Annual Construction Stormwater Monitoring Report

Seattle-Tacoma International Airport

For the Period July 1, 2023 through June 30, 2024

September 24, 2024

Prepared by

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Port of Seattle

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Section 1: Introduction

The Port of Seattle (Port) National Pollutant Discharge Elimination System (NPDES) permit WA0024651 is broken down into three sections: Part 1: Industrial Wastewater, Part 2: Industrial Stormwater and Part 3: Construction Stormwater. NPDES Permit Part 3 Special Condition S2.F requires an annual summary of construction stormwater monitoring results. The twelve-month period is defined as July 1, 2023 through June 30, 2024. This report provides a summary of the number of projects, active outfalls, number of construction stormwater events and permit compliance results during this period.

1.1 Background

The Port operates and maintains the Seattle-Tacoma International Airport (SEA). SEA routinely undergoes facility upgrades to improve outdated infrastructure and to increase facility and operational capacity to accommodate the increased number of passengers and meet other needs of the airline industry. Many of these upgrades involve ground disturbing activities requiring construction stormwater runoff monitoring in accordance with Part 3 Special Condition S1. The monitoring results summarized in this report document permit compliance.

Section 2: Construction Stormwater Monitoring Requirements

The Port develops and submits a site-specific construction stormwater monitoring plan prior to construction activities for any project that disturbs one (1) or more acres. The monitoring plan provides a brief project description, identifies construction stormwater outfalls, stormwater treatment processes (if applicable), reporting requirements and non-compliance notification contacts and procedures. Monitoring continues until a site stabilization notification is submitted to Ecology.

Construction stormwater monitoring is defined under Part 3, Special Condition 3S2 is broken into three categories:

- Non-Chemically Treated Discharge Monitoring
- Continuous Chemical Treatment Monitoring
- Batch Treatment Monitoring.

Port personnel work with project and construction management teams to identify the appropriate form of treatment for each site and how the site will be monitored to meet permit requirements. Each category of treatment has specific monitoring frequencies and effluent limitations. **Table 1** provides a summary of active construction projects in the reporting period and the form of treatment used at each.

Table 1 - Project Summary and Treatment Type Utilized

Project	July	August	September	October	November	December	January	February	March	April	May	June
Logistics Site	Non-Chem	Non-Chem	Non-Chem	Non-Chem	Non-Chem	Non-Chem	Non-Chem	Non-Chem	Non-Chem	Non-Chem	Non-Chem	Non-Chem
Concourse A Delta Lounge Project	Non-Chem/ Chem	Non-Chem/ Chem	Non-Chem/ Chem	Non-Chem/ Chem	Non-Chem/ Chem	Non-Chem/ Chem	Non-Chem/ Chem	Non-Chem/ Chem	Non-Chem/ Chem	Non-Chem/ Chem	Non-Chem/ Chem	Non-Chem/ Chem
2023 Airfield Improvement Project Contract 1	Chem	Chem	Chem	Chem	Chem	Chem	Chem	Inactive	Inactive	Inactive	Inactive	Inactive
2023 Airfield Improvement Project Contract 2	Non-Chem	Non-Chem	Non-Chem	Non-Chem	Non-Chem	Non-Chem	Non-Chem	Non-Chem	Non-Chem	Non-Chem	Non-Chem	Non-Chem
Widen Arrivals	Inactive	Inactive	Inactive	Inactive	Inactive	Non-Chem/ Chem	Non-Chem/ Chem	Non-Chem/ Chem	Non-Chem/ Chem	Non-Chem/ Chem	Non-Chem/ Chem	Non-Chem/ Chem
2024 Airfield Projects Contract 1	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Non-Chem/ Chem	Non-Chem/ Chem
S. 188th St. Tunnel	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Non-Chem	Non-Chem

Project Specific
Treatment used:

Non-Chem: Non-Chemically Treated Discharge
Chem: Chemically Treated
Discharge

A construction outfall grid was developed to determine the location of potential construction stormwater discharges so that they would be identified in the Airport's NPDES permit. These locations discharge into the three (3) receiving waters surrounding SEA. These grids or boxes reflect the associated authorized outfalls referenced in Part III, Special Condition 3S1.A Table III. The Port has the potential to utilize 62 construction outfalls identified in the NPDES permit. Each outfall can have a non-chemical construction stormwater discharge, batch-treated chemical stormwater discharge and/or a continuous flow chemical treated stormwater discharge.

The *NPDES Construction Monitoring Outfall Areas Map* (**Figure 1**) provides a reference for all potential construction stormwater outfall locations at SEA

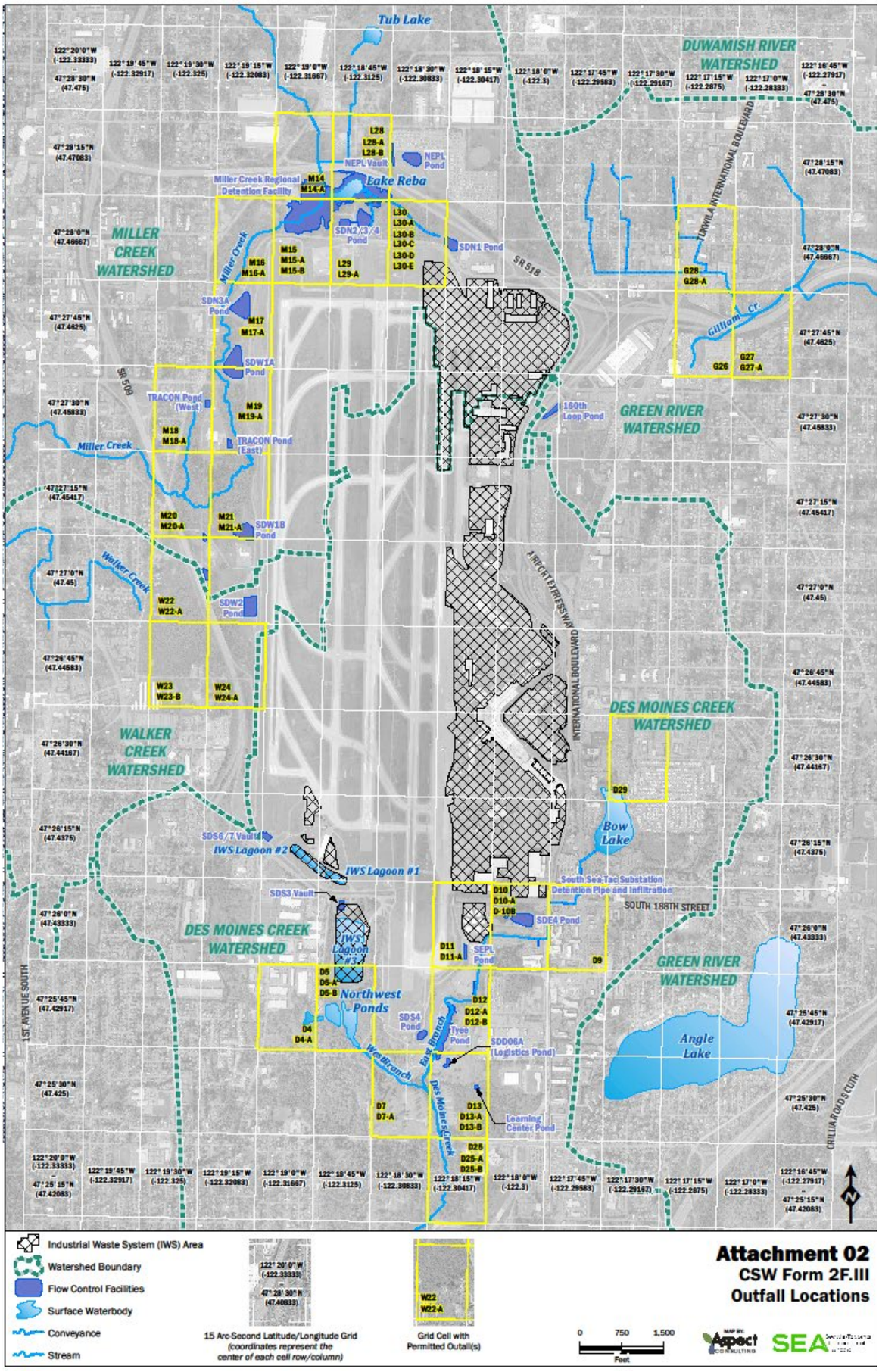
The Port and Ecology track each outfall under three (3) possible operating conditions:

- Non-operational
- Inactive
- Active

A *non-operational* outfall has never been activated as a construction stormwater outfall during the current permit cycle. An *inactive* outfall has previously been active but during a particular month(s) there was no construction activity discharging to that outfall. An *active* outfall receives stormwater from a construction site with ground disturbing activity. The Port provides an outfall summary to Ecology along with the monthly Discharge Monitoring Report (DMR) submittal to track operating outfall status. The DMRs summarize the monitoring results from all active outfalls.

The Port may also discharge construction stormwater to the Industrial Waste Treatment Plant (IWTP). All stormwater sent to the IWTP is treated and discharged per NPDES permit Part I, Special Conditions S1.A Table 1-1 & S2.A.1 Table S2-1.

Figure 1 - Construction Stormwater Outfall Map



2.1 Non-Chemically Treated Discharge Monitoring

Non-chemically treated discharge monitoring is triggered when conventional erosion and sediment control BMPs are utilized to meet water quality standards.

A non-chemically treated discharge monitoring event is triggered when the airport receives 0.5 inches or greater of rain in a 24-hour period. The 24-hour period is defined as being from 8:00am to 8:00am to ensure safety of field samplers and, if necessary, allows for Best Management Practice (BMP) adjustments or repairs to be completed that working day. The Port NPDES permit requires non-chemical treatment discharges be monitored upstream and downstream of the outfall. The upstream monitoring location is approximately five (5) feet upstream of the discharge and the downstream monitoring location is determined by Ecology's RivPlum Model and is no greater than 100 feet downstream or at the nearest accessible point. **Table 2** summarizes the Non-chemically treated discharge monitoring parameters and effluent limitations.

Table 2 - Non-Chemically Treated Discharge Monitoring Parameters & Effluent Limits

Monitoring Parameter	Effluent Limit
Turbidity[(a)]	5 NTU or 10% increase above background
pH	6.5 to 8.5[(b)]
Total Petroleum Hydrocarbons	5 mg/L[(c)]
Flow	Report

Footnotes:

(a) If background turbidity is 50 NTU or less, then the turbidity in the receiving water shall not exceed 5 NTU above background. If background turbidity is greater than 50 NTU, then cannot have 10% increase in turbidity.

(b) With human caused variation must be within .2 units.

(c) TPH shall only be measured and sampled if visible sheen is observed.

2.2 Continuous Chemically Treated Discharge Monitoring

Continuous chemical treatment is used to treat runoff in those cases where site specific conditions may limit the ability of traditional erosion and sediment control BMPs to meet water quality standards in the receiving water. Ecology defines chemical treatment methods and requirements in BMP C250, *Western Washington Stormwater Management Manual, Volume II*. The Port's NPDES permit specifies monitoring parameters and frequencies in addition to Ecology's General Use Level Designation requirements.

four projects during the reporting period utilized a continuous chemical treatment system. The projects included site-specific monitoring plans and discharges were reported to Ecology on the monthly DMR. The Port's NPDES permit specifies monitoring parameters and frequencies. **Table 3** summarizes the Chemically treated discharge monitoring parameters and effluent limitations.

Table 3 - Chemically Treated Discharge Monitoring Parameters & Effluent Limits

Monitoring Parameter	Effluent Limit
Turbidity[(a)]	5 NTU or 10% increase above background
pH	6.5 to 8.5[(b)]
Total Petroleum Hydrocarbons	5 mg/L[(c)]
Total Dissolved Solids [(d)]	500 mg/L
Flow	Report

Footnotes:

(a) If background turbidity is 50 NTU or less, then the turbidity in the receiving water shall not exceed 5 NTU above background. If background turbidity is greater than 50 NTU, then cannot have 10% increase in turbidity.
(b) With human caused variation must be within .2 units.
(c) TPH shall only be measured and sampled if visible sheen is observed.
(d) Monitoring for TDS is only required when infiltrating water from batch plan operations.

2.3 Batch Chemically Treated Discharge Monitoring

Batch chemical treatment is also utilized when traditional BMPs may not be adequate. The chemical treatment methods and requirements are also defined in BMP C250, *Western Washington Stormwater Management Manual, Volume II*.

The Port did not perform any batch chemical treatment during this reporting period. The Port's NPDES permit specifies monitoring parameters and frequencies. If the Port uses batch chemical treatment for future construction stormwater projects, it will be identified in the site-specific monitoring plan and reported to Ecology on the monthly DMR.

Section 3: Construction Stormwater Monitoring Results Summary

This section summarizes the construction stormwater monitoring events and results. All data summarized in this section has been reported to Ecology on monthly DMRs and is included in **Tables 4 and 5**.

3.1 Non-Chemically Treated Discharge Monitoring Summary

The Port monitored twelve (12) 0.5 inch/24-hour storm events during this period. All the monitoring results were reported in the monthly DMRs. During this period there were up to seven (7) active construction stormwater outfalls. The Port discharged into Des Moines Creek and Lake Reba**. Table 4** provides a monthly summary of the number of 0.5-inch/24-hour stormwater events.

Table 4 – Summary of 0.5 Inch/24-Hour Monitoring Events

Month (July 2023 – June 2024)	Number 0.5-Inch Stormwater Events
July	0
August	0
September	3
October	4
November	4
December	7
January	5
February	1
March	0
April	1
May	1
June	1

Non-Chemically Treated Discharge Data Results (**Table 5**) provides the instream monitoring data results submitted on the DMR. Please note that **Table 5** reflects the maximum and minimum data results if there were multiple 0.5 inch/24-hour storm events during the month.

Table 5 - Non-Chemically Treated Discharge Data Results

Parameter	Month	Outfalls										
		D10	D12	D13	D4	D5	D7	L29	M17	M19	M20	W24
Flow (mgd)	23-Jul	ND	ND	ND	ND	ND	ND	ND	IA	IA	IA	IA
	23-Aug	ND	ND	ND	ND	ND	ND	ND	IA	IA	IA	IA
	23-Sep	2.37	0.52	0.13	2.58	3.23	0.39	ND	IA	IA	IA	IA
	23-Oct	1.51	0.52	0.09	1.08	3.01	0.52	0.39	IA	IA	IA	IA
	23-Nov	3.01	0.86	0.34	3.87	13.8	3.87	0.86	0.60	IA	IA	IA
	23-Dec	5.16	0.78	0.43	2.80	11.2	1.51	1.72	0.52	1.72	2.58	0.86
	24-Jan	2.15	0.60	0.17	1.29	5.59	0.86	0.69	0.34	0.60	0.86	0.43
	24-Feb	1.72	0.34	0.09	0.60	3.87	0.43	0.60	0.09	0.52	0.86	0.60
	24-Mar	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	24-Apr	0.26	0.09	0.09	0.09	0.72	0.09	0.26	0.17	0.17	0.17	0.09
	24-May	0.17	0.09	0.09	0.17	0.86	0.09	0.09	0.09	0.09	0.17	0.26
	24-Jun	0.69	0.17	0.09	0.6	2.58	0.69	0.26	0.13	0.17	0.34	0.26
Oil and Grease Total Petroleum Hydrocarbon (mg/L)	23-Jul	ND	ND	ND	ND	ND	ND	ND	IA	IA	IA	IA
	23-Aug	ND	ND	ND	ND	ND	ND	ND	IA	IA	IA	IA
	23-Sep	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	IA	IA	IA	IA
	23-Oct	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	IA	IA	IA	IA
	23-Nov	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	IA	IA	IA
	23-Dec	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen
	24-Jan	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen
	24-Feb	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen
	24-Mar	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	24-Apr	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen
	24-May	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen
	24-Jun	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen	No Sheen
pH [min \ max] (s.u.)	23-Jul	ND	ND	ND	ND	ND	ND	ND	IA	IA	IA	IA
	23-Aug	ND	ND	ND	ND	ND	ND	ND	IA	IA	IA	IA
	23-Sep	7.3/7.5	7.3/7.5	7.3/7.5	7.1/7.1	7.1/7.1	7.1/7.1	ND	IA	IA	IA	IA
	23-Oct	7.3/7.4	7.3/7.4	7.3/7.4	6.9/7.2	6.9/7.2	6.9/7.2	7.1/7.3	IA	IA	IA	IA
	23-Nov	7.1/7.3	7.1/7.3	7.2/7.4	6.8/7.0	6.8/7.0	6.8/7.0	7.0/7.1	7.0/7.1	IA	IA	IA
	23-Dec	7.2/7.4	7.2/7.4	7.2/7.5	6.9/7.2	6.9/7.2	6.9/7.2	7.0/7.1	7.0/7.3	7.2/7.6	7.2/7.7	7.4/7.7
	24-Jan	7.3/7.3	7.3/7.3	7.4/7.4	7.0/7.1	7.0/7.1	7.0/7.1	7.1/7.2	7.1/7.2	7.2/7.5	7.3/7.6	7.5/7.7
	24-Feb	7.4/7.4	7.4/7.4	7.5/7.5	7.1/7.1	7.1/7.1	7.1/7.1	7.3/7.3	7.3/7.3	7.5/7.5	7.6/7.6	7.7/7.7
	24-Mar	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	24-Apr	7.5/7.5	7.5/7.5	7.6/7.6	7.1/7.1	7.1/7.1	7.1/7.1	7.3/7.3	7.5/7.5	7.7/7.7	7.8/7.8	7.7/7.7
	24-May	7.5/7.5	7.5/7.5	7.7/7.7	7.1/7.1	7.1/7.1	7.1/7.1	7.3/7.3	7.5/7.5	7.7/7.7	7.8/7.8	7.8/7.8
	24-Jun	7.5/7.5	7.5/7.5	7.6/7.6	7.1/7.1	7.1/7.1	7.1/7.1	7.4/7.4	7.3/7.3	7.6/7.6	7.7/7.7	7.7/7.7
Turbidity Background <=50 NTU	23-Jul	ND	ND	ND	ND	ND	ND	ND	IA	IA	IA	IA
	23-Aug	ND	ND	ND	ND	ND	ND	ND	IA	IA	IA	IA
	23-Sep	4.2	2.6	0.00	-1.9	-1.9	-1.9	ND	IA	IA	IA	IA
	23-Oct	3.7	1.9	0.00	1.5	1.5	1.5	2.0	IA	IA	IA	IA
	23-Nov	1.2	4.0	5.0	-1.0	-1.0	-1.0	5.9	4.0	IA	IA	IA
	23-Dec	4.8	1.5	0.30	-0.30	-0.30	-0.30	4.3	1.0	3.0	3.0	7.1
	24-Jan	4.5	2.3	-0.50	-3.4	-3.4	-3.4	2.2	0.5	2.0	0.00	1.3
	24-Feb	1.7	0.30	-0.6	-3.4	-3.4	-3.4	-3.1	0.00	0.40	1.3	1.5
	24-Mar	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	24-Apr	2.4	0.40	0.3	-2.8	-2.8	-2.8	-2.6	0.10	0.10	-0.50	0.4
	24-May	1.1	0.80	0.10	-2.6	-2.6	-2.6	-0.10	0.30	-0.50	0.00	1.3
	24-Jun	2.4	0.70	-0.30	-3.0	-3.0	-3.0	-2.9	0.50	-1.0	2.0	3.6
Turbidity Background >50 NTU (%)	Background turbidity was never >50 NTU during this reporting period during qualifying events.											

Notes:

mgd = million gallons per day s.u. = standard units ND = No Discharge

mg/l = milligrams per liter ntu = nephelometric turbidity units IA = Inactive

*For months with multiple monitoring days, the max (or min) values are reported here accordingly.

The non-chemical construction discharge monitoring occurs in the receiving water which results in many outside sources comingling with construction discharges in the receiving water. The Port performs routine site inspections to ensure BMPs are working effectively, and unanticipated discharges are not occurring from the project site.

During this reporting period there were two monitoring results that exceeded permit limitations. The two turbidity exceedances identified during 0.5 inch/24-hour storm events were associated with Airport construction activities and were remedied the same day they were discovered.

3.1.1 Turbidity

During the monitoring period there were two 0.5 inch/24-hour storm events where downstream turbidity exceeded background turbidity by greater than 5 NTU. Both instances appeared to be attributed to BMP deficiencies at active stockpiles that were corrected the same day the turbidity exceedances occurred. **Table 6** below describes each exceedance and the numeric value.

Table 6 - Turbidity Exceedance Notification Summary

Date (Time)	Outfall	US Turbidity (NTU)	DS Turbidity (NTU)	Difference (DS - US)	Discussion
11/5/2023 (8:58 AM)	L29	3.9	9.8	5.9	Turbidity at the outfall was 15 NTU. A field inspection occurred the same morning and found a sand stockpile contained by an ecology block wall had turbid water seeping under the draining to a nearby swale, bypassing treatment. The contractor contained this water with sandbags and redirected it to the nearby concrete pond for treatment.
12/06/2023 (10:04 AM)	W24	2.9	10.1	7.2	Turbidity at the outfall was 20 NTU. A field inspection occurred the same morning and found tire ruts from a stockpile staging area were deep enough to convey water onto an access road that drains to the nearby detention pond. A berm was installed the same day and the stockpile was covered.

Notes:
US = Upstream DS = Downstream

3.1.2 pH

There were no pH exceedances during all monitoring events.

3.1.3 Total Petroleum Hydrocarbons

The Port did not visually identify a sheen during any of the monitoring events.

3.1.4 Flow

The Port monitored flow during all monitoring events.

3.1.5 Illicit Discharge

There were no illicit discharges identified during this period.

3.2 Continuous Chemically Treated Discharge Monitoring Summary

The Port had four (4) projects that utilized continuous chemical treatment. Treated discharges from the 2023 AIP - Contract 1 and 2024 AIP Contract 1 projects were infiltrated onsite near the batch plant and reported on the L29C DMR. Discharges from the Concourse A Delta Lounge and Widen Arrivals projects were discharged to the D10C outfall and reported on the D10C DMR. **Table 10** below provides the monitoring data results submitted on the DMR.

Table 7 - Chemically Treated Discharge Data Results

Parameter	Month	Outfalls	
		L29C	D10C
Flow (mgd)	23-Jul	ND	0.027
	23-Aug	ND	ND
	23-Sep	0.094	0.068
	23-Oct	0.042	0.016
	23-Nov	0.089	ND
	23-Dec	0.139	0.026
	24-Jan	0.108	0.024
	24-Feb	ND	0.015
	24-Mar	ND	0.018
	24-Apr	ND	0.010
	24-May	ND	0.004
	24-Jun	ND	0.014
Oil and Grease Total Petroleum Hydrocarbon (mg/L)	23-Jul	ND	No Sheen
	23-Aug	ND	ND
	23-Sep	No Sheen	No Sheen
	23-Oct	No Sheen	No Sheen
	23-Nov	No Sheen	ND
	23-Dec	No Sheen	No Sheen
	24-Jan	No Sheen	No Sheen
	24-Feb	ND	No Sheen
	24-Mar	ND	No Sheen
	24-Apr	ND	No Sheen
	24-May	ND	No Sheen
	24-Jun	ND	No Sheen
pH [min \ max] (s.u.)	23-Jul	ND	7.6/7.6
	23-Aug	ND	
	23-Sep	7.3/7.6	7.0/7.0
	23-Oct	7.5/7.7	7.1/7.1
	23-Nov	7.0/8.1	ND
	23-Dec	6.8/7.8	7.5/7.6
	24-Jan	7.3/7.9	6.9/7.9
	24-Feb	ND	6.7/7.7
	24-Mar	ND	7.2/8.3
	24-Apr	ND	7.5/7.8
	24-May	ND	7.2/8.1
	24-Jun	ND	7.3/7.8
Turbidity Background <=50 NTU	23-Jul	ND	4.58
	23-Aug	ND	ND
	23-Sep	3.2	4.8
	23-Oct	1.1	2.4
	23-Nov	3.1	ND
	23-Dec	3.4	4.4
	24-Jan	1.9	4.3
	24-Feb	ND	1.9
	24-Mar	ND	3.0
	24-Apr	ND	2.7
	24-May	ND	1.7
	24-Jun	ND	1.9
Turbidity Background >50 NTU (%)	Background turbidity was never >50 NTU during this reporting period during qualifying events.		
Total Dissolved Solids (TDS) (mg/L)	23-Jul	ND	NA
	23-Aug	ND	ND
	23-Sep	183	NA
	23-Oct	165	ND
	23-Nov	57	NA
	23-Dec	101	NA
	24-Jan	278	NA
	24-Feb	ND	NA
	24-Mar	ND	NA
	24-Apr	ND	NA
	24-May	ND	NA
	24-Jun	ND	NA

Notes:

mgd = million gallons per day mg/L = milligrams per lit ND = No Discharge IA = Inactive

NTU = nephelometric turbidity unit s.u. = standard units NA = Not Applicable

3.2.1 Turbidity

All chemically treated construction discharges were below 5 NTUs maximum daily average. There were no exceedances during this reporting period.

3.2.2 pH

There were no pH exceedances during any chemically treated discharges during this period.

3.2.3 Total Petroleum Hydrocarbons

The Port did not visually identify a sheen from any of the chemically treated discharges during this period.

3.2.4 Flow

The Port monitored flow from all chemically treated discharges during this period.

3.2.5 Total Dissolved Solids

The Port monitored discharges from the L29C outfall for TDS during this period. There were no exceedances of TDS.

3.3 Batch Chemically Treated Discharge Monitoring Summary

The Port did not perform any batch chemical treatment during this reporting period. The Port's NPDES permit specifies monitoring parameters and frequencies. If the Port uses batch chemical treatment for future construction stormwater projects, it will be identified in the site-specific monitoring plan and reported to Ecology on the monthly DMR.