Annual Sanitary Sewer Monitoring Report

Seattle-Tacoma International Airport

For the Period July 1, 2021 through June 30, 2022

September 29, 2022

Prepared by

Aspect Consulting

Port of Seattle

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Section 1: Introduction

The Port of Seattle's (Port) NPDES Permit No. WA-0024651, Part 1 Special Condition S2.F requires the Port to submit an annual Sanitary Sewer Report. This report summarizes the discharges of the boiler blowdown, cooling tower blowdown, equipment wash rack, and bus maintenance facility/chassis blowdown to the Midway Sewer District.

Part 1, Special Conditions S1.C and S2.A.2 specifies the monitoring requirements and effluent limitations. The sections below describe the facilities and provide a summary of data collected.

Section 2: Waste Stream Descriptions

2.1 Boiler Blowdown

The Seattle-Tacoma International Airport (STIA) boiler room is located on the bottom level of the Main Terminal. Four boilers, each with a water capacity of approximately 1,570 gallons, are used to heat the Main Terminal. Makeup water to the boilers is drawn from the City of Seattle water supply to the airport.

The boilers are typically operated at a gauge pressure of 85 pounds per square inch (psi). Each boiler is equipped with a 1.5-inch blowdown line with two manually operated valves. When a valve for any boiler is open, the discharge (boiler blowdown) from the boiler flows through a common header into a 1,000-gallon quench tank. From the quench tank, boiler blowdown passes through a flow meter and into the sanitary sewer.

The boiler blowdown flow meter was calibrated in August 2021 and July 2022. Output from the flow meter is logged in an Apogee digital data controller (DDC) and held in an internal database. Current preventive maintenance procedures call for recalibrating the meter annually.

Additional boiler blowdown occurs during maintenance as needed based upon operating judgement. Boiler blowdown maintenance procedures include opening the block valve for approximately 15-20 seconds. The boilers are drained annually for maintenance and/or to remove condensation from inactive boilers.

Table 1 below provides a monthly average and peak flow summary for all boiler blowdown discharges based on flow meter data.

2.2 Cooling Tower Blowdown

The STIA cooling towers are located immediately south of the main parking garage. Two cooling towers were constructed in September 1999, and three additional cooling towers of similar design were constructed in 2002. At least one of the cooling towers is operating year-round, with few shutdowns.

Cooling tower blowdown is currently activated by filter backwashes. Conductivity is monitored to make sure that backwashing is adequate to prevent corrosion or scaling.

The flow meter that measures the volume of cooling tower wastewater discharged to the sanitary sewer was calibrated in August 2021 and July 2022. Cooling tower flow meter is calibrated annually, readings are electronically recorded and stored by the same DDC used for the boilers. **Table 1** below provides a monthly average and peak flow summary for cooling tower wastewater discharges.

Table 1: STIA Boilers & Cooling Towers Effluent Limitations & Discharge Volumes

	Boilers		Cooling Towers	
Month	**Maximum Daily Flow [(a)(b)]** (gallons/day)	**Average Daily Flow [(b)(c)]** (gallons/day)	**Maximum Daily Flow [(a)]** (gallons/day)	**Average Daily Flow [(c)]** (gallons/day)
NPDES Effluent Limitations	**15,000**	**1,000**	**250,000**	**18,000**
July 2021	160	13	9,024	4,642
August	610	40	22,173	5,210
September	510	32	10,308	5,019
October	390	38	9,562	4,743
November	570	65	7,674	4,147
December	150	25	8,745	3,875
January	300	34	9,522	4,860
February	480	36	10,367	4,093
March	350	19	9,120	3,395
April	220	36	9,576	4,464
May	140	14	8,720	3,752
June 2022	180	22	10,151	5,630

Notes:

(a) Maximum Discharge Flow is the highest daily measured flow for any 24-hour period during a calendar month.

(b) Boiler maintenance drainage volumes are included in quantities for daily average and daily maximum flows

(c) Average Daily Flow is calculated as the total discharge during a calendar month divided by the number of calendar days in that month. Actual number of discharges is not recorded.

2.3 Equipment Wash Rack

The Equipment Wash Rack was installed in 2003 for ground service equipment cleaning and pressure washing. It was previously located west of the Delta airlines ground service maintenance facility but is no longer in service. The permitted location for the Equipment Wash Rack was modified in the most recent version of the Port's NPDES permit.

The Port plans to construct a new equipment wash facility at a location yet to be determined. The maximum daily discharge flow is expected to be 5,000 gallons per day (gpd). The Port will notify the Washington State Department of Ecology prior to operations.

2.4 Bus Maintenance Facility Bus Wash and Chassis Wash Bay

The Bus Maintenance Facility bus wash blowdown is from a drive-through automated bus wash bay. The Bus Maintenance Facility bus wash and chassis wash bay facility was activated on May 17, 2012, in support of the new comprehensive Rental Car Facility. The Bus Maintenance Facility services the shuttle busses, which transport passengers to and from the airport terminal to the

consolidated Rental Car Facility. Other than vehicle washing, no other maintenance activities are performed at the bus wash facility.

The Bus Maintenance Facility bus wash and chassis blowdown merges prior to treatment via an oil/water separator. Following treatment, the blowdown discharges to the main sanitary sewer line and into the Midway Sewer District. The oil and grease, pH, Total Suspended Solids (TSS), and Biological Oxygen Demand (BOD_5) parameters are sampled downstream of the oil/water separator prior to connecting to the main sewer line. Refer to **Table 2** for monthly results.

Table 2: Bus and Chassis Wash Blowdown Summary and Analytical Results

Month	**Flow [(a)] Max Daily** (gal/day)	**Flow [(b)] Avg Daily** (gal/day)	**Oil & Grease** (mg/L)	**BOD_5** (mg/L)	**TSS** (mg/L)	**pH** (mg/L)
Frequency	**Daily**	**Daily**	**Monthly**	**Monthly**	**Monthly**	**Monthly**
Effluent Limit	**17,260**	**4,380**	**100**	**Report**	**Report**	**>=6 & <=9**
July 2021	4,391	1,616	0.566	7.2	8.0	6.83
August	5,528	1,973	2.522	6.2	13	6.95
September	6,074	2,455	1.168	9.7	6.0	7.26
October	5,251	1,945	0.626	4.9	6.0	6.70
November	4,788	1,740	0.880	7.7	8.0	6.43
December	5,162	1,537	1.063	13.1	6.0	6.70
January	5,311	1,895	2.017	333	25	6.79
February	4,406	2,520	1.718	6.2	10	6.40
March	4,100	1,891	1.565	12.2	9.0	6.70
April	5,655	1,844	0.676	6.6	8.0	6.87
May	3,740	1,412	1.411	9.2	11	6.66
June 2022	232	27	0.779	5.3	5.0	7.53

Notes:

gal/day = gallons per day; mg/L = milligrams per liter

(a) Maximum Discharge Flow is the highest daily measured flow for any 24-hour period during a calendar month.

(b) Average Daily Flow is calculated as the total discharge during a calendar month divided by the number of calendar days in that month. Actual number of discharges is not recorded.