthene, phenanthrene, pyrene, 2,4-dimethylphenol, and 1,4-dichlorobenzene in 2011; BEHP,
					DUD_31C	120	Upstream	
					DUD_2A	170	Upstream	BEHP, BBP, phenol (2010, 2012)
					DUD_3A	220	Upstream	BEHP, BBP, Total DDTs
SW Dakota St SD	RCB200A	2	Zn, BEHP, BBP, DMP, PCBs (2), benzoic acid (1), benzyl alcohol (2)	BEHP, DMP, benzoic acid (1), benzyl alcohol (2)	LDW-SS2149-A	20	Downstream	Zn, PCBs, BEHP, BBP, benzyl alcohol
SW Idaho St SD	ID-ST2	7	BEHP (1), BBP (2), PCBs (2), benzoic acid (2), benzyl alcohol (3)	BEHP (1), BBP (1), benzoic acid (2), benzyl alcohol (3)	LDW-SS16	180	Upstream	
					LDW-SS2147-D	60	Opposite	
					LDW-SS14	70	Opposite	
					DR067	170	Opposite	
					LDW-SS2146A	80	Upstream	
					WIT299	80	Upstream	
					LDW-SS2144-A	90	Upstream	
					DR036	115	Upstream	
					LDW-SC6	170	Upstream	
					LDW-SS16	170	Upstream	
					TRI-016	180	Upstream	2,4-dimethylphenol, benzyl alcohol, phenol
South Operations Center SD	No samples		--	--	SD-16	20	Upstream	
					SD-19	30	Upstream	
					SD-20	90	Opposite	
					SD-18	70	Upstream	
					SD-3	170	Opposite	

a. Chemicals listed in red match one or more samples collected within 200 feet of the outfall that exceed SCO in water sediment.

Notes

1. Waterway sediment data from Draft_LDWAOC3_SurfaceSediment_Data_Nov2019 access dbase. Does not include samples collected prior to Early Action Area cleanups: Samples collected prior to 1999 in Norfolk, 2004 in Diagonal/Duwamish, 2012 in Slip 4, and 2015 in T117 offshore areas are not included.
2. Inline near end-of-pipe samples include MS4 only (no ODS), post clean or never been cleaned samples. Samples affected by line cleaning are not included.

NEP sample list more expansive in SCIP2 to try to evaluate all outfalls.

Appendix K: City properties and Rights-of-Way on Ecology Confirmed and Suspected Contaminated Site List (2020).

Site Name	Address	Status	Brownfield	WARM Rank	PSI Site	Contaminant Type	Groundwater	Surface Water	Soil	Sediment	Air	Bedrock	ROW Impact
Seattle Public Utilities Operations Ctr	2700 AIRPORT WAY S	Cleanup Started		5		Petroleum-Other	C		C				N
Seattle City Light 4th Ave S	3814 4TH AVE S	Awaiting Cleanup		5		Petroleum Products-Unspecified	C		C				N
						Metals Priority Pollutants	C		C				N
Seattle City Light South Service Center	3613 4TH AVE S	Cleanup Started		5		Polychlorinated biPhenyls (PCB)	S		S		S		N
						Petroleum-Diesel	C		C				N
						Petroleum-Gasoline	C		C				N
						Dioxin/Dibenzofuran Compounds	S		S		S		N
						Benzene	S		S				N
						Petroleum-Other	S		S				N
SDOT Sunny Jim	4200 AIRPORT WAY S	Awaiting Cleanup		4		Halogenated Solvents	C		B				N
						Petroleum-Other	C		B				N
Seattle Parks Colman School	1515 24TH AVE S	Awaiting Cleanup	Yes	N		Halogenated Organics	S		S				N
						Corrosive Wastes	S		S				N
						Non-Halogenated Solvents	S		S				N
Seattle Fire Station No 6	405 MARTIN LUTHER KING JR WAY S	Cleanup Started		N		Lead			RB				N
Seattle Fire Station No 14	3224 4TH AVE S	Cleanup Started		5		Petroleum-Other			C				N
Puget Park	16th Ave SW and SW Edmunds St	Cleanup Started		4		Metals Priority Pollutants	S	S	C				N
Duwamish Waterway Park	7900 10th Ave S	Awaiting Cleanup		N		Arsenic			C				Y
Rainier Court	3700 RAINIER AVE S	Cleanup Started	Yes	N		Polychlorinated biPhenyls (PCB)	B		B				Y
						Polycyclic Aromatic Hydrocarbons	C		C				Y
						Petroleum Products-Unspecified	C		C				Y
						Metals Priority Pollutants	C		C				Y
						Pesticides-Unspecified	B		B				Y
Seattle City Hillman Shops	5952 5960 RAINIER AVE S	Cleanup Started		3		Petroleum-Other			C				N
Upper Hudson Street	4815 15TH AVE SW	Cleanup Started		2		Metals Priority Pollutants			C				Y
Evergreen Trails	4500 W MARGINAL WAY SW	Cleanup Started		N	Yes	Petroleum-Other			C				N
Seattle Public Utilities Spoils Yard	5821 1ST AVE S	Awaiting Cleanup		5		Petroleum-Diesel			C				N
						Petroleum-Other			C				N
						Petroleum-Gasoline			C				N
SDOT Delridge R-O-W	5601 23RD AVE SW	Awaiting Cleanup		N		Polychlorinated biPhenyls (PCB)	S		C				N
						Petroleum-Diesel	B		C				N
						Lead	S		S				N
SDOT S River St	101 S River St	Awaiting Cleanup		N		Petroleum-Gasoline			B				N
						Mercury			B				N
						Lead			C				N
						Polychlorinated biPhenyls (PCB)			B				N
						Metals - Other			C				N
						Petroleum-Diesel			B				N
						Other Non-Halogenated Organics			C				N
						Polycyclic Aromatic Hydrocarbons			C				N
						Arsenic			C				N
						Petroleum-Other			B				N
Seattle West Duwamish Trail	S Portland St 5th AVE S to 7th AVE S	Awaiting Cleanup		4		Arsenic			C				N
						Lead	S		C				N
						Polycyclic Aromatic Hydrocarbons	S		C				N
						Metals - Other			C				N
						Petroleum-Other	C		C				N
640 S Riverside Dr	640 S RIVERSIDE DR	Cleanup Started		N		Halogenated Organics	C		C				N
						Petroleum Products-Unspecified	B		C				N
						Arsenic	C		C				N
						Metals Priority Pollutants	C		C				N
						Polycyclic Aromatic Hydrocarbons	C		C				N
S Kenyon St Bus Yard	110 130 150 & 200 S KENYON ST	Cleanup Started		N		Metals Priority Pollutants	C		C				N
						Petroleum Products-Unspecified	C		C				N

Appendix K: City properties and Rights-of-Way on Ecology Confirmed and Suspected Contaminated Site List (2020).

Site Name	Address	Status	Brownfield	WARM Rank	PSI Site	Contaminant Type	Groundwater	Surface Water	Soil	Sediment	Air	Bedrock	ROW Impact
South Seattle Transfer Station	8100 2nd Ave S	Awaiting Cleanup		N		Conventional Contaminants, Inorganic	S	S	S				N
						Conventional Contaminants, Organic	S	S	S				N
SR 509 & Greenbelt	SR 509 & S Barton St	Awaiting Cleanup		N		Metals - Other		S	S				N
						Petroleum Products-Unspecified		S	S				N
						Metals Priority Pollutants		S	S				N
South Park Landfill	8200 2ND AVE S	Cleanup Started	Yes	2		Phenolic Compounds			S				N
						Conventional Contaminants, Inorganic	C	S	C				N
						Non-Halogenated Solvents	S		S				N
						Halogenated Organics	C	S	C				N
						Base/Neutral/Acid Organics	C	C	C				N
						Metals Priority Pollutants	C	S	S				N
						Polychlorinated biPhenyls (PCB)	S	S	C				N
						Pesticides-Unspecified	S	S	S				N
						Conventional Contaminants, Organic	C	S	C				N
						Petroleum Products-Unspecified	C	S	C				N
						Polycyclic Aromatic Hydrocarbons	S	S	C				N
Seattle West Maintenance HQ	9200 8TH AVE SW	Cleanup Started		4		Petroleum-Diesel			C				N
SCL Georgetown Steam	1131 S ELIZABETH ST	Cleanup Started		N		Petroleum-Diesel	S		C				N
						Polychlorinated biPhenyls (PCB)	S		S				N
						Metals - Other	S						N
						Petroleum-Other	S		C				N
						Polycyclic Aromatic Hydrocarbons	S		S				N
						Benzene	S		C				N
North Boeing Field Georgetown Steam Plant	7370 E MARGINAL WAY S	Cleanup Started		5		Metals Priority Pollutants	C	S	C				N
						Metals - Other	S	S	S				N
						Dioxin/Dibenzofuran Compounds	C	S	S				N
						Benzene					C		N
						Dioxin/Dibenzofuran Compounds	C	S	S				N
						Benzene					C		N
						Petroleum-Other					C		N
						Polychlorinated biPhenyls (PCB)	C	S	S		S		N
						Non-Halogenated Solvents	C	S	C				N
						Petroleum-Gasoline					C		N
						Conventional Contaminants, Inorganic	C	S	C				N
						Petroleum Products-Unspecified	C	S	C				N
						Halogenated Organics	C	S	C				N
						Petroleum-Diesel					C		N
						Corrosive Wastes	B	S	C				N
						Halogenated Solvents					C		N
Whitehead Tyee	730 S Myrtle St	Cleanup Started		1		Petroleum-Diesel	C						N
						Polychlorinated biPhenyls (PCB)	S		C				N
						Petroleum-Gasoline	C						N
						Non-Halogenated Solvents			C				N
Fox Ave Building	6900 FOX AVE S	Cleanup Started		1		Non-Halogenated Solvents	C		C				N
						Polycyclic Aromatic Hydrocarbons	C		C				N
						Petroleum-Other			C				N
						Halogenated Organics	C		C				N
						Petroleum Products-Unspecified	C						N
SDOT S Fontanelle St	S FONTANELLE ST & 5TH AVE S	Awaiting Cleanup		N		Polychlorinated biPhenyls (PCB)			C				N
						Lead			B				N
						Arsenic			B				N
						Mercury			B				N
						Benzene			B				N
						Petroleum-Diesel			B				N
						Petroleum-Other			B				N
						Non-Halogenated Solvents			C				N
						Metals - Other			C				N

Appendix K: City properties and Rights-of-Way on Ecology Confirmed and Suspected Contaminated Site List (2020).

Site Name	Address	Status	Brownfield	WARM Rank	PSI Site	Contaminant Type	Groundwater	Surface Water	Soil	Sediment	Air	Bedrock	ROW Impact
Whitehead Tyee	730 S Myrtle St	Cleanup Started		1		Dioxin/Dibenzofuran Compounds	C		C				N
						Halogenated Solvents	C		C				N
						Other Halogenated Organics	C		C				N
						Petroleum-Other	C		C				N
Sternoff Metals	7201 E MARGINAL WAY S	Awaiting Cleanup		5		Petroleum Products-Unspecified	C						N
						Polychlorinated biPhenyls (PCB)	C	S	C				N
						Metals Priority Pollutants	C	S	C				N
South Park Marina[a]	8604 DALLAS AVE S	Awaiting Cleanup		2		Metals Priority Pollutants			C				N
						Petroleum Products-Unspecified			C				N
						Halogenated Organics	C		C				N
						Arsenic	C		C				N
						Pesticides-Unspecified	C		C				N
						Polychlorinated biPhenyls (PCB)			C				N
SCL Duwamish Substation	10000 W MARGINAL PL S	Awaiting Cleanup		N		Halogenated Pesticides			B				N
						Metals - Other	B		B				N
						Polycyclic Aromatic Hydrocarbons	B		C				N
						Mercury	B		B				N
						Other Deleterious Substances			C				N
						Lead	B		B				N
						Polychlorinated biPhenyls (PCB)	B		B				N
						Arsenic	B		B				N

Source: https://apps.ecology.wa.gov/tcpwebreporting/reports/cleanup/contaminated

B = below cleanup level
C = confirmed above cleanup level
R = remediated
PSI = Puget Sound Initiative
RA = remediated above
RB = remediated below
S = Suspected

a. Private parcel, Seattle City Light identified as a PRP.

Appendix L:

Corrective Actions Tracked in Database

Corrective Action	Code Reference	Description
"High-Use" Parking Lot Maintenance	SMC 22.803.030 (G) BMP 27	Sites which meet the threshold for large concentrations of oil due to high traffic turnover or the frequent transfer of oil are required to install and maintain structural components and implement operational BMPs to prevent the contamination of stormwater. Your site requires installation of an oil removal system. Refer to the City of Seattle Stormwater Manual BMP 27 at the link in the text above for more information.
Above Ground Tanks Require Secondary Containment	SMC 22.803.040 BMP 26	Provide secondary containment or use double-walled tanks.
Are Leaks and Drips Being Addressed	SMC 22.803.040 BMP 11	Use drip pans or other containment devices beneath the vehicle or equipment to capture spills and drips. If staining or sheen is present, oil absorbents must be placed around catch basins. Demonstrate how spills and leaks will be addressed to prevent stormwater pollution.
Boat Building and Repair	SMC 22.803.040 BMP 33	Boat building and repair requires the implementation of best management practices to prevent the contamination of stormwater. Activity at your site is contributing pollutants to stormwater and BMPs need to be implemented. Refer to the City of Seattle Stormwater Manual BMP 33 for more information at the link in the text above. Correct the code violations in the observations section and notify the SPU inspector of your actions.
Clean Stormwater Catch Basins and Components	SMC 22.803.030 (B) BMP 2	Clean your drainage catch basins and components. If drainage lines are obstructed or contaminated, jet and clean your drainage lines.
Clean Waste Area of Litter and Debris	SMC 22.803.030 (D) BMP 4	Sweep waste storage areas frequently and clean up leaks and spills as they occur.
Clean your Loading Dock	SMC 22.803.040 BMP 9	Inspect loading and unloading areas after each delivery for leaks, spills, and other materials and clean up immediately.
Cleanup Spills and Leaks	SMC 22.803.030 (E) BMP 5	For all spills: ° Implement the spill plan. ° If appropriate, utilize the spill kit to clean up the spill. ° If the spill has impacted or has the potential to impact a drainage system, surface water, or sanitary sewer; report the spill to SPU at (206) 386-1800. ° Do not wash spilled material into drains. ° Dispose of spilled materials appropriately.
Commercial Animal Care and Handling	SMC 22.803.040 BMP 31	Commercial animal care and handling activities must comply with Stormwater Manual BMP 31: Commercial Animal Care and Handling which may be viewed using the link in the text above. Document your compliance with BMP 31.
Commercial Composting Requirements	SMC 22.803.040 BMP 17	Commercial composting activities must comply with Stormwater Manual BMP 17: Commercial Composting, which may be accessed using the link in the text above. Document your compliance with BMP 17.
Commercial Printing Requirements	SMC 22.803.040 BMP 20	Commercial printing activities must comply with Stormwater Manual BMP 20: Commercial Printing, which may be accessed at the link in the text above. Document your compliance with BMP 20.
Concrete and Asphalt Application Requirements	SMC 22.803.040 BMP 14	Concrete and asphalt activities must comply with Stormwater Manual BMP 14: Concrete Pouring, Concrete/Asphalt Cutting, and Asphalt Application, which may be accessed at the link in the text above. Document your compliance with BMP 14.
Concrete and Asphalt Mixing and Production Requirements	SMC 22.803.040 BMP 13	Concrete and asphalt mixing, and production activities must comply with Stormwater Manual BMP 13: Concrete and Asphalt Mixing and Production, which may be accessed using the link in the text above. Document your compliance with BMP 13.
Conduct All Repair Operations Inside or Within Impervious Containment Area	SMC 22.803.040 BMP 11	Maintenance and repair activities must be conducted inside a building or other covered impervious containment area that is sloped to prevent run-on of uncontaminated stormwater and runoff of contaminated stormwater.
Corrected in Field: Clean Waste Area of Litter and Debris	SMC 22.803.030 (D) BMP 4	The waste storage area was cleaned during the facility inspection. Continue to maintain the cleanliness of the waste storage area to remain in compliance with this BMP.

Corrective Action	Code Reference	Description
Corrected in Field: Free Spill Kit to be provided	SMC 22.802.030 (E) BMP 5	To assist your business with compliance of Spill Preparedness requirements, I have enrolled your business for a free spill kit and plan from the City of Seattle. Please work with our partners from the Environmental Coalition of South Seattle (ECOSS) to improve spill preparedness for your business and continue to maintain an updated spill plan and stocked spill kit going forward.
Corrected in Field: Label mobile cleaning equipment	SMC 22.803.040 BMP 8	Mobile cleaning and washing equipment was found to lack adequate labeling. This issue was resolved during the inspection. Ensure that any equipment utilized for cleaning and washing purposes contains appropriate label: "Properly dispose of all wastewater. Do not discharge to an inlet/catch basin, ditch, stream, or on the ground."
Corrected in Field: Mark all waste containers with Owner Information.	SMC 22.803.030 (D) BMP 4	Containers stored in the right-of-way require a label with owner information and contents. Labels were added to your containers during the inspection. Any future containers stored in the right of way must also contain labels with ownership and content information.
Corrected in Field: Spill Plan	SMC 22.803.030 (E) BMP 5	Spill plans must be updated as facility conditions change. Your spill plan was completed/modified during the inspection process.
Corrected in Field: Store Solid Waste in Closed Containers	SMC 22.803.030 (D) BMP 4	A waste container with an open lid was observed during the inspection. The lid was closed during this inspection. Continue to keep waste container lids closed at all times to eliminate this potential source of pollution and to remain in compliance with BMP 4.
Corrected in Field: Washing wastewater must be properly disposed of	SMC 22.802.020 (A) BMP 8	Your site was found to be illicitly discharging wash water to the storm drainage system. This illicit discharge was stopped. Continue to ensure that wash water will not reach the storm drainage system.
Daily Inspections and Inspection Log	SMC 22.803.040 BMP 24	A BMP inspection log is required. Inspections must be conducted daily, and records must be kept of these inspections.
Deicing and Anti-icing Operations for Aircraft	SMC 22.803.040 BMP 35	Aircraft deicing operations must be implemented with proper operational and structural best management practices to prevent the contamination of stormwater. Apply chemicals in containment areas to collect excess applications. Chemicals need to be stored and transferred within containment areas. Do not allow de-icing or anti-icing chemicals to impact the drainage system, receiving waters, or groundwater. Modify your practices to prevent stormwater contamination from these operations.
Deicing and Anti-icing Operations for Highways and Streets	SMC 22.803.040 BMP 35	The following BMPs or equivalent measures are required for deicing and anti-icing activities related to streets and highways: 1) Apply only as needed using minimum quantities. 2) Where feasible and practical, use roadway deicers, such as calcium magnesium acetate, potassium acetate, or similar materials that cause less adverse environmental impact than urea and sodium chloride. 3) Store and transfer deicing and anti-icing materials on an impervious containment pad. 4) Sweep or clean up accumulated deicing and anti-icing materials and grit from roads as soon as possible after the road surface clears. 5) Increase maintenance of stormwater structures as necessary.
Develop a Mobile Fueling Operations Plan	SMC 22.803.040 BMP 12	Develop and follow a written mobile fueling operations plan. This plan must cover all mobile fueling operations and be signed and dated by the responsible manager. Maintain a copy of the operations plan at the facility headquarters and with all mobile fueling operators. If a contractor is used, a copy of this plan must be on site.
Dispose of Fluids and Wastes Properly	SMC 22.803.030 (C) BMP 3	Solid and liquid wastes must be disposed of in a manner that minimizes the risk of contaminating stormwater. Dispose of wastes in accordance with applicable solid waste, dangerous waste, industrial waste, and other regulations.

Corrective Action	Code Reference	Description
Dispose of Wastes from Railroad Operations Properly	SMC 22.803.040 BMP 37	Railroad operations must manage wastes including sewage, oil, fuel, and other debris properly to prevent the potential contamination of stormwater. In areas subject to leaks or spills of oil or other chemicals, convey contaminated stormwater to sanitary sewer if approved, or to an appropriate stormwater treatment facility. Refer to the City of Seattle Stormwater Manual BMP 37 for more information, which may be accessed using the link in the text above. Improve management of contaminated stormwater and document actions taken.
Dispose of Water from Electrical Transformer Vaults Properly	SMC 22.803.040 BMP 38	Wastewater from electric transformer vault dewatering must be properly evaluated for contamination prior to disposal. Contaminates of concern include PCBs, oils, and suspended solids. PCB containing wastewater may require disposal in accordance with State and Federal regulations. If wastewater is disposed of to the sanitary sewer, it must be in accordance with local discharge limits or applicable permits. Dispose of dewatering water properly. Document your disposal method for future waste management.
Do Not Overfill Waste Containers	SMC 22.803.030 (D) BMP 4	Do not overfill waste containers.
Drain Fluids from Vehicles or Equipment	SMC 22.803.040 BMP 24	Drain all fluids from vehicles and equipment upon arrival, prior to storage or disposal.
Drain Trash Compactors to the Sanitary Sewer	SMC 22.803.030 (D) BMP 4	Drain dumpsters, dumpster pads, and trash compactors to the sanitary sewer.
Dust Control at Manufacturing Sites	SMC 22.803.040 BMP 29	Control dust sources to prevent dust from leaving the site. This includes modifying work practices, filtered vacuum sweeping, eliminating track-out, and maintaining dust control devices. Surface washing should be done with capture of wash water for proper disposal. Requirements laid out in BMP 29 may be accessed using the link in the text above. Provide a written plan to control dust sources and implement the plan.
Dust Control in Disturbed Land Areas and on Unpaved Roadways and Parking Lots	SMC 22.803.040 BMP 28	Businesses and public agencies engaged in activities that generate dust from disturbed land areas and unpaved lots or roadways must implement dust control best management practices. This may require proper application of dust suppressants, protecting drainage from turbidity or suppressant chemicals, sweeping adjacent paved surfaces, and installing catch basin filters on site and in surrounding catch basins. Institute or improve your dust control practices at your site to comply with City of Seattle Stormwater Manual BMP 28, which may be accessed using the link in the text above.
Eliminate Illicit Connection to Storm Drains	SMC 22.803.030 (A) BMP 1	You currently have an illicit connection to the storm drainage system, and you must permanently sever this illicit connection. A Notice of Violation may be issued for this violation.
Ensure Designated and Trained Staff are Available to Respond to Spill and Fuel Station Emergencies	SMC 22.803.040 BMP 10	Ensure that a designated, trained person is available either on site or on call at all times to promptly and properly implement spill response and cleanup. If the fueling station is unattended, the spill plan with emergency contact information must be visible to all customers and the spill kit must be accessible and stocked at all times.
Evaluate Facility Buildings for Potential Contamination of Stormwater	SMC 22.803.040 BMP 36	Buildings may leach materials which contaminate stormwater from roofs, paint, caulk or other sources. Misapplied moss killer, flaking paint, PCB caulking, or corroded galvanized materials are all potential sources of pollutants. Due to the history and condition of buildings at your facility, evaluate your buildings for sources of pollution and report your findings and actions to eliminate these sources.
Identify and Map Drainage	SMC 22.803.020 (A) BMP 1	Provide a complete map of all drainage, sanitary side sewer, and plumbing infrastructure on the property.
Inspect Tanks and Tank Components Routinely and Record Results	SMC 22.803.040 BMP 26	Tanks and tank containment areas must be inspected routinely for damage, corrosion, and leaks. These inspections must be documented, and records kept. Develop a maintenance plan that includes inspection reports and provide a copy of your plan and inspection record.
Inspect Vehicles for Leaks and Contain or Drain Vehicles as Needed	SMC 22.803.040 BMP 11	Inspect all incoming vehicles and equipment for leaks or spills. Drain fluids from leaking, damaged vehicles or equipment when they arrive. Capture leaks with drip pans or other containment devices. Cleanup leaked fluids or spills as they occur.

Corrective Action	Code Reference	Description
Keep Records of Training	SMC 22.803.030 (F) BMP 6	Records of staff training for operations, maintenance and inspection of stormwater source control BMPs must be kept on file and available for inspectors to review.
Label All Containers	SMC 22.803.040 BMP 25	Label containers to identify their contents and any appropriate hazards. If stored in the right-of-way, label with owner information. Labels must be clearly visible.
Label mobile cleaning equipment	SMC 22.803.040 BMP 8	Mobile washing and cleaning equipment is required to be labelled: "Properly dispose of all wastewater. Do not discharge to an inlet/catch basin, ditch, stream, or on the ground." Label your cleaning equipment appropriately.
Landscaping and Vegetation Management Requirements	SMC 22.803.040 BMP 18	Landscaping and vegetation management activities must comply with Stormwater Manual BMP 18: Landscaping and Vegetation Management, which may be accessed using the link in the text above. Document your compliance with BMP 18.
Loading and Unloading Require Structural Improvements	SMC 22.803.040 BMP 9	Place curbs along the edge or slope the edge of the bulk load/unload area such that stormwater will not flow directly to surface water or the public drainage system. Private drainage system must lead to an approved treatment BMP. Pave and slope loading and unloading areas to prevent the pooling of water. To the extent practical, load and unload solids and liquids in a manufacturing building or under a roof, lean-to, or other appropriate cover.
Locate Pollution Generating Activites Away from Stormdrains	SMC 22.803.030 (G) BMP 7	Locate pollution-generating activities to minimize impact to stormwater.
Log Handling and Sorting	SMC 22.803.040 BMP 32	Refer to S413 – BMPs for Log Sorting and Handling in the stormwater Management Manual for Western Washington (SWMMWW), Volume IV (Ecology 2014) for a description of the pollutants associated with this activity and the required BMP elements. Take necessary corrective actions to comply with S413.
Lot Maintenance and Storage	SMC 22.803.040 BMP 27	Paved areas need to be maintained to prevent pollutants from impacting stormwater. Sweep or vacuum the lot, storage areas, sidewalks, and laneways regularly. Inspect these areas routinely for leaks and spills and employ spill procedures when needed. Do not wash pollutants into the stormwater system.
Maintain Drainage Systems on Utility Corridors	SMC 22.803.040 BMP 38	Drainage structures in utility corridors including ditches, culverts, drain pipes, inlets, catch basins and other structures must be maintained at an appropriate frequency to prevent clogging, flooding, or overflow erosion. Improve maintenance to prevent flooding and erosion.
Maintenance of Pools, Spas, Hot Tubs, and Fountains	SMC 22.802.030 (C) BMP 34	All wastewater generated from filter backwashing and cleaning must be discharged to the sanitary sewer. Draining of pools, spas, hot tubs, and fountains must comply with BMP 34, which can be accessed using the link in the text above. Correct the code violations in the observations section and notify the SPU inspector of your actions.
Maintenance of Roadside Ditches	SMC 22.803.040 BMP 39	Ditches and culverts must be maintained at an appropriate frequency to prevent clogging, flooding, erosion, or the overflow of stormwater onto adjacent roadways. Refer to the City of Seattle Stormwater Manual BMP 39 for more information, which may be accessed using the link in the text above.
Manage Stormwater Dewatering from Tank Secondary Containment Properly	SMC 22.803.040 BMP 26	Do not discharge contaminated stormwater from the secondary containment system to the stormwater drainage system. Contaminated water should be directed to an approved treatment system or disposal facility. Provide a standard operating procedure, inspection protocol, sampling plan, or other strategy to manage stormwater from the secondary containment system.
Manufacturing Requirements	SMC 22.803.040 BMP 21	Manufacturing activities must comply with Stormwater Manual BMP 21: Manufacturing Activities, which may be accessed using the link in the text above. Document your compliance with BMP 21.
Mark all Waste Containers with Owner Information	SMC 22.803.030 (D) BMP 4	Containers stored in the right-of-way require a label with owner information and contents.
Metal Product Manufacturing or Processing Requirements	SMC 22.803.040 BMP 15	Metal product manufacturing and processing activities must comply with Stormwater Manual BMP 15: Manufacturing and Post-processing of Metal Products, which may be accessed using the link in the text above. Document your compliance with BMP 15.

Corrective Action	Code Reference	Description
Mobile Fueling Activities Inadequate	SMC 22.803.040 BMP 12	Mobile fueling activities must comply with Stormwater Manual BMP 12: Mobile Fueling of Vehicles and Heavy Equipment, which may be accessed using the link in the text above. Document compliance with BMP 12.
New or Redeveloped Tank Storage Sites	SMC 22.803.040 BMP 26	For new and redeveloped tanks, locate and design tanks and containment to prevent and minimize stormwater contamination. Refer to City of Seattle Stormwater Manual BMP 26 for design and operational requirements, which may be accessed using the link in the text above.
Obtain Fire Permit	SMC 22.803.040 BMP 12	Obtain Seattle Fire Department permit for mobile fueling.
Operations Plan Required for Bulk Liquid Load/Unload	SMC 22.803.040 BMP 9	Prepare and follow an "Operations Plan" that describes procedures for loading/unloading. Train employees on the plan. Submit a copy of this plan and training records.
Outlet Trap Required	SMC 22.803.030 (B) BMP 2	Catch basin outlet trap(s) are missing or damaged. Repair your catch basin outlet trap(s).
Painting, Finishing, and Coating Requirements	SMC 22.803.040 BMP 19	Painting, finishing, and coating activities must comply with Stormwater Manual BMP 19: Painting, Finishing, and Coating Activities, which may be accessed using the link in the text above. Document your compliance with BMP 19.
Perform Routine Site Maintenance	SMC 22.803.030 (G) BMP 7	Engage in proper site maintenance to prevent pollutant transport off site, including but not limited to sweeping paved areas; inspecting loading, unloading, storage and parking areas; and cleaning up leaks and spills promptly.
Place Drip Pans Beneath Taps and Dispensers	SMC 22.803.040 - BMP 25	Place drip pans beneath all taps on containers and at all potential drip and spill locations during dispensing or filling.
Post Appropriate Signage at the Fuel Dispensing Area	SMC 22.803.040 BMP 10	Post signage at the fuel dispensers related to their operation in accordance with the Seattle Fire Code. Minimum signage should include "No Topping Off" and "Stay With Vehicle During Fueling".
Process inside, or in cover and containment	SMC 22.803.040 BMP 24	Isolate the processing area so that it is unable to contaminate stormwater runoff.
Prohibited Discharges	SMC 22.802.020 BMP 3	The substances identified in the observations section of this corrective action are prohibited to enter a public drainage system, private drainage system, or receiving water body. Stop discharging prohibited substances. A Notice of Violation may be issued for this violation.
Rail Yard Operation and Maintenance	SMC 22.803.040 BMP 37	Maintenance activities at your site pose a threat to stormwater. Discharges, leaks, spills, and waste accumulation can all harm stormwater. Address the code violations noted in the observation section and document your actions.
Requirements for Recycling, Wrecking Yard, and Scrap Yard Operations	SMC 22.803.040 BMP 24	Recycling, wrecking yard, and scrap yard operations must comply with Stormwater Manual BMP 24: Recycling, Wrecking Yard, and Scrap Yard Operations, which may be accessed using the link in the text above. Document your compliance with BMP 24.
Requirements for Storage or Transfer of Leachable or Erodible Materials	SMC 22.803.040 BMP 22	Storage or transfer of leachable or erodible materials must comply with Stormwater Manual BMP 22: Storage or Transfer of Leachable or Erodible Materials, which may be accessed using the link in the above text. Document your compliance with BMP 22.
Requirements for the Processing of Fruits, Vegetables or Grains	SMC 22.803.040 BMP 23	Storage or processing of fruits, vegetables or grains must comply with Stormwater Manual BMP 23: Temporary Storage or Processing of Fruits, Vegetables, or Grains. Document your compliance with BMP 23. See BMP 23: https://www.seattle.gov/DPD/cs/groups/pan/@pan/documents/web_informational/p2358279.pdf
Secure Drums to Prevent Accidents or Vandalism	SMC 22.803.040 BMP 25	Secure drums in a manner that prevents accidental spillage, pilferage, or any unauthorized use.

Corrective Action	Code Reference	Description
Soil Erosion and Sediment Control at Industrial Sites	SMC 22.803.040 BMP 30	Sites with exposed or disturbed soils or high erosion potential can contaminate stormwater runoff. Suspended solids and turbidity can cause damage to the public drainage system and harm local waters. Stabilize erosion areas by implementing BMP 30 elements, which are described in the BMP manual accessible using the link in the text above. Develop and submit a plan to control erosion from your site and implement the plan.
Spill Cleanup Kit	SMC 22.803.030 (E) BMP 5	Provide necessary spill response equipment and supplies for your facility. Spill response equipment and supplies must be appropriate to the types and quantities of materials stored or used onsite. Spill supplies must be replenished as needed.
Spill Kits in High Risk Areas	SMC 22.803.030 (E) BMP 5	Store spill cleanup kits near areas with a high potential for spills so that they are easily accessible in the event of a spill.
Spill Plan	SMC 22.803.030 (E) BMP 5	Businesses are required to develop a plan to respond to spills of materials that may contaminate stormwater. The written spill plan must be posted with spill kits and at appropriate locations at the facility. Reference BMP 5 for required elements in the plan.
Spill Reporting Required	SMC 22.803.020 (B) BMP 5	At the earliest possible time, report all spills, discharges, or releases that could impact a drainage system, a combined sewer, a sanitary sewer, or a receiving water to SPU at (206) 386-1800.
Store Hazardous and Dangerous Materials with Secondary Containment	SMC 22.803.040 BMP 25	For containers of hazardous or dangerous materials, store all liquid containers on secondary containment. Secondary containment must be capable of holding the larger volume of either 10% of the total volume or 110% of the volume of the largest container. Provide a cover for the secondary containment or adequate spill control to manage accumulated rainwater. Prevent the run-on of stormwater with berms or dikes and elevate metal drums to prevent corrosion.
Store Material Transfer Equipment and Containment Devices Under Cover	SMC 22.803.040 BMP 9	Store contaminated equipment inside or under cover to prevent residual material from coming into contact with stormwater.
Store Materials in a Leak Proof Container	SMC 22.803.040 BMP 25	Containers must be in good condition, not leaking, and sealed with a tight-fitting lid. Replace damaged containers or container lids.
Store Solid Waste in Closed Containers	SMC 22.803.030 (D) BMP 4	Store waste containers with leak-proof lids kept closed at all times.
Store Solid Waste in Sound Containers	SMC 22.803.030 (D) BMP 4	Replace or repair leaking waste containers.
Substantially Altered Fuel Stations Require Full Compliance with BMP 10 Fueling at Dedicated Stations	SMC 22.803.040 BMP 10A	Substantial alteration of fueling stations includes replacing the canopy, or relocating, replacing, or adding one or more fuel dispensers in such a way that the Portland cement concrete paving (or equivalent) in the fueling area is modified. Substantial alteration triggers implementation of structural source control BMP upgrades. Addition of fuel tanks to a site also triggers implementation of structural source control BMPs. For further guidance on determining the actions considered substantial alteration, contact the Seattle Department of Construction and Inspection (SDCI). Submit a plan to address structural changes that will need to be made at the fuel island(s) to comply with this BMP.
Train Staff Annually on Stormwater Source Control Best Management Practices	SMC 22.803.030 (F) BMP 6	Annually train all employees responsible for the operation, maintenance, or inspection of stormwater source control BMPs, assign oversight responsibilities, and maintain records.
Train Staff on Spill Prevention and Response	SMC 22.803.030 (E, F) BMP 5 & 6	Train your employees on spill prevention, the spill plan, and spill response including proper notification, and the location and use of spill response equipment. Train employees annually and document the training.

Corrective Action	Code Reference	Description
Utilize Drip Pans and Other Containment Devices During Material Transfers	SMC 22.803.040 BMP 9	Place drip pans or other appropriate temporary containment devices in locations where leaks or spills may occur, such as hose connections, hose reels, and filler nozzles. Always use drip pans when making and breaking connections. Clean transfer equipment after each use or store undercover to prevent contact with stormwater.
Wash Pad Requirements	SMC 22.803.040 BMP 8	Uncovered wash areas must be no larger than 200 square feet or must have an overhanging roof to exclude stormwater or must have a valve to direct wash water to the sanitary sewer when in use. The wash area may need a King County Industrial Wastewater Discharge Authorization. This activity may be referred to King County Industrial Waste for follow-up. Discontinue washing outside until wash area is code compliant.
Washing Wastewater Must be Properly Disposed	SMC 22.802.020 (A) BMP 8	Wash water discharges are prohibited to discharge to drainage systems or a receiving water. You must stop the prohibited discharge. SPU may provide assistance in discussing options for your washing activities. See guidance, https://fortress.wa.gov/ecy/publications/documents/95056.pdf
Wood Treatment and Processing Requirements	SMC 22.803.040 BMP 16	Wood treatment and processing activities must comply with Stormwater Manual BMP 16: Processing and Storage of Treated Wood, which may be accessed using the link in the text above. Document your compliance with BMP 16.

Appendix M: Private drainage facilities inspected 2014-2019.

SWI_SITE_ID	Business Name	Status	Address	Inspect Date	Facility Type	BasinAltName
28774	Non Ferrous Metal Inc.	Closed	230 S CHICAGO ST	04/10/19	Commercial	1st Ave S SD (west)
27465		Closed	600 SW CLOVERDALE ST	06/25/17	Single Family Residence	1st Ave S SD (west)
1992586436	Versatile Drilling Contractors Inc.	Open	7201 DETROIT AVE SW	09/10/18	Commercial	1st Ave S SD (west)
29316		Closed	7201 DETROIT AVE SW	09/10/18	Commercial	1st Ave S SD (west)
28699	MacDonald-Miller Facility Solutions Inc - 7707 DETROIT AVE SW	Closed	7707 DETROIT AVE SW	03/13/18	Commercial	1st Ave S SD (west)
37740	Beacon Sales Acquisition Inc.	Closed	7901 1ST AVE S	03/01/18	Commercial	1st Ave S SD (west)
37404	W.G. Clark Construction Co.	Closed	7958 OCCIDENTAL AVE S	03/02/18	Industrial	1st Ave S SD (west)
38710	WASTE MANAGEMENT OF WA INC - 8101 1st Ave S	Open	8101 1ST AVE S	10/24/17	Commercial	1st Ave S SD (west)
28545	International Construction Equipment	Open	8101 OCCIDENTAL AVE S	01/15/20	Commercial	1st Ave S SD (west)
37081	WASTE MANAGEMENT OF WA INC - 8111 1ST AVE S	Open	8111 1ST AVE S	10/24/17	Industrial	1st Ave S SD (west)
33159	Magnetic and Penetrant Services Co., Inc.	Closed	8135 1ST AVE S	07/18/18	Commercial	1st Ave S SD (west)
31492	Lion Trucking, Inc.	Closed	8425 1ST AVE S	08/28/17	Industrial	1st Ave S SD (west)
27676		Open	8429 5TH AVE SW	03/12/19	Single Family Residence	1st Ave S SD (west)
27677		Open	8431 5TH AVE SW	01/30/19	Single Family Residence	1st Ave S SD (west)
37149	9200 2nd Ave SW	Closed	9200 2ND AVE SW	01/23/18	Multi-Family	1st Ave S SD (west)
29109	Public Storage Inc - 9200 Olson Pl SW	Closed	9200 OLSON PL SW	08/05/19	Commercial	1st Ave S SD (west)
29032	9215 3rd Ave SW	Closed	9215 3RD AVE SW	04/11/19	Church	1st Ave S SD (west)
27760		Open	9234 3RD AVE SW	03/20/19	Single Family Residence	1st Ave S SD (west)
27761		Open	9235 OLSON PL SW	04/03/19	Single Family Residence	1st Ave S SD (west)
27762		Closed	9237 3RD AVE SW	04/03/19	Single Family Residence	1st Ave S SD (west)
30968	9408, 9416 7th Ave SW & 9409, 9415 6th Ave SW	Closed	9416 7TH AVE SW	06/25/18	Single Family Residence	1st Ave S SD (west)
37186	9456 Olson Pl SW	Closed	9456 OLSON PL SW	08/31/17	Single Family Residence	1st Ave S SD (west)
28767	9461 Olson Pl SW	Open	9461 OLSON PL SW	02/01/19	Commercial	1st Ave S SD (west)
28824	Pacific Plumbing Supply - No longer at this address	Closed	7500 WEST MARGINAL WAY S	03/01/10	Commercial	2nd Ave S SD
28829	Pacific Western Agencies	Closed	7700 2ND AVE S	09/06/19	Commercial	2nd Ave S SD
31353	Northwest Laboratories	Closed	241 S HOLDEN ST	12/03/14	Commercial	7th Ave S SD
28745	Modern Coach/Modern Pattern	Open	255 S AUSTIN ST	09/23/19	Commercial	7th Ave S SD
37375	Harsch Investment Properties	Closed	309 S Cloverdale St	08/15/19	Commercial	7th Ave S SD
28647	Lenci Corp	Closed	424 S CLOVERDALE ST	07/19/18	Commercial	7th Ave S SD
29089	SHA - 520 S Cloverdale St	Closed	520 S CLOVERDALE ST	09/26/03	Multi-Family	7th Ave S SD
27950	Apartment - 524 Cloverdale	Closed	524 S Cloverdale ST	09/12/03	Multi-Family	7th Ave S SD
30840	Olsson Manufacturing Inc.	Closed	525 S ELMGROVE ST	10/05/16	Commercial	7th Ave S SD
37995	733 S Elmgrove St	Closed	733 S Elmgrove St	06/25/12	Commercial	7th Ave S SD
28218	741 S Elmgrove St	Closed	741 S ELMGROVE ST	04/08/13	Commercial	7th Ave S SD
28975	Rogers Machinery Co Inc	Closed	7800 5TH AVE S	03/28/18	Commercial	7th Ave S SD
39649	Machinists Inc. - 8101 7th Ave S	Closed	8101 7TH AVE S	10/19/18	Industrial	7th Ave S SD
37407	Eagle Eye Enterprise Corp	Closed	8211 7TH AVE S	02/09/17	Industrial	7th Ave S SD
28242	8220 7th Ave S	Closed	8220 7TH Ave S	01/21/03	Commercial	7th Ave S SD
27704		Closed	8812 4TH AVE S	06/06/17	Single Family Residence	7th Ave S SD
41127	9123, 9125, 9127, 9129, 9133, 9135, 9137 & 9139 7th Ave S	Closed	9127 7TH AVE S	10/02/19	Single Family Residence	7th Ave S SD
30952	9143, 9147 & 9149 7th Ave S	Open	9143 7TH AVE S	03/18/19	Single Family Residence	7th Ave S SD
29648	9151, 9153, 9155, 9157, 9301, 9303, 9305 & 9307 7th Ave S	Open	9157 7TH AVE S	10/02/19	Single Family Residence	7th Ave S SD
30965	FAS - Joint Training Facility - 9401 Myers Way S	Closed	9401 MYERS WAY S	06/02/11	Commercial	7th Ave S SD
36455	10035 & 10037 61st Ave S	Closed	10035 61st Ave S	03/21/12	Single Family Residence	Combined
28580	Kaman Industrial	Closed	101 S Brandon ST	05/28/02	Industrial	Combined
29279	UFCW Local 1105	Closed	1010 S BAILEY ST	02/11/02	Commercial	Combined
39321	10123 Cornell Ave S	Closed	10123 Cornell Ave S	04/10/12	Single Family Residence	Combined
33147	National Products Inc - 1017 S Elmgrove St	Closed	1017 S ELMGROVE ST	12/08/10	Commercial	Combined
28080	Bessie Burton Sullivan House	Closed	1020 E JEFFERSON ST	08/19/02	Mixed Use	Combined
28693	1024 S Bailey St	Closed	1024 S Bailey St	02/11/02	Commercial	Combined
36465	National Products Inc - 1025 S Elmgrove St	Closed	1025 S ELMGROVE ST	01/31/19	Industrial	Combined
36466	1022, 1024, 1026 E Terrace St & 403 11th Ave	Closed	1026 E Terrace St	06/27/12	Multi-Family	Combined
32364	10323 Rainier Ave S	Closed	10323 Rainier Ave S	04/05/12	Single Family Residence	Combined
29011	1040 S Henderson St	Closed	1040 S HENDERSON ST	06/25/13	Commercial	Combined
33132	Chinn Property	Closed	1046 S Jackson St	08/04/08	Commercial	Combined
32376	106 & 108 21st Ave E	Closed	106 21st Ave E	05/23/12	Multi-Family	Combined

Appendix M: Private drainage facilities inspected 2014-2019.

SWI_SITE_ID	Business Name	Status	Address	Inspect Date	Facility Type	BasinAltName
29020	Seattle Academy - 12th Ave	Closed	1100 12TH AVE	02/25/02	Commercial	Combined
29306	USPS Post Office - 1100 23rd Av	Closed	1100 23RD AVE	11/04/03	Commercial	Combined
33496	Seattle University	Closed	1101 E Madison St	08/31/17	School	Combined
28387	Exhibit Design Consulting	Closed	111 S Findlay ST	05/24/05	Commercial	Combined
37994	1112, 1114 & 1116 14th Ave	Closed	1114 14th Ave	06/11/12	Multi-Family	Combined
28152	Capitol View Condominiums	Closed	1115 16TH AVE	04/10/03	Multi-Family	Combined
29057	SHA - 1118 18TH AV	Closed	1118 18TH AVE	12/02/04	Mixed Use	Combined
29058	1120 15th Ave	Closed	1120 15TH AVE	04/10/03	Mixed Use	Combined
29181	The Casey Family Program	Closed	1123 23RD AVE	08/08/05	Commercial	Combined
26662	1126 14th Ave	Closed	1126 14th Ave	05/14/12	Multi-Family	Combined
36510	1125, 1127 & 1129 18th Ave	Closed	1129 18th Ave	05/16/12	Multi-Family	Combined
30646	114 S Findlay St	Closed	114 S Findlay St	12/17/12	Commercial	Combined
28088	Bismark Apartments	Closed	117 20TH Ave E	01/09/03	Multi-Family	Combined
29012	Sea/WA State Korean Association	Closed	1200 S ANGELO ST	01/22/02	Commercial	Combined
28557	Jackson Square	Closed	1200 S JACKSON ST	03/22/04	Commercial	Combined
36540	1201, 1203, 1205, 1207, 1211 S Lucile St	Closed	1205 S Lucile St	06/06/18	Multi-Family	Combined
28322	Ding How Shopping Center	Closed	1207 S JACKSON ST	03/22/04	Commercial	Combined
30664	121 21st Ave E	Closed	121 21st Ave E	06/25/12	Multi-Family	Combined
28595	King County Youth Services Center	Closed	1211 E ALDER ST	08/07/02	Commercial	Combined
829	Banh Cuon Tan Dinh Deli	Closed	1212 S MAIN ST	03/22/04	Commercial	Combined
29643	1216 SW Othello St	Closed	1216 SW Othello St	01/26/12	Single Family Residence	Combined
29534	1220 & 1222 E Fir St	Closed	1220 E Fir St	07/03/12	Multi-Family	Combined
26735	1221 S Main St	Closed	1221 S MAIN ST	10/10/12	Commercial	Combined
761	Catholic Church of Holy Martyrs of Vietnam	Closed	1230 E FIR ST	05/05/04	Commercial	Combined
29320	1234 S King St	Closed	1234 S KING ST	02/25/02	Mixed Use	Combined
39612	1248 S King St	Closed	1248 S KING ST	02/07/13	Commercial	Combined
30676	123 & 125 21st Ave E	Closed	125 21st Ave E	05/21/12	Multi-Family	Combined
656	*Washington Alarm	Closed	1253 S JACKSON ST	10/30/12	Commercial	Combined
36566	1255 SW Othello St	Closed	1255 SW Othello St	02/27/12	Single Family Residence	Combined
29061	SHA - 126 22ND AV E	Closed	126 22ND AVE E	01/09/03	Multi-Family	Combined
29101	Sharp Shop, Inc.	Closed	128 S LUCILE ST	12/14/04	Commercial	Combined
616		Closed	1313 E COLUMBIA ST	10/21/04	Commercial	Combined
32478	1323 E Cherry St	Closed	1323 E Cherry St	07/19/12	School	Combined
28855	135 S Brandon St	Closed	135 S BRANDON ST	05/28/02	Commercial	Combined
28155	1400 23RD AVE	Closed	1400 23RD AVE	09/04/03	Commercial	Combined
29417	Wisteria View Manor	Closed	1400 S Main ST	02/15/02	Commercial	Combined
28562	Jefferson Company	Closed	1401 E Jefferson ST	08/08/05	Commercial	Combined
28026	1401 E Yesler Way	Closed	1401 E Yesler Wy	03/13/13	Commercial	Combined
36606	1404 & 1406 E Fir St	Closed	1404 E Fir St	05/29/18	Multi-Family	Combined
30687	1404 E Yesler Way	Closed	1404 E Yesler Wy	04/23/12	Mixed Use	Combined
32505	1407, 1409, 1411 & 1413 E Fir St	Closed	1411 E Fir St	08/29/12	Multi-Family	Combined
36610	1412 & 1414 24th Ave	Closed	1412 24th Ave	05/10/12	Multi-Family	Combined
28803	150 12th Ave	Closed	150 12TH AVE	06/18/03	Commercial	Combined
28267	1515 E Yesler Way	Closed	1515 E Yesler WY	05/25/05	Multi-Family	Combined
29115	1522 E Yesler Way	Closed	1522 E YESLER WAY	06/05/03	Multi-Family	Combined
28559	Japanese Baptist Church	Closed	160 Broadway	05/03/02	Church	Combined
620		Closed	1609 19th Ave	03/11/04	Commercial	Combined
36622	161, 163 & 165 10th Ave	Closed	161 10th Ave	06/27/12	Multi-Family	Combined
29325	Views @ Madison	Closed	1615 19th Ave	05/11/05	Commercial	Combined
32539	162, 164, 166 & 168 18th Ave	Closed	162 18th Ave	08/02/12	Multi-Family	Combined
29641	1621 E Spring St	Closed	1621 E Spring St	08/20/12	Multi-Family	Combined
29359	Washington Square Fruit & Produce	Closed	1622 S GRAHAM ST	08/02/11	Commercial	Combined
28445	Girlie Press	Closed	1658 21ST AVE	10/05/04	Commercial	Combined
36631	164 & 166 11th Ave	Closed	166 11th Ave	07/02/12	Multi-Family	Combined
29505	166 17th Ave	Closed	166 17th Ave	08/02/12	Multi-Family	Combined
27884	Apartment - 167 11th	Closed	167 11TH AVE	06/03/03	Multi-Family	Combined
30706	167 19th Ave	Closed	167 19th Ave	05/02/12	Multi-Family	Combined
30710	1706 22nd Ave	Closed	1706 22nd Ave	09/24/12	Commercial	Combined
636	Ebenezer American Zion Church	Closed	1716 23rd Ave	03/24/04	Church	Combined

Appendix M: Private drainage facilities inspected 2014-2019.

SWI_SITE_ID	Business Name	Status	Address	Inspect Date	Facility Type	BasinAltName
30715	1722, 1726, 1728, 1730 & 1738 S Bennett St	Closed	1722 S BENNETT ST	01/19/17	Commercial	Combined
32548	1715, 1717, 1719, 1723 SW Henderson St & 9002, 9004 18th Ave SW	Closed	1723 SW Henderson St	02/27/12	Multi-Family	Combined
32549	1730 23rd Ave	Closed	1730 23rd Ave	09/05/12	Multi-Family	Combined
28282	177 S Orcas St	Closed	177 S Orcas St	08/14/12	Commercial	Combined
28423	Fred Lind Manor	Closed	1802 17th Ave	09/25/13	Commercial	Combined
30722	1812 23rd Ave	Closed	1812 23rd Ave	05/29/12	Multi-Family	Combined
28669	Madison Place Apartments	Closed	1813 19TH AVE	06/10/04	Multi-Family	Combined
31369	1812, 1814, 1816 & 1818 E Pike St	Closed	1814 E Pike St	06/12/12	Multi-Family	Combined
30723	1814, 1816 & 1818 23rd Ave	Closed	1816 23rd Ave	06/04/12	Multi-Family	Combined
27888	Apartment - 1817 Union	Closed	1817 E Union ST	09/16/04	Multi-Family	Combined
28408	Fortune View Condominiums	Closed	1818 18th Ave	09/17/10	Multi-Family	Combined
27889	1818 E Denny Way	Closed	1818 E Denny WY	09/25/13	Multi-Family	Combined
39639	1818 E Madison St	Closed	1818 E MADISON ST	02/25/13	Mixed Use	Combined
29066	1821 E Mercer St	Closed	1821 E Mercer St	01/17/13	Multi-Family	Combined
28286	Pathfinder School	Open	1901 SW GENESEE ST	04/19/19	School	Combined
36648	1901, 1903, 1905, 1907, 1911 E Pine St & 1526, 1528 19th Ave	Closed	1911 E Pine St	08/13/12	Multi-Family	Combined
28752	1916 E Madison St	Closed	1916 E MADISON ST	07/21/05	Church	Combined
36654	1920, 1922, 1924 E John St & 201, 203, 205 20th Ave E	Closed	1920 E John St	05/26/11	Multi-Family	Combined
28737	200 12th Ave S	Closed	200 12TH AVE S	10/31/17	Commercial	Combined
834	Planned Parenthood of Western Washington	Closed	2001 E Madison St	04/26/04	Commercial	Combined
641	Rotary Boys and Girl Club	Closed	201 19th Ave	03/12/04	Commercial	Combined
26876		Closed	2014 E Madison St	12/10/12	Commercial	Combined
27806		Closed	203 S Orcas St	09/24/12	Commercial	Combined
27895	Apartment - 210 23rd	Closed	210 23RD Ave E	03/19/03	Multi-Family	Combined
29500	209, 211, 213 & 215 18th Ave E	Closed	211 18TH AVE E	07/31/12	Multi-Family	Combined
28663	2112 E Union St	Closed	2112 E Union St	08/23/05	Church	Combined
635	Ames & Holzer	Closed	2118 E Olive St	03/24/04	Commercial	Combined
38123	212 23rd Ave E	Closed	212 23RD AVE E	06/23/11	Multi-Family	Combined
28734	215 20th Ave E	Closed	215 20th Ave E	07/07/11	Multi-Family	Combined
28439	GEM Electric Sales Inc.	Closed	217 S Findlay ST	12/31/02	Commercial	Combined
26910		Closed	220 23RD AVE E	12/05/02	Multi-Family	Combined
28532	Impression Printing	Closed	222 S Lucile St	03/17/09	Commercial	Combined
26925		Closed	225 12th Ave S	08/27/12	Commercial	Combined
28329	Dresser Industries	Closed	225 S Lucile ST	03/14/02	Commercial	Combined
28436	Seattle Parks Dept - Garfield Community Center and Playfield	Closed	2323 E Cherry St	07/10/14	Public	Combined
32623	2633, 2635, 2637 & 2639 SW Nevada St	Closed	2635 SW Nevada St	07/30/12	Multi-Family	Combined
29010	Sea Dru Nar	Closed	28 S BRANDON ST	08/08/02	Commercial	Combined
32630	2814, 2816 & 2818 SW Adams St	Closed	2814 SW Adams St	09/05/12	Multi-Family	Combined
36743	2831 & 2833 SW Dakota St	Closed	2831 SW Dakota St	06/26/12	Multi-Family	Combined
36746	2841 & 2843 SW Adams St	Closed	2841 SW Adams St	05/23/12	Multi-Family	Combined
36747	2845 & 2847 SW Adams St	Closed	2847 SW Adams St	05/23/12	Multi-Family	Combined
28937	Ray Moore Construction	Closed	2850 SW YANCY ST	09/04/01	Commercial	Combined
29076	2851 SW Dakota St	Closed	2851 SW DAKOTA ST	03/14/03	Multi-Family	Combined
29380	West Seattle Shurgard	Closed	2964 SW AVALON WAY	05/09/03	Commercial	Combined
28386	Executive Inn Express	Closed	300 10TH AVE	05/03/02	Multi-Family	Combined
27824	Alder View Apts.	Closed	300 11TH AVE	06/10/04	Multi-Family	Combined
28696	Mastercraft of Seattle	Closed	300 S Bennett ST	05/28/02	Commercial	Combined
28109	Bradford Court Condominiums	Closed	3022 SW Bradford ST	01/03/03	Multi-Family	Combined
27825	Aldercrest Apartments	Closed	303 10TH AVE	12/30/05	Multi-Family	Combined
27090		Closed	3032 SW AVALON WY	08/10/99	Single Family Residence	Combined
28796	308 S Orcas St	Closed	308 S ORCAS ST	12/31/02	Commercial	Combined
28733	Seattle Parks Dept - Miller Community Center	Closed	310 19TH AVE E	07/10/14	Public	Combined
28536	Industrial - 311 S Brandon ST	Closed	311 S BRANDON ST	04/26/02	Commercial	Combined
27922	3112 SW Avalon Way	Closed	3112 SW Avalon WY	07/10/07	Multi-Family	Combined
30770	316 Broadway	Closed	316 BROADWAY	06/20/11	Commercial	Combined
28589	Kimball Elementary School	Closed	3200 23RD Ave S	05/26/09	School	Combined

Appendix M: Private drainage facilities inspected 2014-2019.

SWI_SITE_ID	Business Name	Status	Address	Inspect Date	Facility Type	BasinAltName
27926	Apartment - 3202 Avalon	Closed	3202 SW Avalon WY	10/14/02	Multi-Family	Combined
29116	3210 SW Avalon Way	Closed	3210 SW AVALON WAY	10/11/02	Multi-Family	Combined
29168	3230 SW Avalon Way	Closed	3230 SW AVALON WAY	10/11/02	Multi-Family	Combined
29388	3236 SW Avalon Way	Closed	3236 SW AVALON WAY	10/11/02	Multi-Family	Combined
27132		Closed	324 15TH AVE	08/07/02	Multi-Family	Combined
838	UW Medicine and King County - Harborview	Closed	325 9TH AVE	05/24/17	Commercial	Combined
28052	Avalon West Apartments	Closed	3250 SW AVALON WY	10/11/02	Multi-Family	Combined
27930	Apartment - 3256 AVALON	Closed	3256 SW AVALON WY	10/11/02	Multi-Family	Combined
28050	Avalon House Condominiums	Closed	3271 SW AVALON WY	10/11/02	Multi-Family	Combined
28690	Buchanan Ronald W	Closed	3280 SW Avalon WY	11/19/09	Commercial	Combined
36794	3295 SW Avalon Way	Closed	3295 SW Avalon Wy	06/28/12	Multi-Family	Combined
28078	Berean Church of God	Closed	3417 Rainier Ave S	06/19/02	Church	Combined
29163	Taco Time - SW Avalon WY	Closed	3500 SW AVALON WAY	07/05/19	Commercial	Combined
29376	3507 SW Alaska St	Closed	3507 SW ALASKA ST	12/10/02	Multi-Family	Combined
137		Closed	3613 4TH AVE S	11/04/19	Commercial	Combined
37989	3710 SW Alaska St	Closed	3710 SW Alaska St	07/02/12	Commercial	Combined
29352	Warehouse - 3800 1st Ave S	Closed	3800 1st Ave S	11/17/09	Commercial	Combined
28516	Huling Bros. Chevrolet - Alaskan	Closed	3801 SW Alaska St	08/13/12	Parking Lot	Combined
714	Compton Lumber & Hardware	Closed	3847 1st Ave S	10/09/12	Commercial	Combined
998		Closed	3851 1st Ave S	08/04/04	Commercial	Combined
28520	Huling Brothers Chevrolet - Used Car Lot - Alaska	Closed	3925 SW Alaska ST	06/29/01	Commercial	Combined
28402	First Hill Apartments	Closed	400 10TH AVE	04/04/03	Multi-Family	Combined
669	Garfield High School	Closed	400 23RD AVE	08/14/18	Commercial	Combined
28142	Cal Anderson House	Closed	400 Broadway	06/12/03	Multi-Family	Combined
28058	4001 SW Alaska St	Closed	4001 SW Alaska ST	10/04/12	Commercial	Combined
27935	Apartment - 4001 EDMUNDS	Closed	4001 SW EDMUNDS ST	06/18/01	Multi-Family	Combined
28133	4022 SW Alaska St	Closed	4022 SW Alaska St	10/04/12	Commercial	Combined
27262		Closed	4029 51st Ave S	03/26/12	Single Family Residence	Combined
27936	Apartment - 410 11th	Closed	410 11TH AVE	10/29/04	Multi-Family	Combined
36851	4100 SW Alaska St	Closed	4100 SW ALASKA ST	10/28/12	Commercial	Combined
36852	4103, 4107 SW Edmunds St & 4801, 4803, 4805 41st Ave SW	Closed	4103 SW Edmunds St	06/28/12	Multi-Family	Combined
28930	411 10th Ave	Closed	411 10TH AVE	01/31/02	Multi-Family	Combined
27285		Closed	411 11TH AVE	06/03/03	Multi-Family	Combined
702	Center For Prosthetics Orthotics, Inc.	Closed	411 12TH AVE	03/24/04	Commercial	Combined
29088	4113 & 4117 25th Ave SW	Closed	4117 25TH AVE SW	08/26/99	Multi-Family	Combined
32745	4111, 4113, 4115, 4117, 4121 & 4123 42nd Ave SW	Closed	4117 42nd Ave SW	06/12/12	Multi-Family	Combined
28407	The Jefferson	Closed	412 11TH AVE	12/19/05	Commercial	Combined
28032	412 12th Ave S	Closed	412 12th Ave S	11/08/12	Commercial	Combined
36854	4120 & 4122 42nd Ave SW	Closed	4120 42nd Ave SW	06/13/12	Multi-Family	Combined
29259	4120 Delridge Way SW	Closed	4120 DELRIDGE WAY SW	06/03/02	Multi-Family	Combined
28846	414 10th Ave	Closed	414 10TH AVE	06/10/04	Parking Lot	Combined
27937	Apartment - 4142 36	Closed	4142 36TH Ave SW	03/14/05	Multi-Family	Combined
32750	415 10th Ave	Closed	415 10th Ave	03/25/13	Commercial	Combined
28393	Fauntleroy Professional Center	Closed	4151 FAUNTLEROY WY SW	01/03/03	Commercial	Combined
32753	417, 419, 421 & 423 11th Ave	Closed	419 11th Ave	08/09/12	Multi-Family	Combined
759	BP West Coast Products LLC - 427 12th Ave	Closed	427 12TH AVE	04/19/04	Commercial	Combined
29037	Seattle Lutheran High School Parking Lot	Closed	4400 41ST AVE SW	12/10/02	School	Combined
36865	4400 42nd Ave SW	Closed	4400 42nd Ave SW	04/02/12	Church	Combined
28927	Rainier Roaster	Closed	4408 Fauntleroy WY SW	12/06/02	Commercial	Combined
28421	Fraternal Order of the Eagles	Closed	4427 42ND Ave SW	12/16/02	Parking Lot	Combined
32767	4429 & 4431 41st Ave SW	Closed	4429 41st Ave SW	06/13/12	Multi-Family	Combined
28367	Elliott Tire Store	Closed	4441 FAUNTLEROY WY SW	10/08/16	Commercial	Combined
36872	4456 42nd Ave SW	Closed	4456 42nd Ave SW	08/15/17	Church	Combined
29430	YMCA	Closed	4515 36TH AVE SW	12/10/02	Commercial	Combined
27315		Closed	4520 42nd Ave SW	08/13/12	Commercial	Combined
36875	4522 & 4524 41st Ave SW	Closed	4522 41st Ave SW	05/10/12	Multi-Family	Combined
30826	4527 & 4529 40th Ave SW	Closed	4527 40th Ave SW	05/10/12	Multi-Family	Combined
30827	4530 40th Ave SW	Closed	4530 40th Ave SW	07/25/12	Multi-Family	Combined

Appendix M: Private drainage facilities inspected 2014-2019.

SWI_SITE_ID	Business Name	Status	Address	Inspect Date	Facility Type	BasinAltName
27338		Closed	4538 41st Ave SW	05/10/12	Multi-Family	Combined
28519	Huling Brothers Buick	Closed	4545 Fauntleroy Wy SW	08/13/12	Commercial	Combined
28514	Huling Bros. Chevrolet - 4550 Fauntleroy	Closed	4550 Fauntleroy Wy SW	08/13/12	Commercial	Combined
850	Columbia Funeral Home	Closed	4567 Rainier Ave S	04/14/04	Commercial	Combined
28107	4580 Fauntleroy Way SW	Closed	4580 Fauntleroy WY SW	10/05/12	Commercial	Combined
28964	4611 35th Ave SW	Closed	4611 35TH AVE SW	03/26/13	Commercial	Combined
27344		Closed	4621 35TH Ave SW	05/10/13	Commercial	Combined
28521	West Seattle Two L C Harbor	Closed	4627 37th Ave SW	08/14/12	Parking Lot	Combined
28181	Central Seattle Recovery Center	Closed	464 12TH AVE	07/22/02	Commercial	Combined
27348		Closed	4700 Fauntleroy WY SW	08/13/12	Commercial	Combined
29483	Seattle Public Library - Columbia Branch	Closed	4721 RAINIER AVE S	09/10/12	Commercial	Combined
28523	Huling Brothers Chevrolet-Body Shop	Closed	4724 40TH Ave SW	06/29/01	Commercial	Combined
28518	Huling Bros. Chevrolet, Used Car - Fauntleroy	Closed	4725 Fauntleroy WY SW	06/29/01	Commercial	Combined
36885	4729 42nd Ave SW	Closed	4729 42nd Ave SW	06/20/12	Multi-Family	Combined
28522	Huling Brothers Chevrolet- Parking Lot - Fauntleroy	Closed	4736 Fauntleroy WY SW	08/13/12	Commercial	Combined
28201	4744 41st Ave SW	Closed	4744 41ST Ave SW	06/18/01	Multi-Family	Combined
28807	4745 40th Ave SW - Huling	Closed	4745 40th Ave SW	11/27/12	Multi-Family	Combined
28362	4752 41st Ave SW	Closed	4752 41st Ave SW	06/20/12	Multi-Family	Combined
32785	4755 40th Ave SW	Closed	4755 40th Ave SW	11/27/12	Commercial	Combined
28515	Huling Bros. Chevrolet - 4755 Fauntleroy	Closed	4755 FAUNTLEROY WAY SW	08/16/12	Commercial	Combined
32786	4814, 4816 & 4818 40th Ave SW	Closed	4816 40th Ave SW	07/25/12	Multi-Family	Combined
30830	4817 & 4819 Delridge Way SW	Closed	4817 Delridge Wy SW	10/11/12	Multi-Family	Combined
28435	Garden Terrace Apt.	Closed	4830 FAUNTLEROY WY SW	03/22/01	Multi-Family	Combined
28392	Fauntleroy Landing Apartments	Closed	4831 FAUNTLEROY WY SW	01/03/03	Multi-Family	Combined
27368		Closed	4831 S Graham St	05/10/12	Single Family Residence	Combined
32788	4833 & 4835 Delridge Way SW	Closed	4833 Delridge Wy SW	07/10/12	Multi-Family	Combined
32790	4839 & 4841 Delridge Way SW	Closed	4841 Delridge Wy SW	06/06/12	Multi-Family	Combined
36892	4839, 4841 & 4843 S Morgan St	Closed	4843 S Morgan St	08/28/12	Single Family Residence	Combined
40361	Maple Elementary School	Closed	4925 CORSON AVE S	12/10/14	School	Combined
28886	Swedish Medical Center - 500 17th Ave	Closed	500 17TH AVE	06/26/18	Industrial	Combined
28237	500 S Lucile St	Closed	500 S Lucile ST	06/07/01	Commercial	Combined
28134	Seattle Municipal Credit Union	Closed	500 S Michigan St	08/27/09	Commercial	Combined
28239	5030 1st Ave S	Closed	5030 1ST Ave S	06/25/03	Commercial	Combined
508		Closed	5050 1st Ave S	12/12/08	Commercial	Combined
32799	507 & 509 20th Ave E	Closed	507 20th Ave E	05/27/11	Single Family Residence	Combined
32800	5107 S Frontenac St	Closed	5107 S Frontenac St	03/28/12	Single Family Residence	Combined
36909	5117 13th Ave S	Closed	5117 13th Ave S	06/07/12	School	Combined
683	The Lemongrass	Closed	514 12th Ave	03/31/04	Commercial	Combined
28150	514 19th Ave E	Closed	514 19TH AVE E	06/11/12	Multi-Family	Combined
32807	5202 & 5204 Delridge Way SW	Closed	5202 Delridge Wy SW	06/07/12	Multi-Family	Combined
28706	Mechanical SLS Inc.	Closed	521 S Brandon ST	05/28/02	Commercial	Combined
28325	Don's Group Attire, Inc.	Closed	5216 1ST AVE S	04/08/02	Commercial	Combined
29301	U-Park - 522 Broadway	Closed	522 BROADWAY	04/04/03	Parking Lot	Combined
32810	5228, 5230, 5232, 5234, 5236 25th Ave SW & 2414 SW Brandon St	Closed	5232 25th Ave SW	06/06/12	Multi-Family	Combined
28438	FOODMART #2470	Closed	5235 DELRIDGE WAY SW	05/07/01	Commercial	Combined
31248	5237 S Juneau St	Closed	5237 S Juneau St	06/11/18	Single Family Residence	Combined
28847	524 Broadway	Closed	524 Broadway	10/21/02	Parking Lot	Combined
32816	5303 1st Ave S	Closed	5303 1st Ave S	07/11/12	Commercial	Combined
28127	Building - 15th	Closed	5333 15TH Ave S	02/25/02	Mixed Use	Combined
36923	5332, 5334, 5336 & 5338 16th Ave S	Closed	5334 16th Ave S	06/04/12	Multi-Family	Combined
36924	5333, 5335, 5337 & 5339 16th Ave S	Closed	5335 16th Ave S	05/24/12	Multi-Family	Combined
36926	5340, 5342, 5344 & 5346 16th Ave S	Closed	5340 16th Ave S	05/22/12	Multi-Family	Combined
36925	5341, 5343, 5345 & 5347 16th Ave S	Closed	5345 16th Ave S	05/22/12	Multi-Family	Combined
36927	535 16th Ave	Closed	535 16th Ave	06/27/12	Commercial	Combined
28024	Argo Blower	Closed	5400 E Marginal Wy S	08/31/12	Industrial	Combined
28112	Brandon Court	Closed	5401 Delridge WY SW	02/12/03	Mixed Use	Combined
27424		Closed	5405 Lake Washington Blvd S	05/16/12	Single Family Residence	Combined
36930	541 & 545 S Sullivan St	Closed	541 S Sullivan St	05/03/12	Multi-Family	Combined

Appendix M: Private drainage facilities inspected 2014-2019.

SWI_SITE_ID	Business Name	Status	Address	Inspect Date	Facility Type	BasinAltName
28141	Caf Fonte	Closed	5412 6TH Ave S	04/09/03	Commercial	Combined
28249	5413 Maynard Ave S	Closed	5413 MAYNARD Ave S	10/28/04	Commercial	Combined
36931	5420 Delridge Way SW	Closed	5420 DELRIDGE WAY SW	08/20/15	Multi-Family	Combined
28946	Rental Service Corporation	Closed	5421 1ST AVE S	05/30/02	Commercial	Combined
28314	Seattle Public Library - Delridge	Closed	5423 Delridge WY SW	02/12/03	Public	Combined
32823	5424 Delridge Way SW	Closed	5424 DELRIDGE WAY SW	05/31/18	Multi-Family	Combined
30848	5428 Delridge Way SW	Closed	5428 DELRIDGE WAY SW	06/05/18	Multi-Family	Combined
28294	Cottage Grove Mart	Closed	5445 Delridge WY SW	06/24/02	Commercial	Combined
29498	5458 & 5462 57th Ave S	Closed	5458 57TH AVE S	04/03/12	Single Family Residence	Combined
36932	548 15th Ave	Closed	548 15th Ave	07/03/12	Commercial	Combined
39082	550 14th Ave	Closed	550 14th Ave	04/04/12	School	Combined
39342	550 16th Ave	Closed	550 16th Ave	11/12/13	Commercial	Combined
27433		Closed	5501 6th Ave S	10/09/12	Commercial	Combined
28484	Hathaway Building	Closed	5506 6TH AVE S	10/28/04	Commercial	Combined
36933	5505, 5507, 5509 & 5511 13th Ave S	Closed	5507 13th Ave S	06/07/11	Multi-Family	Combined
486		Closed	5511 15TH AVE S	05/28/09	School	Combined
28028	Art Brass Plating Inc.	Closed	5516 3rd Ave S	12/19/17	Industrial	Combined
27953	Apartment - 5517 13th	Closed	5517 13TH Ave S	09/17/02	Multi-Family	Combined
27436		Closed	5530 S Brandon ST	03/26/12	Single Family Residence	Combined
27437		Open	5546 S JUNIPER ST	11/04/19	Commercial	Combined
29046	Seattle Rehabilitation Center	Closed	555 16TH AVE	06/11/03	Commercial	Combined
36941	5602 2nd Ave S	Closed	5602 2nd Ave S	12/05/12	Commercial	Combined
28093	5700 3rd Ave S	Closed	5700 3rd Ave S	08/28/12	Industrial	Combined
29466	5701 1st Ave S	Closed	5701 1st Ave S	06/06/12	Commercial	Combined
29156	Sun Supply Inc.	Closed	5705 AIRPORT WAY S	01/18/02	Commercial	Combined
32846	5747 S Orcas St	Closed	5747 S Orcas St	04/19/12	Single Family Residence	Combined
28151	Capital Industries	Closed	5801 3rd Ave S	10/16/12	Commercial	Combined
28193	Chinese Baptist Church	Closed	5801 BEACON AVE S	06/12/18	Commercial	Combined
28538	Postal Express	Closed	5802 Corson Ave S	12/09/04	Commercial	Combined
28130	5820 Corson Ave S	Closed	5820 Corson Ave S	09/26/12	Commercial	Combined
38037	5900 Airport Way S	Closed	5900 Airport Wy S	04/02/12	Commercial	Combined
28549	Jack in the Box - 1st Ave S	Closed	5903 1ST AVE S	02/23/05	Commercial	Combined
32850	5908 Upland Ter S	Closed	5908 Upland Ter S	03/27/12	Single Family Residence	Combined
28283	* Contour Laminates	Closed	5910 Corson Ave S	06/22/05	Commercial	Combined
28085	Big Peoples Scooters	Closed	5955 AIRPORT WAY S	09/17/02	Commercial	Combined
27828	5958 Corson Ave S	Closed	5958 Corson Ave S	10/03/12	Commercial	Combined
28240	5959 Corson Ave S	Closed	5959 Corson Ave S	10/29/04	Commercial	Combined
27472		Closed	6025 52nd Ave S	07/31/12	Single Family Residence	Combined
32874	6027 & 6031 S Redwing St	Closed	6031 S Redwing St	07/30/12	Single Family Residence	Combined
28920	R & T Hood & Duct Svcs. Inc.	Closed	6100 12TH AVE S	07/01/02	Commercial	Combined
28444	Georgetown Inn	Closed	6100 Corson Ave S	02/12/03	Commercial	Combined
28702	McDonalds Restaurant - 6145 4th Ave S	Closed	6145 4TH Ave S	03/11/16	Commercial	Combined
29164	Tacoma Screw Products	Closed	6201 ELLIS AVE S	03/31/03	Commercial	Combined
27829	6239 Airport Way S	Closed	6239 Airport Wy S	08/23/12	Commercial	Combined
28548	J & D Machine and Gear, Inc.	Closed	624 S Findlay ST	04/22/02	Commercial	Combined
28241	6316 6th Ave S	Closed	6316 6TH Ave S	10/28/04	Commercial	Combined
28970	Riverside Plaza Building	Closed	6348 6TH AVE S	10/28/04	Commercial	Combined
29254	Transportation NW Credit Union	Closed	6362 6TH AVE S	06/11/01	Commercial	Combined
28969	Riverside Business Park	Closed	6363 6TH AVE S	12/06/02	Commercial	Combined
28293	650 S Lucile St	Closed	650 S Lucile ST	10/02/01	Commercial	Combined
29305	US Bank of Washington Drive-Thru	Closed	6520 4TH AVE S	02/15/02	Commercial	Combined
28791	6521 5th Ave S	Closed	6521 5TH AVE S	04/19/01	Commercial	Combined
27508		Closed	6527 4TH AVE S	06/19/18	Commercial	Combined
28740	6538 4th Ave S	Closed	6538 4TH AVE S	07/02/01	Commercial	Combined
28161	Carleton Park Apts.	Closed	6631 Carleton Ave S	09/27/04	Multi-Family	Combined
801	City Neighbor Inc	Closed	665 23RD AVE	03/28/19	Commercial	Combined
37006	6706 & 6708 Corson Ave S	Closed	6706 Corson Ave S	07/17/12	Multi-Family	Combined
32894	6708 & 6710 Carleton Ave S	Closed	6708 Carleton Ave S	09/05/12	Multi-Family	Combined
30881	6734 56th Ave S	Closed	6734 56th Ave S	03/22/12	Single Family Residence	Combined

Appendix M: Private drainage facilities inspected 2014-2019.

SWI_SITE_ID	Business Name	Status	Address	Inspect Date	Facility Type	BasinAltName
39626	South Seattle College Georgetown Campus - 6737 Corson Ave S	Closed	6737 CORSON AVE S	02/01/18	School	Combined
29660	6770 East Marginal Way S	Closed	6770 E Marginal Wy S	10/18/12	School	Combined
37020	6901, 6903 & 6905 Carleton Ave S	Closed	6901 Carleton Ave S	06/20/12	Multi-Family	Combined
30885	7100 S Ryan St	Closed	7100 S Ryan St	08/01/12	Single Family Residence	Combined
29330	Village Square - 8th Ave S	Closed	720 8TH AVE S	03/14/02	Commercial	Combined
28180	Central Park Co.	Closed	720 S Homer ST	06/16/02	Commercial	Combined
27575		Closed	7200 S Ryan St	03/21/12	Single Family Residence	Combined
28262	Concord Elementary School	Closed	723 S Concord ST	06/18/09	School	Combined
31216		Closed	7343 E Marginal Wy S	06/18/12	Industrial	Combined
33198	Cedar Grove Composting, Inc - 7343 EAST MARGINAL WAY S	Closed	7343 E Marginal Wy S	07/15/19	Industrial	Combined
28534		Closed	747 S Monroe St	11/02/12	Commercial	Combined
27601		Closed	7502 S Taft St	03/19/12	Single Family Residence	Combined
27630		Closed	7945 14th Ave SW	03/07/12	Single Family Residence	Combined
28443	Georgetown Center	Closed	800 S Michigan ST	10/22/04	Commercial	Combined
29331	Village Square - S Dearborn St	Closed	802 S Dearborn ST	01/15/02	Commercial	Combined
29122		Closed	805 S Dearborn ST	12/03/12	Public	Combined
28966	810 12th Ave	Closed	810 12TH AVE	04/27/05	Commercial	Combined
28658	8100 8th Ave S	Closed	8100 8th Ave S	10/03/02	Commercial	Combined
37083	810 & 812 S Orcas St	Closed	812 S Orcas St	05/02/12	Multi-Family	Combined
29094	SHA - 815 S Southern St	Closed	815 S SOUTHERN ST	12/13/99	Single Family Residence	Combined
29095	SHA - 818 S Southern St	Closed	818 S SOUTHERN ST	12/13/99	Single Family Residence	Combined
37086	819 & 821 13th Ave	Closed	819 13th Ave	06/26/12	Multi-Family	Combined
29125	South Park Neighborhood Center	Closed	8201 10TH Ave S	01/10/03	Public	Combined
29128	Speiker Properties	Closed	823 S FIDALGO ST	06/16/02	Commercial	Combined
37091	828 & 830 15th Ave	Closed	830 15th Ave	06/26/12	Multi-Family	Combined
28722	Metaltek Manufacturing	Closed	8300 7TH Ave S	03/29/13	Industrial	Combined
37349	BFC Architectural Metals Inc.	Closed	8300 7th Ave S	04/13/18	Industrial	Combined
29124	Seattle Parks Dept - South Park Community Center	Closed	8319 8TH Ave S	02/27/20	Public	Combined
27672		Closed	8415 Rainier Pl S	08/20/12	Multi-Family	Combined
28921	R. L. Cook Sales & Supply Company	Closed	8700 14TH AVE S	04/26/01	Commercial	Combined
33002	8716 14th Ave SW	Closed	8716 14th Ave SW	01/30/12	Single Family Residence	Combined
28972	RJ Cook Sales & Supply Co	Closed	8814 14TH AVE S	06/18/01	Commercial	Combined
29018	SeaMar Community Health Center	Closed	8915 14TH AVE S	03/29/13	Commercial	Combined
892	Seattle University	Closed	900 Broadway	12/06/04	School	Combined
37134	9006, 9008, 9010 & 9012 18th Ave SW	Closed	9008 18th Ave SW	01/26/12	Multi-Family	Combined
38019	9007 & 9009 18th Ave SW	Closed	9009 18th Ave SW	05/29/12	Multi-Family	Combined
40278	Petrocard Systems Inc. - 9014 14th Ave S	Closed	9014 14TH AVE S	04/11/18	Commercial	Combined
29503	9016 17th Ave SW	Closed	9016 17TH AVE SW	01/24/12	Multi-Family	Combined
33020	9017, 9019, 9021 & 9023 18th Ave SW	Closed	9019 18th Ave SW	03/06/12	Multi-Family	Combined
27997	9027 16th Ave SW	Closed	9027 16th Ave SW	01/24/12	Multi-Family	Combined
33022	9025, 9027, 9029 & 9031 18th Ave SW	Closed	9027 18th Ave SW	02/01/12	Multi-Family	Combined
27998	9024, 9026, 9028 & 9030 17th Ave SW	Closed	9028 17th Ave SW	04/04/12	Multi-Family	Combined
33023	9029 14th Ave SW	Closed	9029 14th Ave SW	02/01/12	Single Family Residence	Combined
27999	9033 16th Ave SW	Closed	9033 16th Ave SW	02/27/12	Multi-Family	Combined
37137	9033 & 9035 18th Ave SW	Closed	9033 18th Ave SW	01/27/12	Multi-Family	Combined
37138	9037 & 9039 18th Ave SW	Closed	9037 18th Ave SW	01/27/12	Multi-Family	Combined
27738		Closed	9041 17th Ave SW	02/28/12	Single Family Residence	Combined
33028	9044 & 9046 17th Ave SW	Closed	9046 17th Ave SW	02/23/12	Multi-Family	Combined
29253	9049 16th Ave SW	Closed	9049 16TH AVE SW	04/17/12	Multi-Family	Combined
37139	9049 20th Ave SW	Closed	9049 20th Ave SW	05/25/12	Commercial	Combined
29004	9020 & 9050 16th Ave SW	Closed	9050 16TH AVE SW	05/01/18	Parking Lot	Combined
37140	9053 17th Ave SW	Closed	9053 17th Ave SW	01/27/12	Multi-Family	Combined
38003	9048, 9050, 9054, 9056, 9058, 9060, 9070 18th Ave SW, 1720, 1722, 1724, 1726, 1728 & 1730 SW Barton St	Closed	9056 18th Ave SW	04/12/12	Multi-Family	Combined
29097	SHA - 909 18TH AV	Closed	909 18TH AVE	04/11/03	Multi-Family	Combined
28004	Apartment - 9099 Seward Park	Closed	9099 Seward Park Ave S	11/04/04	Multi-Family	Combined
30954	Seattle Parks Dept - Yesler Community Center	Open	917 E YESLER WAY	03/03/20	Commercial	Combined

Appendix M: Private drainage facilities inspected 2014-2019.

SWI_SITE_ID	Business Name	Status	Address	Inspect Date	Facility Type	BasinAltName
28063	920 S Doris St	Closed	920 S Doris St	08/31/12	Commercial	Combined
30955	9202 17th Ave SW & 1615, 1617, 1619 SW Barton St	Closed	9202 17th Ave SW	01/17/12	Multi-Family	Combined
27242		Closed	9205 20TH Ave SW	02/22/12	Multi-Family	Combined
37159	9212,9214, 9216 & 9218 17th Ave SW	Closed	9216 17th Ave SW	06/15/12	Multi-Family	Combined
38011	9218 & 9220 16th Ave SW	Closed	9220 16th Ave SW	03/01/12	Multi-Family	Combined
33047	9223 17th Ave SW	Closed	9223 17th Ave SW	02/01/12	Multi-Family	Combined
37160	9225, 9227 & 9229 17th Ave SW	Closed	9225 17th Ave SW	02/01/12	Multi-Family	Combined
33049	9226 & 9228 15th Ave SW	Closed	9226 15th Ave SW	02/01/12	Multi-Family	Combined
33050	9231 & 9233 17th Ave SW	Closed	9231 17th Ave SW	02/01/12	Multi-Family	Combined
37163	9237 & 9239 17th Ave SW	Closed	9239 17th Ave SW	02/09/12	Multi-Family	Combined
27764		Closed	9250 15th Ave SW	05/03/12	Single Family Residence	Combined
29394	9252 16th Ave SW	Closed	9252 16TH AVE SW	02/07/12	Church	Combined
33058	927 & 929 18th Ave	Closed	927 18th Ave	08/09/12	Multi-Family	Combined
29132	930 15th Ave	Closed	930 15TH AVE	04/10/03	Multi-Family	Combined
28637	Laucks Testing Laboratory Inc.	Closed	940 S Harney ST	03/07/03	Commercial	Combined
28744	Mobile Truck Service	Closed	943 S Nebraska ST	10/24/02	Commercial	Combined
33079	9430, 9432 & 9434 15th Ave SW	Closed	9432 15th Ave SW	04/24/12	Multi-Family	Combined
33080	9439 & 9441 20th Ave SW	Closed	9441 20th Ave SW	01/23/12	Single Family Residence	Combined
33088	960 S Harney St	Closed	960 S Harney St	12/10/12	Commercial	Combined
28883	969 S Nebraska St	Closed	969 S NEBRASKA ST	07/01/02	Commercial	Combined
28013	Apartment - 981 20th	Closed	981 20TH AVE	06/24/02	Multi-Family	Combined
27801		Closed	9844 Arrowsmith Ave S	06/12/12	Single Family Residence	Combined
27802		Closed	9925 Arrowsmith Ave S	06/19/18	Single Family Residence	Combined
41173	108 & 110 20th Ave	Open	110 20TH AVE	12/09/19	Multi-Family	Diagonal Ave S CSO/SD
41678	1110 - 1136 Yakima Ave S	Closed	1116 YAKIMA AVE S	04/03/19	Multi-Family	Diagonal Ave S CSO/SD
27857	119 19th Ave	Closed	119 19TH AVE	08/16/02	Multi-Family	Diagonal Ave S CSO/SD
394		Closed	1200 12TH AVE S	05/24/18	Commercial	Diagonal Ave S CSO/SD
39630	1400 S Dearborn St	Open	1400 S DEARBORN ST	01/06/20	Commercial	Diagonal Ave S CSO/SD
40702	RECOLOGY KING COUNTY INC. - CORP - Cleanscapes	Closed	15 S IDAHO ST	03/10/20	Commercial	Diagonal Ave S CSO/SD
38870	1516 & 1532 17th Ave S	Closed	1516 17TH AVE S	11/02/11	Multi-Family	Diagonal Ave S CSO/SD
38790	1518 29th Ave S	Closed	1518 29TH AVE S	10/11/17	Single Family Residence	Diagonal Ave S CSO/SD
41299	Eritrean Association of Greater Seattle	Closed	1528 VALENTINE PL S	03/27/19	Commercial	Diagonal Ave S CSO/SD
29241	1600 E Yesler Way	Closed	1600 E YESLER WAY	08/23/17	Commercial	Diagonal Ave S CSO/SD
26810	1614 S Dearborn St	Closed	1614 S DEARBORN ST	02/21/18	Single Family Residence	Diagonal Ave S CSO/SD
32542	1701 16th Ave S	Closed	1701 16TH AVE S	05/03/12	Multi-Family	Diagonal Ave S CSO/SD
40224	1701 19th Ave S	Closed	1701 19TH AVE S	05/14/18	Multi-Family	Diagonal Ave S CSO/SD
26827	172 22nd Ave	Closed	172 22ND AVE	12/05/17	Multi-Family	Diagonal Ave S CSO/SD
32551	1760 & 1762 19th Ave S	Closed	1760 19th Ave S	06/05/12	Multi-Family	Diagonal Ave S CSO/SD
36640	1768 19th Ave S	Closed	1768 19th Ave S	08/20/12	Multi-Family	Diagonal Ave S CSO/SD
32552	1770 19th Ave S	Closed	1770 19th Ave S	07/12/12	Multi-Family	Diagonal Ave S CSO/SD
26843	1802 19th Ave	Closed	1802 19th Ave	11/05/12	Multi-Family	Diagonal Ave S CSO/SD
29140	1814 E Jefferson St	Closed	1814 E Jefferson ST	11/22/02	Multi-Family	Diagonal Ave S CSO/SD
758	US Filter	Closed	1910 21ST AVE S	05/11/09	Commercial	Diagonal Ave S CSO/SD
28952	A&H Restaurant Corporation	Closed	1919 S JACKSON ST	07/03/19	Commercial	Diagonal Ave S CSO/SD
36655	1924 Rainier Ave S	Closed	1924 RAINIER AVE S	04/16/18	Commercial	Diagonal Ave S CSO/SD
38662	1954 S Massachusetts St	Open	1954 S MASSACHUSETTS ST	02/02/17	Commercial	Diagonal Ave S CSO/SD
38728	2000 28th Ave S	Closed	2000 28TH AVE S	07/19/17	Single Family Residence	Diagonal Ave S CSO/SD
38763	2001 E Yesler Way	Closed	2001 E YESLER WAY	08/07/17	Multi-Family	Diagonal Ave S CSO/SD
28062	Baskin Robbins- 2001 Rainier Ave S	Closed	2001 RAINIER AVE S	01/15/20	Commercial	Diagonal Ave S CSO/SD
37972	Tung Enterprises Inc.	Closed	2009 RAINIER AVE S	11/14/18	Commercial	Diagonal Ave S CSO/SD
28135	Burger King - Rainier	Open	2021 RAINIER AVE S	01/15/20	Commercial	Diagonal Ave S CSO/SD
29282	2101 E James St	Closed	2101 E JAMES ST	01/03/18	Multi-Family	Diagonal Ave S CSO/SD
26887	2106 20th Ave S	Closed	2106 20TH AVE S	05/25/18	Single Family Residence	Diagonal Ave S CSO/SD
26895		Closed	2120 E FIR ST	08/07/17	Single Family Residence	Diagonal Ave S CSO/SD
26896		Closed	2121 17TH AVE S	06/10/16	Single Family Residence	Diagonal Ave S CSO/SD
38721	2122 28th Ave S	Closed	2122 28TH AVE S	09/17/17	Single Family Residence	Diagonal Ave S CSO/SD
27899	2122 E Jefferson St	Closed	2122 E JEFFERSON ST	02/05/18	Multi-Family	Diagonal Ave S CSO/SD
28331	216 26th Ave S	Closed	216 26th Ave S	02/28/18	Multi-Family	Diagonal Ave S CSO/SD
437		Closed	2209 RAINIER AVE S	12/03/03	Commercial	Diagonal Ave S CSO/SD

Appendix M: Private drainage facilities inspected 2014-2019.

SWI_SITE_ID	Business Name	Status	Address	Inspect Date	Facility Type	BasinAltName
396		Closed	2300 26TH AVE S	08/30/17	Commercial	Diagonal Ave S CSO/SD
36689	Urban League of Metropolitan Seattle	Closed	2300 S MASSACHUSETTS ST	04/25/18	Commercial	Diagonal Ave S CSO/SD
29068	SHA - 2307 E Fir St	Closed	2307 E FIR ST	08/11/17	Multi-Family	Diagonal Ave S CSO/SD
29107	Shopping Mall	Closed	2309 S JACKSON ST	02/08/17	Commercial	Diagonal Ave S CSO/SD
482		Closed	2310 S LANE ST	07/18/19	Commercial	Diagonal Ave S CSO/SD
40466	Bartell Drug Company - 2345 Rainier Ave S	Closed	2345 RAINIER AVE S	11/03/16	Commercial	Diagonal Ave S CSO/SD
26952		Closed	2356 12TH AVE S	05/14/18	Single Family Residence	Diagonal Ave S CSO/SD
29072	2505 E Yesler Way	Closed	2505 E YESLER WAY	02/01/18	Multi-Family	Diagonal Ave S CSO/SD
764	U-Haul Center of Rainier	Open	2515 Rainier Ave S	05/08/19	Commercial	Diagonal Ave S CSO/SD
28272	2700 S Holgate St	Closed	2700 S HOLGATE ST	03/12/18	Multi-Family	Diagonal Ave S CSO/SD
39145	O'REILLY AUTO PARTS - 2805 Rainier Ave S	Closed	2805 RAINIER AVE S	06/19/18	Commercial	Diagonal Ave S CSO/SD
29593	Seattle Public Library - Beacon Hill	Closed	2821 BEACON AVE S	02/24/20	Public	Diagonal Ave S CSO/SD
852	University of Washington Consolidated Laundry	Closed	2901 27TH AVE S	06/05/19	Commercial	Diagonal Ave S CSO/SD
31225	Rainier Commons LLC	Open	3100 AIRPORT WAY S	11/10/15	Commercial	Diagonal Ave S CSO/SD
395		Closed	3111 27TH AVE S	03/20/19	Commercial	Diagonal Ave S CSO/SD
28544		Closed	321 16TH AVE S	09/18/19	Commercial	Diagonal Ave S CSO/SD
29083	325 MLK Jr Way S	Closed	325 M L KING JR WAY S	11/08/17	Multi-Family	Diagonal Ave S CSO/SD
41507	Affordable Tire & Brake II - 3300 M L KING JR WAY S	Closed	3300 M L KING JR WAY S	05/08/19	Commercial	Diagonal Ave S CSO/SD
37905		Closed	3400 AIRPORT WAY S	12/10/19	Commercial	Diagonal Ave S CSO/SD
30758	Sound Transit Operations and Maintenance Facility	Open	3407 AIRPORT WAY S	03/05/20	Industrial	Diagonal Ave S CSO/SD
32711	Koch Holdings Inc.	Closed	36 S HUDSON ST	06/19/18	Commercial	Diagonal Ave S CSO/SD
33448		Closed	3601 2ND AVE S	09/06/18	Commercial	Diagonal Ave S CSO/SD
40423	Asian Counseling and Referral Service - 3639 M L KING JR WAY S	Open	3639 M L KING JR WAY S	02/04/20	Commercial	Diagonal Ave S CSO/SD
41002		Closed	3801 AIRPORT WAY S	11/21/19	Commercial	Diagonal Ave S CSO/SD
37987	3809 9th Ave S	Closed	3809 9th Ave S	08/01/12	Commercial	Diagonal Ave S CSO/SD
44		Closed	3844 1ST AVE S	06/06/18	Commercial	Diagonal Ave S CSO/SD
40336	3857 2nd Ave S	Closed	3857 2nd Ave S	09/28/07	Commercial	Diagonal Ave S CSO/SD
40429	The Field Roast Grain Meat Co.	Open	3901 7TH AVE S	10/05/17	Industrial	Diagonal Ave S CSO/SD
30808	4000 & 4008 Martin Luther King Jr Way S	Closed	4000 Martin Luther King Jr Wy S	08/03/12	Multi-Family	Diagonal Ave S CSO/SD
42131	4046 MLK Jr Way S	Open	4046 M L KING JR WAY S	02/18/20	Commercial	Diagonal Ave S CSO/SD
39154	4115 4th Ave S	Closed	4115 4TH AVE S	10/05/16	Commercial	Diagonal Ave S CSO/SD
41156	4123 Cheasty Blvd S	Closed	4123 CHEASTY BLVD S	05/15/19	Single Family Residence	Diagonal Ave S CSO/SD
41154	4137 Cheasty Blvd S	Closed	4137 CHEASTY BLVD S	05/30/19	Single Family Residence	Diagonal Ave S CSO/SD
51		Open	4401 4TH AVE S	12/26/19	Commercial	Diagonal Ave S CSO/SD
41557	Direct Connect Group DCG LLC	Closed	4401 EAST MARGINAL WAY S	12/09/16	Commercial	Diagonal Ave S CSO/SD
126		Closed	4455 7TH AVE S	09/23/19	Commercial	Diagonal Ave S CSO/SD
336		Closed	4716 Airport Way S	12/04/17	Industrial	Diagonal Ave S CSO/SD
39051	4746 OHIO AVE S	Closed	4746 OHIO AVE S	10/30/19	Commercial	Diagonal Ave S CSO/SD
41684	Artwork Fine Art Services	Closed	4811 AIRPORT WAY S	03/17/15	Commercial	Diagonal Ave S CSO/SD
38390	Seattle Radiator LLC	Closed	5011 OHIO AVE S	06/28/19	Commercial	Diagonal Ave S CSO/SD
32798	HERC RENTALS	Closed	5055 4TH AVE S	06/11/19	Commercial	Diagonal Ave S CSO/SD
31413	Olympic Foundry 1984 Inc.	Closed	5200 AIRPORT WAY S	08/14/19	Commercial	Diagonal Ave S CSO/SD
29272	612 21st Ave	Closed	612 21ST AVE	11/14/17	Multi-Family	Diagonal Ave S CSO/SD
180		Open	635 S EDMUNDS ST	02/08/19	Commercial	Diagonal Ave S CSO/SD
214		Open	655 S EDMUNDS ST	09/10/19	Commercial	Diagonal Ave S CSO/SD
33204	WASTE MANAGEMENT OF WA INC - 70 S ALASKA ST	Closed	70 S ALASKA ST	01/11/18	Industrial	Diagonal Ave S CSO/SD
29105	715 23rd Ave S	Closed	715 23RD AVE S	05/15/19	Church	Diagonal Ave S CSO/SD
38691	808 Davis Pl S	Closed	808 DAVIS PL S	07/20/17	Multi-Family	Diagonal Ave S CSO/SD
836	Ralphs Concrete Pumping - 816 Poplar Pl S	Closed	816 Poplar Pl S	07/21/16	Commercial	Diagonal Ave S CSO/SD
28695	Masta Enterprises	Closed	843 RAINIER AVE S	01/30/19	Commercial	Diagonal Ave S CSO/SD
298		Closed	851 RAINIER AVE S	01/17/20	Commercial	Diagonal Ave S CSO/SD
341		Closed	852 RAINIER AVE S	06/14/17	Commercial	Diagonal Ave S CSO/SD
38863	918 28th Ave S	Closed	918 28TH AVE S	10/17/17	Multi-Family	Diagonal Ave S CSO/SD
40996	976 S STEVENS ST	Closed	976 S STEVENS ST	05/21/18	Commercial	Diagonal Ave S CSO/SD
37230	The Boeing Company	Closed	1135 S WEBSTER ST	10/23/18	Industrial	Direct discharge
29309		Closed	6901 WEST MARGINAL WAY SW	04/22/19	Commercial	Highland Park Wy SW SD
32950	7957 9th Ave SW & 900, 910, 912 SW Elmgrove St	Closed	7957 9TH AVE SW	07/02/19	Multi-Family	Highland Park Wy SW SD
37075	801 & 803 SW Trenton St	Closed	801 SW Trenton St	06/11/12	Multi-Family	Highland Park Wy SW SD

Appendix M: Private drainage facilities inspected 2014-2019.

SWI_SITE_ID	Business Name	Status	Address	Inspect Date	Facility Type	BasinAltName
26866		Closed	1937 S ORCAS ST	08/06/17	Single Family Residence	I-5 SD at Slip 4
997		Open	2007 S ORCAS ST	06/12/18	Church	I-5 SD at Slip 4
27461		Closed	5941 22ND AVE S	03/22/18	Single Family Residence	I-5 SD at Slip 4
38741	6014 21st Ave S	Closed	6014 21ST AVE S	08/03/17	Single Family Residence	I-5 SD at Slip 4
27474		Closed	6032 21ST AVE S	06/16/17	Single Family Residence	I-5 SD at Slip 4
28823	Pacific Multiforms Co., Inc.	Closed	6600 URSULA PL S	07/01/04	Commercial	I-5 SD at Slip 4
32966	King Electrical Mfg. Company	Open	821 S BARTON ST	02/27/20	Commercial	S 96th St SD
39558	Gary Merlino Construction Co. - 9215 10th Ave S	Closed	9125 10TH AVE S	06/14/18	Commercial	S 96th St SD
28892	Puget Sound Coatings LLC	Closed	9220 8TH AVE S	10/10/18	Industrial	S 96th St SD
40729	Samson Tug and Barge Co Inc - 9228 10th Ave S	Open	9228 10TH AVE S	10/09/17	Commercial	S 96th St SD
29385	THC PARTNERS LLC	Closed	9369 8TH AVE S	12/21/18	Commercial	S 96th St SD
41290	601 S Myrtle St ROW	Open	601 S MYRTLE ST	06/25/18	Industrial	S Garden St SD
33525		Closed	601 S MYRTLE ST	03/25/20	Commercial	S Garden St SD
28890	Public Storage - MLK WY S	Closed	10020 M L KING JR WAY S	03/10/16	Commercial	S Norfolk St CSO/PS17 EOF/SD
38704	10025 46th Ave S	Closed	10025 46TH AVE S	07/19/17	Single Family Residence	S Norfolk St CSO/PS17 EOF/SD
31201	Unified Grocers Inc. - 3301 S Norfolk St	Closed	3301 S Norfolk St	01/15/19	Commercial	S Norfolk St CSO/PS17 EOF/SD
30787	3400, 3406, 3408 & 3412 S Thistle St	Closed	3400 S Thistle St	06/16/17	Single Family Residence	S Norfolk St CSO/PS17 EOF/SD
40184	MacDonald-Miller Facility Solutions Inc - 3701 S NORFOLK ST	Closed	3701 S NORFOLK ST	10/21/19	Commercial	S Norfolk St CSO/PS17 EOF/SD
1494807257	Van Asselt Elementary School	Closed	8311 BEACON AVE S	11/19/18	School	S Norfolk St CSO/PS17 EOF/SD
27816	Van Asselt Elementary School	Closed	8311 BEACON AVE S	11/19/18	School	S Norfolk St CSO/PS17 EOF/SD
31255	Security Service Northwest, Inc	Closed	9640 Martin Luther King Jr Wy S	07/13/15	Commercial	S Norfolk St CSO/PS17 EOF/SD
38456	JCM U-Link, Joint Venture	Closed	9645 M L KING JR WAY S	01/31/17	Industrial	S Norfolk St CSO/PS17 EOF/SD
40298		Open	9650 M L KING JR WAY S	07/13/15	Commercial	S Norfolk St CSO/PS17 EOF/SD
40766	Classic Foundry LLC	Closed	9688 M L KING JR WAY S	08/13/19	Commercial	S Norfolk St CSO/PS17 EOF/SD
28795	NORTHWEST KIDNEY CTR - 9700 M L KING JR WAY S	Closed	9700 M L KING JR WAY S	09/19/16	Commercial	S Norfolk St CSO/PS17 EOF/SD
28765	Nelson Trucking Co Inc	Open	9747 M L KING JR WAY S	09/20/19	Commercial	S Norfolk St CSO/PS17 EOF/SD
37781	Transportation Demand Management Inc.	Closed	9801 Martin Luther King Jr Way S	08/22/19	Commercial	S Norfolk St CSO/PS17 EOF/SD
29194	The January Company	Closed	9844 40TH AVE S	07/23/12	Commercial	S Norfolk St CSO/PS17 EOF/SD
31285		Open	4500 WEST MARGINAL WAY SW	03/03/20	Commercial	South Operations Center SD
26858	1911 SW Brandon ST	Closed	1911 SW Brandon ST	06/11/10	Single Family Residence	SW Idaho St SD
32562	1911, 1915 SW Dawson St & 5240 21st Ave SW	Closed	1915 SW DAWSON ST	08/22/19	Single Family Residence	SW Idaho St SD
37674	Continental Van Lines Inc.	Open	4501 WEST MARGINAL WAY SW	11/29/16	Commercial	SW Idaho St SD
36882	4705 W Marginal Way SW	Closed	4705 WEST MARGINAL WAY SW	05/03/18	Commercial	SW Idaho St SD
30834	5200, 5204 17th Ave SW & 5219 16th Ave SW	Closed	5200 17TH AVE SW	05/06/19	Single Family Residence	SW Idaho St SD
27401		Closed	5216 19TH AVE SW	10/05/17	Single Family Residence	SW Idaho St SD
27403		Closed	5219 18TH AVE SW	10/05/17	Single Family Residence	SW Idaho St SD
27406		Closed	5222 19TH AVE SW	10/05/17	Single Family Residence	SW Idaho St SD
27407		Closed	5226 19TH AVE SW	10/05/17	Single Family Residence	SW Idaho St SD
42139	5249 16th Ave SW	Closed	5249 16TH AVE SW	10/22/19	Commercial	SW Idaho St SD
27430		Closed	5461 16TH AVE SW	03/18/19	Single Family Residence	SW Idaho St SD
27432		Closed	5469 18th Ave SW	12/20/11	Single Family Residence	SW Idaho St SD
27441		Closed	5616 18TH AVE SW	02/01/18	Single Family Residence	SW Idaho St SD
27447		Closed	5649 18th Ave SW	01/24/12	Single Family Residence	SW Idaho St SD
27457		Closed	5903 18th Ave SW	01/09/12	Single Family Residence	SW Idaho St SD
32862	5949 17th Ave SW	Closed	5949 17TH AVE SW	05/06/19	Single Family Residence	SW Idaho St SD
27463		Closed	5966 18TH AVE SW	01/05/18	Single Family Residence	SW Idaho St SD
29126	South Seattle College - 6001 16th Ave SW	Closed	6000 16TH AVE SW	03/09/20	Commercial	SW Idaho St SD
28348	6000 17th Ave SW	Closed	6000 17TH AVE SW	08/01/17	Commercial	SW Idaho St SD
27468		Closed	6012 21st Ave SW	05/24/12	Single Family Residence	SW Idaho St SD
27486		Closed	6322 21st Ave SW	12/29/11	Single Family Residence	SW Idaho St SD
32888	6517 18th Ave SW	Closed	6517 18th Ave SW	10/15/08	Single Family Residence	SW Idaho St SD
27518		Closed	6700 15TH AVE SW	06/04/18	Single Family Residence	SW Idaho St SD
27524		Open	6715 14TH AVE SW	02/24/16	Single Family Residence	SW Idaho St SD
27527		Open	6731 14TH AVE SW	03/04/19	Single Family Residence	SW Idaho St SD
37739	Tank Wise LLC	Closed	5405 W Marginal Wy SW	02/13/20	Commercial	SW Kenny St SD/T115 CSO
31282	Alaska Marine Lines Inc. - 5600 West Marginal Way SW	Closed	5600 WEST MARGINAL WAY SW	02/21/19	Industrial	SW Kenny St SD/T115 CSO
31361	Emswiler Construction	Open	6045 WEST MARGINAL WAY SW	12/19/19	Industrial	SW Kenny St SD/T115 CSO