

Fact Sheet for NPDES Permit WA0031682

City of Seattle's Combined Sewer System

February 18, 2016

Purpose of this fact sheet

This fact sheet explains and documents the decisions the Department of Ecology (Ecology) made in drafting the proposed National Pollutant Discharge Elimination System (NPDES) permit for the City of Seattle's (Seattle) Combined Sewer System (CSS) and associated Combined Sewer Overflow (CSO) outfalls, operated under the authority of Seattle Public Utilities (SPU).

This fact sheet complies with Section 173-220-060 of the Washington Administrative Code (WAC), which requires Ecology to prepare a draft permit and accompanying fact sheet for public evaluation before issuing an NPDES permit.

Ecology makes the draft permit and fact sheet available for public review and comment at least thirty (30) days before issuing the final permit. Copies of the fact sheet and draft permit for the City of Seattle's CSS permit, NPDES permit WA0031682, are available for public review and comment from February 18, 2016 until March 21, 2016. For more details on preparing and filing comments about these documents, please see *Appendix A - Public Involvement Information*.

SPU's staff reviewed the draft permit and fact sheet for factual accuracy. Ecology corrected any errors or omissions regarding the facility locations, history, wastewater discharges, or receiving water prior to publishing this draft fact sheet for public notice.

After the public comment period closes, Ecology will summarize substantive comments and provide responses to them. Ecology will include the summary and responses to comments in this fact sheet as *Appendix E - Response to Comments*, and publish it when issuing the final NPDES permit. Ecology generally will not revise the rest of the fact sheet. The full document will become part of the legal history contained in the facility's permit file.

Summary

SPU owns and operates sewage collection systems designed to carry combined flows of sanitary sewage and stormwater runoff in a common piping system. Overflows may occur at designated outfalls during wet weather events when the volume of sewage and stormwater entering the combined sewer system exceeds the system's capacity. Seattle's CSS includes 86 CSO outfalls that may discharge combined sewage during precipitation events.

Chapter 173-245 WAC and EPA's CSO control policy (59 FR 18688) require CSS owners to implement measures to control overflows from their CSS. The proposed permit contains specific terms and conditions that provide limited authority for SPU to discharge combined sewage from designated CSO outfalls. Conditions include requirements for monitoring and reporting of overflows and ambient water quality, including sediment quality; implementation of proper collection system operations and maintenance strategies; and submission of engineering documents related to CSO control projects. The proposed permit also contains a compliance schedule developed to ensure that SPU meets periodic milestones necessary to complete control projects on time.

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I. Introduction

The Federal Clean Water Act (FCWA, 1972, and later amendments in 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One mechanism for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System (NPDES), administered by the federal Environmental Protection Agency (EPA). The EPA authorized the state of Washington to manage the NPDES permit program in our state. Our state legislature accepted the delegation and assigned the power and duty for conducting NPDES permitting and enforcement to Ecology. The Legislature defined Ecology's authority and obligations for the wastewater discharge permit program in 90.48 RCW (Revised Code of Washington).

The following regulations apply to domestic wastewater NPDES permits:

Procedures Ecology follows for issuing NPDES permits (chapter 173-220 WAC).

- Technical criteria for discharges from municipal wastewater treatment facilities (chapter 173-221 WAC).
- Water quality criteria for surface waters (chapter 173-201A WAC).
- Water quality criteria for groundwaters (chapter 173-200 WAC).
- Whole effluent toxicity testing and limits (chapter 173-205 WAC).
- Sediment management standards (chapter 173-204 WAC).
- Submission of plans and reports for construction of wastewater facilities (chapter 173-240 WAC).

The following additional regulations apply to communities operating collection systems with Combined Sewer Overflows:

- Submission of plans and reports for construction and operation of combined sewer overflow reduction facilities (chapter 173-245 WAC).
- US EPA CSO control policy (59 FR 18688).

These rules require any treatment facility owner/operator to obtain an NPDES permit before discharging wastewater to state waters. They also help define the basis for limits on each discharge and for requirements imposed by the permit.

Under the NPDES permit program and in response to a complete and accepted permit application, Ecology must prepare a draft permit and accompanying fact sheet, and make them available for public review before final issuance. Ecology must also publish an announcement (public notice) telling people where they can read the draft permit, and where to send their comments, during a period of thirty days (WAC 173-220-050). (See *Appendix A - Public Involvement Information* for more detail about the public notice and comment procedures). After the public comment period ends, Ecology may make changes to the draft NPDES permit in response to comment(s). Ecology will summarize the responses to comments and any changes to the permit in Appendix E.

II. Background Information

Table 1. General Facility Information

Facility Information	
Applicant	City of Seattle, Seattle Public Utilities (SPU)
Facility Name and Address	700 Fifth Avenue, Suite 4900 P.O. Box 34108 Seattle, WA 98124-4018
Facility Description:	Combined Sewer System, including CSO outfalls
Discharge Locations:	Refer to Appendix D

Figure 1. CSO Outfall Location Map



A. Facility description

History

Seattle Public Utilities (SPU), a department within the City of Seattle (Seattle), owns and operates combined sewage collection systems within the Seattle city limits. Combined sewer systems (CSS) collect rainwater runoff, domestic sewage, and industrial wastewater in the same piping system. The CSS typically transports all wastewater to a sewage treatment plant for treatment and disposal. During periods of heavy rainfall or snowmelt, however, the wastewater volume in a CSS can exceed the capacity of the collection system or treatment plant. For this reason, CSS designs allow occasional overflows that discharge excess wastewater directly to nearby streams, rivers, or other water bodies. Chapter 173-245 WAC and EPA's CSO control policy (59 FR 18688) require owners of combined systems to implement measures designed to minimize the environmental impacts of overflows and to control the frequency of overflows from their CSS.

Seattle's combined sewer system dates from the 1890s, when cities typically used a common sewer system for sanitary sewage and storm drainage. Current operation and maintenance responsibility for combined sewers within Seattle's city limits depend on the service area size. SPU operates and maintains combined collection systems serving areas of up to 1000 acres in size within the city limits and King County Department of Natural Resources and Parks, Wastewater Treatment Division (KC-WTD), operates and maintains sewer trunk lines serving areas greater than 1000 acres. KC-WTD also operates and maintains wastewater and CSO treatment plants that serve the region. This proposed permit regulates combined sewer systems operated and maintained by SPU; NPDES permit # WA0029181 (King County – West Point WWTP) regulates combined sewer systems under KC-WTD responsibility.

SPU has made significant progress towards CSO control since the 1980s by implementing several projects involving the maintenance and modification of existing sewer facilities. Additional projects involved construction of diversion structures and storage facilities. To date SPU has constructed 38 facilities that have reduce overall CSO discharge volume by approximately 70%.

The following 6 major CSO reduction planning documents provide details on SPU's CSO control strategies since 1980:

1. 1980 Facility Plan – This plan represented the City's initial CSO reduction endeavor by proposing and implementing various storage projects.
2. 1988 CSO Control Plan – This plan proposed and implemented various sewer separation projects and storage projects.
3. 2001 CSO Reduction Plan Amendment – This plan proposed implementing various best management practices (BMPs) to reduce the volume of CSOs before implementing additional storage projects. This plan also reevaluated previously studied areas of Seattle and expanded the evaluation to include previously unstudied areas.
4. 2005 CSO Reduction Plan Amendment Update – This plan evaluated impacts of implemented BMPs at a selection of sites identified in the 2001 CSO Reduction Plan Amendment. The plan used the evaluation to revise cost and schedule estimates for implementing BMPs at the remaining sites identified in the 2001 amendment.
5. 2010 CSO Reduction Plan Amendment – This plan proposed various CSO reduction projects for all remaining uncontrolled CSO outfalls.

6. 2015 Plan to Protect Seattle's Waterways – SPU developed this plan to satisfy requirements of a 2013 Federal Consent decree that require development and implementation of a long-term control plan. This plan represents the final plan to control all remaining uncontrolled CSO outfalls by 2025. This plan also includes an Integrated Approach element that defers completion of six CSO control projects in exchange for implementing of three stormwater-only projects that provide greater water quality benefit than the deferred CSO projects. The approved plan requires SPU to complete the deferred CSO control projects by 2030.

Collection system status

SPU's collection system includes gravity sewage pipelines, pump stations, force mains, CSO outfalls, and CSO control facilities. Currently, the collection system includes:

- Approximately 448 miles of sanitary sewer pipes.
- Approximately 968 miles of combined sewers.
- 68 sewage pump stations.
- 5.5 miles of forcemains.
- 86 CSO outfalls.
- 42 CSO control detention tanks/pipes.
- 22 HydroBrakes.
- 12 Controlled sluice gates with electric valve actuators.

SPU's collection system contains over 1,400 miles of gravity sewers with pipes ranging from 4 to 144 inches in diameter, of which approximately 62 percent are 8-inch collector pipes. The average age of the collection system piping is 75 years. Approximately one-third of the system is combined, one-third partially separated, and one-third fully separated.

Treatment processes

SPU does not own a wastewater or CSO satellite treatment plant. All sewage collected by SPU's sewer system transfers to KC-WTD facilities for conveyance and treatment at a regional treatment facility or satellite CSO treatment plant, or discharges untreated through one of the CSO outfalls. KC-WTP operates two regional secondary wastewater treatment plants (West Point WWTP and the South WWTP) and four satellite CSO storage and treatment facilities (Alki, Carkeek, Elliott West and Henderson/MLK) related to CSO flows. Ultimately, the treated wastewater from all of these facilities discharges to either Puget Sound, Elliott Bay, or the Duwamish River. Ecology authorizes discharges from the KC-WTD facilities under separate NPDES permits.

Discharge outfalls

The proposed permit authorizes CSO discharges from 86 individual outfall pipes. Each outfall pipe varies in its configuration in terms of depth and distance from shore. Appendix D lists data about each of the outfalls, including the identification number, the receiving waterbody, and the latitude and longitude of the discharge into the receiving water. It also includes a map showing the location of all of the CSO outfalls as mapped in SPU's geographic information system (GIS).

Solid waste

All solids in SPU's sewer system are conveyed to King County's secondary wastewater treatment plants for treatment. King County's treatment system includes screening solids from the wastewater. The solids are then washed and compacted prior to disposal in a landfill.

B. Permit status

Ecology issued the previous permit for Seattle's CSO discharges on October 27, 2010, with a December 1, 2010, effective date. Ecology subsequently modified the permit on September 13, 2012, to eliminate three CSO outfalls and to change the compliance schedule for certain required projects. The permit expired on November 30, 2015.

SPU submitted an application for permit renewal on May 22, 2015. Ecology accepted it as complete on May 26, 2015. The modified permit remains in effect until Ecology issues this proposed permit.

C. Summary of compliance with previous permit issued on October 27, 2010

SPU generally complied with terms and conditions of the previous permit issued on October 27, 2010. Ecology assesses compliance based on monthly discharge monitoring reports (DMRs), as-needed reports of unauthorized overflows, annual CSO reports, and other written reports. The following provides a summary of SPU's compliance.

A dry weather overflow (DWO) is an overflow from a CSO outfall that is not caused by a rain or snow event. State and federal regulations do not allow DWOs and the previous permit required SPU to report each DWO event in a timely manner. Table 2 lists the total number of DWOs reported to Ecology over the past 14 years. SPU significantly reduced incidents of DWOs during the last permit term, with no overflows during the first three years. Based on SPU's records, the three DWOs in 2013 were due to external factors. One overflow resulted when a subcontractor on the SR-99 tunnel project on the Central Waterfront inadvertently removed a maintenance-hole cover, which allowed debris to enter the system and cause an overflow from outfall 71. The two other overflows resulted from high flows from damaged private side sewer connections to houseboats on Lake Union. The 2014 DWO resulted when an inexperienced field crew followed incorrect bypass procedures, which led to an overflow to Lake Washington from outfall 45.

Table 2. Dry Weather Overflows – Occurrences and Volumes

Year	Number of DWOs	Total Volume (gallons)
2001	37	1,927,036
2002	4	906,926
2003	0	0
2004	3	5,120
2005	2	177,748
2006	8	141,766
2007	7	499,264
2008	1	148,282
2009	1	3,509
2010	0	0
2011	0	0
2012	0	0
2013	3	123,670
2014	1	4,757

On July 3, 2013, the EPA, the Washington State Department of Ecology (Ecology) , and the City of Seattle, entered into a Consent Decree to resolve alleged violations of the Clean Water Act, including violations of National Pollutant Elimination System Permit and sanitary sewer overflow violations. During the last permit cycle, EPA and Ecology enforced stipulated penalties for overflows and other violations, as allowed under the consent decree. The first set of stipulated penalties amounted to \$5,000 for two sewer overflows that occurred during the period of July 2013 through March 2014. The second set of stipulated penalties amounted to \$16,500 for two sewer overflows, one dry weather CSO and one instance of submitting a late notification. Under the terms of the consent decree, EPA and Ecology jointly issued a demand for payment for each set of stipulated penalties, with half of the penalty amount going to each agency. Accordingly, SPU was required to pay a total of \$10,750 to EPA, and \$10,750 to Ecology for the two sets of penalties.

Seattle's CSS also continued to experience CSOs that had their volume and/or duration exacerbated by operations, maintenance, or construction issues. Between 2010 and 2014, a total of 11 CSO events at various outfalls resulted in approximately 5.9 MG of CSO discharges that may not have occurred without the operations, maintenance, or construction impacts. The 2013 consent decree includes a provision for SPU to develop and implement a Capacity, Management, Operations, and Maintenance (CMOM) program that can minimize exacerbated CSOs.

SPU submitted the following reports required by the previous permit. A brief discussion of the submittals follows Table 3 below.

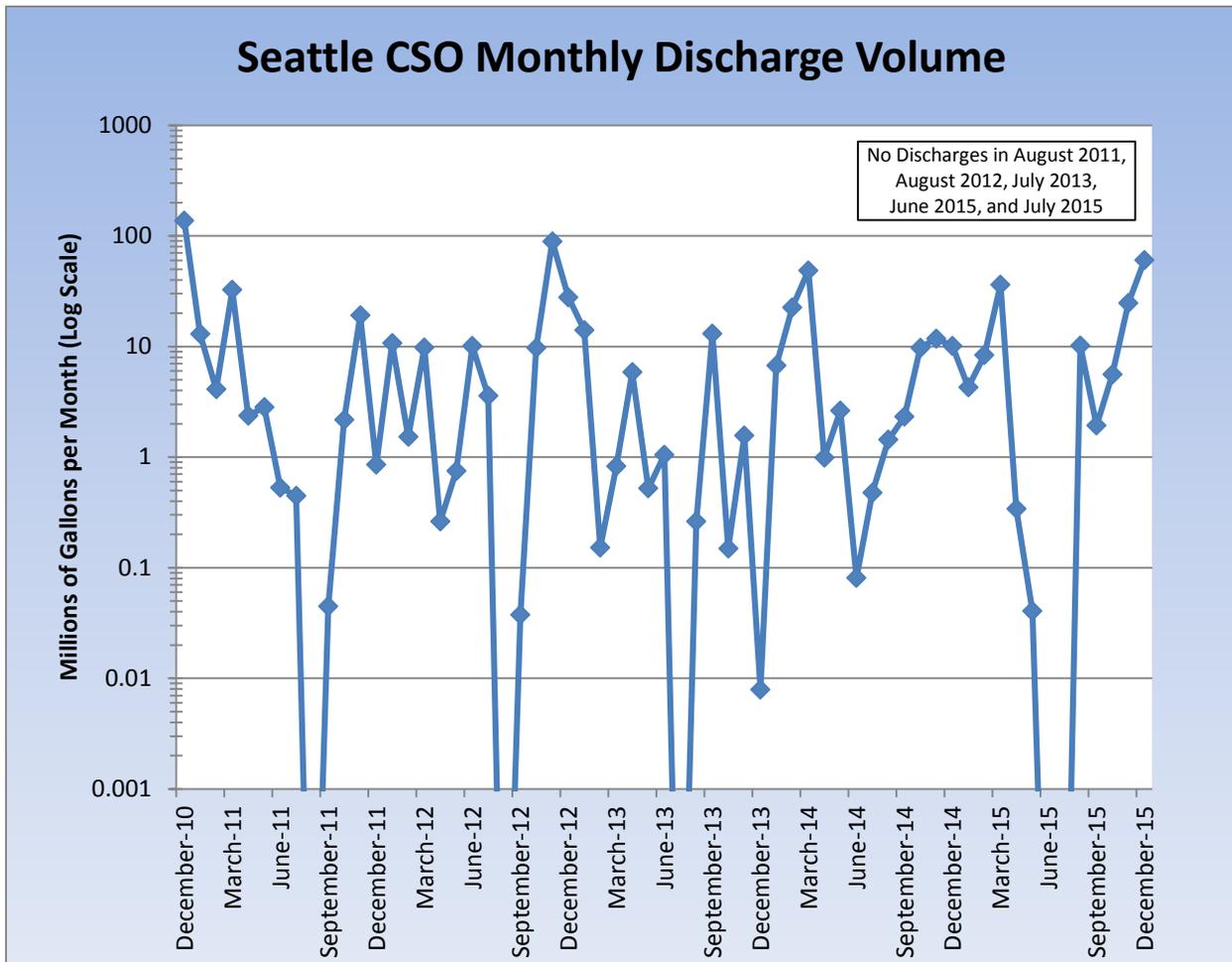
Table 3. Permit Submittal Information

Submittal Name	Required Submittal Date	Received Date
1. Operations & Maintenance Manual Review Confirmation	March 30, 2011, annually thereafter	April 4, 2011 March 30, 2012 March 29, 2013 March 26, 2014 March 27, 2015
2. Annual CSO Report	March 30, 2011, annually thereafter	March 29, 2011 March 29, 2012 March 29, 2013 March 26, 2014 March 27, 2015
3. CSO Reduction Plan Amendment	May 31, 2015	May 28, 2015
4. Identification of CSO Outfalls Meeting the State Regulatory Requirement	May 31, 2015	March 27, 2015
5. Post Construction Compliance Monitoring – Quality Assurance Project Plan for CSO #62	March 30, 2012	March 30, 2012
6. Post Construction Compliance Monitoring – Quality Assurance Project Plan for CSO #13	August 30, 2015	August 27, 2015
7. Outfall Rehabilitation Plan	October 31, 2015	August 12, 2015
8. Sediment Sampling and Analysis Plans for CSOs #62, #107, #147, and #152	March 30, 2012	March 30, 2012
9. Sediment Sampling and Analysis Plan for CSO #13	August 30, 2015	August 27, 2015
10. Sediment Data Reports for CSO #62, #107, #147, & #152	November 30, 2015	November 25, 2015
11. Application for Permit Renewal	May 31, 2015	May 26, 2015

Monthly reports

Monthly reports summarize the number of CSO events, overflow duration (in hours), and volume of combined sewage discharged from each permitted CSO outfall each month. The report also includes a brief listing of any flow monitoring equipment repairs or problems that occurred during the month. Figure 2 shows the total monthly CSO flow (in millions of gallons of CSO discharged per month) discharged from all outfalls between December 2010 and December 2015. The majority of CSO discharges occurred during the wet weather months from October through March.

Figure 2. Monthly CSO Discharge Volume



Annual CSO report

Annual CSO reports required by WAC 173-245-090(1) provide a summary of discharge events for the year and discusses efforts taken to reduce CSO discharges. Per the regulation, this report: (a) details the past year's frequency and volume of combined sewage discharge from each CSO site, (b) explains the previous year's CSO reduction accomplishments, and (c) lists the projects planned for the next year. The report must also indicate whether a CSO

site has increased over the baseline annual condition. If an increase occurred, the Permittee must propose a project and/or schedule to reduce that site below its baseline conditions. This regulation specifically addressed reductions in CSOs through implementation of storage, separation, or at-site treatment.

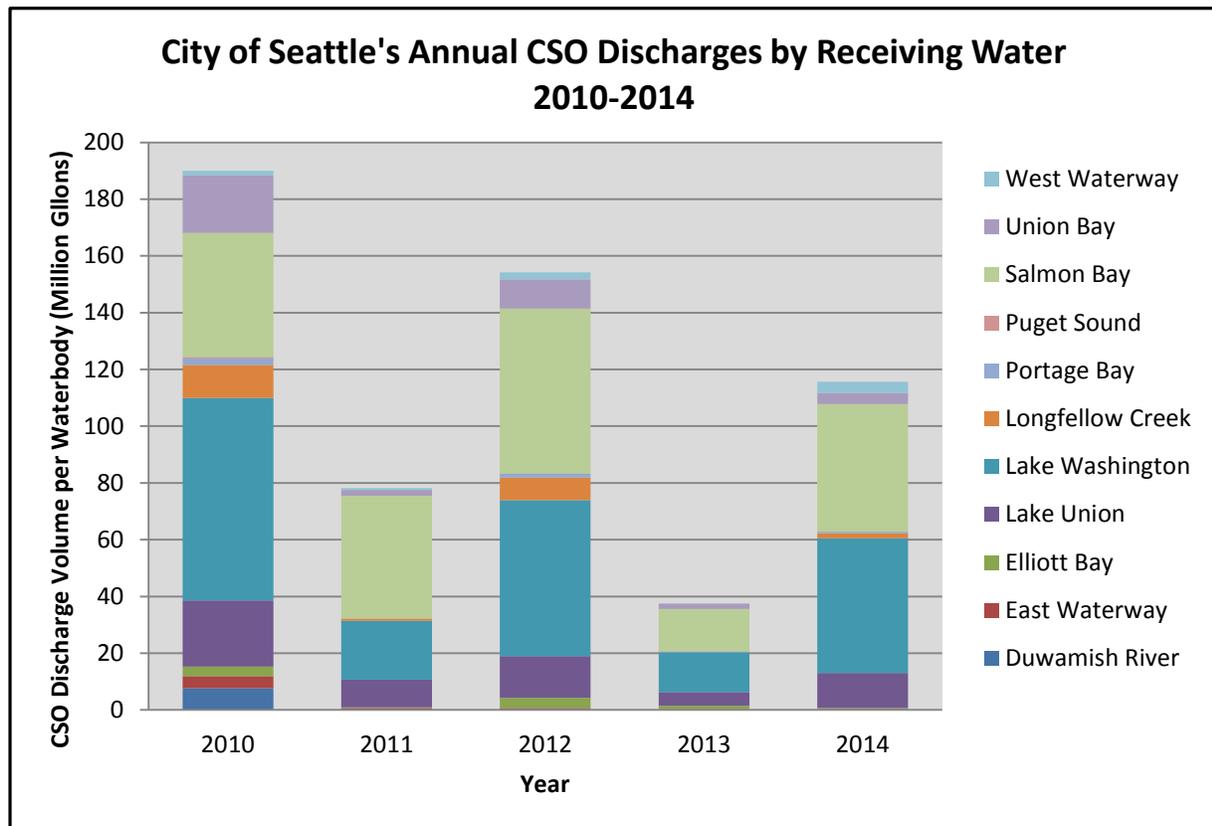
Table 4 summarizes Annual CSO Discharge Data reported over the previous five years. Figure 3 provides a breakdown of total Annual CSO Discharges by Receiving Waters over the last five years. Complete data on annual frequency, duration, and volume of CSO discharges from each outfall between 2010 and 2014 is available in Appendix D. SPU attributes some of the yearly flow variability to rainfall patterns.

Table 4. City of Seattle Annual CSO Discharge by Receiving Water, 2010-2014

Receiving Waterbody	2010	2011	2012	2013	2014
Duwamish River	7.72	0.00	0.31	0.01	0.15
East Waterway	4.17	0.77	0.35	0.23	0.29
Elliott Bay	3.46	0.19	3.68	1.23	0.27
Lake Union	23.21	9.75	14.64	4.87	12.32
Lake Washington	71.31	20.75	54.98	13.99	47.51
Longfellow Creek	11.74	0.61	7.96	0.00	1.70
Portage Bay	2.25	0.13	1.41	0.31	0.65
Puget Sound	0.52	0.00	0.00	0.00	0.00
Salmon Bay	43.67	43.31	58.08	14.99	44.94
Union Bay	20.31	1.97	10.33	1.86	3.93
West Waterway	1.62	0.72	2.49	0.00	3.83
Total (Million Gallons)	190.00	78.19	154.23	37.50	115.59
Average Rainfall (in.) ¹	45.61	35.83	47.66	27.93	46.76

¹ Average rainfall based on monitoring at multiple City-owned rain gauge locations throughout the City of Seattle.

Figure 3. Annual CSO Discharges to Various Receiving Waters



Documentation of compliance with the nine minimum controls

The Federal CSO Control Policy requires municipalities with combined sewer systems to implement nine measures that help reduce the number and volume of sewage overflows without extensive engineering studies or significant construction costs. The following paragraphs, which are derived from SPU's 2014 CSO Annual Report, describe the City's typical annual efforts taken to comply with each control measure.

1. *Provide System Operations & Maintenance (O&M)* – Each year SPU performs extensive system O&M activities to reduce the frequency and volume of preventable overflows. Routine maintenance activities include sewer inspections, cleaning, and non-emergency point repairs; catch basin inspection, cleaning, and repairs; control structure and storage structure cleaning; valve and flap gate inspection, cleaning, lubricating, and servicing; and pump station electrical, mechanical, and facilities inspection and servicing. SPU uses the National Association of Sewer Service Companies (NASSCO) PACP defect coding system to identify and prioritize pipes to be scheduled for maintenance or rehabilitation. Table 5 summarizes SPU's combined sewer system O&M activities for 2014.

Table 5. O&M Activities in 2014

Activity	Quantity
Miles of mainline pipe cleaned	343
Miles of mainline pipe inspected via CCTV	161
Miles of mainline pipe repaired/replaced/rehabilitated	0.2
Number of pump station inspections	1736
Number of maintenance holes inspected	515
Number of force mains inspected	50
Number of force mains repaired/replaced/rehabilitated	0
Number of CSO structure inspections	272
Number of CSO structure cleanings	96
Number of CSO HydroBrake inspections	315
Number of CSO HydroBrake cleanings	41
Linear feet of pipe receiving chemical treatment to inhibit root growth	35,677
Number of catch basins inspected	13,197
Number of catch basins cleaned	2,738
Number of catch basins repaired	16
Number of catch basins replaced	1
Number of catch basin traps replaced	162

2. *Maximize Storage of Flows* – Control #2 requires maximizing the use of the collection system for wastewater storage in order to reduce the magnitude, frequency, and duration of CSOs. SPU's CSS Retrofit Program uses a multi-faceted approach to ensure compliance with this Control. The program includes:
 - Regular collection system maintenance to ensure the full availability of existing capacity during storm events;
 - Retrofits of storage facilities to optimize the use of existing underutilized capacity;
 - Increasing the height of overflow weirs to increase collection system storage capacity in areas where increases will not create backups; and
 - Eliminating excessive inflow and infiltration.

3. *Control Nondomestic Sources* – Implement selected CSO controls to minimize CSO impacts resulting from nondomestic discharges. SPU implements two important programs to help control nondomestic discharges into the sewer system: the FOG (Fats, Oils, and Grease) Control Program, and the Industrial Pretreatment Program. SPU's FOG Control Program enforces the Seattle Municipal Code requirement for businesses to pretreat FOG-laden wastewater before discharging the wastewater to the sewer system. FOG contributes to reduced collection system capacity by combining with other wastewater constituents to form deposits that adhere to the inside of the pipes. In addition to managing the FOG program, SPU works with KC-WTD to manage discharges of industrial wastewater to the collection system. KC-WTD administers the industrial Pretreatment Program and issues industrial waste pretreatment permits that include appropriate discharge limits. KC-WTD also provides regular site inspections and periodic permit reviews. SPU and KC-WTD work together to resolve collection system problems caused by industrial Permittees.

4. *Maximize Flows to the Treatment Plant* – This control requires operators of combined sewer systems to ensure the CSS conveys as much wet weather flow as possible to the treatment plant. In 2010, SPU began integrating its former water and wastewater control centers into a single control center staffed 24 hours per day. The control center receives real-time SCADA information from lift stations and overflow structures. Control center staff respond to alarms monitored by the SCADA system and can dispatch field crews to address problems. The center's new Information Management System and upgraded historian allows operations staff to better analyze the collected data to proactively identify opportunities to performance improvements through changes in operations and maintenance strategies.
5. *Prevent Dry Weather Overflows* – To help prevent DWOs and to minimize the volume and duration of wet weather CSOs, each CSO location uses alarms to alert field crews and analysts of likely overflow conditions. This allows staff to take corrective action, if possible, to stop DWOs or to reduce CSO flows. In addition, whenever SPU experiences a DWO or exacerbated CSO, staff investigates the incident to identify the cause and to take action necessary to reduce or eliminate future similar overflows. Investigation includes manual inspection of the site where the overflow occurred, CCTV inspection of adjacent pipe, and review of SCADA data. Whenever possible, field crews clean the outfall structure and adjacent pipes immediately following the event and analysts review and evaluate the cleaning results.

Each month SPU staff hold “after action” review meetings to learn from experiences and to apply any lessons learned toward preventing additional SSOs, DWOs, and exacerbated CSOs. Staff also look at the rolling history of DWOs and exacerbated CSOs to determine if any patterns exist and to evaluate the need for potential systematic solutions.

6. *Control Solids and Floatable Material* – SPU relies on catch basin design standards and source control to control floatable material. Catch basin designs prevent floatables from entering the system by setting the overflow level at a point well above the elevation of the overflow pipe opening. This control keeps material at the water surface and traps floatables in the catch basin. Field crews inspect and clean catch basins regularly to remove debris and potential floatables. In addition to catch basin design, SPU runs several solid waste and city cleanup programs to prevent and reduce the amount of street litter.
7. *Prevent Pollution* – SPU conducts multiple pollution prevention programs to keep contaminants from entering the sewer system and subsequently being discharged in sewage overflows. Additional pollution prevention efforts include public education programs as well as implementing strategies to reduce the volume of sewage entering the sewer system. SPU and KC-WTD use green stormwater infrastructure (GSI) in various locations to reduce the volume of stormwater entering the combined sewer system. SPU also encourages installation of rain gardens and cisterns on private properties and uses roadside rain gardens in street rights-of-way. Finally, if sewage contamination of surface waters occurs due to side sewer breaks or illicit connections or discharges, SPU uses regulatory tools such as Notices of Violation and associated penalties to help remedy the problem in a timely manner.
8. *Notify the Public* – SPU, together with Public Health – Seattle & King County (PH-SKC), maintain a sewage overflow notification and posting program for Seattle's CSO outfalls. Signs at each outfall identify the outfall and warn of possible sewage overflows. The signs include the phone number for the CSO Hotline operated by PH-SKC. In addition, PH-SKC provides a website with detailed information about CSOs, potential public health hazards,

and precautions the public may take to protect themselves. If sewage overflows occur due to side sewer breaks or illicit connections or discharges, SPU posts additional warning signs at impacted waterways until the problem is resolved. Finally, KC-WTD hosts a website that provides real-time notification of recent and current CSO overflows from Seattle and King County outfalls. In 2014, the public notification web pages were viewed 9,220 times, with a peak one-day use of 233 views on February 12, 2014.

9. *Monitoring CSO* – The ninth control requires to monitor CSO outfalls to characterize CSOs and the effectiveness of CSO controls. SPU monitors each of its CSO outfalls to detect sewage overflows. It also tracks the performance of its flow monitors to ensure consistent, high quality measurements.

CSO long-term control plan (2015)

SPU developed a CSO reduction facility plan in 1980, prior to Ecology's development of regulations to enact the 1985 state legislation to reduce CSOs to a reasonable minimum (Chapter 90.48.480 RCW and WAC 173-245). In compliance with WAC 173-245-040, SPU prepared its initial CSO Reduction Plan in 1988 and submitted amendments required by WAC 173-245-090 in 2001, 2005, and 2010. Implemented control projects discussed in these plans include the Windermere, Genesee, and Henderson CSO control projects.

As part of a 2013 federal Consent Decree, SPU agreed to complete a new Long-Term Control Plan (LTCP) to describe strategies to complete control projects on all of the City's CSO outfalls by 2025. The 2015 LTCP defines a comprehensive program and schedule for implementing projects and measures to control overflows at all of the City's 86 CSO outfalls.

The LTCP achieved the following objectives:

- Identified areas of the city that require CSO reductions projects;
- Evaluated CSO control measures for reducing CSOs in affected areas;
- Selected a preferred CSO control measure (solution) for each affected area;
- Recommended a schedule that complies with the Consent Decree compliance deadlines;
- Estimated LTCP program costs and associated rate impacts;
- Provided an updated post-construction monitoring plan and schedule; and
- Considered public and stakeholder input.

SPU used the previously approved 2010 CSO Reduction Plan Amendment as the foundation for projects identified in the 2015 LTCP. As required by the Consent Decree, SPU submitted the final LTCP to EPA and Ecology on May 29, 2015. The submission also fulfilled the requirement in the previous permit to submit a CSO Reduction Plan Amendment to Ecology with the application for permit renewal.

Integrated plan (2015)

The Consent Decree allowed SPU to submit a plan that proposes deferring completion of some CSO control projects identified in the LTCP in exchange for completing high-priority stormwater control projects that provide a greater water quality benefit than the CSO projects alone. While the LTCP focuses solely on improving water quality through CSO controls, the Integrated Plan provides an alternative approach to improving water quality through both stormwater and CSO control. SPU's Integrated Plan meets EPA guidelines for addressing stormwater and CSO control in one plan.

The Integrated Plan identifies three stormwater projects that SPU will complete by 2025 along with control projects on all but six CSO outfalls. The plan proposes completion of the deferred CSO projects by 2030. SPU demonstrated in the plan that the proposed project priority and sequencing can achieve greater water quality benefits than by CSO reduction projects alone and can achieve the benefits sooner. EPA and Ecology approved SPU's LTCP and Integrated Approach Plan in August 2015.

Outfall evaluation report

The previous permit included a compliance schedule that required SPU to complete repair projects on outfalls 28, 31, 45, 64, 85, 95, 129, and 150. Completion dates in the permit varied between December 31, 2011, and November 1, 2015. In 2012, SPU completed rehabilitation of outfalls 28, 45, and 129 and submitted a detailed conditions assessment of the remaining CSO outfalls, except outfall 85; SPU completed rehabilitation of that outfall in 2011. The 2012 assessment identified deficiencies in the outfalls and proposed approaches to resolve them. SPU submitted notice of completion letters to Ecology for outfall 64 and 95 on April 21, 2014; for outfall 150 on December 5, 2014; and for outfall 31 on February 25, 2015.

Post construction compliance monitoring program and sediment survey

Special condition S8.C of the previous permit required SPU to implement a post construction compliance monitoring program (PCMP) for controlled outfalls #62 and #13. The requirement included development of quality assurance project plans (QAPP) for both outfalls, implementation of the approved QAPPs and submission of interim data reports. Special Condition S10.A also required submission of sediment sampling plans for both outfalls. SPU submitted the final quality assurance project plan and sediment sampling and analysis plan for CSO Outfall 62 on April 5, 2013 to satisfy both permit requirements with respect to outfall 62. Ecology approved this plan on April 16, 2013. SPU submitted the PCMP and sediment monitoring data for outfall 62 on November 25, 2015.

SPU submitted the draft quality assurance project plan and sediment sampling and analysis plan for CSO Outfall 13 on August 27, 2015. This plan is currently under Ecology review. The previous permit did not require sampling for outfall 13; Ecology will include sampling in the proposed permit.

In addition to the above requirements for outfalls 62 and 13, the previous permit required SPU to develop and implement a sediment sampling plan for uncontrolled outfalls 107, 147, and 152. SPU submitted a draft sediment sampling plan for the three outfalls on March 30, 2012 for Ecology review. SPU revised and finalized the document for approval and submitted it on April 12, 2013. Ecology approved the plan on April 16, 2013. SPU submitted the sediment sampling data for the three outfalls on November 25, 2015 as part of the outfall 62 submittal.

D. Wastewater characterization

The previous permit did not require monitoring of the concentration of pollutants in the CSO discharges for the NPDES application or the monthly discharge monitoring reports. SPU conducted a supplemental CSO characterization study between 2007 and 2010, as required by the permit in effect at that time. The Seattle Combined Sewer Overflow Supplemental Characterization Study (May 2010) revealed the following general characteristics of SPU's system:

- Concentrations of fecal coliform and ammonia nitrogen were higher at sites which tended to overflow frequently.
- Concentrations of ammonia, fecal coliform, total copper, total zinc were lower when compared to a recent King County regional characterization study.
- Concentrations of dissolved copper, dissolved zinc, and bis(2-ethylhexyl) phthalate were lower than those from the recent King County study.
- Concentrations of dissolved copper and zinc were consistent across sampling sites.
- Fluoranthene and phenanthrene were identified as specific parameters to test for, but were not detected in samples.

E. SEPA compliance

State law exempts the issuance, reissuance, or modification of any wastewater discharge permit from the SEPA process as long as the permit contains conditions that are no less stringent than federal and state rules and regulations (RCW 43.21C.0383). The exemption applies only to existing discharges, not to new discharges.

III. Proposed Permit Limits

Federal and state regulations require that effluent limits in an NPDES permit must be either technology- or water quality-based.

- Technology-based limits are based upon the treatment methods available to treat specific pollutants. Technology-based limits are set by the EPA and published as a regulation, or Ecology develops the limit on a case-by-case basis (40 CFR 125.3, and chapter 173-220 WAC).
- Water quality-based limits are calculated so that the effluent will comply with the Surface Water Quality Standards (chapter 173-201A WAC), Ground Water Standards (chapter 173-200 WAC), Sediment Quality Standards (chapter 173-204 WAC), or the National Toxics Rule (40 CFR 131.36).
- Ecology must apply the most stringent of these limits to each parameter of concern. These limits are described below.

The limits in this permit reflect information received in the application and from supporting reports (engineering, hydrogeology, etc.). Ecology evaluated the permit application and determined the limits needed to comply with the rules adopted by the state of Washington. Ecology does not develop effluent limits for all reported pollutants. Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation.

Ecology does not usually develop limits for pollutants not reported in the permit application but may be present in the discharge. The permit does not authorize discharge of the non-reported pollutants. During the five-year permit term, the facility's effluent discharge conditions may change from those conditions reported in the permit application. The facility must notify Ecology if significant changes occur in any constituent [40 CFR 122.42(a)]. Until Ecology modifies the permit to reflect additional discharge of pollutants, a permitted facility could be violating its permit.

Compliance with this permit constitutes reasonable progress towards complying with WAC 173-245. EPA and Ecology are also relying on provisions within the federal consent decree to ensure progress continues to be made toward controlling all of the City's CSO outfalls.

A. Technology-based effluent limits

Federal and state regulations define technology-based effluent limits for domestic wastewater treatment plants. These effluent limits are given in 40 CFR Part 133 (federal) and in chapter 173-221 WAC (state). These regulations are performance standards that constitute all known, available, and reasonable methods of prevention, control, and treatment (AKART) for domestic wastewater. In addition, the federal CSO Control Policy (59 FR 18688) requires entities with Combined Sewer Overflows to implement "Nine Minimum Controls" as technology-based performance standards for CSO discharges.

Since SPU does not own or operate any CSO treatment facilities, Ecology includes the Nine Minimum Controls in the proposed permit as technology-based limits. The nine minimum controls are largely programmatic policies and practices designed to minimize the impacts untreated CSOs have on human health and the environment. It is not possible with current knowledge and technology to calculate numeric water quality-based effluent limits for CSOs. Ecology may include numeric water quality-based effluent limits in the future permits only after the long-term control plan is in place and after collection of sufficient water quality data.

The nine minimum controls include:

1. Use proper operations and maintenance practices within the combined collection system to reduce the magnitude, frequency, and duration of CSOs.
2. Implement procedures that maximize storage capacity of the combined collection system.
3. Minimize pollution from non-domestic wastewater sources through close management of a pretreatment program.
4. Maximize treatable flow to the wastewater treatment plant during wet weather.
5. Prevent CSO discharges during dry weather and properly report any dry weather CSO discharges immediately to Ecology.
6. Implement procedures to control solid and floatable materials in CSOs.
7. Implement and maintain a pollution prevention program designed to keep pollutants from entering the combined sewer system.
8. Establish a process to notify the public when and where CSOs occur.
9. Monitor CSO outfalls to characterize CSO impacts and the efficacy of CSO controls, including event-based monitoring of all CSO flow quantity, frequency and duration.

B. Surface water quality-based effluent limits

The Washington State surface water quality standards (chapter 173-201A WAC) are designed to protect existing water quality and preserve the beneficial uses of Washington's surface waters. Waste discharge permits must include conditions that ensure the discharge will meet the surface water quality standards (WAC 173-201A-510). Water quality-based effluent limits may be based on an individual waste load allocation or on a waste load allocation developed during a basin wide total maximum daily load study (TMDL).

Chapter 173-245 WAC requires that “All CSO sites shall achieve and at least maintain the greatest reasonable reduction, and neither cause violations of applicable water quality standards, nor restrictions to the characteristic uses of the receiving water, nor accumulation of deposits which: (a) Exceed sediment criteria or standards; or (b) have an adverse biological effect.” “The greatest reasonable reduction” means control of each CSO outfall such that an average of no more than one untreated discharge may occur per year.

Municipalities must develop CSO reduction plans to achieve this level of control. These plans are substantially equivalent to the long-term control plan (LTCP) as defined by EPA in their CSO control policy. Ecology conditionally approved SPU's CSO Reduction Plan in 1988 with the 2001 CSO Reduction Plan Amendment approved in 2003. This proposed permit requires SPU to submit an amendment of its CSO Reduction Plan which complies with the requirements of WAC 173-245-090(2), and includes additional elements which implement EPA's CSO control policy.

These requirements provide for attainment of water quality standards (WQS) through the “presumption approach.” Under the presumption approach, CSO controls are presumed to attain WQS if certain performance criteria are met. A program that meets the criteria specified in WAC 173-245 and EPA's CSO control policy is presumed to provide an adequate level of control to meet the water quality-based requirements of the Clean Water Act, provided Ecology determines that such presumption is reasonable based on characterization, monitoring, and modeling of the system, including consideration of sensitive areas.

It is not possible with current knowledge and technology to determine whether numeric water quality-based effluent limits are necessary for untreated CSOs, and, if so, what the limits should be. For that reason, this permit contains a narrative requirement in S1.A.

The proposed permit requires SPU to implement PCMP monitoring of the controlled CSO outfalls identified in the 2015 CSO Reduction Plan Amendment as a water quality-based requirement. The permit also limits controlled or corrected CSO discharges to one untreated discharge per year per CSO outfall, based on a long-term average defined as a 20-year moving average. In addition, SPU must identify newly corrected or controlled CSOs that meet the state's one untreated discharge per year per CSO standard with the next permit renewal application.

Numerical criteria for the protection of aquatic life and recreation

Numerical water quality criteria are listed in the water quality standards for surface waters (chapter 173-201A WAC). They specify the maximum levels of pollutants allowed in receiving water to protect aquatic life and recreation in and on the water. Ecology uses numerical criteria along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limits, the discharge must meet the water quality-based limits.

Numerical criteria for the protection of human health

The U.S. EPA has published 91 numeric water quality criteria for the protection of human health that are applicable to dischargers in Washington State (EPA, 1992). These criteria are designed to protect humans from exposure to pollutants linked to cancer and other diseases, based on consuming fish and shellfish and drinking contaminated surface waters. The water quality standards also include radionuclide criteria to protect humans from the effects of radioactive substances.

Narrative criteria

Narrative water quality criteria (e.g., WAC 173-201A-240(1); 2006) limit the toxic, radioactive, or other deleterious material concentrations that the facility may discharge to levels below those which have the potential to:

- Adversely affect designated water uses.
- Cause acute or chronic toxicity to biota.
- Impair aesthetic values.
- Adversely affect human health.

Narrative criteria protect the specific designated uses of all fresh waters (WAC 173-201A-200, 2006) and of all marine waters (WAC 173-201A-210, 2006) in the state of Washington.

Antidegradation

Description--The purpose of Washington's Antidegradation Policy (WAC 173-201A-300-330; 2006) is to:

- Restore and maintain the highest possible quality of the surface waters of Washington.
- Describe situations under which water quality may be lowered from its current condition.
- Apply to human activities that are likely to have an impact on the water quality of surface water.
- Ensure that all human activities likely to contribute to a lowering of water quality, at a minimum, apply all known, available, and reasonable methods of prevention, control, and treatment (AKART).
- Apply three tiers of protection (described below) for surface waters of the state.

Tier I ensures existing and designated uses are maintained and protected and applies to all waters and all sources of pollutions. Tier II ensures that waters of a higher quality than the criteria assigned are not degraded unless such lowering of water quality is necessary and in the overriding public interest. Tier II applies only to a specific list of polluting activities. Tier III prevents the degradation of waters formally listed as "outstanding resource waters," and applies to all sources of pollution.

A facility must prepare a Tier II analysis when all three of the following conditions are met:

- The facility is planning a new or expanded action.
- Ecology regulates or authorizes the action.
- The action has the potential to cause measurable degradation to existing water quality at the edge of a chronic mixing zone.

The facilities covered by the proposed permit must meet Tier I requirements.

- Dischargers must maintain and protect existing and designated uses. Ecology must not allow any degradation that will interfere with, or become injurious to, existing or designated uses, except as provided for in chapter 173-201A WAC.

C. Designated uses and surface water quality criteria

Applicable designated uses and surface water quality criteria are defined in chapter 173-201A WAC. In addition, the U.S. EPA set human health criteria for toxic pollutants (EPA 1992). The tables included below summarize the criteria applicable to the receiving water's designated uses.

Freshwater

Freshwater water quality criteria are based on the following:

- Aquatic Life Uses are designated based on the presence of, or the intent to provide protection for the key uses. All indigenous fish and non-fish aquatic species must be protected in waters of the state in addition to the key species.
- The recreational use designations are extraordinary primary contact recreation, primary contact recreation, and secondary contact recreation. The criteria for recreational uses are based on protection against waterborne disease that may result from varying levels of contact with the water.
- The *water supply uses* are domestic, agricultural, industrial, and stock watering.
- The *miscellaneous freshwater uses* are wildlife habitat, harvesting, commerce and navigation, boating, and aesthetics.

Seattle's CSO outfalls discharge into receiving waters with the following aquatic life and recreational designated uses. All receiving waters include the water supply and miscellaneous freshwater designated uses.

Table 6. Freshwater Designated Uses and Associated Criteria for Lake Washington, Lake Union and Connected Waterways*

Aquatic Life: Core Summer Salmonid Habitat	
Temperature Criteria – Highest 7-DAD MAX	16°C (60.8°F)
Dissolved Oxygen Criteria	9.5 mg/L
Turbidity Criteria	<ul style="list-style-type: none"> • 5 NTU over background when the background is 50 NTU or less; or • A 10 percent increase in turbidity when the background turbidity is more than 50 NTU.
Total Dissolved Gas Criteria	Total dissolved gas must not exceed 110 percent of saturation at any point of sample collection.
pH Criteria	The pH must measure within the range of 6.5 to 8.5, with a human-caused variation within the above range of less than 0.2 units.
Recreational Use: Extraordinary Primary Contact Recreation	
Fecal coliform organism levels must not exceed a geometric mean value of 50 colonies/100 mL, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 100 colonies/100 mL.	
*Designated uses apply to Lake Washington, Union Bay, Portage Bay, Lake Union, Lake Washington Ship Canal, and Salmon Bay up to the Chittenden Locks.	

Table 7. Freshwater Designated Uses and Associated Criteria for Longfellow Creek

Salmonid Spawning, Rearing, and Migration	
Temperature Criteria – Highest 7-DAD MAX	17.5°C (63.5°F)
Dissolved Oxygen Criteria – Lowest 1-Day Minimum	8.0 mg/L
Turbidity Criteria	<ul style="list-style-type: none"> • 5 NTU over background when the background is 50 NTU or less; or • A 10 percent increase in turbidity when the background turbidity is more than 50 NTU.
Total Dissolved Gas Criteria	Total dissolved gas must not exceed 110 percent of saturation at any point of sample collection.
pH Criteria	The pH must measure within the range of 6.5 to 8.5 with a human-caused variation within the above range of less than 0.5 units.
Recreational Use: Primary Contact Recreation	
Fecal coliform organism levels must not exceed a geometric mean value of 100 colonies /100 mL, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 200 colonies /100 mL.	

Marine water

Marine water quality criteria are based on the following:

- Aquatic life uses are designated using the following general categories. All indigenous fish and non-fish aquatic species must be protected in waters of the state.
 - Extraordinary quality salmonid and other fish migration, rearing, and spawning; clam, oyster, and mussel rearing and spawning; crustaceans and other shellfish (crabs, shrimp, crayfish, scallops, etc.) rearing and spawning.
 - Excellent quality salmonid and other fish migration, rearing, and spawning; clam, oyster, and mussel rearing and spawning; crustaceans and other shellfish (crabs, shrimp, crayfish, scallops, etc.) rearing and spawning.
 - Good quality salmonid migration and rearing; other fish migration, rearing, and spawning; clam, oyster, and mussel rearing and spawning; crustaceans and other shellfish (crabs, shrimp, crayfish, scallops, etc.) rearing and spawning.
 - Fair quality salmonid and other fish migration.
- The *recreational uses* are primary contact recreation and secondary contact recreation.
- To protect shellfish harvesting, fecal coliform organism levels must not exceed a geometric mean value of 14 colonies/100 mL, and not have more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 43 colonies/100 mL.
- The *miscellaneous marine water uses* are wildlife habitat, harvesting, commerce and navigation, boating, and aesthetics.

Seattle's CSO outfalls discharge into marine receiving waters with the following aquatic life and recreational designated uses. The shellfish harvesting and miscellaneous marine water designated uses apply to all marine discharges.

Table 8. Marine Designated Uses and Associated Criteria for Central Puget Sound

Extraordinary Quality	
Temperature Criteria – Highest 1D MAX	13°C (55.4°F)
Dissolved Oxygen Criteria – Lowest 1-Day Minimum	7.0 mg/L
Turbidity Criteria	<ul style="list-style-type: none"> • 5 NTU over background when the background is 50 NTU or less; or • A 10 percent increase in turbidity when the background turbidity is more than 50 NTU.
pH Criteria	pH must be within the range of 7.0 to 8.5 with a human-caused variation within the above range of less than 0.2 units.
Recreational Use: Primary Contact Recreation	
Fecal coliform organism levels must not exceed a geometric mean value of 14 colonies/100 mL, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 43 colonies /100 mL.	
Outfalls discharging to Central Puget Sound include CSO outfalls #56, 57, 59-62, 64, 83, 85, 88, 90, 91, 94, and 95	

Table 9. Marine Designated Uses and Associated Criteria for Elliot Bay

Excellent Quality	
Temperature Criteria – Highest 1D MAX	16°C (60.8°F)
Dissolved Oxygen Criteria – Lowest 1-Day Minimum	6.0 mg/L
Turbidity Criteria	<ul style="list-style-type: none"> •5 NTU over background when the background is 50 NTU or less; or •A 10 percent increase in turbidity when the background turbidity is more than 50 NTU.
pH Criteria	pH must be within the range of 7.0 to 8.5 with a human-caused variation within the above range of less than 0.5 units.
Recreational Use: Primary Contact Recreation	
Fecal coliform organism levels must not exceed a geometric mean value of 14 colonies/100 mL, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 43 colonies /100 mL.	
Outfalls discharging to Elliot Bay include CSO outfalls #68 70, 72, 78, and 80.	

Duwamish River

The state water quality standards (WAC 173-201A-602) designate the Duwamish River in the vicinity of outfalls 99, 107, and 111 for freshwater aquatic life uses of salmonid rearing, and migration and recreational use of secondary contact recreation. Although the standards assume a freshwater environment for the designated use, the standards also acknowledge that freshwater numeric criteria may not be appropriate in brackish estuaries. The standards include the following allowances in WAC 173-201A-260(3)(e):

In brackish waters of estuaries, where different criteria for the same use occurs for fresh and marine waters, the decision to use the fresh water or the marine water criteria must be selected and applied on the basis of vertically averaged daily maximum salinity, referred to below as "salinity." The fresh water criteria must be applied at any point where ninety-five

percent of the salinity values are less than or equal to one part per thousand, except that the fresh water criteria for bacteria applies when the salinity is less than ten parts per thousand; and The marine water criteria must apply at all other locations where the salinity values are greater than one part per thousand, except that the marine criteria for bacteria applies when the salinity is ten parts per thousand or greater.

Salinity levels in the Lower Duwamish Waterway typically exceed ten parts per thousand. Therefore, Ecology applies the marine numeric criteria associated with the freshwater designated uses established in Table 602 of the Water Quality Standards. The following table identifies the numeric criteria that apply to the Duwamish River in the vicinity of outfalls 99, 107, and 111.

Table 10. Designated Uses and Associated Criteria for the Duwamish River

Salmonid Rearing and Migration Only (Good Quality Marine Criteria)	
Temperature Criteria – Highest 1D MAX	19°C (66.2°F)
Dissolved Oxygen Criteria – Lowest 1-Day Minimum	5.0 mg/L
Turbidity Criteria	<ul style="list-style-type: none"> •10 NTU over background when the background is 50 NTU or less; or •A 20 percent increase in turbidity when the background turbidity is more than 50 NTU.
pH Criteria	pH must be within the range of 7.0 to 8.5 with a human-caused variation within the above range of less than 0.5 units.
Recreational Use: Secondary Contact Recreation	
Enterococci organism levels must not exceed a geometric mean value of 70 colonies/100 mL, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 208 colonies/100 mL.	

D. Evaluation of surface water quality-based effluent limits for narrative criteria

Ecology must consider the narrative criteria described in WAC 173-201A-260(2) when it determines permit limits and conditions. Narrative water quality criteria limit the toxic, radioactive, or other deleterious material concentrations that the facility may discharge which have the potential to adversely affect designated uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health. Ecology considers narrative criteria when it evaluates the characteristics of the wastewater and when it implements all known, available, and reasonable methods of treatment and prevention (AKART) as described above in the technology-based limits section. When Ecology determines if a facility is meeting AKART it considers the pollutants in the wastewater and the adequacy of the treatment to prevent the violation of narrative criteria.

In addition, Ecology requires Post Construction Compliance Monitoring, as described later in this fact sheet, for controlled CSO outfalls to verify that the implemented control measure adequately protects water quality. Post construction compliance monitoring may include modeling, ambient water quality and sediment monitoring and other efforts necessary to demonstrate that the controlled CSO discharge will not adversely impact sensitive species or interfere with characteristic uses of the receiving water.

E. Evaluation of surface water quality-based effluent limits for numeric criteria

Pollutants in an effluent may affect the aquatic environment near the point of discharge (near-field) or at a considerable distance from the point of discharge (far-field). Toxic pollutants, for example, are near-field pollutants; their adverse effects diminish rapidly with mixing in the receiving water. Conversely, a pollutant such as biochemical oxygen demand (BOD₅) is a far-field pollutant whose adverse effect occurs away from the discharge even after dilution has occurred. Thus, the method of calculating surface water quality-based effluent limits varies with the point at which the pollutant has its maximum effect.

With technology-based controls (AKART), predicted pollutant concentrations in the discharge exceed water quality criteria. Ecology therefore authorizes a mixing zone in accordance with the geometric configuration, flow restriction, and other restrictions imposed on mixing zones by chapter 173-201A WAC.

The 2013 federal consent decree signed by Seattle, Ecology and the EPA includes a compliance schedule that requires completion of control projects that bring all CSO outfalls into compliance with the state's performance standard of no more than one untreated discharge per year, on average. The proposed permit includes interim milestones that support the requirements of the consent decree's compliance schedule. Ecology will not establish authorized mixing zones or evaluate the effect of pollutants in the discharge(s) on the aquatic environment until a discharge(s) meets the state standard.

After the frequency of discharges at an outfall meet the state standard, Ecology uses the results of post-construction compliance monitoring to determine whether discharges from each CSO outfall complies with water quality standards, does not adversely impact sensitive species, or limit characteristic uses of the receiving water,. Ecology may include water quality-based limits in future permits if technology-based limits, such as nine minimum controls, and reductions in CSO discharge volume, fail to reduce pollutant discharges to levels sufficient to protect water quality or if required by an approved waste load allocation developed to restore an impaired water body.

F. Human health

Washington's water quality standards include 91 numeric human health-based criteria that Ecology must consider when writing NPDES permits. These criteria were established in 1992 by the U.S. EPA in its National Toxics Rule (40 CFR 131.36). The National Toxics Rule allows states to use mixing zones to evaluate whether discharges comply with human health criteria.

The 2013 federal consent decree prescribes specific technology-based upgrades necessary to bring Seattle's CSO discharges into compliance with the state's performance standard for "controlled" CSOs. Ecology determined that SPU must first comply with the performance standard for CSO outfalls before assessing whether a discharge may require additional limits to protect human health. Ecology will reevaluate this discharge for impacts to human health at the next permit reissuance.

G. Sediment quality

The aquatic sediment standards (chapter 173-204 WAC) protect aquatic biota and human health. Under these standards Ecology may require a facility to evaluate the potential for its discharge to cause a violation of sediment standards (WAC 173-204-400). You can obtain additional information about sediments at the Aquatic Lands Cleanup Unit website.

<http://www.ecy.wa.gov/programs/tcp/smu/sediment.html>

Special Condition S6.C of the permit requires SPU to sample and analyze sediments at controlled outfalls #13, #18, #68 and #95 to demonstrate either:

- The point of discharge is not an area of deposition, or
- Toxics do not accumulate in the sediments even though the point of discharge is a depositional area.

Ecology will use the results of this sediment sampling to determine whether future permits require additional safeguards to protect sediment quality near certain outfalls.

H. Groundwater quality limits

The groundwater quality standards (chapter 173-200 WAC) protect beneficial uses of groundwater. Permits issued by Ecology must not allow violations of those standards (WAC 173-200-100).

SPU does not discharge wastewater to the ground and, therefore, the proposed permit does not require limits to protect groundwater.

I. Comparison of effluent limits with the permit modified on September 13, 2012

Existing Limits	Proposed Limits
Compliance with the Nine Minimum Controls	Compliance with the Nine Minimum Controls

IV. Monitoring Requirements

Ecology requires monitoring, recording, and reporting (WAC 173-220-210 and 40 CFR 122.41) to verify that CSO control requirements are being achieved.

If a facility uses a contract laboratory to monitor wastewater, it must ensure that the laboratory uses the methods and meets or exceeds the method detection levels required by the permit. The permit describes when facilities may use alternative methods. It also describes what to do in certain situations when the laboratory encounters matrix effects. When a facility uses an alternative method as allowed by the permit, it must report the test method, detection level (DL), and quantitation level (QL) on the discharge monitoring report or in the required report.

A. CSO & sediment monitoring

Special Condition S.2 of the proposed permit includes a detailed monitoring schedule. Specified monitoring frequencies take into account the quantity and variability of the discharge, past compliance, significance of pollutants, and cost of monitoring. The required monitoring frequency is consistent with agency guidance given in the current version of Ecology's *Permit Writer's Manual* (January 2015) for permits that authorize CSO discharges.

The permit includes sediment monitoring at controlled CSO outfall #13, #18, #68 and #95 to characterize sediment quality in the vicinity of these discharge locations and ensure compliance with the SMS. Monitoring must comply with a sampling and analysis plan approved by Ecology. Therefore, the proposed permit requires development of a sediment sampling and analysis plan for outfalls 68 and 95 prior to conducting monitoring on those outfalls. SPU developed a sampling and analysis plan for outfall 13 during the previous permit term and must use that plan, once approved by Ecology, for sampling required by the proposed permit.

The proposed permit requires SPU to monitor sediments near certain outfalls to further characterize any CSO discharge impacts on sediments. Sediment monitoring must conform to a study-specific sediment analysis plan approved by Ecology.

B. Lab accreditation

Ecology requires that facilities must use a laboratory registered or accredited under the provisions of chapter 173-50 WAC, Accreditation of Environmental Laboratories, to prepare all monitoring data (with the exception of certain parameters).

V. Other Permit Conditions

A. Reporting and record keeping

Ecology based Special Condition S4 on its authority to specify any appropriate reporting and record keeping requirements to prevent and control waste discharges (WAC 173-220-210).

Reporting requirements described in Special Condition S4 include:

- Reporting of monthly discharges.
- Annual CSO Reports.
- Reporting permit violations.
- Use of the Water Quality Permitting Portal to submit written reports and scheduled submittals.

Annual CSO report

The City must continue to submit annual reports according to the requirements of WAC 173-245-090(1). This report: (a) details the past year's frequency and volume of combined sewage discharge from each CSO site, (b) explains the previous year's CSO reduction accomplishments, and (c) lists the projects planned for the next year. The report must document implementation of the nine minimum controls.

SPU must also assess in its annual reports and CSO reduction plan amendment whether identified outfalls meet the state standard of one untreated discharge per year per CSO. Assessment may be based on a long-term average which is currently defined as 20 year moving average.

B. Operation and maintenance

The proposed permit contains Special Condition S.5 as authorized under RCW 90.48.110, WAC 173-220-150, and WAC 173-240-080. Ecology included it to ensure proper operation and regular maintenance of equipment, and to ensure that SPU takes adequate safeguards so that it uses constructed facilities to their optimum potential in terms of pollutant capture for subsequent treatment.

C. Requirements for controlled CSO outfalls

The proposed permit includes a performance standard that applies to all CSO outfalls which have been identified by the Permittee as meeting the "greatest reasonable reduction." Per WAC 173-245-020(22), "the greatest reasonable reduction" means control of each CSO in such a way that an average of one untreated discharge may occur per year." The regulation is not explicit with regard to the averaging period, meaning the number of years that may be included in the average.

Both the previous and proposed permits impose the same performance standard of an average of one untreated discharge per year per outfall. The proposed permit allows for up to a 20-year moving average to be calculated annually based on the current year and the previous 19 years of discharge data. The 20-year period is allowed because it more closely matches the historical length of record used in the modeling and rainfall data that are being used to design the CSO reduction projects.

In the proposed permit, compliance with the performance standard will be determined annually as reported in the Annual CSO Report. Ecology may take enforcement action each year for any controlled outfalls that fail to meet the performance standard. Compliance with the performance standard will be based on the number of discharges occurring in the current year and up to 19 years of historical discharge data. Where actual historic discharge data is not available, the discharge history may be estimated based on modeling and/or other reasonable methods as approved by Ecology.

The Permittee may deem a CSO outfall to be in control (i.e. compliance with the performance standard) based on an average of less than 20 years. In this case, the Permittee may continue to average the actual number of discharge events per year until up to 20 years are included in the averaging period. At no time will greater than a 20-year moving average be allowed.

D. Post-construction monitoring program

Under EPA's CSO Control Policy's presumption approach, CSO controls are presumed to attain WQS if certain performance criteria are met. Ecology presumes that a program that meets the criteria specified in WAC 173-245 and EPA's CSO control policy provides an adequate level of control to meet the water quality-based requirements of the Clean Water Act. This presumption must be verified via a post-construction monitoring program by characterization, monitoring, and modeling of the system, including consideration of sensitive areas.

The federal CSO control policy (59 FR 18688) requires post-construction monitoring to verify implemented CSO control strategies comply with water quality standards. Post-construction monitoring applies to any CSO outfall that is controlled to meet the

“greatest reasonable reduction” of combined sewer overflows, as defined in chapter 173-245 WAC. Implementation requires development of a monitoring plan and completion of a data report that documents compliance.

SPU developed and received conditional approval of its post-construction monitoring plan in August 2015. This plan proposed flow monitoring at all outfalls to demonstrate that each controlled outfall complies with the performance standard of no more than one untreated discharge per year, on average. The plan also proposed conducting ambient water and sediment quality monitoring near certain surrogate outfalls. SPU chose each surrogate outfall to represent the worst-case impacts of discharges from all CSO outfalls in the vicinity of the surrogate outfall. Table 10 below shows the selected surrogate outfalls and their represented outfalls.

Table 11. Surrogate Outfalls

Surrogate Outfall Number	CSO Basin	Receiving Water	Receiving Water type
13	Windermere	Lake Washington	Freshwater lake
18	North Union Bay	Lake Washington	Freshwater lake
31	Leschi	Lake Washington	Freshwater lake
44	Henderson	Lake Washington	Freshwater lake
62	Magnolia	Elliott Bay	Marine
68	Magnolia/Interbay	Elliott Bay	Marine
71	University Street	Elliott Bay	Marine
95	West Seattle	Puget Sound	Marine
99	Delridge	West Waterway of Duwamish River	River
107	East Waterway	East Waterway of Duwamish River	River
147	Fremont	Lake Union	Freshwater lake
152	Ballard	Salmon Bay	Freshwater lake
169	Delridge	Longfellow Creek	freshwater stream
174	Fremont	Ship Canal	Freshwater lake

Ecology’s conditional approval requires the development of quality assurance Project plans (QAPPs) and Sediment Sampling and Analysis Plans (SAPs) for the surrogate CSO outfalls. The proposed permit includes this requirement for outfalls 18, 68, and 95. The permit also requires SPU to implement the monitoring plans and to report monitoring data by various dates specified in the permit. In addition to the three outfalls listed above, SPU must also complete monitoring for outfall 13 using the QAPP/SAP submitted in August 2015, once approved by Ecology.

E. CSO control plan amendment and engineering documents

CSO reduction plan/long-term control plan and CSO reduction plan amendments

Ecology requires municipalities to initially develop combined sewer overflow (CSO) reduction plans per chapter 173-245 WAC requirements. These plans are substantially equivalent to the long-term control plan (LTCP) as defined by EPA in its CSO control policy. Chapter 173-245 WAC requires that “All CSO sites shall achieve and at least maintain the greatest reasonable reduction, and neither cause violations of applicable water quality standards, nor restrictions to the characteristic uses of the receiving water, nor accumulation of deposits which: (a) Exceed sediment criteria or standards; or (b) have an adverse biological effect.” “The greatest reasonable reduction” means control of each CSO outfall such that an average of no more than one untreated discharge may occur per year.

The proposed permit requires SPU to submit an amendment of its LTCP/CSO reduction plan in conjunction with its application for permit renewal. The amendment must include an assessment of the effectiveness of the CSO reduction plan and a list of projects to be completed in the next five years. In addition, SPU must identify newly corrected or controlled CSOs that meet the state's one untreated discharge per year per CSO standard in the CSO Reduction Plan Amendment.

CSO project engineering documents

Special Condition S7.B requires SPU to submit engineering documents to Ecology for review and approval for control projects identified in their 2015 Long Term Control Plan. Engineering documents include engineering reports, plans and specifications, and construction quality assurance plans. Engineering documents for CSO projects must conform to the requirements of WAC 173-240 and WAC 173-245. The compliance schedule in Special Condition S8 lists the submittal dates for engineering documents associated with control projects that SPU's 2015 Long Term Control Plan commits to completing or partially completing during the term of the proposed permit, as discussed below.

F. Compliance schedule

The proposed permit includes a compliance schedule to ensure interim milestones for CSO correction are completed on time and CSO reduction progress is maintained. The compliance schedule is necessary because the federal consent decree was lodged in federal court prior to the completion of the City's LTCP and therefore, the consent decree does not specifically list milestone dates for the projects that are proposed in the approved LTCP. The approved LTCP also does not include interim milestone dates for CSO projects, such as dates for draft engineering documents. Ecology recognizes that the consent decree provides a process for SPU to request a change in the due dates associated with projects identified in the LTCP and that all changes must be agreed to jointly by EPA, Ecology and SPU. The Consent decree also includes a dispute resolution process to settle differences that may arise. If any due dates in the compliance schedule change based on allowances under the terms of the consent decree, Ecology will modify the proposed permit to reflect those changes.

The Compliance schedule also requires SPU to submit reports to Ecology that describe Sewer System Improvements Projects planned for certain sewer basins. In addition, the schedule identifies completion dates for outfall rehabilitation projects identified in the 2015 Outfall Rehabilitation Plan.

G. Outfall rehabilitation plan and outfall inventory

The proposed permit requires SPU to conduct a physical assessment of five outfalls that have not previously been inspected to determine the need for rehabilitation. Special condition S9 requires submission of a report describing the findings and identifying necessary repairs for each outfall. The condition also requires SPU to evaluate the design documents for each outfall in their collection system and to identify outfalls in close proximity to each other that share hydraulic connections to common control structures. The goal of the inventory is to verify the correct number of active CSO discharge points from the system.

H. General conditions

Ecology bases the standardized general conditions on state and federal law and regulations. They are included in all individual municipal NPDES permits issued by Ecology. Accordingly, Ecology has not modified the general conditions to account for the fact that SPU does not own or operate a wastewater treatment plant (POTW). In G12, all requirements, provisions and defenses of 40 CFR 122.41 are incorporated into this permit, but 40 CFR 122.42 does not apply to SPU's system.

VI. Permit Issuance Procedures

A. Permit modifications

Ecology may modify this permit to impose numerical limits, if necessary, to comply with water quality standards for surface waters, with sediment quality standards, or with water quality standards for groundwaters, based on new information from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

Ecology may also modify this permit to comply with new or amended state or federal regulations.

B. Proposed permit issuance

This proposed permit meets all statutory requirements for Ecology to authorize a wastewater discharge. The permit includes limits and conditions to protect human health and aquatic life, and the beneficial uses of waters of the state of Washington. Ecology proposes to issue this permit for a term of 5 years.

VII. References for Text and Appendices

Environmental Protection Agency (EPA)

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- 1991. *Technical Support Document for Water Quality-based Toxics Control*. EPA/505/2-90-001.
- 1988. *Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling*. USEPA Office of Water, Washington, D.C.
- 1985. *Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water*. EPA/600/6-85/002a.
- 1983. *Water Quality Standards Handbook*. USEPA Office of Water, Washington, D.C.

Seattle, City of

- 2015. Plan to Protect Seattle's Waterways – Long Term Control Plan
- 2015. Plan to Protect Seattle's Waterways – Integrated plan
- 2015. Final Post Construction Monitoring Program
- Annual CSO Reports, 2010-2014

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- 1972. *Characterization of Stream Reaeration Capacity*. EPA-R3-72-012. (Cited in EPA 1985 op.cit.)

Washington State Department of Ecology.

December 2011. *Permit Writer's Manual*. Publication Number 92-109
(<https://fortress.wa.gov/ecy/publications/SummaryPages/92109.html>)

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Permit and Wastewater Related Information

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Appendix A--Public Involvement Information

Ecology proposes to reissue a permit to the City of Seattle. The permit includes wastewater discharge limits and other conditions. This fact sheet describes the facility and Ecology's reasons for requiring permit conditions.

Ecology placed a Public Notice of Draft on February 18, 2016 in the Seattle Times to inform the public and to invite comment on the proposed draft National Pollutant Discharge Elimination System permit and fact sheet.

The notice:

- Tells where copies of the draft permit and fact sheet are available for public evaluation (a local public library, the closest regional or field office, posted on our website).
- Offers to provide the documents in an alternate format to accommodate special needs.
- Asks people to tell us how well the proposed permit would protect the receiving water.
- Invites people to suggest fairer conditions, limits, and requirements for the permit.
- Invites comments on Ecology's determination of compliance with antidegradation rules.
- Urges people to submit their comments, in writing, before the end of the comment period.
- Tells how to request a public hearing about the proposed NPDES permit.
- Explains the next step(s) in the permitting process.

Ecology has published a document entitled *Frequently Asked Questions about Effective Public Commenting*, which is available on our website at

<https://fortress.wa.gov/ecy/publications/SummaryPages/0307023.html>.

You may obtain further information from Ecology by telephone, 425-649-7201, or by writing to the address listed below.

Water Quality Permit Coordinator
Department of Ecology
Northwest Regional Office
3190 160th Avenue SE
Bellevue, WA 98008-5452

The primary authors of this permit and fact sheet are Bo Li and Shawn McKone.

Appendix B--Your Right to Appeal

You have a right to appeal this permit to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of the final permit. The appeal process is governed by chapter 43.21B RCW and chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2) (see glossary).

To appeal you must do the following within 30 days of the date of receipt of this permit:

- File your appeal and a copy of this permit with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this permit on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.

You must also comply with other applicable requirements in chapter 43.21B RCW and chapter 371-08 WAC.

ADDRESS AND LOCATION INFORMATION

Street Addresses	Mailing Addresses
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey, WA 98503	Department of Ecology Attn: Appeals Processing Desk PO Box 47608 Olympia, WA 98504-7608
Pollution Control Hearings Board 1111 Israel RD SW STE 301 Tumwater, WA 98501	Pollution Control Hearings Board PO Box 40903 Olympia, WA 98504-0903

Appendix C--Glossary

1-DMax or 1-day maximum temperature -- The highest water temperature reached on any given day. This measure can be obtained using calibrated maximum/minimum thermometers or continuous monitoring probes having sampling intervals of thirty minutes or less.

7-DADMax or 7-day average of the daily maximum temperatures -- The arithmetic average of seven consecutive measures of daily maximum temperatures. The 7-DADMax for any individual day is calculated by averaging that day's daily maximum temperature with the daily maximum temperatures of the three days prior and the three days after that date.

Acute toxicity -- The lethal effect of a compound on an organism that occurs in a short time period, usually 48 to 96 hours.

AKART -- The acronym for "all known, available, and reasonable methods of prevention, control and treatment." AKART is a technology-based approach to limiting pollutants from wastewater discharges, which requires an engineering judgment and an economic judgment. AKART must be applied to all wastes and contaminants prior to entry into waters of the state in accordance with RCW 90.48.010 and 520, WAC 173-200-030(2)(c)(ii), and WAC 173-216-110(1)(a).

Alternate point of compliance -- An alternative location in the groundwater from the point of compliance where compliance with the groundwater standards is measured. It may be established in the groundwater at locations some distance from the discharge source, up to, but not exceeding the property boundary and is determined on a site specific basis following an AKART analysis. An "early warning value" must be used when an alternate point is established. An alternate point of compliance must be determined and approved in accordance with WAC 173-200-060(2).

Ambient water quality -- The existing environmental condition of the water in a receiving water body.

Ammonia -- Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Annual average design flow (AADF) -- The average of the daily flow volumes anticipated to occur over a calendar year.

Average monthly (intermittent) discharge limit-- The average of the measured values obtained over a calendar month's time taking into account zero discharge days.

Average monthly discharge limit -- The average of the measured values obtained over a calendar month's time.

Background water quality -- The concentrations of chemical, physical, biological or radiological constituents or other characteristics in or of groundwater at a particular point in time upgradient of an activity that has not been affected by that activity [WAC 173-200-020(3)]. Background water quality for any parameter is statistically defined as the 95% upper tolerance interval with a 95% confidence based on at least eight hydraulically upgradient water quality samples. The eight samples are collected over a period of at least one year, with no more than one sample collected during any month in a single calendar year.

Best management practices (BMPs) -- Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the state. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD5 -- Determining the five-day Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD5 is used in modeling to measure the reduction of dissolved oxygen in receiving waters after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD₅ is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass -- The intentional diversion of waste streams from any portion of a treatment facility.

Categorical pretreatment standards -- National pretreatment standards specifying quantities or concentrations of pollutants or pollutant properties, which may be discharged to a POTW by existing or new industrial users in specific industrial subcategories.

Chlorine -- A chemical used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Chronic toxicity -- The effect of a compound on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Clean water act (CWA) -- The federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Compliance inspection-without sampling -- A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance inspection-with sampling -- A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations. In addition it includes as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the 85 percent removal requirement. Ecology may conduct additional sampling.

Composite sample -- A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite" (collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots).

Construction activity -- Clearing, grading, excavation, and any other activity, which disturbs the surface of the land. Such activities may include road building; construction of residential houses, office buildings, or industrial buildings; and demolition activity.

Continuous monitoring -- Uninterrupted, unless otherwise noted in the permit.

Critical condition -- The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

Date of receipt -- This is defined in RCW 43.21B.001(2) as five business days after the date of mailing; or the date of actual receipt, when the actual receipt date can be proven by a preponderance of the evidence. The recipient's sworn affidavit or declaration indicating the date of receipt, which is unchallenged by the agency, constitutes sufficient evidence of actual receipt. The date of actual receipt, however, may not exceed forty-five days from the date of mailing.

Detection limit -- The minimum concentration of a substance that can be measured and reported with 99 percent confidence that the pollutant concentration is above zero and is determined from analysis of a sample in a given matrix containing the pollutant.

Dilution factor (DF) -- A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the percent effluent fraction, for example, a dilution factor of 10 means the effluent comprises 10% by volume and the receiving water 90%.

Distribution uniformity -- The uniformity of infiltration (or application in the case of sprinkle or trickle irrigation) throughout the field expressed as a percent relating to the average depth infiltrated in the lowest one-quarter of the area to the average depth of water infiltrated.

Early warning value -- The concentration of a pollutant set in accordance with WAC 173-200-070 that is a percentage of an enforcement limit. It may be established in the effluent, groundwater, surface water, the vadose zone or within the treatment process. This value acts as a trigger to detect and respond to increasing contaminant concentrations prior to the degradation of a beneficial use.

Enforcement limit -- The concentration assigned to a contaminant in the groundwater at the point of compliance for the purpose of regulation, [WAC 173-200-020(11)]. This limit assures that a groundwater criterion will not be exceeded and that background water quality will be protected.

Engineering report -- A document that thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report must contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal coliform bacteria -- Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab sample -- A single sample or measurement taken at a specific time or over as short a period of time as is feasible.

Groundwater -- Water in a saturated zone or stratum beneath the surface of land or below a surface water body.

Industrial user -- A discharger of wastewater to the sanitary sewer that is not sanitary wastewater or is not equivalent to sanitary wastewater in character.

Industrial wastewater -- Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business; from the development of any natural resource; or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated stormwater and, also, leachate from solid waste facilities.

Interference -- A discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

- Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and
- Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including Title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to subtitle D of the SWDA), sludge regulations appearing in 40 CFR Part 507, the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

Local limits -- Specific prohibitions or limits on pollutants or pollutant parameters developed by a POTW.

Major facility -- A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Maximum daily discharge limit -- The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Maximum day design flow (MDDF) -- The largest volume of flow anticipated to occur during a one-day period, expressed as a daily average.

Maximum month design flow (MMDF) -- The largest volume of flow anticipated to occur during a continuous 30-day period, expressed as a daily average.

Maximum week design flow (MWDF) -- The largest volume of flow anticipated to occur during a continuous 7-day period, expressed as a daily average.

Method detection level (MDL) -- See Detection Limit.

Minor facility -- A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Mixing zone -- An area that surrounds an effluent discharge within which water quality criteria may be exceeded. The permit specifies the area of the authorized mixing zone that Ecology defines in accordance with state regulations (chapter 173-201A WAC).

National pollutant discharge elimination system (NPDES) -- The NPDES (Section 402 of the Clean Water Act) is the federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the state of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both state and federal laws.

pH -- The pH of a liquid measures its acidity or alkalinity. It is the negative logarithm of the hydrogen ion concentration. A pH of 7 is defined as neutral and large variations above or below this value are considered harmful to most aquatic life.

Pass-through -- A discharge which exits the POTW into waters of the State in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation), or which is a cause of a violation of State water quality standards.

Peak hour design flow (PHDF) -- The largest volume of flow anticipated to occur during a one-hour period, expressed as a daily or hourly average.

Peak instantaneous design flow (PIDF) -- The maximum anticipated instantaneous flow.

Point of compliance -- The location in the groundwater where the enforcement limit must not be exceeded and a facility must comply with the Ground Water Quality Standards. Ecology determines this limit on a site-specific basis. Ecology locates the point of compliance in the groundwater as near and directly downgradient from the pollutant source as technically, hydrogeologically, and geographically feasible, unless it approves an alternative point of compliance.

Potential significant industrial user (PSIU) --A potential significant industrial user is defined as an Industrial User that does not meet the criteria for a Significant Industrial User, but which discharges wastewater meeting one or more of the following criteria:

- a. Exceeds 0.5 % of treatment plant design capacity criteria and discharges <25,000 gallons per day; or
- b. Is a member of a group of similar industrial users which, taken together, have the potential to cause pass through or interference at the POTW (e.g. facilities which develop photographic film or paper, and car washes).
Ecology may determine that a discharger initially classified as a potential significant industrial user should be managed as a significant industrial user.

Quantitation level (QL) -- Also known as Minimum Level of Quantitation (ML) -- The lowest level at which the entire analytical system must give a recognizable signal and acceptable calibration point for the analyte. It is equivalent to the concentration of the lowest calibration standard, assuming that the lab has used all method-specified sample weights, volumes, and cleanup procedures. The QL is calculated by multiplying the MDL by 3.18 and rounding the

result to the number nearest to $(1, 2, \text{ or } 5) \times 10^n$, where n is an integer (64 FR 30417).

ALSO GIVEN AS:

The smallest detectable concentration of analyte greater than the Detection Limit (DL) where the accuracy (precision & bias) achieves the objectives of the intended purpose. (Report of the Federal Advisory Committee on Detection and Quantitation Approaches and Uses in Clean Water Act Programs Submitted to the US Environmental Protection Agency, December 2007).

Reasonable potential -- A reasonable potential to cause a water quality violation, or loss of sensitive and/or important habitat.

Responsible corporate officer -- A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or have gross annual sales or expenditures exceeding \$25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures (40 CFR 122.22).

Sample Maximum -- No sample may exceed this value.

Significant industrial user (SIU) --

- 1) All industrial users subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N; and
- 2) Any other industrial user that: discharges an average of 25,000 gallons per day or more of process wastewater to the POTW (excluding sanitary, noncontact cooling, and boiler blow-down wastewater); contributes a process wastestream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the Control Authority* on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement [in accordance with 40 CFR 403.8(f)(6)].

Upon finding that the industrial user meeting the criteria in paragraph 2, above, has no reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement, the Control Authority* may at any time, on its own initiative or in response to a petition received from an industrial user or POTW, and in accordance with 40 CFR 403.8(f)(6), determine that such industrial user is not a significant industrial user.

*The term "Control Authority" refers to the Washington State Department of Ecology in the case of non-delegated POTWs or to the POTW in the case of delegated POTWs.

Slug discharge -- Any discharge of a non-routine, episodic nature, including but not limited to an accidental spill or a non-customary batch discharge to the POTW. This may include any pollutant released at a flow rate that may cause interference or pass through with the POTW or in any way violate the permit conditions or the POTW's regulations and local limits.

Soil scientist -- An individual who is registered as a Certified or Registered Professional Soil Scientist or as a Certified Professional Soil Specialist by the American Registry of Certified Professionals in Agronomy, Crops, and Soils or by the National Society of Consulting Scientists or who has the credentials for membership. Minimum requirements for eligibility are possession

of a baccalaureate, masters, or doctorate degree from a U.S. or Canadian institution with a minimum of 30 semester hours or 45 quarter hours professional core courses in agronomy, crops or soils, and have 5, 3, or 1 year(s), respectively, of professional experience working in the area of agronomy, crops, or soils.

Solid waste -- All putrescible and non-putrescible solid and semisolid wastes including, but not limited to, garbage, rubbish, ashes, industrial wastes, swill, sewage sludge, demolition and construction wastes, abandoned vehicles or parts thereof, contaminated soils and contaminated dredged material, and recyclable materials.

Soluble BOD₅ -- Determining the soluble fraction of Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of soluble organic material present in an effluent that is utilized by bacteria. Although the soluble BOD₅ test is not specifically described in Standard Methods, filtering the raw sample through at least a 1.2 um filter prior to running the standard BOD₅ test is sufficient to remove the particulate organic fraction.

State waters -- Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater -- That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a stormwater drainage system into a defined surface water body, or a constructed infiltration facility.

Technology-based effluent limit -- A permit limit based on the ability of a treatment method to reduce the pollutant.

Total coliform bacteria --A microbiological test, which detects and enumerates the total coliform group of bacteria in water samples.

Total dissolved solids -- That portion of total solids in water or wastewater that passes through a specific filter.

Total maximum daily load (TMDL) -- A determination of the amount of pollutant that a water body can receive and still meet water quality standards.

Total suspended solids (TSS) -- Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

Upset -- An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limits because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

Water quality-based effluent limit -- A limit imposed on the concentration of an effluent parameter to prevent the concentration of that parameter from exceeding its water quality criterion after discharge into receiving waters.

Appendix D--CSO Outfall Information

Outfall No.	Street Address	Zip Code	Latitude	Longitude	Distance from Shore, ft	Depth Below Surface, ft	Name of Receiving Water
12	NE 60th ST AND NE WINDERMERE RD	98115	47.67108	-122.25295	152	17	Lake Washington
13	WINDERMERE PARK AT NE AMBLESIDE RD AND NE PENRITH RD	98105	47.66382	-122.26522	500	24	Lake Washington
14	4218 55TH AVE NE	98105	47.65925	-122.26799	23	6	Lake Washington
15	NE LAURELCREST LN AND 51ST AVE NE	98105	47.65523	-122.27129	278	21	Lake Washington
16	3005 WEBSTER POINT RD NE	98105	47.64845	-122.27815	33	2	Lake Washington
18	3901 NE SURBER DR	98105	47.65672	-122.28764	0	4	Union Bay
19	4501 27TH AVE NE	98105	47.66103	-122.29782	0	1	Union Bay
20	E SHELBY ST AND EAST PARK DR E	98105	47.64696	-122.30074	13	4	Union Bay
22	2539 39TH AVE E	98112	47.64246	-122.28285	85	3	Union Bay
24	E LEE ST AND 42ND AVE E	98112	47.63093	-122.27623	240	8	Lake Washington
25	E LEE ST AND 42ND AVE E	98112	47.63087	-122.27533	415	29	Lake Washington
27	1502 LAKE WASHINGTON BLVD	98122	47.61492	-122.27996	286	29	Lake Washington
28	1500 LAKE WASHINGTON BLVD	98122	47.61385	-122.28017	225	29	Lake Washington
29	LAKE WASHINGTON BLVD AND FULLERTON AVE	98122	47.60683	-122.28210	264	29	Lake Washington
30	LAKE WASHINGTON BLVD AND E JEFFERSON ST	98122	47.60577	-122.28262	122	9	Lake Washington
31	299 LAKESIDE AVE S	98144	47.60013	-122.28498	195	33	Lake Washington
32	LAKESIDE AVE S AND S DEARBORN ST	98144	47.59572	-122.28621	167	29	Lake Washington
33	LAKESIDE AVE S AND S CHARLES ST	98144	47.59456	-122.28668	70	29	Lake Washington
34	LAKESIDE AVE S AND S CHARLES ST	98144	47.59451	-122.28666	72	29	Lake Washington
35	LAKESIDE AVE S AND S MASSACHUSETTS ST	98144	47.58756	-122.28456	220	29	Lake Washington
36	2310 LAKE WASHINGTON BLVD S	98144	47.58261	-122.28612	65	10	Lake Washington
38	STANLEY SAYRES PARK AT 3808 LAKE WASHINGTON BLVD S	98118	47.57139	-122.27555	396	29	Lake Washington
40	LAKE WASHINGTON BLVD S AND 49TH AVE S	98118	47.56840	-122.27192	50	2	Lake Washington
41	LAKE WASHINGTON BLVD S AND 50TH AVE S	98118	47.56824	-122.26983	120	8	Lake Washington
42	4608 LAKE WASHINGTON BLVD S	98118	47.56234	-122.26664	166	3	Lake Washington
43	LAKE WASHINGTON BLVD S AND S ALASKA ST	98118	47.56062	-122.26389	70	9	Lake Washington
44	SEWARD PARK AT LAKE WASHINGTON BLVD S AND S JUNEAU ST	98118	47.54735	-122.25531	565	19	Lake Washington

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Outfall No.	Street Address	Zip Code	Latitude	Longitude	Distance from Shore, ft	Depth Below Surface, ft	Name of Receiving Water
45	MARTHA WASHINGTON PARK AT 5711 S HOLLY ST	98118	47.54150	-122.25961	150	8	Lake Washington
46	PRITCHARD ISLAND BEACH PARK AT 8314 ISLAND DR S	98118	47.52946	-122.26177	90	9	Lake Washington
47	BEER SHEVA PARK AT SEWARD PARK AVE S AND S HENDERSON ST	98118	47.52329	-122.26287	34	7	Lake Washington
48	9722 RAINIER AVE S	98118	47.51601	-122.25318	38	16	Lake Washington
49	9861 RAINIER AVE S	98118	47.51341	-122.25029	0	1	Lake Washington
57	6701 SEAVIEW AVE NW	98117	47.67843	-122.40693	0	0	Puget Sound - Central
59	5637 SEAVIEW AVE NW	98107	47.67029	-122.40590	108	13	Salmon Bay
60	W CRAMER ST AND 39TH AVE W	98199	47.66782	-122.40740	217	10	Salmon Bay
61	2599 PERKINS LN W	98199	47.64315	-122.41871	351	6	Elliott Bay
62	2599 PERKINS LN W	98199	47.64200	-122.41774	310	5	Elliott Bay
64	1499 32ND AVE W	98199	47.63158	-122.39925	275	6	Elliott Bay
68	PIER 91 AT 1523 W GARFIELD ST	98119	47.63307	-122.37919	275	6	Elliott Bay
69	ALASKAN WAY AND VINE ST	98121	47.61321	-122.35232	12	7	Elliott Bay
70	ALASKAN WAY AND UNIVERSITY ST	98101	47.60581	-122.34053	12	17	Elliott Bay
71	ALASKAN WAY AND MADISON ST	98104	47.60370	-122.33858	0	2	Elliott Bay
72	199 ALASKAN WAY S	98104	47.60090	-122.33671	157	19	Elliott Bay
78	SEACREST PARK AT HARBOR AVE SW AND FAIRMOUNT AVE SW	98126	47.58752	-122.37723	215	12	Elliott Bay
80	DON ARMENI PARK AT 112 HARBOR AVE SW	98116	47.59327	-122.38206	145	7	Elliott Bay
83	ALKI BEACH PARK AT 1501 ALKI AVE SW	98116	47.59125	-122.39415	520	8	Puget Sound - Central
85	3219 POINT PL SW	98116	47.57676	-122.42008	0	0	Puget Sound - Central
88	5079 BEACH DR SW	98136	47.55567	-122.40025	862	33	Puget Sound - Central
90	LOWMAN BEACH PARK AT 7015 BEACH DR SW		47.53994	-122.39988	722	33	Puget Sound - Central
91	LINCOLN PARK AT 8635 FAUNTLEROY WAY SW		47.52569	-122.39549	233	5	Puget Sound - Central
94	FAUNTLEROY FERRY TERMINAL AT 4829 SW BARTON ST		47.52372	-122.39673	570	10	Puget Sound - Central
95	9279 FAUNTLEROY WAY SW		47.52050	-122.39578	240	6	Puget Sound - Central
99	TERMINAL 5 AT 3450 W MARGINAL WAY SW		47.57367	-122.36120	0	3	West Waterway - Duwamish River
107	3411 E MARGINAL WAY S		47.57367	-122.34269	26	8	East Waterway - Duwamish River
111	3 S OREGON ST		47.56314	-122.34531	0	4	Duwamish River
120	2770 WESTLAKE AVE N		47.64541	-122.34706	16	7	Lake Union
121	2046 WESTLAKE AVE N		47.63811	-122.34026	24	7	Lake Union
124	LAKE UNION PARK AT 800 WESTLAKE AVE N		47.62663	-122.33868	16	6	Lake Union
127	1099 FAIRVIEW AVE N		47.62965	-122.33123	18	7	Lake Union

Outfall No.	Street Address	Zip Code	Latitude	Longitude	Distance from Shore, ft	Depth Below Surface, ft	Name of Receiving Water
129	TERRY PETTUS PARK AT FAIRVIEW AVE E AND E NEWTON ST		47.63681	-122.32950	23	9	Lake Union
130	LYNN ST PARK AT FAIRVIEW AVE E AND E LYNN ST		47.63959	-122.33037	157	27	Lake Union
131	2373 FAIRVIEW AVE E		47.64209	-122.33001	104	17	Lake Union
132	ROANOKE ST PARK AT FAIRVIEW AVE E AND E ROANOKE ST		47.64331	-122.32883	30	4	Lake Union
134	FAIRVIEW AVE E AND E ALLISON ST		47.64924	-122.32501	2	1	Lake Union
135	3315 EASTLAKE AVE E		47.65208	-122.32092	5	2	Lake Union
136	3100 PORTAGE BAY PL E		47.64885	-122.31769	1	0	Lake Union
138	1209 E SHELBY ST		47.64693	-122.31604	148	10	Portage Bay
139	MONTLAKE PLAYFIELD AT 1618 E CALHOUN ST		47.64268	-122.31077	50	2	Portage Bay
140	W MONTLAKE PARK AT WEST PARK DR E AND E SHELBY ST		47.64693	-122.30952	22	4	Portage Bay
141	BRYANT SITE PARK AT 1215 NE BOAT ST		47.65086	-122.31563	324	19	Portage Bay
144	3790 LATONA AVE NE		47.65313	-122.32556	96	17	Lake Union
145	SUNNYSIDE AVE N BOAT RAMP AT 2301 N NORTHLAKE WAY		47.65009	-122.33048	189	17	Lake Union
146	1430 N NORTHLAKE WAY		47.64722	-122.33962	6	1	Lake Union
147	N NORTHLAKE WAY AND STONE WAY N		47.64801	-122.34285	10	2	Lake Union
148	4125 9TH AVE NW		47.65653	-122.36679	5	7	Lake Washington - Ship Canal
150	5301 24TH AVE NW		47.66677	-122.38801	66	6	Salmon Bay Waterway
151	5301 24TH AVE NW		47.66680	-122.38821	95	2	Salmon Bay Waterway
152	5301 28TH AVE NW		47.66728	-122.39284	125	10	Salmon Bay Waterway
161	MAGNUSON PARK AT 6451 65TH AVE NE		47.67713	-122.24909	47	6	Lake Washington
165	LAKE WASHINGTON BLVD S AND S ALASKA ST		47.56061	-122.26401	43	7	Lake Washington
168	2311 SW MYRTLE ST		47.53920	-122.36241	0	1	Longfellow Creek
169	LONGFELLOW CREEK AT 2450 SW THISTLE ST		47.52916	-122.36380	0	1	Longfellow Creek
170	2311 SW MYRTLE ST		47.53919	-122.36242	0	1	Longfellow Creek
171	CHINOOK BEACH PARK AT 9510 RAINIER AVE S		47.52062	-122.25972	45	6	Lake Washington
174	FREMONT CANAL PARK AT 151 NW CANAL ST		47.65276	-122.35980	25	8	Lake Washington - Ship Canal
175	FAIRVIEW AVE E AND E GARFIELD ST		47.63389	-122.32722	59	12	Lake Union

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NPDES #	Frequency					Overflow Duration (Hours)					Overflow Volume (Gallons per Year)					Receiving Waters
	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014	
012	1	0	1	1	2	12.40	0.00	10.87	0.30	0.87	223,010	0	58,966	590	2,612	Lake Washington
013	5	4	7	2	15	70.70	49.66	60.87	8.42	139.42	6,526,814	1,397,291	4,471,990	889,232	12,376,374	Lake Washington
014	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	Lake Washington
015	4	4	2	2	2	41.45	4.03	14.78	2.53	6.41	1,409,738	22,529	188,231	28,466	66,045	Lake Washington
016	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	Lake Washington
018	5	4	8	2	5	75.72	20.39	70.93	6.43	38.75	17,174,989	1,772,295	9,541,486	1,635,247	3,350,103	Union Bay
019	0	0	0	1	0	0.00	0.00	0.00	1.03	0.00	0	0	0	902	0	Union Bay
020	3	3	2	2	5	24.13	17.03	14.36	6.13	18.60	1,943,677	189,159	762,481	209,475	562,408	Union Bay
022	1	1	4	3	3	19.00	2.23	46.23	8.42	4.02	1,193,468	6,285	23,146	11,402	16,765	Union Bay
024	1	0	1	1	0	13.77	0.00	11.00	1.73	0.00	2,181,178	0	1,179,613	184,519	0	Lake Washington
025	1	0	1	1	0	13.50	0.00	10.77	1.53	0.00	2,402,363	0	1,214,977	97,238	0	Lake Washington
026	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	Lake Washington
027	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	Lake Washington
028	2	2	2	3	7	0.38	0.11	0.35	6.33	0.77	324	1,204	3,931	4,761	3,781	Lake Washington
029	2	3	11	7	7	10.78	38.41	43.45	21.73	23.68	42,839	24,029	299,426	107,553	134,427	Lake Washington
030	0	1	3	2	2	0.00	0.03	18.53	10.60	8.53	0	13	360,739	103,602	149,342	Lake Washington
031	11	11	2	0	5	116.21	99.19	9.76	0.00	28.69	957,983	356,655	8,170	0	152,897	Lake Washington
032	3	4	3	1	2	25.53	44.43	19.46	6.42	10.08	1,111,491	368,002	237,856	88,300	111,411	Lake Washington
033	0	0	1	0	0	0.00	0.00	0.10	0.00	0.00	0	0	360	0	0	Lake Washington
034	1	0	1	0	2	16.57	0.00	11.13	0.00	4.97	833,946	0	229,082	0	79,864	Lake Washington
035	0	1	1	1	2	0.00	0.25	1.07	0.08	0.16	0	1,815	5,893	802	851	Lake Washington
036	2	1	2	3	2	19.43	14.43	12.65	4.72	8.40	256,969	16,852	40,092	8,389	26,931	Lake Washington
038	1	0	1	0	2	18.97	0.00	10.38	0.00	2.53	2,144,838	0	433,405	0	55,731	Lake Washington
040	5	4	10	2	11	37.93	48.06	83.74	14.70	97.27	3,207,479	814,849	3,602,239	728,493	2,502,735	Lake Washington
041	5	5	13	8	22	78.73	84.48	189.40	54.07	269.17	1,623,574	557,594	1,747,947	400,178	2,745,544	Lake Washington
042	1	2	3	1	6	19.13	6.86	26.43	7.13	46.80	1,377,285	82,769	453,768	125,525	489,133	Lake Washington
043	9	7	14	6	14	99.23	76.79	135.33	17.02	117.08	2,825,223	1,136,935	2,693,671	517,740	1,541,559	Lake Washington
044	16	17	22	11	25	318.67	270.03	399.66	91.27	319.81	9,887,390	7,331,324	12,327,310	2,873,135	11,257,313	Lake Washington
045	10	11	14	7	21	124.83	85.31	199.56	53.33	95.72	1,322,252	159,235	889,798	243,619	520,482	Lake Washington
046	12	4	2	1	4	167.11	28.50	16.00	0.33	27.88	4,197,631	88,604	27,595	281	51,982	Lake Washington
047	8	7	12	10	15	42.87	67.29	89.47	70.75	55.72	10,900,742	1,044,960	10,000,932	2,377,107	2,475,920	Lake Washington
048	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	Lake Washington
049	4	2	5	2	6	29.98	19.15	35.25	9.27	44.28	4,552,799	634,667	1,984,105	1,056,726	2,452,672	Lake Washington
057	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	Puget Sound
059	0	1	2	1	0	0.00	0.17	5.51	0.44	0.00	0	915	95,408	11,666	0	Salmon Bay
060	4	2	6	1	2	11.90	25.03	10.76	1.17	4.30	466,164	174,145	727,910	47,234	86,372	Salmon Bay
061	1	0	0	0	0	1.23	0.00	0.00	0.00	0.00	50,026	0	0	0	0	Elliott Bay
062	0	3	1	2	2	0.00	0.24	6.80	0.41	0.64	0	239	237	7,285	1,584	Elliott Bay
064	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	Elliott Bay
068	1	0	1	1	2	12.77	0.00	7.00	2.10	3.84	1,840,469	0	2,801,197	331,236	188,263	Elliott Bay
069	1	2	2	3	3	26.87	0.46	10.70	2.18	1.09	214,775	57,940	277,093	439,013	206,238	Elliott Bay
070	0	0	0	1	0	0.00	0.00	0.00	0.60	0.00	0	0	0	65,550	0	Elliott Bay
071	7	3	5	4	2	54.68	39.08	14.47	11.08	1.01	1,352,572	129,452	600,682	369,332	81,675	Elliott Bay
072	0	0	0	1	0	0.00	0.00	0.00	0.47	0.00	0	0	0	14,783	0	Elliott Bay
078	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	Elliott Bay
080	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	Elliott Bay
083	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	Puget Sound
085	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	Puget Sound
088	1	0	0	0	0	10.38	0.00	0.00	0.00	0.00	342,740	0	0	0	0	Puget Sound
090	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	Puget Sound
091	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	Puget Sound
094	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	Puget Sound
095	3	1	1	1	0	10.42	0.03	0.22	1.58	0.00	179,782	744	4,276	803	0	Puget Sound
099	2	3	5	1	6	22.77	29.97	30.00	5.07	72.67	1,620,161	715,775	2,494,862	405,700	3,827,730	W Waterway - Duw amish River
107	12	5	4	3	6	71.30	64.33	14.02	9.33	30.10	4,167,734	767,499	352,041	232,587	288,804	E Waterway - Duw amish River
111	3	2	1	3	3	20.27	17.85	26.23	6.37	16.59	7,724,604	723	314,968	11,507	146,654	Duw amish River
120	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	Lake Union
121	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	Lake Union
124	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	Lake Union
127	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	Lake Union
129	0	0	0	2	0	0.00	0.00	0.00	49.97	0.00	0	0	0	64,910	0	Lake Union
130	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	Lake Union
131	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	Lake Union
132	0	1	0	2	0	0.00	0.08	0.00	0.23	0.00	0	2,559	0	3,986	0	Lake Union
134	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	Lake Union
135	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	Lake Union
136	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	Lake Union
138	1	3	2	2	3	15.30	15.05	12.25	3.50	8.00	1,098,144	124,027	649,289	119,989	264,644	Portage Bay
139	2	1	2	1	2	13.33	0.03	10.60	1.43	3.33	399,306	2,638	320,403	47,561	47,515	Portage Bay
140	8	2	4	5	13	48.48	0.15	17.96	8.05	9.72	755,672	3,107	437,331	147,407	341,627	Portage Bay
141	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	Portage Bay
144	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	Lake Union
145	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	Lake Union
146	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	Lake Union
147	63	40	47	27	49	801.28	391.91	672.19	238.15	589.00	23,213,300	9,748,238	14,636,073	4,800,690	12,316,618	Lake Union

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NPDES #	Frequency					Overflow Duration (Hours)					Overflow Volume (Gallons per Year)					Receiving Waters
	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014	
148	1	2	0	0	0	0.78	0.69	0.00	0.00	0.00	19,092	6,883	0	0	0	Lake Washington Ship Canal
150/151	29	25	31	14	34	244.24	208.64	378.01	114.80	268.14	2,848,612	2,497,818	4,871,447	1,737,206	3,543,723	Salmon Bay
152	63	48	57	44	53	999.37	640.68	1098.59	440.30	900.65	40,356,610	40,634,362	52,382,276	13,192,217	41,104,401	Salmon Bay
161	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	Lake Washington
165	1	0	2	1	2	11.30	0.00	10.43	0.25	1.34	118,552	0	54,470	4,387	8,970	Lake Washington
168	2	0	2	0	1	110.83	0.00	47.24	0.00	13.73	4,824,814	0	5,364,038	0	1,092,208	Longfellow Creek
169	2	2	1	0	1	36.30	6.50	16.03	0.00	23.15	6,874,940	614,501	2,587,257	0	604,990	Longfellow Creek
170	1	0	1	0	0	5.17	0.00	0.90	0.00	0.00	40,069	0	12,286	0	0	Longfellow Creek
171	5	6	13	10	15	72.09	68.67	97.47	79.75	57.62	3,344,191	828,364	2,199,443	970,469	1,544,026	Lake Washington
174	13	10	17	7	20	122.91	93.30	267.09	24.95	89.35	9,846,389	5,877,361	10,262,141	2,775,594	8,763,659	Lake Washington Ship Canal
175	0	0	0	2	0	0.00	0.00	0.00	1.40	0.00	0	0	0	3,062	0	Lake Union

Appendix E--Response to Comments

Seattle Public Utilities staff reviewed the draft permit and fact sheet for factual accuracy prior to the public comment period. In addition to identifying factual errors in the documents, SPU provided substantive comments on some conditions in the proposed permit. The following discusses changes Ecology made to the draft permit and fact sheet as a result of SPU's review and provides responses to SPU's substantive comments. Ecology will add responses to any additional comments received during the public comment period to this appendix prior to issuing the final permit.

Permit Comments

1. Page 4, Summary of Permit Report Submittals. This section and others (for example, Sections S6.c and S8) describe submittals that are already required per the City of Seattle's wastewater Consent Decree (Civil Action No. 2:13-cv-678). Please either delete these duplicating requirements or provide language negating the potential for double enforcement.
Response: Ecology included dates from the approved Post Construction Monitoring Plan for certain surrogate outfalls and for interim milestones for control projects listed in the approved Long-term Control Plan. We believe it important to maintain the submittal requirements as they appear in the draft permit to provide visibility of the due dates to the public and to ensure tracking of the submittals through our permitting database (PARIS). If SPU is unable to meet a submittal requirement, Ecology will consider the terms and conditions of both the permit and the Consent Decree before determining the appropriate enforcement option.
2. Page 5, Section S1. In the last sentence of this section, retain the wording in SPU's current NPDES permit by deleting the words "...or result in an exceedance of Sediment Management Standards, Chapter 173-204 WAC." Note that our requested wording is also included in NPDES permits issued to the Cities of Bremerton, Everett, Bellingham, and others.
Response: Ecology included the highlighted language in the NPDES permit for King County's West Point Wastewater Treatment Plant & Combined Sewer System (WA0029181, Special Condition S11). Since SPU and King County's combined sewer systems share the same receiving waters, Ecology has included this language in this draft permit to maintain consistency with conditions in King County's permit. The intent of the language is to reiterate that the CSO discharges authorized by the permit must not adversely impact the relevant water quality standards, which include sediment management standards.
3. Pages 5-7, Table of Current CSO Outfalls. Replace the outfall locations, latitudes, and longitudes in this table with the information provided in SPU's permit application, including individual rows for Outfalls 150 and 151.
Response: Ecology has revised the table based on information provided with the application. Ecology also revised information on locations, latitudes, and longitudes in the table of controlled outfalls in condition S6.A.
4. Pages 7-8, Sections S2.1.a and b and S2.7. Delete the word "ensure" that occurs in at least five places in these sections. SPU can and does provide funding, trained staff, and programs that address system operation and maintenance and pollution prevention, but guarantee language is not appropriate.

Response: Ecology commonly uses the word “ensure” in its NPDES permits in a variety of special and general conditions. As this is common permit language, the requested edit was not made.

5. Page 8, Section 2.5. The third sentence says that, when SPU detects a dry weather overflow (DWO), we “must begin corrective action immediately”. Our understanding is that, as used in this permit, “begin corrective action” includes beginning whatever investigative steps must be completed in order to determine the source of the DWO and the appropriate corrective action.

Response: Appropriate “corrective action” in response to SSOs and DWOs includes taking steps to stop and/or contain the overflow, identifying the cause of the overflow, making necessary repairs to prevent reoccurrence, and cleaning up impacted areas. Ecology recognizes that, in some cases, a cause of an overflow may not be immediately apparent and detailed investigation is necessary. In such cases, Ecology expects Permittees to provide as much information as possible in initial reports and to provide an estimate of the time needed to complete an investigation.

6. Page 8, Section S2.7. Change “used” to “use” in the last line on the page.

Response: Correction made.

7. Page 11, Section S4.A. SPU provides flow monitoring at each of its 86 permitted CSO outfalls and submits a single system-wide report to Ecology each month. These monthly reports currently are due the 28th of the month following the completed monitoring period. The draft permit proposes to move the due date to the 15th of the month and Ecology has indicated we will be required to submit individual reports for each of the 86 permitted outfalls in place of the single system-wide report. Many of the outfalls are monitored by a contract vendor, who provides data QA/QC before providing the data to SPU between the 15th and the 20th of the following month. Changing the vendor’s due date to enable SPU to meet the proposed permit due date would require the vendor’s employees to work overtime each month to complete the data QA/QC process sooner. The data is not used to make real-time operational decisions. Thus, changing the due date from the 28th to the 15th of the month would cost SPU approximately \$50,000 per year, without adding any value. Please retain the existing monthly due date.

Response: The due date was returned to the 28th.

8. Page 12, Section S4.B.4. Our understanding is that the proposed requirement to provide “a description of the progress made on all sewer system improvement projects (formerly known as system retrofits) and an assessment of the control status and effectiveness of these improvements” was added to encourage SPU to complete these projects and assess their effectiveness as soon as possible, so that adequate time remains to implement additional storage in Leshchi, Montlake, Portage Bay/Lake Union, Duwamish, East Waterway, Magnolia, and/or Delridge, if needed, by 2030 per SPU’s approved Plan to Protect Seattle’s Waterways.

Response: *The CSO Annual Report required under WAC 173-245-090 specifies that the annual report must “explain the previous year’s CSO reduction accomplishments”. The intent of Special Condition S4.B.4 is to satisfy this requirement by providing status updates for the sewer system improvement projects in the annual report using any information available at the time of the report. This condition does not alter effectiveness monitoring for each project, as proposed in the approved LTCP.*

9. Page 12, Section S4.C. Change “Water Quality Permit Coordinator” to “SPU Permit Manager” to ensure that SPU’s deliverables are sent to the right person for review.

Response: *Ecology changed the addressee to “NPDES Permit Manager”.*

10. Page 13, Section S4.F. Change “Special Condition S2” to “Special Condition S3”.

Response: *Correction made.*

11. Page 13, Section S4.G.a. Our understanding is that Ecology will revise this section to clarify that (a) all sewer overflows and dry weather overflows (DWOs) must be reported to Ecology’s Northwest Office (ERTS) within 24 hours of SPU becoming aware of them, (b) any sewer overflows or DWOs that discharge or could flow into shellfish areas must also be reported to the Department of Health Shellfish Program, and (c) all DWOs and any sewer overflows that reach receiving waters, recreational areas, or where food is grown for human consumption must also be reported to Public Health of Seattle-King County.

Response: *Ecology has revised the condition to clarify when SPU is required to make immediate notification to Ecology, Public Health of Seattle – King County, and Department of Health’s Shellfish Program. The requirement of immediate reporting of SSOs that impact surface water or areas with public access is consistent with requirements in other NPDES permits issued by Ecology. The revised language specifies immediate reporting when public health and surface waters are impacted. Condition S4.G.2.c specifies reporting DWOs “as soon as the Permittee becomes aware of the dry weather overflow, but no later than 24 hours after becoming aware of the overflow.” Condition S4.G.2.d specifies reporting backups into buildings within 24 hours of SPU becoming aware of the backup.*

12. Page 14, Section S4.G.b. Revise the first sentence to clarify that written reports are due within five business days of SPU becoming aware of any DWO or sewer overflows, excluding overflows that are contained within structures (which are covered in Reporting Section S4.G.d).

Response: *Condition revised to five business days.*

13. Page 14, Section S4.G.d. Please revise the title (for example “Reporting – Sewer Overflows Contained in Structures”) and the first sentence to clarify that this section applies to all sewer overflows that are contained in structures, including backups into basements, low-lying first floors, garages, and toilets regardless of floor (toilet burps).

Response: *Condition was revised to clarify that it applies to all sewer backups into buildings and included the examples noted above.*

14. Page 17, Table of Controlled CSO Outfalls. SPU will need to complete its review of 2015 monitoring data to determine whether this list is correct.

Response: *Ecology compiled the list of controlled outfalls based on the outfalls reported as meeting in the performance standard for controlled in table 5-8 of the 2014 CSO Annual Report. The addresses, coordinates and receiving water names have been updated in this table to match information listed in condition S1.*

15. Pages 18-20, Section S6.C. Please revise this section (including introductory paragraph and sub-sections S6.C.1 through S6.C.4) to clarify that SPU is required (a) to conduct flow monitoring and modeling as necessary at all 86 outfalls to determine their control status and (b) to assess compliance with narrative water quality criteria and to conduct sediment sampling and analysis only at the 14 surrogate outfalls, per the approved final PCMP.

Response: *Ecology revised the first and second paragraphs of Special Condition S6.C to specify that flow monitoring is required for all outfalls and that ambient water and sediment sampling is required at certain surrogate outfalls that are considered representative of other nearby outfalls. The fact sheet was also revised to provide more detail on the monitoring proposed by the approved PCMP.*

16. Page 19, Section S6.C.2. The draft permit indicates SPU must submit sediment sampling and analysis plans at least eight months prior to sediment sampling. SPU was not notified in advance of this change from the sixty day review period for other NPDES permit deliverables/ninety day review period for consent decree deliverables and it is not reflected in our approved PCMP schedule. The proposed lead time may affect SPU's ability to meet the approved schedule.

Response: *The eight-month-review timeframe is included in the permit to allow Ecology's Aquatic Lands Cleanup Unit sufficient time to review the SAP and to work with SPU on any necessary revisions prior to conducting sampling. Ecology anticipates that SPU will submit the SAPs along with the PCMP-QAPPs required in condition S6.C.1, as has been the practice with previous PCMP submittals. The due dates for the QAPPs listed in condition S6.C.1 are generally three years before the due dates for the respective sediment sampling data report due dates listed in condition S6.C.3. The schedule allows SPU approximately two years to conduct sampling and to complete the data report after SAP approval, assuming Ecology takes the full eight months to review and approve the documents.*

17. Page 21, Section S7.B. Our understanding is that this section applies to CSO storage projects and not to sewer system improvement projects (retrofits), conveyance projects, or pump station rehabilitation projects.

Response: *Ecology agrees that this condition primarily applies to CSO storage projects. However, we cannot definitively rule out applicability to sewer system improvement projects based on the information currently available about those projects. Ecology does not typically review documents for maintenance projects, such as those that repair or replace worn equipment or make modification to existing equipment with the intent of improving performance. WAC 173-240-030(5) also exempts certain collection system projects from Ecology review and approval when the project is described in an approved general sewer*

plan and the project adheres to standard design criteria. The exception to this is that Ecology must review and approve documents for projects that involve the installation of overflows or bypasses; or if the project discharges to an overloaded treatment, collection, or disposal facility. Given these requirements, Ecology will likely need to review projects that include pump station upgrades, and we may need to review some collection system projects that cannot be classified as "maintenance" projects. Ecology will work with SPU to determine if review and approval is needed on a case-by-case basis once more information on proposed retrofit projects become available.

18. Pages 21-22, Section S8. Please see comment 1. In addition, we'd suggest setting due dates on business days (for example, March 29, 2019 instead of March 30, 2019).

Response: *Please see response to comment 1. Ecology did not alter dates in Table A (West Ship Canal Tunnel) or Table B (Central Water Front Storage) since the dates in these tables are the dates in the approved LTCP. Ecology verified and corrected dates in the other compliance schedule tables to ensure that they fall on a business day.*

19. Page 23, Section S9. The draft permit includes a requirement to conduct a desktop evaluation of combined sewer basin hydraulic continuity. Please confirm that Ecology intends to continue allowing each controlled outfall to discharge an average of no more than one untreated discharge per year, whether or not the outfall is hydraulically connected to another outfall. Note that this assumption was used in developing the control volumes and storage volumes included in the approved Plan to Protect Seattle's Waterways.

Response: *Ecology does not intend to eliminate the discharge authorization for an outfall based on a hydraulic connection to another nearby outfall. This information is requested to improve our understanding of hydraulic interactions within SPU's system. Improving our understanding of hydraulic connections will allow us to better evaluate whether monitoring locations are appropriate and will help in identifying the system-wide impacts of proposed controls.*

20. Page 26, Section G4. SPU is concerned that the proposed increase in lead time (from 60 to 180 days) may be difficult to meet if physical sewer system alterations are needed. We request that you either confirm that this section does not apply to collection system or outfall alterations or keep the lead time at 60 days.

Response: *Lead time change to 60 days in conditions G4 and G5 for consistency with the requirements of WAC 173-240.*

21. Page 29, Section G15. Change "Special Condition S3.F" to "Special Condition S4.G".

Response: *Correction made.*

22. Page 31, Appendix A. Delete the sentence in red font that refers to pulp and paper pollutants.

Response: *Sentence deleted.*

Draft Fact Sheet

Ecology has made each of the changes noted below.

1. Page 1, 3rd paragraph. Replace “CSO System” with “Combined Sewer System”.
2. Page 1, 1st paragraph in summary section. Replace “87” with “86”.
3. Page 7, Collection System Status. Replace “Seattle Public Utility’s (SPU)” with “Seattle Public Utilities’ (SPU)”.
4. Page 8, Section II.C. Change “lead” to “led” in the sentence that precedes Table 2.
5. Page 9, 1st paragraph. Update the text to include the Q2 2014 – Q4 2014 stipulated penalties.
6. Page 9, 2nd paragraph. Replace “an average of 11 CSO events” with “a total of 11 CSO events”.
7. Page 10, Figure 2. Correct the December 2014 data point to reflect 31 CSOs totaling approximately 10 MG.
8. Page 14, Item 6, line 4. Replace “Skims” with “keeps”.
9. Page 16, 3rd and 5th paragraphs. Update the text to reflect that these reports have been submitted.
10. Page 37, Definitions. Revise the second sentence of the Mixing Zone definition to read “Ecology defines mixing zones in accordance with state regulations (Chapter 173-201A WAC)”.

Responses to comments received during the public comment period

Ecology received comments on the draft permit from SPU the during the 30-day public notice period. Each comment and Ecology’s responses can be found on the following pages.

Permit comments

1. A number of requirements in the draft Permit duplicate the requirements contained in the 2013 Consent Decree between the City, Ecology, and EPA. This includes the table entitled "Summary of Permit Report Submittals," Section S6.C, and Section S8. For the following reasons, Ecology should remove these duplicative requirements from the Permit.

First, these requirements are not necessary. The City is already subject to a federal Consent Decree that includes all of these requirements. Ecology and EPA are overseeing the City's compliance with the Consent Decree, and both have authority to enforce the Decree if the City fails to comply. Since the Consent Decree already provides an easy mechanism for enforcing these requirements, adding them to the draft permit provides no additional environmental benefit.

Second, while including these requirements provides no environmental benefit, it creates a risk that the City will face conflicting mandates. Ecology has said in the draft Fact Sheet that it would modify the Permit as necessary to reflect any schedule changes made to the Consent Decree, but has not promised to keep the Permit consistent with the Consent Decree in other respects. Even if Ecology did make that promise, it might not be able to keep it: NPDES permits are subject to different standards for modification than are consent decrees, and any change Ecology made could be appealed to the Pollution Control Hearings Board (PCHB), with an uncertain outcome. These concerns are addressed further below.

Conflicts between the Permit and the Consent Decree could arise in several ways. For example, a third party could appeal the Permit to the PCHB. The Board must conduct a de novo review of any challenged Permit conditions, including Permit conditions that are identical to Consent Decree requirements. The PCHB could modify the Permit condition in such a way that it would be impossible for the City to comply with both the Consent Decree and the Permit. For example, an appellant could disagree with the priority and sequencing of the various CSO Control Measures, and persuade the PCHB that, say, a project scheduled for completion by December 31, 2020 should be undertaken before another project now scheduled for completion by December 29, 2017. If the PCHB ordered that the Permit be modified to require completion of the second project first, the City would then be subject to a Consent Decree requirement to complete the work in 2020, and a Permit requirement to complete the work in 2017.

A conflict between Consent Decree and Permit requirements also could arise if EPA and Ecology agreed to extend a Consent Decree requirement due to a force majeure event. Ecology stated in the draft Fact Sheet that it would modify the Permit to reflect any changes made in the Consent Decree compliance schedule, but the City cannot be certain that this would happen. First, the Fact Sheet is not the place to set forth requirements that are legally binding on Ecology. It simply explains the basis for the draft Permit conditions. And even if the City could rely on Ecology's assurances in the Fact Sheet, there is no guarantee that the PCHB would uphold a schedule modification based on a force majeure event. Unlike the Consent Decree, the Permit does not include a force majeure provision. A third party who was unhappy with the extension might appeal, and if the Board ruled against the City, the Permit requirement would remain unchanged and therefore inconsistent with the Consent Decree requirement.

Finally, except for schedule changes, Ecology has not indicated that it would conform the Permit to any other revisions that may be made to the Consent Decree, such as revisions resulting from the resolution of a dispute under ¶¶ 75-82 of the decree. These decisions under the Consent Decree could involve a wide range of actions beyond schedule dates. The City needs more certainty that it will not be faced with inconsistent requirements of any kind under the Consent Decree and the Permit. If the duplicative statements of Consent Decree requirements are not deleted from the Permit, then at a minimum the Submittals table, Section S6.C, and Section S8 should be revised to state that such requirements are established, secured, modified and enforced only through the Consent Decree process.

The City has made a very substantial investment in the CSO control program that is reflected in the Consent Decree. It is not fair to subject the City to the risk that its Permit obligations will conflict with its Consent Decree obligations, especially when including the Consent Decree requirements in the Permit serves no environmental purpose. Ecology should therefore remove the Consent Decree requirements from the Permit.

Response: Ecology appreciates the City of Seattle's commitment to controlling discharges from its CSO outfalls by completing the projects it identified in the "Plan to Protect Seattle's Waterways". A vital part of Ecology's mission to protect and restore Washington's waters is ensuring that communities with combined sewer systems control their outfalls so that they do not discharge untreated combined sewage more than once

per year, on average. We consider the inclusion of compliance schedules in permits for all entities with uncontrolled CSOs a fair and appropriate action necessary to fulfill our mission.

The bulk of SPU's concerns outlined above involve speculation about hypothetical, future actions the PCHB may take in response to theoretical challenges that may never materialize. Ecology cannot base permit decisions on such speculation and must therefore deny SPU's requested change. As discussed on page 30 of the fact sheet and in Ecology's responses to SPU's comments provided prior to the public comment period (see page 48 of the fact sheet), we believe there to be sufficient justification to include the Post Construction Compliance Monitoring Program (PCMP) schedule in Special Condition S6.C and the Compliance Schedule in Special Condition S8.

Ecology disagrees with SPU's assertion that "requirements in the draft Permit duplicate the requirements contained in the 2013 Consent Decree between the City, Ecology, and EPA". Section V.B of the consent decree (Compliance Programs) requires SPU to develop and implement a Long Term Control Plan (LTCP). Appendix B of the consent decree (Schedule for LTCP Implementation) includes only dates for the submission of a draft and final LTCP and a single end date of December 31, 2025 for the completion of all construction projects identified in the LTCP. The consent decree schedule also includes dates for post construction monitoring at specific outfalls (71, 99, 111, 147, 174, and 151) during a time period well outside of the effective five-year period of this permit. As noted on page 30 of the fact sheet, the consent decree does not include critical milestone dates for the completion of engineering documents or dates for completing construction of the individual control projects identified in the LTCP. It also does not include post construction monitoring timelines for all of the surrogate outfalls.

In contrast to the consent decree, Special Condition S6.C of the permit requires post construction compliance monitoring for surrogate outfalls 13, 18, 68, and 95. The consent decree schedule does not identify timelines for these outfalls and, therefore, the condition cannot be considered duplicative. Special Condition S8 includes specific milestone dates for various projects identified in the LTCP, the City's Integrated Plan and in the 2015 Outfall Rehabilitation Plan (a document required by the previous permit and not by the consent decree). Many of the dates included in the permit schedule generally come from the LTCP or integrated plan. However the schedule also includes additional dates not identified in the LTCP or consent decree for the submission of a scope of work report for each sewer system improvement project and for the completion of outfall rehabilitation projects. The scope of work reports are necessary since the LTCP does not fully describe the work SPU plans to complete for the sewer system improvements. Finally, the "Summary of Permit Report Submittals" table on page 4 of the permit is intended only as a quick reference that identifies which permit conditions contain requirements for written reports.

Ecology believes that there is environmental benefit from having interim milestone dates in the permit schedule because it maintains an incentive for projects to be completed on-time and avoids delays. This is especially important if a sewer system improvement project is not effective in controlling a CSO outfall and SPU must implement an identified

storage project in a timely manner. It also allows for projects to be transparently tracked in our publically-accessible PARIS database.

Ecology reiterates the commitment it made on page 30 of the fact sheet to keep the compliance schedule in the permit consistent with the compliance schedule in the consent decree. Such a commitment is consistent with the permit modification requirements established in chapter 173-220-190(2) WAC, which says:

“The department may, upon request of the permittee, modify a schedule of compliance or an operating condition in an issued permit if it determines good and valid cause exists for such revision (such as an act of God, strike, flood, materials shortage, or other event over which the permittee has little or no control and for which there is no other reasonably available remedy).”

While a modification of the compliance schedule in the permit is subject to public review and potential challenge by third parties, it is Ecology that bears the burden of defending its decision to make any modifications. Ecology is confident that any modification supported by the process outlined in the consent decree, which requires review and concurrence by EPA, the Department of Justice and the US District Court prior to enacting, would withstand any challenge a third party could bring before the PCHB. In other words, we do not believe the PCHB would overturn a decision by a US District Court that has already had its own public due process.

2. Page 13, Section S4.G.2a. We appreciate the revisions Ecology has made to clarify the expectations for reporting sewer overflows that reach receiving waters, municipal storm sewers, or areas with public access. However, the current wording says SPU is to report such sewer overflows "immediately", presumably before making any efforts to identify the source and magnitude of the overflow or to stop the overflow. SPU requests that Section S4.G.2a be revised to begin with the words "As soon as the Permittee becomes aware of, but no later than 24 hours after becoming aware, the Permittee shall report to Ecology and Public Health of Seattle-King County..." This requested wording is consistent with the reporting requirement for dry weather overflows in Section S4.G.2.c of the Draft Permit.

Response: *The Immediate Reporting language in Special Condition S4.G.2.a is consistent with language in other NPDES permits issued by Ecology. SPU's presumption that this condition would require staff to make notifications "before making any efforts to identify the source and magnitude of the overflow or to stop the overflow" is inconsistent with the plain language requirement in Special Condition S4.G.1, which states:*

“Immediately take action to stop, contain, and cleanup unauthorized discharges or otherwise stop the noncompliance and correct the problem”. Ecology recognizes that field staff are often faced with competing priorities when responding to emergency situations. Ecology's expectations for staff responding to overflows is that they must first concentrate on stopping, containing, or controlling the overflow in order to minimize the potential threat to public health or the environment. Notification should occur after the responding staff have assessed the situation and have taken appropriate steps to stop, contain, or control. Therefore, SPU's request to modify S4.G.2a is denied.

3. Page 17, Section S6.A, List of Controlled Outfalls. Volume 2 of the approved Plan to Protect Seattle's Waterways describes the approach SPU is following to control each of its CSO basins. For the 10 basins in the Leschi area that are all hydraulically connected (Basins 26-36), SPU's approach is to complete the Leschi Sewer System Improvements by 2017, assess whether the Leschi area is controlled and, if not, implement additional storage as needed to control the Leschi area. Consistent with the approach described in the approved Plan and based on the fact that the Leschi Sewer System Improvements are not yet complete, we request that Ecology delete Outfalls 30 and 35 from the list of controlled outfalls.

Response: *Ecology will remove outfalls 30 and 35 from the list of controlled outfalls, as requested.*

4. Pages 13-15, Sections S4.G and S4.H. Ecology may want to correct the numbering of these sections. Sections S4.G.2 a through e should be Sections S4.G 3 through 7, and Sections S4.H a and b should be Sections S4.H 1 and 2.

Response: *Ecology appreciates the critique of the number formatting of these sections. Since the formatting is consistent with similar sections in other permits, we have decided to retain the number formatting in this permit. However we will consider including the suggested change in a future revision of our permit template.*

Technical error correction in permit

During the process of preparing the permit for issuance, Ecology discovered that the due date originally proposed in Special Condition S6.C.1 for the submission of a post-construction monitoring program quality assurance plan for outfall 95 precedes the ultimate effective date of the permit. Ecology change the due date for this submission to May 31, 2016. In addition, the Summary of Permit Report Submittals on page 4 of the draft permit listed the first submittal date for the Annual CSO Report as March 31, 2016. This annual report would cover the calendar year of 2015. This date has been changed in the issued permit to March 31, 2017 (for the 2016 reporting year) since the originally proposed date precedes the effective date of the permit and because SPU submitted the 2015 annual report on March 28, 2016.