



Annual Sanitary Sewer Monitoring Report

Seattle-Tacoma International Airport

For the Period July 1, 2015 through June 30, 2016

September 30, 2016

Prepared by

Aviation Environmental Programs

Port of Seattle

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Section 1: Introduction

The Port of Seattle NPDES Permit No. WA-002465-1, Part I Special Condition S2.F requires the Port to submit an annual Sanitary Sewer Report. This report summarizes the discharge of the boiler blowdown, cooling tower blowdown, equipment washrack, and bus maintenance facility bus wash and bus maintenance facility chassis blowdown to the Midway Sewer District.

Part I, Special Conditions S1.A.C and S2.A.2 specify the monitoring requirements and effluent limitations. The sections below describe the facilities and 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, under the airport drives. 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 (psig). 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 (blowdown) from the boiler flows through a common header into a 1000-gallon quench tank. From the quench tank, discharges pass through a flow meter and into the sanitary sewer.

The boiler flow meters were calibrated in July 2015. 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.

Bottom blowdown is conducted as needed based upon operating judgement by opening the block valve for approximately 15-20 seconds.

The boilers are drained annually for maintenance or to remove condensation from inactive boilers. Each boiler was removed from service for maintenance during the Summer 2016.

Table 1 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 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 July 2015. Flow meter readings are electronically recorded and stored by the same DDC used for the boilers. Cooling tower maintenance is scheduled on a biannual basis and was performed in 2014. Table 1 provides a monthly average and peak flow summary for boiler and cooling tower wastewater discharges.

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

Month	Boilers		Cooling Towers	
	Maximum Daily Flow ^{(a) (c)} (gallons/day)	Average Daily Flow ^{(b) (c)} (gallons/day)	Maximum Daily Flow ^(a) (gallons/day)	Average Daily Flow ^(b) (gallons/day)
NPDES Effluent Limitation	15,000	1,000	250,000	18,000
July	1570	84	4966	2350
August	900	69	5195	2337
September	1850	143	4510	2827
October	280	48	17420	5955
November	450	66	7190	5357
December	940	62	3626	2077
January	410	58	13457	1121
February	1900	110	1890	700
March	60	6	1863	620
April	120	13	6154	959
May	240	56	3137	1385
June	1620	91	5534	1888

Note:

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

2.3 Equipment Washrack

The permitted location for the wash rack was modified in the most recent revision of the Airport's NPDES permit. It previously was located on the mid-east portion of the airport, west of the Delta Airlines ground service maintenance facility. This wash rack was installed in 2003 for ground service equipment cleaning and pressure washing and is no longer in service.

The Port plans to construct a new Equipment Washrack facility at a location yet to be determined. The maximum daily discharge flow is estimated to be 5,000 gpd. The Port will notify 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 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 wash rack facility.

The Bus Maintenance Facility bus wash and chassis blowdown merges prior to treatment by an oil/water separator. Following treatment, the blowdown discharges to the main sanitary sewer line to Midway Sewer District. The oil and grease, pH, TSS and BOD 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

<i>Month</i>	Flow ^(a)	Flow ^(b)	Oil & Grease (mg/L)	BOD (mg/L)	TSS (mg/L)	pH (S.U.)
	Max Daily (gal/day)	Avg Daily (gal/day)				
Frequency	Daily	Daily	Monthly	Monthly	Monthly	Monthly
Effluent Limit	17,260	4,380	100	Report	Report	=>6 & <9
July	442	83	1.28	6.0	4.3	7.53
August	315	140	1.29	10.6	7.1	7.48
September	375	139	0.93	20.3	4.0	7.26
October	284	95	1.21	24.0	25.2	7.29
November	404	92	2.10	14.9	9.7	7.01
December	116	115	1.17	6.0	2.8	6.86
January	368	136	3.4	22.6	14.3	7.05
February	326	119	1.33	9.2	7.0	7.11
March	337	135	2.19	11.4	8.3	7.11
April	518	172	0.93	6.0	4.4	7.19
May	383	226	3.7	<120 ^c	8.9	7.08
June	471	224	1.16	4.7	3.0	6.77

Notes:

- 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.
- c. Dilution series oxygen demand depleted.. Add additional description..