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Port of Seattle

September 26, 2014

Mr. Ed Abbasi, P.E.
Washington Department of Ecology
Northwest Regional Office
3190 160th Ave. S.E.
Bellevue, Washington 98008

Re: 2013-2014 Annual Stormwater Monitoring Reports
Seattle-Tacoma International Airport
NPDES Permit WA-002465-1: Part I Special Conditions S2.F & S2.G, Part II Special Condition S1.G and Part III, Special Condition S1.F

Dear Mr. Abbasi:

Enclosed you will find the 2013-2014 Annual Industrial Waste Treatment Plant, Sanitary, Non-Construction Stormwater and Construction Stormwater Monitoring Reports prepared in compliance with Part I Special Condition S2.F and S2.G, Part II Special Condition S1.G and Part III Special Condition S1.F of the NPDES Permit for Seattle-Tacoma International Airport.

If you have any questions regarding this submittal, please contact Bob Duffner of my staff at (206) 787-5528.

Sincerely,

Elizabeth Leavitt
Director, Aviation Planning & Environmental

Enclosure: 2013-2014 Annual Stormwater Monitoring Reports

Seattle-Tacoma
International Airport
P.O. Box 68727
Seattle, WA 98168-0727

Annual Sanitary Sewer Monitoring Report

Seattle-Tacoma International Airport

For the Period July 1, 2013 through June 30, 2014

September 26, 2014

Prepared by

Aviation Environmental Programs

Port of Seattle

Table of Contents

List of Tables

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Section 1: Introduction

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

Part I, Special Conditions S1 and S2 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 a 'quick close", manually operated, cylindrical block valve. 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 August 2014. 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 typically performed once or twice per week 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 boilers was removed from service for maintenance during the Summer 2014.

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. The cooling towers are typically operated year-round with few shutdowns.

The cooling tower system blowdown is typically triggered by a set point for conductivity (700 micro ohms). The autofeature is out of service and blowdown is currently activated by filter backwashes.

The flow meter that measures the volume of cooling tower wastewater discharged to the sanitary sewer was calibrated in August 2014. 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 will be 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

	Boilers		Cooling Towers	
Month	**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	1850	105	11829	5007
August	990	94	8885	4118
September	280	43	5681	3766
October	630	56	5077	3306
November	290	24	8876	2847
December	340	13	5302	2362
January	250	43	3898	2269
February	220	33	25709	3109
March	320	57	5180	2540
April	1350	65	63689	8052
May	1630	96	5308	3005
June	1900	205	5461	3161

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 Rental Carwash Blowdown

The rental carwash facility discontinued operations of May 17, 2012 due to the opening of the offsite Comprehensive Rental Car Facility. This outfall is non-operational and no future discharges are anticipated.

2.4 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.

2.5 Bus Maintenance Facility Bus Wash and Chassis 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 facility.

The Bus Maintenance Facility Bus Wash blowdown is from a drive-through automated bus wash bay.

The Bus Maintenance Facility bus wash and chassis blowdown is combined. The volume reported is the approximate total volume discharge from each facility. The bus wash rack and chassis wash bay blowdowns are treated by an oil/water separator prior to discharging 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.

At the Bus Maintenance Facility startup the flow meter did not function properly. Since startup the Port has implemented multiple measures to resolve the issue, however problems remain. Maintenance and Facility and Infrastructure personnel continue to work on a resolution.

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

	Bus Wash		Chassis Wash		Combined Bus and Chassis Wash[d]			
	Flow[(a)] Max Daily (gal/day)	**Flow[(b)]** Avg Daily (gal/day)	**Flow[(a)]** Max Daily (gal/day)	**Flow[(b)]** Avg Daily (gal/day)	**Oil & Grease** (mg/L)	**BOD** (mg/L)	**TSS** (mg/L)	**pH**
Month								
Frequency	**Daily**	**Daily**	**Daily**	**Daily**	**Monthly**	**Monthly**	**Monthly**	**Monthly**
Effluent Limit	**15,300**	**3,280**	**1,960**	**1,100**	**100**	**Report**	**Report**	**=>6 & <9**
July	640	295	301	139	1.85	12.5	13.7	7.32
August	300	107	141	50	1.96	12.0	19.7	7.06
September	4017	611	1890	288	1.98	6.9	7.1	7.23
October	1618	921	762	433	0.65	3.1	5.0	7.07
November	876	359	412	169	0.15	5.1	4.7	7.11
December	996	183	469	86	8.1	53.6	17.9	7.25
January	1673	501	788	236	6.4	55.8	12.8	7.41
February	1284	393	127	41	4.9	990	10.3	7.33
March	424	59	99	28	8.5	101	17.7	7.06
April	435	173	204	8	1.58	10.2	4.5	7.56
May	3514	949	1654	447	1.91	10.0	8.3	6.88
June	NA[e]	NA[e]	NA[e]	NA[e]	1.23	12.3	10.4	7.09

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. The flow meter malfunctioned and did not record all days during the month.
d. The bus wash rack and chassis blowdowns are combined and treated by an oil/water separator. 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.
e. The flow meter recorded errant readings. The volumes recorded were greater than water usage for the month.