Seattle-Tacoma International Airport Stormwater Pollution Prevention Plan (SWPPP)

In accordance with NPDES Permit No. WA-0024651

Updated February 2019

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SWPPP Contents and Requirements

In accordance with Section 2S6., this SWPPP addresses the following requirements.

Permit Requirement	SWPPP Reference or Compliance Statement
2S6. A.1. *Illicit discharges* *The SWPPP must include measures to identify and eliminate the discharge of industrial wastewater, domestic wastewater, noncontact cooling water, and other illicit discharges, to stormwater drainage systems, or to surface waters of the state of Washington.*	Illicit discharge elimination and prevention is discussed in Section 5.0 of the SWPPP.
2S6. A.2. *Enhanced/additional best management practices (BMPs)* *The Permittee must provide a schedule in the SWPPP for implementation of any additional or enhanced BMPs that are necessary because of a notice from Ecology, facility changes, or self-inspection. Unless otherwise authorized by Ecology in writing, a schedule for implementation (plan) must be completed and entered into the SWPPP within thirty (30) days of a notice/determination of necessary improvements, or in accordance with an approved compliance schedule. BMPs identified in the plan must be implemented with due diligence. Unless otherwise authorized by Ecology in writing, noncapital BMPs must be completed within two (2) weeks after completing the plan and capital BMPs within six (6) months.* *Enhanced/additional BMPs must comply with the Special Condition S6.A.4.*	Enhanced BMPs are discussed in Section 1.2 of the SWPPP.

2S6. A.3. Applicability of the current editions of the Stormwater Management Manual (SWMM) *The Stormwater Management Manual for Western Washington dated August 2012, as amended in December 2014, is the applicable SWMM for all facilities not included in the Permittee's Ecology-approved Comprehensive Stormwater Management Plan (CSMP). New facilities, not included in CSMP, must apply the minimum technical requirements and BMPs appropriate for their facility as found in the August 2012 SWMM or other Ecology-equivalent manuals that are available when selecting BMPs for their facility. For Permittee's existing facilities, the Permittee is not required to redo its SWPPP and BMPs to incorporate changes to BMPs that were designed and implemented according to an earlier version of the SWMM.* *However, for existing facilities not included in the CSMP, the Permittee must apply the applicable technical standards and BMPs as found in the most recent published edition of the SWMM, or other equivalent Ecology-approved manuals, that are available when updating their SWPPP to accommodate changes at their facility or when additional BMPs are required to maintain compliance with permit conditions. Facilities not included in the CSMP undergoing new development or redevelopment will apply the applicable minimum requirements of the appropriate, most current SWMM available when beginning final design of the project to the development site.* *The Permittee shall submit an STIA-specific LID implementation guideline for Ecology review and approval by June 30, 2016. The guideline shall be adopted and effective no later than December 31, 2016. The STIA-specific LID implementation guideline shall apply to all application submitted on or after January 1, 2017 and shall apply to projects approved prior to January 1, 2017, which have not started construction by January 1, 2022.*	▪ Minimum technical requirements and applicable BMPs have been selected from the August 2012 SWMM. ▪ A STIA-specific LID implementation guideline was delivered to Ecology by the required deadline. The Low Impact Development Guideline is available upon request by contacting Chris Milewski, Sr. Environmental Program Manager. Chris Milewski Port of Seattle Aviation Environmental Programs Tel: (206) 787-4633 Email: milewski.c@portseattle.org

2S6. A.4. Other pollution control plans *The Permittee may incorporate, by reference, applicable portions of plans prepared for other purposes at its facility. Plans or portions of plans incorporated into a SWPPP become enforceable requirements of this permit and must meet the availability requirements set forth in Special Condition S6A of Part II of this permit.*	The following pollution control plans are incorporated by reference. ▪ Seattle-Tacoma International Airport Spill Prevention Control and Countermeasures (SPCC) Plan (Port of Seattle, October 2014, revised August 2016). ▪ Seattle-Tacoma International Airport Programmatic Construction Stormwater Pollution Prevention Plan (Port of Seattle, 2009).
2S6. B.1. Facility assessment *The facility assessment must include a description of the facility, a detailed site map, an inventory of facility activities, and equipment that contribute to or have the potential to contribute pollutants to stormwater, and an inventory of materials that contribute to or have the potential to contribute pollutants to stormwater. The assessment must be as complete as possible and must be updated to reflect changes at the facility. The SWPPP must address each potential source of pollutants with best management practices that will eliminate or reduce the potential to contaminate stormwater.*	The Facility Assessment is included in Section 2.0 of the SWPPP. ▪ Facility Descriptions – Section 2.1 ▪ Site Map – Section 2.4 ▪ Industrial Activities – Section 2.7 ▪ Material List – Section 2.8
2S6. B.2. Monitoring plan *The SWPPP will include a monitoring plan. The plan must identify all the points of discharge to surface water or to a storm drain system. If there is more than one point of discharge, then the plan must include a discussion of representative sampling and how the Permittee has determined which points of discharge will be monitored. The discussion must include an estimate of the volume of discharge from each discharge point, differences in exposure to pollutants, pollutants likely to be in each discharge, and a relative comparison of probable pollutant concentrations. The plan must identify who is responsible for monitoring and how monitoring will be conducted to comply with permit conditions. The monitoring plan will address stormwater sampling requirements and visual inspections.*	The Monitoring Plan is described in Section 4.0.

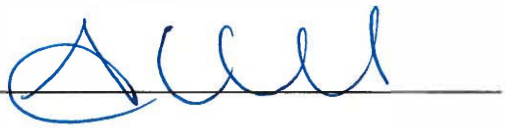
2S6. B.3. BMPs *The SWPPP will include a description of the BMPs that are necessary for the facility to eliminate or reduce the potential to contaminate stormwater. BMPs must also be considered to regulate peak flow and volume of stormwater discharge.*	BMPs are described in Section 6.0 of the SWPPP. ▪ Operational Source Control BMPs – Section 6.1 ▪ Structural Source Control BMPs – Section 6.2 ▪ Treatment BMPs – Section 6.3 ▪ Stormwater Peak Runoff Rate and Flow Control BMPs – Section 6.4 ▪ Erosion and Sediment Control BMPs – Section 6.5

SWPPP Certification

I, the undersigned, certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name: Arlyn Purcell

Title: Director, Aviation Environment & Sustainability

Signature: 

Date: 12/14/18

Record of SWPPP Revisions

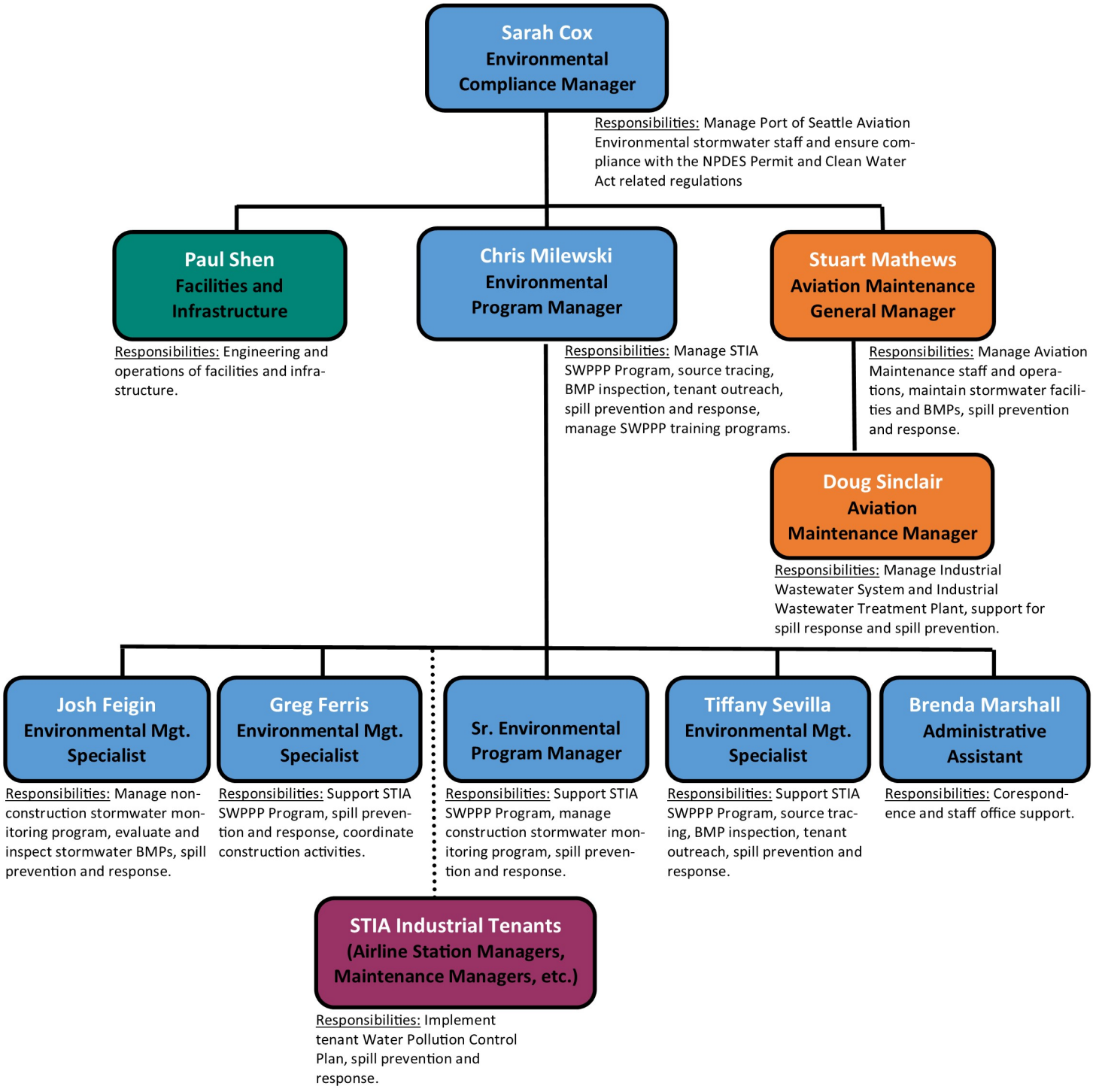
Aviation Environmental Programs staff may make minor edits or changes directly to this plan. The dates of any revisions should be noted below.

Revision Date	Individual Making Changes	Summary of Changes to SWPPP
8/31/2009	Chris Milewski	▪ Updated SWPPP Certification ▪ Updated Distribution List ▪ Updated 2009 permit conditions
April 2011	Chris Milewski	▪ Updated Tenant SWPPP training
August 2011	Chris Milewski	▪ Updated SWPPP text, maps and figures to reflect current site conditions
September 2011	Chris Milewski	▪ Made SWPPP available online
October 31, 2012	Chris Milewski	▪ Updated IWTP Discharge request form. ▪ Updated broken links to Port's online SWPPP, NPDES Permit, and Fact Sheet.
February 21, 2014	Chris Milewski	▪ Updated Spill Team Org Chart to reflect name/position changes
December 4, 2014	Chris Milewski	▪ Added OSC BMP 16.0 Spill Response and Spill Clean up to SWPPP.
February 2015	Chris Milewski	▪ General Plan updates to match Part II of the NPDES Permit Application Fact Sheet. ▪ Updated Stormwater Drainage Maps and SWPPP Figure 1-1 to reflect staff changes. ▪ Updated SPCC Plan Date ▪ Updated broken URL links
April 2015	Chris Milewski	▪ Updated tables
April 2016	Chris Milewski	▪ Updated SWPPP to reflect new NPDES Permit.
December 2016	Chris Milewski	▪ Updated SWPPP tables 1-21 ▪ Updated Figures for personnel changes ▪ Added reference/link to Pest management Plan to be added 2017 ▪ Updated SWPPP references ▪ Added IWS SDS Map to IWS Policy
April 2018	Tiffany Sevilla	▪ Minor revisions to spelling
December 2018	David Hill (Consultant), Tiffany Sevilla, Chris Milewski	▪ Updated Pollution Prevention Team Org Chart ▪ Added SWPPP Contents and Requirements table in Section i. ▪ Updated material inventory table ▪ Updated SWPPP Distribution List ▪ Updated SWPPP Certification with the Signature of Arlyn Purcell

February 2019	Tiffany Sevilla	▪ Added Appendix H
September 2019	Tiffany Sevilla	▪ Updated Pollution Prevention Team Org Chart

Pollution Prevention Team

Accordance with Section 2S6 B.3., the Port of Seattle has established a stormwater Pollution Prevention Team as an operational source control Best Management Practice (BMP). Figure 1 below displays the organization of the Pollution Prevention Team and identifies specific individuals by name and title who are responsible for developing the SWPPP and assisting in its implementation, maintenance, and modification.



SWPPP Distribution List

In accordance with Section 2S6 of the SEATAC NPDES permit an electronic copy of the STIA SWPPP is available online at:

http://www.portseattle.org/Environmental/Water-Wetlands Wildlife/Stormwater/Documents/STIA_SWPPP_current.pdf

Original, signed hardcopies of the SWPPP are kept onsite at STIA and are available upon request in accordance with Section 2S6 A. The following Port of Seattle Staff will maintain signed hardcopies of the STIA SWPPP:

Tiffany Sevilla
Environmental Management Specialist
Port of Seattle Aviation Environmental Programs
Tel: (206) 787-3937
Email: sevilla.t@portseattle.org

Chris Milewski
Sr. Environmental Program Manager
Port of Seattle Aviation Environmental Programs
Tel: (206) 787-4633
Email: milewski.c@portseattle.org

Acronyms and Abbreviations

AFFF	Aqueous Film Forming Foam
AKART	All Known, Available, and Reasonable Treatments
AMA	Aircraft Movement Area (This area includes the runways and taxiways.)
AOA	Air Operations Area (This is the FAA Secure Area and includes the AMA, aircraft ramps [gates], aircraft maintenance areas, and perimeter roads inside the security fences.)
API	American Petroleum Institute
AVE	Aircraft, Vehicle, and Equipment
BIBI	Benthic Index of Biological Integrity
BOD	Biological oxygen demand
BMP	Best Management Practice
CFR	Code of Federal Regulations
COD	Chemical oxygen demand
CPS	coalescing plate separator
CSMP	Comprehensive Stormwater Management Plan
CWA	Clean Water Act
DAF	Dissolved air flotation
DEF	Diesel Exhaust Fluid
DMR	Discharge Monitoring Report
DO	Dissolved oxygen
Ecology	Washington State Department of Ecology
EMC	Event mean concentration(s)
FAA	Federal Aviation Administration
FC	fecal coliform
FOD	Foreign Object Debris
FR	Federal Register
IWS	Industrial Wastewater System

IWTP	Industrial Wastewater Treatment Plant
mg/L	Milligrams per liter
MST	Microbial source tracing
NPDES	National Pollutant Discharge Elimination System
O&M	Operations and maintenance
OSC	Operational source control
OSHA	Occupational Safety and Health Administration
PCC	Portland Cement Concrete
PCHB	Pollution Control Hearings Board
Port	Port of Seattle
POTW	Publicly-Owned Treatment Works
ppm	Parts per million
PPT	Pollution Prevention Team
PSE	Potential Stormwater Exposure
QAPP	Quality Assurance Project Plan
RCRA	Resource Conservation and Recovery Act
RCW	Revised Code of Washington
SDS	Storm Drainage System
SEPA	State Environmental Policy Act
SPCC	Spill Prevention, Control, and Countermeasures
SRES	Stormwater Receiving Environment Study
SSC	Structural source control
STIA	Seattle-Tacoma International Airport
SWPPP	Stormwater Pollution Prevention Plan
TCLP	Toxicity Characteristic Leaching Procedure
TSS	Total suspended solids
UST	Underground storage tank

WAC	Washington Administrative Code
WER	Water Effect Ratio
WET	Whole Effluent Toxicity
WISHA	Washington Industrial Safety and Health Act
WPCP	Water Pollution Control Plan
WSDOT	Washington State Department of Transportation

1.0 Introduction

This Stormwater Pollution Prevention Plan (SWPPP) has been prepared for Seattle-Tacoma International Airport (STIA). This plan addresses the stormwater pollution prevention requirements of the National Pollutant Discharge Elimination System (NPDES) Permit No. WA-0024651, Part II, Condition 2S6 (Washington State Department of Ecology [Ecology], January 1, 2016). This plan replaces the previous SWPPP (Port of Seattle, 1998, revised 1999, 2001, 2003, 2009, 2011, 2014) and has been revised to meet the current Permit requirements.

The three major objectives of this SWPPP are to:

1. Identify sources of pollution potentially affecting the quality of stormwater discharges associated with industrial activities at STIA.
2. Describe the practices used to minimize and control pollutants in stormwater discharges from these industrial activities.
3. Provide information and guidance to assist the Port of Seattle (the Port) in complying with the terms and conditions of NPDES Permit No. WA-0024651. The Permit is included in this SWPPP as Appendix A.

1.1 Contents

The contents of this SWPPP are consistent with the NPDES Permit No. WA-0024651, Part II, Condition 2S6, and Ecology's Guidance Manual for Preparing/Updating a Stormwater Pollution Prevention Plan for Industrial Facilities (Ecology, 2004), as follows:

1. Introduction
2. Facility Assessment
3. Past Spills and Leaks
4. Monitoring Plan
5. Illicit Non-Storm-Water Discharges
6. Best Management Practices
7. Operations and Maintenance
8. Handling and Disposal of Solid and Liquid Wastes from Stormwater Treatment, Storage, and Conveyance Systems

Figures and tables referenced in the sections above are provided following the text of each applicable section. Appendices A through H contain supplementary materials associated with the SWPPP:

Appendix A: National Pollutant Discharge Elimination System Waste Discharge Permit No. WA0024651

Appendix B: Industrial Wastewater System Policy

Appendix C: Sample Tenant Inspection Data Sheets

Appendix D: Sample Training Log

Appendix E: Facility Assessment Technical Memorandum (2004) and Follow-up Memorandum (2005)

Appendix F: Port of Seattle Spill Response Procedures

Appendix G: Monthly Tenant Glycol Reporting Form

Appendix H: Pest Management Plan (update in process as of 2017)

1.2 Regulatory History and Overview of STIA's Stormwater Program

In 1972, the Federal Water Pollution Control Act, later known as the Clean Water Act (CWA), was amended to require that the discharge of pollutants to waters of the United States from any point source be covered by an NPDES Permit. The 1987 amendments to the CWA added Section 402(p), establishing a framework for regulating municipal and industrial discharge of stormwater under the NPDES program.

The Port operates and maintains an Industrial Wastewater Treatment Plant (IWTP). The conveyance system to the IWTP is referred to as the Industrial Wastewater System (IWS). The IWS and IWTP were initially built in 1963/1964 and have been covered by an individual NPDES Permit issued to the Port since January 2, 1980. Stormwater discharges associated with industrial activity were first added by Ecology in the 1994 individual NPDES Permit. Additional Storm Drainage System (SDS) outfalls and construction activities were added in the 1998 Permit. There have been major and minor modifications to these Permits during the course of each Permit cycle. The previous NPDES Permit was issued on March 13, 2009 and expired on March 14, 2014. Each Permit is issued for a 5-year period. The current Permit was issued on December 22, 2015 and expires on December 31, 2020. (see Appendix A).

The Port of Seattle is the sole Permittee. The Permit addresses management of all stormwater within the Air Operations Area (AOA) and surrounding airport industrial support facilities. The Port owns additional land outside this area (e.g., offsite parking and miscellaneous real assets); however, those areas are not covered by the Permit or by this SWPPP.

The current NPDES Permit contains three parts. Part I addresses the IWS. Part II addresses all runoff from the portions of the existing airport that do not drain to the IWS. Part III addresses discharges from construction sites, which are addressed by the *Seattle-Tacoma International Airport Programmatic Construction Stormwater Pollution Prevention Plan* (Port of Seattle, 2016) and are not included in this document.

Prior to the construction of Runway 16R-34L, Ecology issued a CWA § 401 Certification to the Port of Seattle on September 21, 2001 for Master Plan update improvements. In issuing the § 401 Certification, Ecology noted that a number of stormwater-related conditions would later be incorporated in the NPDES Permit. NPDES requirements derived from the § 401 Certification Conditions included:

- Requirements for Enhanced Treatment – The Port is required to study and assess outfalls that may need appropriate Best Management Practices (BMPs)/or enhanced BMPs to ensure compliance.

- Comprehensive Receiving Water and Stormwater Runoff Study – This study required sampling of stormwater above and below the discharge point to assess chemical, biological, and any other effects of the stormwater runoff on the receiving water. See *Final Study Plan, Comprehensive Receiving Water and Stormwater Runoff Study* (CH2M HILL, 2005).

- Whole Effluent Toxicity (WET) testing for mortality and sublethal toxicity effects on aquatic organisms – The Port is required to analyze the stormwater discharging to freshwater for acute and sublethal effects.

- 100% Retrofit of Stormwater Facilities at 100% Project Completion – The Port has completely retrofitted its stormwater system and facilities in the fall of 2011 upon the completion of the Pond M (SDN2/3/4 Pond) construction.

In addition, the NPDES Permit required the preparation of an Engineering Report. The *Seattle-Tacoma International Airport Stormwater Engineering Report* (R.W. Beck and Parametrix, 2006) described existing and proposed stormwater treatment facilities and other structural source control BMPs. The purpose of the report was to evaluate the various individual stormwater basins at the airport with respect to All Known, Available, and Reasonable Treatment (AKART) methods for stormwater.

As part of the Port's Century agenda, the Port is committed to continue providing stormwater treatment and flow control facilities for planned STIA expansion on Port owned Property.

1.3 Port of Seattle Aviation Environmental Programs

The Port of Seattle Aviation Environmental Programs implement and monitor compliance with various STIA environmental permits and federal, state, and local environmental rules and regulations. Aviation Environmental Programs also coordinate activities with STIA Aviation Operations (AV/OPS), Aviation Maintenance (AV/M), Port of Seattle Fire Department (POS/FD) and airport tenants. As part of this function, Aviation Environmental Programs, through the Surface Water Resources Group, manages compliance with the Port of Seattle's NPDES Permit, including stormwater requirements. The Surface Water Resources Group works with STIA tenants, AV/OPS, and AV/M staff to maintain compliance with the Permit. This includes comprehensive site compliance evaluations and inspections of Port and tenant facilities to identify the application of appropriate BMPs.

Surface Water Resources Group

The Surface Water Resources Group implements the requirements of the NPDES Permit, proactively manages stormwater runoff from STIA, and monitors surface water bodies within or adjacent to STIA. The Surface Water Resources Group is part of STIA Aviation Environmental Programs, as noted above.

Stormwater Management

The Port's Stormwater Management Program includes compliance efforts led by the Surface Water Resources Group as well as ongoing capital improvement efforts being conducted through the Port's Project Management Group with support from the Port's Facilities and Infrastructure group. In combination, these groups work together to assess current stormwater management capabilities, define future needs, and implement projects to meet those needs. All documented improvements identified in the *Comprehensive Stormwater Management Plan – Master Plan Update Improvements*, Seattle-Tacoma International Airport (Parametrix, 2001) and the *Seattle-Tacoma International Airport Stormwater Engineering Report* (R.W. Beck and Parametrix, 2006) have been completed and are being implemented. The document is available upon request.

Stormwater drainage at STIA is separated into two different collection systems, the IWS and the SDS. The IWS collects stormwater from the approximately 375 acres where industrial activities are conducted. This stormwater is treated in the IWTP before discharged through an individual outfall as identified in Part I of

the NPDES Permit. The SDS collects stormwater from the remaining approximately 1,200 acres. The stormwater drainage is conveyed to Lake Reba and subsequently to Miller Creek to the north, to the Northwest Ponds and Des Moines Creek to the south, and Walker Creek to the west; the discharge is through specific outfalls identified in the NPDES Permit. Stormwater from active construction areas is managed and monitored separately from the stormwater from the rest of STIA, but may discharge through an NPDES Permit Part II outfall.

The Stormwater Management Program monitors the stormwater discharging from STIA and submits discharge monitoring reports to Ecology. The Port also participates in two regional stormwater basin management programs for Des Moines and Miller/Walker Creeks.

Stormwater Management Program staff are responsible for several key compliance requirements related to stormwater. These items include monitoring the permit compliance of the IWS and the IWTP, monitoring construction stormwater, monitoring the stormwater outfalls, conducting comprehensive site compliance evaluations to evaluate tenant and Port compliance with stormwater requirements, and providing stormwater training and assistance to Port staff and tenants. Stormwater Management Program staff also submits reports required by the NPDES Permit and maintain all Permit files.

IWS and IWTP

As described previously, critical components of surface water management at STIA are the IWS and IWTP, which are operated and maintained by the Port. The IWS conveys permitted non-stormwater discharges and stormwater from areas of industrial activity to the IWTP for treatment prior to discharge to Puget Sound. The Water Resources Program monitors IWTP compliance with the NPDES Permit and implements IWTP quality assurance project plan (QAPP) for sampling protocols. Allowable discharges to the IWS and IWTP are discussed in the IWS Policy provided in this SWPPP as Appendix B.

Stormwater Monitoring

The Port monitors the stormwater from the airport that discharges through various SDS outfalls. This monitoring is discussed in the NPDES Permit (Appendix A). Specific information on how visual and water quality monitoring is conducted is found in the *Stormwater* Quality Assurance Project Plan for General and Permanent Non-Construction Stormwater Runoff Monitoring (Taylor Associates, August 2011). Copies of Discharge Monitoring Reports (DMRs) are sent monthly to Ecology, and are also posted on the Port's website:

(http://www.portseattle.org/Environmental/Water-Wetlands-Wildlife/Stormwater/Pages/Airport-Stormwater.aspx).

Construction Stormwater Management

Construction stormwater is managed separately from the rest of the stormwater at STIA. The construction stormwater program utilizes conventional and treatment BMPs for stormwater management. During project design appropriate BMPs are determined and if necessary modifications are implemented to ensure water quality requirements are met. Construction stormwater BMPs are monitored on a routine basis, as discussed in the NPDES Permit and in the *Seattle-Tacoma International Airport Programmatic Construction Stormwater Pollution Prevention Plan* (Port of Seattle, 2016).

In addition, construction contractors are required by Construction Specification 02270, Temporary Erosion and Sediment Control Planning and Execution, and by Construction Specification 01631, Pollution Prevention Planning and Execution, to have Erosion and Sediment Control Plans and Pollution Prevention

Plans. These required plans are preconstruction submittals that describe how the contractor will implement source control BMPs, erosion and sediment control BMPs, dewatering procedures and overall management of hazardous materials.

Inspections

The Port conducts two types of inspections of tenant and Port operations: comprehensive site compliance evaluations and spot inspections.

Comprehensive Site Compliance Evaluations

The Port's Water Resources Program staff conducts comprehensive site compliance evaluations on an ongoing basis. The inspections are performed by qualified environmental personnel. These are usually annual inspections and include all areas where industrial materials or activities may be exposed to stormwater, as well as areas where spills and leaks have occurred within the past three years. The SWPPP is updated with data from these compliance evaluations.

The compliance inspectors look for or confirm:

1. industrial activities performed during Port and tenant facility operations;
2. current contact information;
3. adequacy of and adherence to the tenant/facility's Water Pollution Control Plan (including the operational source control [OSC] BMPs applicable to the specific operations);
4. stormwater OSC BMPs in place at Port and tenant facilities;
5. industrial materials, residue or trash on the ground that could contaminate or be washed away in stormwater;
6. leaks or spills from industrial equipment, drums, barrels, tanks or similar containers;
7. offsite tracking of industrial materials or sediment where vehicles enter or exit the site;
8. tracking or blowing of raw, final, or waste materials from areas of no exposure to exposed areas; and
9. evidence of, or the potential for, pollutants entering the storm drainage system.

The results of visual monitoring conducted during the year are taken into consideration during each evaluation. Stormwater OSC BMPs are observed to evaluate whether they are operating correctly. Where discharge locations or points are accessible, they are inspected to see whether the BMPs are effective in preventing impacts to receiving waters.

Following each inspection, the Port prepares a Compliance Evaluation Report that summarizes the scope of the inspection, the name(s) of the personnel making the inspection, the date(s) of the inspection, and major observations relating to the implementation of the SWPPP. The inspections are documented in the SWPPP database. Sample forms with typical information collected are included in Appendix C. The inspection reports and records of the actions taken as a result of the inspection findings are retained for at least seven years.

Spot Inspections

Additional spot inspections may be performed to follow up on findings from the comprehensive site compliance evaluations. The inspectors look for similar items as the comprehensive evaluation, with an emphasis on the findings of the prior inspection. Again, the inspections are documented in the SWPPP database, and the reports and records of actions taken are retained for at least seven years.

Tenant Responsibilities

STIA's SWPPP identifies required and recommended BMPs to be implemented as appropriate for each tenant activity. The Port and its tenants must integrate stormwater BMPs with all standard operating procedures to comply with the NPDES Permit. Because airport tenant activities vary, each tenant is required to have a Water Pollution Control Plan (WPCP) that outlines BMPs specific to their operations at the airport. The WPCP serves as the tenant's version of the SWPPP.

Currently, Port Environmental Staff generates WPCPs for tenants after compliance inspections have been completed. The WPCP must be reviewed by the tenant periodically for applicability. Port Environmental staff will conduct comprehensive inspections of tenant facilities to determine the tenant's compliance with permit requirements based on implementation of the WPCP.

The Permit also requires all individuals that have a potential to impact stormwater discharges to undergo annual training. The Port's STIA specific SWPPP training for tenants is available online. Typically, a link to the training module is sent out with completed SWPPP inspection documents or by request. Documentation of completed training requirements must be submitted to the Port annually or upon request.

Facility Staff and Tenant Training

The Port's Water Resources Program staff provide stormwater management training to Port staff on an annual basis. The Port provides tenants with an online training module with information specific to STIA. Tenants are responsible for providing required training to their employees.

Employees who work in areas where industrial materials or activities are exposed to stormwater or are responsible for implementing activities identified in the SWPPP (e.g., inspectors, maintenance personnel) participate in the training. The purpose of the training is to inform personnel at all levels of responsibility of the components and goals of the SWPPP. The training program addresses topics such as good housekeeping, materials management practices, BMP operation and maintenance, and spill response procedures.

Training may be in a classroom setting, in safety meetings, or in the form of computer/online based training modules. The Port may provide the training modules on discs or make them available to tenants and Port staff on the internet or the Port's internal network.

Documentation of Port staff training is maintained in the Port's Learning Management System, available from the Human Resources department. Documentation of tenant training is maintained in the tenant's records.

2.0 Facility Assessment

From 2003-2005, a Facility Assessment was conducted at STIA. The Facility Assessment defined the areas of airport-related activity and classified and delineated pollution-generating surfaces and airport-related activities. The Assessment also included revised maps of existing drainage basins to reflect current conditions, inventory structural BMPs, and delineate drainage basins associated with each BMP. The Assessment provided a comprehensive site map and inventories of the following:

- pollution-generating activities and equipment that impact or have the potential to impact stormwater;
- materials and airport surfaces that impact or have the potential to impact stormwater; and
- structural BMPs and associated drainage basins.

The findings of the Facility Assessment are summarized in the following sections and are preceded by a site description in accordance with the requirements of the NPDES Permit. A Technical Memorandum documented the findings of the Facility Assessment (Parametrix, 2004). Portions of this document were revised in a Memorandum in July 2005 (Parametrix, 2005). Copies of both the 2004 Technical Memorandum and the 2005 follow-up Memorandum are included in this SWPPP as Appendix E. The applicable maps and BMPs are updated in this SWPPP as facilities change or are constructed.

In addition, tenant facilities are inspected on a regular basis to better assess the industrial activities that take place at STIA and determine what BMPs might be applicable to those activities. The inspections consist of site visits to each tenant and Port operation, and interviews with tenant and operations staff. The information gathered during these inspections is reflected in the tenant activities discussed in the following sections.

The Port has also conducted other evaluations of potential stormwater pollutant sources, such as a zinc sources evaluation (Taylor Associates, 2004).

Note that during 2006-2008, stormwater detention and treatment facilities were added to nearly the entire airport and the Des Moines Creek Regional Detention Facility at Northwest Ponds was completed and resulted in changes in the locations of many outfalls. During these years, stormwater facilities to support the third runway were constructed, and other storm facilities were retrofitted as discussed in the Seattle-Tacoma International Airport Stormwater Engineering Report (R.W. Beck and Parametrix, 2006), the Facility Assessment Memoranda (Parametrix, 2004, 2005), and other documents. As a result, there were substantial changes made to the drainage system. Descriptions of BMPs, including treatment BMPS, are included in Section 6.0.

The complete facility assessment document is available upon request (see Appendix D).

2.1 Site Description

STIA is a major airport that serves Western Washington. The airport opened in 1944 and is owned and operated by the Port of Seattle. STIA is located on approximately 2,500 acres surrounded by the City of SeaTac, City of Burien and the City of Des Moines. The Port provides facilities for tenants engaged in

passenger and air cargo transportation and aviation support activities at the main terminal (four concourses), two satellite terminals, the AOA, and other Port properties. Industrial activities at the airport include aircraft and ground vehicle maintenance, fueling, washing, aircraft and ground de-icing/anti-icing, and miscellaneous airport-related activities. These facilities generally operate in a similar manner year-round. In winter, aircraft and ground de-icing and anti-icing may occur (see Table 2).

As discussed in Section 1.0, stormwater drainage at STIA is separated into two different collection systems, the IWS and the SDS. The IWS receives stormwater runoff from areas involved with industrial activities (aircraft servicing, deicing, and maintenance) and provides treatment before discharging to Puget Sound via a shared outfall with the Midway Sanitary Sewer District. In the case of high Biochemical Oxygen Demand (BOD) loading, the stormwater is diverted to the King County South Treatment Plant in Renton for additional treatment. Stormwater from a total of approximately 375 acres is diverted to the IWS.

The remaining area is collected by the SDS, discharging in part to the individual outfalls identified in Part II of the NPDES Permit. The SDS includes stormwater infrastructure draining principally to Miller Creek, Walker Creek or Des Moines Creek.

2.2 IWS Area

Runoff from areas associated with industrial activities is diverted to the IWS. The IWS collects industrial activity related stormwater and wastewater from approximately 375 acres that include the terminal, air cargo areas, aircraft de-icing areas, hangars, and maintenance areas. Industrial wastewater may result from any process or activity of industry, manufacturing, trade, or business, and includes (but is not limited to) water used for industrial processes such as pipe integrity pressure testing and vehicle and aircraft wash water; stormwater contaminated with fuel, lubricants, firefighting foam, cleaning agents, and aircraft and ground surface de-icing/anti-icing agents; contaminated construction dewatering waters; excess water from groundwater well construction and monitoring; and leachate from contaminated sludge management. These are all permitted discharges to the IWS.

The IWS is divided into two drainage basins: The North Service Basin and the South Service Basin. The IWS North Service Basin includes portions of STIA between Taxiways A and B and Air Cargo Road, as well as the General Aviation area on the west side of the airfield. The IWS South Service Basin includes the Fuel Farm, Passenger Gate Ramp Areas, as well as aircraft hangars and airport parking garage.

The conveyance system includes piping, manholes and catch basins, below-grade vaults in the parking garage, and 11 pump stations. Each pump station functions as a key structural source control BMP by diverting runoff to the IWS from various drainage areas that would otherwise drain to the SDS.

The storage of runoff from the IWS collection system is a critical component of the overall system as it allows for temporary containment of flows in excess of the plant's treatment capacity. Lagoon 1 was constructed in 1965 and holds approximately 1.6 million gallons at the maximum normal operating water depth. Lagoon 2 was constructed in 1972 and has a capacity of approximately 3.3 million gallons at the maximum normal operating water depth. Lagoons 1 and 2 were lined with a polyethylene liner in 1996 and 1997 respectively. Lagoon 3 was constructed in 1979 and held approximately 20.2 million gallons at the maximum normal operating water depth. In 2002, Lagoon 3 was cleaned, lined, and expanded to 76 million gallons.

Lagoons 1 and 2 are located just north of the IWTP, while Lagoon 3 is located southeast, across South 188th Street. Piping and valves allow diversion of either service basin to either Lagoon 1 or 2. Flow may also be conveyed between Lagoons 1 and 2 or diverted directly to Lagoon 3. Two valves located in the Lagoon 1 and Lagoon 2 outlet structures control the discharges from these lagoons into the IWTP. A pump station next to Lagoon 3 transfers water from Lagoon 3 to the IWTP influent head box. The Lagoon 3 design provides both an overflow spillway and an emergency decant drain drawing from mid-depth of the lagoon. This drain can be used as an alternative to allowing the lagoon to overflow from the spillway, thereby avoiding the release of any product that may be floating on the surface. As part of its normal operating procedures, IWTP staff maintain lagoon levels as low as practical at all times, thus reducing the probability of lagoon overflows.

2.3 SDS Area

The Storm Drainage System (SDS) drains over 1200 acres. Almost one-half of this area is impervious and includes airport runways, taxiways, parking lots, roads and roofs. The remainder is pervious which consists of landscaped or fallow open spaces. On the north portion of STIA, the stormwater drainage is conveyed to Lake Reba and subsequently to Miller Creek, the western portion of STIA drains to Miller Creek and Walker Creek, while in the south the drainage flows to the Northwest Ponds and Des Moines Creek. About 25 percent (approximately 282 acres) of the area drained by the SDS drains to Miller Creek. This drainage represents about 7 percent of Miller Creek's watershed. Approximately 71 percent of the total area drains to the Northwest Ponds and Des Moines Creek, which represents about 21 percent of the creek's watershed.

2.4 Site Maps

During the Facility Assessment, the following features of STIA were mapped (Parametrix, 2004):

- Stormwater drainage and discharge structures (Figure 02 in this SWPPP)
- Outlines of stormwater drainage areas for each stormwater discharge point (Figure 03)
- Surface water locations (including wetlands and drainage ditches) (Figure 03)
- Paved areas & buildings (Figure 04)
- Areas of pollutant contact (actual or potential) (Figure 05)
- Pollution and non-pollution generating surface areas, including vehicle service areas (Figure 05)
- Structural Source Control (SSC) BMPs and BMP drainage basins

Note that airport facilities have changed since the 2004 Facility Assessment and the maps included in this SWPPP reflect current site conditions.

There is no vehicle service in the SDS, all vehicle service is in the IWS. Existing and potential soil erosion areas are identified in the *Seattle-Tacoma International Airport Programmatic Construction Stormwater Pollution Prevention Plan* (Port of Seattle, 2016).

2.5 Receiving Waters

The following are descriptions of the airport's receiving waters (Miller Creek, Des Moines Creek East, Des Moines Creek West and Walker Creek) and are included in the *Fact Sheet for NPDES Permit WA-0024651* (Ecology, 2015). These were developed with input from the Port of Seattle.

Miller Creek

Miller Creek is six miles in length and its watershed includes portions of Normandy Park, the city of SeaTac, and the city of Burien. Approximately 62 percent of the land use in the Miller Creek Basin is residential, 19 percent is commercial/industrial, and the remainder is open (parks, cemeteries, or forests/wetlands) (CH2MHILL, 2008). The creek flows south under SR 518 and through the in-stream Miller Creek Regional Detention Facility, passing Lake Reba and Lora Lake.

The Port constructed Lake Reba in 1973 in compliance with a stipulated order (King County Superior Court No. 726259). Originally identified as the North Clear Zone Detention Pond, the pond was designed to provide 13.5 acre-feet of active storage, limit release rates to Miller Creek to 40 cubic feet per second and treat runoff from the northern portion of STIA. A study conducted in the mid-1990s confirmed that this facility provided removal of pollutants, specifically zinc and suspended solids (Port of Seattle, 1997). Although initially operated as a stormwater facility, in April 2005 Ecology determined that Lake Reba was constructed in a wetland and therefore constituted waters of the state, subject to regulation as a natural water body.

Miller Creek continues southward through land owned by the Port of Seattle. Portions of the creek in this vicinity have been relocated and were restored as mitigation during construction of the third runway. The creek then turns west and flows two miles to the Puget Sound.

The Miller Creek Basin is urbanized and exhibits rapid changes in stream flow typical of developed basins. The large amount of impervious areas produces much more runoff than occurred under native, forested conditions, and this runoff reaches surface water much more quickly. In 1992, King County constructed the in-stream Miller Creek Regional Detention Facility and the 1st Avenue South Regional Detention Facility (Ambaum Pond) as partial mitigation for increased flows attributed to regional development within the watershed (Miller and Walker Creek Basin Plan, 2006).

Miller Creek Subbasins/Lake Reba

There are five active STIA subbasins in the Miller Creek Basin: SDN1, SDN-2/3/4, SDN3-A, SDW1-A, and SDW1-B. The SDN-2/3/4 subbasin was previously broken down into SDN2, SDN3, and SDN4 subbasin. All of these subbasins discharge to Lake Reba.

SDN1: The SDN1 subbasin is located in the northeastern portion of the airport and discharges to Miller Creek via Lake Reba. Runoff from the subbasin includes flight kitchens, roads, and the roofs of several buildings. Several galvanized rooftops are painted in the SDN1 subbasin as a source control measure to reduce zinc concentrations in stormwater. Bioswales along Air Cargo Road treat runoff from this roadway within the SDN1 subbasin. A stormwater detention pond was constructed to detain and treat stormwater from the SDN1 subbasin. The detention pond was put into service in December 2006 and provides 7.15 acre-feet of live storage with 2.1 acre-feet of wet pond dead storage. In 2011, a bioretention swale and solar pump system was constructed next to the SDN1 pond to provide additional treatment during the summer months.

SDN-2/3/4: The SDN-2/3/4 subbasin is located on the north end of the airport and combines the SDN-2, SDN-3, and SDN-4 subbasins into a single outfall. The SDN-2/3/4 subbasin discharges to Miller Creek via Lake Reba.

The individual outfalls were eliminated from the permit and combined into a single temporary outfall,

Pond M, on October 12, 2010 during reconstruction of the Pond M (SDN2/3/4) detention facility. The Pond M outfall was eliminated from the permit and the SDN2/3/4 outfall was activated in November 2011. A detention pond provides Level 2 (duration-based) flow control. For BMP administrative management purposes the SDN2, SDN3, and SDN4 Subbasins remain.

SDN2: The SDN2 subbasin is primarily an IWS drainage area that collects runoff from over 42 acres of taxiways and cargo ramp areas. Runoff from the subbasin is collected and diverted to the IWS using two pump stations designed to divert runoff up to the water quality design flow rate (6-month/24-hour event). Peak flows exceeding the capacity of the pump stations drain to the SDN-2/3/4 outfall. SDN2 collects runoff from aircraft cargo areas and some taxiways. Within these areas industrial activities include cargo aircraft servicing/deicing and pavement deicing/anti-icing chemical applications.

SDN3: SDN3 subbasin is located on the northern portion of the airport. SDN3 contains airfield activities at the north end of the airport, including service roads, runways, taxiways, and associated infield areas. The infields are the open, grassed areas between taxiways and runways portions of which are managed as filter strips to treat runoff from the adjacent pollution-generating surfaces (runways).

SDN4: SDN4 subbasin is located on the northern portion of the airport and consists of service roads, runways, taxiways, and associated infield areas. Reconstruction of Runway 16L during the summer of 2009 allowed the Port to relocate catch basins further away from the edge of the runway. This work lengthened the effective treatment area of the filter strips.

SDN3-A: The SDN3-A outfall was activated upon commissioning of the third runway (16R/34L). The SDN3-A subbasin discharges directly to Miller Creek and collects stormwater from the northwest portion of the third runway and taxiways. A Level 2 flow control detention pond and filter strips located along the runway provide flow control and treatment.

SDW1-A: The SDW1-A outfall was activated upon commissioning of the third runway. The SDW1-A subbasin discharges directly to Miller Creek and collects stormwater from the northwest portion of the third runway taxiways. A Level 2 flow control detention pond and filter strips located along the runways provide flow control and treatment.

SDW1-B: The SDW1-B outfall was activated upon commissioning of the third runway. The SDW1-B subbasin discharges directly to Miller Creek and collects stormwater from the western portion of the third runway and taxiways. A Level 2 flow control detention pond and filter strips located along the runways provide flow control and treatment.

Des Moines Creek East

Des Moines Creek East begins at Bow Lake, one quarter mile east of STIA. The creek flows mostly within pipes through the city of SeaTac and along the east side of STIA. The flow daylights in the southeast portion of STIA and flows through a golf course and the Tyee Detention Facility (constructed by King County in 1989). Des Moines Creek East joins with Des Moines Creek West a short distance downstream of Tyee Detention Facility, south of the runways, and then crosses under South 200th Street. Des Moines Creek flows an additional two miles south and west to Puget Sound. The Des Moines Creek basin covers the cities of Des Moines, Normandy Park, and SeaTac and a small portion of the city of Burien.

The area of the Des Moines East Basin above its confluence with Des Moines West is 1,032 acres. The majority of this area lies west of STIA in the city of SeaTac. Off-airport land uses include single family

residential, a large mobile home park, a highly commercialized area along International Boulevard and a golf course. Approximately 218 acres draining to the east branch are associated with STIA SDS subbasins as described below

Des Moines Creek is urbanized and exhibits large variations in stream flow that are characteristic of developed basins, similar to Miller Creek. The current level of development has increased the peak discharges in the creek system enough to cause flooding and erosion problems. In addition to the Tyee Detention Facility, the Des Moines Creek Regional Detention Facility and Des Moines Creek High Flow Bypass have been constructed to reduce high flows in the creek through Des Moines Creek Basin Planning efforts.

Des Moines Creek East Subbasins

SDE-4/S1: The SDE-4/S1 subbasin is located along the eastern portion of the airport and combines the SDE4 and the SDS1 subbasins into a single outfall (August 2007 by NPDES Permit Minor Modification) which discharges to the East Branch of Des Moines Creek.

SDS1: The SDS1 area receives runoff from aircraft maintenance building rooftops, parking areas, cargo building rooftops, roads, and parking lots. In October 2006, a galvanized maintenance building rooftop was painted along with galvanized portions of an HVAC-I-beam superstructure on an adjacent office building (source control). Two bioswales were constructed in SDS1. They are located in an approximately one-acre area along South 188th Street at the downstream end of the subbasin. In August 2011 improvements were made to the SDE-4/S1 flow splitter vault and bioswale. This bioswale was converted into a bioretention media bed with an underdrain system along with modifications to the flow splitter to allow the ability to effectively direct SDS-1 flows to the modified SDS1 bioretention swale for additional stormwater treatment.

SDE4: The SDE4 subbasin drains the passenger terminal area on the east side of STIA. This area receives runoff from roads, parking lots, terminal area roofs, and taxiways. Multiple BMPs constructed in the SDE4 subbasin were designed to meet AKART requirements (basic treatment) and provide additional enhanced treatment for dissolved metals. The first was the SE Pond Tunnel Diversion Pipe. The pipe was designed to divert flows from the existing 60-inch storm drain pipeline that lies under International Boulevard and connects below grade with Des Moines Creek East and discharges from Bow Lake. This diversion pipe allowed the Port to segregate the SDE4 subbasin stormwater from city of SeaTac drainage plus Bow Lake discharges and conveys the SDE4 subbasin stormwater to a site where airport runoff could be separately detained and treated. Construction on this tunnel and diversion pipe was complete on May 31, 2006, but it did not become active until the SE Pond detention and treatment project was completed in June 2007. The SE Pond detention and treatment project involved construction of an end-of-pipe facility incorporating an enhanced Level 1 flow control extended detention pond, a 600-cartridge media filtration vault providing enhanced treatment, and a bioswale. The SDE4 subbasin was routed through the diversion pipe and into the pond, treatment system, and bioswale in June 2007. A gravity drain system was added to the SDE4 pond to allow the dead storage volume to be routed to an adjacent bioretention/media treatment swale during the summer. For BMP management purposes the SDE4 and SDS1 subbasins continue to be shown separately on maps and figures.

SDD06A: The SDD06A subbasin and outfall was activated in 2010 and is monitored under Part II of the permit. This area receives runoff from public roads, vehicle parking areas, rooftops, Port Bus Maintenance Facility and Distribution Center, landscaped areas, and construction laydown. Water quality treatment for

SDD06A consists of bioretention swales with oyster shells placed at the end for additional treatment and oil-water separators. The subbasin is also served by a Level 1 flow-control detention pond. The SDD06A outfall drains to the East Branch of Des Moines Creek.

SDD05A and SDD05B: Subbasins SDD05A and SDD05B were added to the 2009 NPDES permit based on the potential for future growth and industrial activities. In 2016 improvements were made to the SDD05B pond outlet flow control structure for improved flow control. In addition, a downstream bioretention swale was added for stormwater treatment. Currently these subbasins SDD05A and SDD05B have no industrial activity and are not monitored under the current NPDES permit.

Des Moines Creek West/Northwest Ponds

Des Moines Creek West has its origins in the area southwest of the runways. The upper portion of its basin originates in a highly-developed area. The creek flows into a series of ponds known as the Northwest Ponds. Historical aerial photos indicate that the area occupied by the ponds was farmland until the late 1950s. The ponds were dredged during the following decade Approximately 1,240 acres drain to the West Branch of Des Moines Creek. Approximately 630 acres are within the boundaries of the STIA. Off-airport land uses include streets, single family residential, warehouses, and a large wetland area south of the ponds.

The Northwest Ponds were enlarged to provide regional detention to control high flows in the middle and lower reaches of Des Moines Creek by the Des Moines Creek Basin Committee which consists of the Port of Seattle, City of SeaTac, City of Des Moines, King County, and Washington State Department of Transportation. Additional committee projects included a high creek flow bypass pipe that conveys flows directly to Puget Sound via an existing outfall. Habitat improvements were added to the stream channel south to S. 200th Street. Downstream, an undersized culvert under Marine View Drive has been replaced by a bridge to improve fish passage. Additional stream habitat improvement projects will continue to be constructed as further funding is secured. As a result of these enhancements, Ecology approved a basin-wide alternative flow control standard in 2008 consisting of Level 1 with a 1994 existing condition target.

There are three STIA subbasins in Des Moines West Basin: SDS-3/5, SDS4, and SDS-6/7. All of these subbasins within the Des Moines West Basin receive runoff from runways, taxiways, and service roads. During 2003-2008, all of the subbasins that drain to the Des Moines West Basin were improved through the addition of a variety of water quality and flow control BMPs. A bioretention swale was constructed to provide additional treatment in the SDS4 subbasin in August 2011.

Des Moines Creek West Subbasins

SDS2: SDS2 drainage basin is located at the southwestern portion of the airport that consists of open space and an unpaved limited/maintenance access road. No industrial-related activities occur in this subbasin. The swale, through which SDS2 discharges, was modified to promote infiltration. As a result, no runoff reaches the Northwest Ponds from this subbasin (Port of Seattle, 2006). The SDS2 outfall was subsequently eliminated from the permit by Minor Modification on August 7, 2007.

SDS-3/5: The SDS-3/5 subbasin is located in the southern portion of the airport and combines the SDS3 and the SDS-5 subbasins into one single outfall which discharges to the West Fork of Des Moines Creek via Northwest Ponds. This outfall was combined on August 7, 2007 by NPDES Permit Minor Modification. SDS-3/5 drainage area is the largest at STIA, consisting primarily of runway, taxiway, limited/maintenance access roadways and runway infield. The SDS-3/5 subbasin is treated by filter strips, bioswales, and two

Level 1 flow control detention facilities.

SDS5 was rerouted to the SDS3 detention facility on August 28, 2007, in accordance with the Des Moines Creek flow-control plan update. Existing filter strips in SDS3 and SDS5 were improved in October 2006 through edge dam removal, regrading, and reseeding. As part of the 2009 Runway 16L/34R reconstruction, filterstrips were widened to provide additional stormwater treatment in the SDS3 basin. For BMP management purposes the SDS3 and SDS5 subbasins continue to be shown separately on maps and figures.

SDS-4: SDS4 drainage basin is located on the southern portion of the airport. SDS4 drainage is collected at a stormwater facility located south of Runway 34R in the Tyee Valley Golf Course. This detention pond discharges to Northwest Ponds prior to entering Des Moines Creek West. The facility supplements the Des Moines Creek Regional Detention Facility by providing detention to the SDS4 subbasin. SDS4 formerly discharged directly to Des Moines Creek East just upstream of its confluence with Des Moines Creek West. Construction was completed on the 1.9-acre-foot detention facility for the SDS4 subbasin in October 2006. In August 2011, a bioretention swale was constructed west of the SDS4 detention pond to provide additional treatment for the SDS-4 basin.

SDS-6/7: SDS-6/7 is located on the southwestern portion of the airport and the drainage basin receives runoff from runways, taxiways, infield, and perimeter roads. In the summer of 2005, SDS6 and SDS7 were combined as a single discharge as a result of construction activities associated with the third runway. A 3.5-acre-foot vault was constructed in the fall of 2006 to provide detention for the SDS6 subbasin. Areas formally associated with the SDS7 subbasin have been incorporated into the SDS6 subbasin and are served by this facility. As part of the third runway construction, filter strips and bioswales were created to treat runoff from the runways and taxiways within the SDS-6/7 subbasin. The SDS-6/7 Flow Control Vault was also constructed as part of the third runway and became operational in 2010.

SDS7: The SDS7 subbasin was combined with the SDS6 subbasin in 2005-2007 and is no longer a separate outfall. The combined outfall discharges into the Des Moines Creek (West Branch) via Northwest Ponds. The SDS7 outfall was subsequently eliminated from the permit by Minor Modification on August 7, 2007.

Walker Creek Basin

Walker Creek is approximately two miles in length. It begins immediately west of Des Moines Memorial Drive, just inside the city of SeaTac, and heads westward through a series of wetlands and open water areas in the city of Burien and Normandy Park. Walker Creek joins Miller Creek before discharging into the Puget Sound. SDW2 is the only STIA drainage basin that discharges to Walker Creek. The SDW2 outfall was activated in November 2008 with the opening of 16R/34L.

Walker Creek Subbasins

SDW2: The SDW2 drainage basin is located on the south-western corner of the airfield. This area receives runoff from runway, taxiways and infield areas associated with the west portion of 16R/34L. Runway filter strips provide treatment. Flow control is provided by a Level 2, 11.9 acre-ft detention pond.

2.6 Receiving Water Studies

Dissolved Oxygen Studies

Because of the potential for STIA snowmelt and stormwater runoff after runway and taxiway surface de-icing events to affect dissolved oxygen (DO) levels in Miller and Des Moines Creeks, the Port conducted two seasons of extensive monitoring. The first of these "DO Studies" was conducted during the winter of 1998-1999 (Cosmopolitan Engineering Group, 1999). Ecology reviewed the report and raised questions that could not be fully evaluated given the scope of the 1999 study. The second study conducted during the winter of 1999-2000 (Port of Seattle, 2000) continued similar work while addressing Ecology's comments. These studies are considered an investigative BMP as part of the adaptive management strategy under the Port's NPDES Permit for STIA. It is important to note that other entities discharging stormwater to the local streams may also be conducting de-icing chemical applications concurrent with the Port (e.g., WSDOT).

Fecal Coliform Bacteria

The Port began studying fecal coliforms (FC) in SDE4 discharges in 1998 and completed the series of investigations in early 2001. This work used several special forensic techniques (e.g., microbial source tracing [MST]) aimed at identifying potential sources of the sporadic elevated FC results. Past STIA Annual Reports have discussed findings that corroborate the most recent and final portion of this investigation. Multiple data over several years using state of the art techniques have demonstrated an absence of sanitary sewer cross connections.

Receiving Water and Stormwater Runoff Study

The Comprehensive Receiving Water and Stormwater Runoff Study (CH2M HILL, 2008) assessed the impact of stormwater runoff from STIA properties on the adjacent receiving waters, including Des Moines Creek, Miller Creek, Gilliam Creek and the Northwest Ponds. The NPDES Permit required that this study include the following elements:

- Chemical characterization of receiving waters upstream and downstream of STIA properties (or individual outfalls);
- stream benthic macroinvertebrate sampling and analyses using the Benthic Index of Biological Integrity (BIBI) or other site-dependent, applicable methods; and
- studies of the Northwest Ponds (biological, physical, and water quality) and Lake Reba to define stormwater sources, along with an action plan to meet the water quality standards in their respective receiving waters (as applicable).

2.7 Industrial Activities

As described in Section 1.2, stormwater discharges associated with industrial activities at STIA are covered under the NPDES Permit. Industrial activities at STIA include those associated with Port and tenant operations. Industrial activities are listed below, with their OSC BMPs and associated tables that are included in Section 6.0 of this SWPPP:

- OSC BMP 1.0, General Industrial Activities (Table 04)
- OSC BMP 2.0, Aircraft, Vehicle, and Equipment Maintenance (Table 05)
- OSC BMP 3.0, Aircraft, Vehicle, and Equipment Cleaning (Table 06)
- OSC BMP 4.0, Aircraft, Vehicle, and Equipment Storage (Table 07)

- OSC BMP 5.0, Outdoor Handling, Storage, and Disposal of Wastes and Materials (Table 08)
- OSC BMP 6.0, Fuel Storage and Delivery (Table 09)
- OSC BMP 7.0, Building and Grounds Maintenance (Table 10)
- OSC BMP 8.0, Vehicle and Equipment Painting (Table 11)
- OSC BMP 9.0, Garbage Handling and Disposal (Table 12)
- OSC BMP 10.0, Aircraft De-icing and Anti-icing (Table 13)
- OSC BMP 11.0, Aircraft Lavatory Waste Servicing (Table 14)
- OSC BMP 12.0, Aircraft and Vehicle Potable Water System Flushing (Table 15)
- OSC BMP 13.0, Roadway, Ramp, and Runway Maintenance and Cleaning (16)
- OSC BMP 14.0, Fire Suppression and Aqueous Film Forming Foam Discharge (Table 17)
- OSC BMP 15.0, Animal Handling (Table 18)
- OSC BMP 16.0, Spill Response and Spill Clean-up (Table 19)

Figure 06 shows the major industrial tenant and facility locations. Note that one tenant may have several facilities and one facility may have several tenants.

Table 02 lists the potential pollutants used at each Port and tenant facilities. Based on information gathered from facility inspections, the pollutants listed in Table 2 have the potential to impact stormwater, including runoff collected in the IWS and discharged to the IWTP and runoff collected in the SDS and discharged to surface water.

Figure 05 shows the areas of airport-related activity and potential pollutant contact. Figure 06 shows the general operational areas of STIA industrial tenants.

2.8 Materials Inventory

Due to the number of Port operations and tenants with activities that use similar material, the types of materials have been summarized in the following categories:

Material	**P**otential of the material to be present in stormwater discharges.
Aircraft de-icing chemicals	Although de-icing chemical storage and application occurs within the IWS, potential impacts to the SDS can occur from aircraft drip, spills, and delivery accidents.
Antifreeze	Although antifreeze storage and application occur within the IWS, potential impacts to the SDS can occur from spills, and delivery accidents within the SDS.
Batteries	Although battery storage occurs within the IWS, potential impacts to the SDS can occur from illegal dumping and improper battery storage within the SDS.

Diesel / Gasoline	Diesel and gasoline impacts to the SDS may occur from spills, leaks and vehicle accidents.
Ground de-icing chemicals	Although the ground de-icing chemical application is expected to occur primarily in the IWS, some application may occur in the SDS where minor amounts of dissolved de-icing chemicals may impact stormwater. Therefore, ground deicing chemicals are restricted to an approved list that does not include chloride-based salts and urea.
Herbicides / Pesticides	Application of herbicides and pesticides is required for airport maintenance and sanitary conditions where food is stored and served. Application is conducted by licensed commercial applicators using and approved list. Pesticide and herbicide impact to the SDS can occur from spills and improper application.
Jet fuel	Jet Fuel impacts to the SDS may occur from spills, leaks and aircraft / vehicle accidents.
Lavatory chemicals	Although lavatory chemicals are stored, applied and disposed of within the IWS, impacts to the SDS can occur from spills, leaks and delivery accidents.
Oil and grease	Oil and grease impacts to the SDS may occur from spills, leaks and vehicle accidents.
Solid waste	Solid waste leachate can impact the SDS from leaking dumpsters and trash cans, delivery accidents, and illegal dumping.
Paint	Paint impacts to the SDS may occur from spills, leaks and delivery accidents.
Soap / cleaning fluid	Soap / cleaning fluid impacts to the SDS may occur from spills, leaks and delivery accidents.
Solvents	Solvent use and applicable is generally limited to the IWS drainage areas. Solvent impacts to the SDS may occur from spills, leaks and delivery accidents.

The Port or tenant operation and facility location determines whether or not there is a potential exposure to stormwater. Most locations where these items are handled are within the IWS collection area, and any stormwater exposed would be treated by the IWTP. Table 02 indicates which of these materials are handled by which tenants and facilities.

Aviation Environmental Programs staff conduct cleanup and monitoring for remediation sites that are the responsibility of the Port and oversee and coordinate tenant cleanup and monitoring of sites for which

tenants are responsible. Ongoing site management ensures that contaminants present in soil and groundwater are remediated to meet the State's risk-based cleanup standards.

3.0 Spills and Leaks

Because industrial operations occur within the IWS drainage area, the potential for releases outside of the IWS collection area are minimal. In the event of a release to waters of the State, the Port of Seattle has control and countermeasures in place to minimize migration. These include detention facilities with control valves and similar measures. The Port maintains 24-hour on-call response services for any spill to the IWS or SDS collection areas or any release to waters of the State.

After each spill, the responsible party is identified and, if necessary, disciplined after a review of the available facts. Spill response and reporting procedures are included in the Spill Prevention Control and Countermeasures (SPCC) Plan (Port of Seattle, October 2014, revised August 2016). A summary of Port of Seattle spill response procedures is included in Appendix F of this SWPPP.

Spills and releases are reported to and recorded by STIA Aviation Environmental Programs staff. If a release to waters of the state occurs, STIA Aviation Environmental Programs staff will report necessary information to Ecology. A summary of releases during the previous three years is provided in Table 03.

Tenants are expected to contain their spills and report releases to the Port who reports to Ecology. The Port provides additional assistance if necessary to ensure that proper remedial actions have been taken.

4.0 Monitoring Plan

The Port has prepared a QAPP that identifies points of discharge to surface waters or the SDS and describes the stormwater outfall sampling points, the criteria for sampling storm events, and the sampling requirements to comply with the STIA NPDES Permit. The Permit specifies sampling frequencies and parameters. The Port reports data in DMRs where results from storms and samples meet the representativeness criteria of the Plan. In addition to data provided in the DMRs, other results from samples not meeting these criteria or those taken for other purposes have been included in Annual Stormwater Monitoring Reports. Using automatic samplers, the Port generally takes a grab sample, then a flow-weighted composite sample, during rainstorms where the rainstorm is defined in the NPDES Permit. Each of these samples is analyzed for a different suite of constituents according to the Permit. Sampling protocols are outlined in the Quality Assurance Project Plan for General and Permanent Non-Construction Stormwater Runoff Monitoring (Taylor Associates, August 2011)

The QAPP is available upon request. Contact Chris Milewski, Sr. Environmental Program Manager for more information.

Chris Milewski
Port of Seattle Aviation Environmental Programs
Tel: (206) 787-4633
Email: milewski.c@portseattle.org

4.1 Adaptive Management

The general approach to meeting NDPES Permit requirements is to identify locations where additional SSC and/or OSC BMPs are needed to meet AKART (see R.W. Beck, 2005); implement any new AKART BMPs; continue monitoring stormwater; evaluate stormwater chemical and physical parameters against effluent limits and targets; and apply adaptive management techniques where progress does not meet stated goals.

Implementation of AKART structural BMPs for the various drainage basins is expected to result in discharges that meet the NPDES discharge limits (Table S1-1 of the STIA NPDES Permit) and the benchmark monthly average concentration for BOD (45 milligrams per liter [mg/L] November through March, and 25 mg/L April through October). Water quality monitoring is used to evaluate the success of the BMPs and to indicate when adaptive management procedures may need to be employed.

Throughout the duration of the NPDES Permit, progress will be routinely monitored to determine whether BMPs should be changed. The primary means of tracking and ensuring compliance with the NDPES Permit is through comparisons of monitoring data with the applicable NPDES Permit limits and benchmark targets. This process of implementation, evaluation, and change is generally referred to as adaptive management.

Adaptive management methods will include adjusting BMPs in accordance with new information, modifying outfall sampling frequency and/or locations to further delineate sources, and conducting specific inspections in identified drainage areas. If such changes are needed, this SWPPP will be modified, and the changes will be documented.

5.0 Illicit Non-Storm-Water Discharges

The STIA NPDES Permit authorizes stormwater and non-storm-water discharges to the IWS. The IWS collects industrial wastewater which is primarily rainfall that falls on the terminal, air cargo areas, aircraft de-icing areas, hangars, and maintenance areas. Industrial wastewater is water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater or noncontact cooling water. Industrial wastewater may result from any process or activity of industry, manufacturing, trade, or business, and includes (but is not limited to) water used for industrial processes such as pipe integrity pressure testing and vehicle and aircraft wash water; stormwater contaminated with fuel, lubricants, firefighting foam, cleaning agents, and aircraft and ground surface de-icing/anti-icing agents; contaminated construction dewatering waters; excess water from groundwater well construction and monitoring; and leachate from sludge management facilities. These are all permitted discharges to the IWS.

Primarily stormwater discharges are permitted to the SDS. However, some non-storm-water discharges are also permitted. Potential and authorized non-stormwater-discharges at STIA include those associated with fire hydrant flushing, firefighting activities, potable water line and water tank flushing (provided the line is dechlorinated), irrigation drainage, uncontaminated ground water or spring water, discharges associated with dewatering foundations, footing drains, or utility vaults where flows are not contaminated with process materials such as solvents, incidental windblown mist from cooling towers that collects on rooftops or areas adjacent to the cooling tower (this does not include intentional discharges from cooling towers such as piped cooling tower blowdown or drains), and uncontaminated air conditioning condensate (Ecology, 2009). These authorized non-storm-water discharges are also subject to BMPs identified in this SWPPP.

5.1 Illicit Connections Inspection and Testing

The Port has performed illicit connections inspection and testing to identify any potentially unauthorized non-storm-water discharges. The assessments covered both “subtle” and “overt” (hard-piped) illicit connections into the storm drain system. A subtle illicit connection occurs when non-stormwater follows an unobstructed pathway into the SDS. An overt illicit connection results when a pipeline, or another drainage structure, is constructed and connected to the SDS and non-stormwater is discharged into the system. The Port has implemented the following steps to evaluate the potential existence of both overt and subtle non-storm-water discharges:

- Dry weather (July, August, September) inspections of stormwater outfalls;
- Site inspections and interviews with each tenant facility to confirm that no non-storm-water discharges occur to the SDS; and
- Routine BMP inspections.

5.2 Visual Inspections

The Port performs visual inspections of stormwater outfalls during dry weather for evidence of illicit connections. Additionally, Port ENV staff performs select BMP inspections monthly per the SPCC plan. Visual inspection procedures are discussed in the Port’s Quality Assurance Project Plan for General and Permanent Non-Construction Stormwater Runoff Monitoring (Taylor Associates, August 2011). If an

inappropriate connection is discovered, the Port will take appropriate corrective measures (including notifying Ecology) as required by the NPDES Permit.

5.3 Certifications

The Port maintains a record of dry-weather inspections of stormwater outfalls as required by the NPDES Permit and in lieu of a certification of no illicit non-storm-water discharges. The records of the dry-weather inspections are retained for a minimum of seven years as required by the Permit.

6.0 Best Management Practices

A stormwater BMP is defined as any program, technology, process, siting criterion, operating method, measure, or device that controls, removes, or reduces pollution. Appropriate BMPs are selected for industrial facilities at STIA based on facility-provided information and site inspections. Areas of actual or potential pollutant contact are evaluated, and applicable BMPs are implemented to eliminate or limit stormwater pollution. BMPs include those for OSC (Section 6.1), SSC (Section 6.2), treatment (Section 6.3), stormwater peak runoff rate and volume control (Section 6.4), and erosion and sediment control (Section 6.5).

6.1 Operational Source Control BMPs

The STIA NPDES Permit requires OSC BMPs to address, at a minimum, six elements:

- Pollution prevention team
- Good housekeeping
- Preventative maintenance
- Spill prevention and emergency cleanup plan
- Employee training
- Inspections and recordkeeping

The STIA Pollution Prevention Team (PPT) and the responsibilities of the team members are presented in Figure 01.

Other OSC BMPs have been aligned with industrial activities conducted at STIA during Port and tenant operations (as discussed in Section 2.4). This allows the Port and the tenants to matrix BMPs according to the activities that they perform. These industrial activity OSC BMPs include the following:

- OSC BMP 1.0, General Industrial Activities (Table 04)
- OSC BMP 2.0, Aircraft, Vehicle, and Equipment Maintenance (Table 05)
- OSC BMP 3.0, Aircraft, Vehicle, and Equipment Cleaning (Table 06)
- OSC BMP 4.0, Aircraft, Vehicle, and Equipment Storage (Table 07)
- OSC BMP 5.0, Outdoor Handling, Storage, and Disposal of Wastes and Materials (Table 08)
- OSC BMP 6.0, Fuel Storage and Delivery (Table 09)
- OSC BMP 7.0, Building and Grounds Maintenance (Table 10)
- OSC BMP 8.0, Vehicle and Equipment Painting (Table 11)
- OSC BMP 9.0, Garbage Handling and Disposal (Table 12)
- OSC BMP 10.0, Aircraft De-icing and Anti-icing (Table 13)
- OSC BMP 11.0, Aircraft Lavatory Waste Servicing (Table 14)
- OSC BMP 12.0, Aircraft and Vehicle Potable Water System Flushing (Table 15)
- OSC BMP 13.0, Roadway, Ramp, and Runway Maintenance and Cleaning (Table 16)
- OSC BMP 14.0, Fire Suppression and Aqueous Film Forming Foam Discharge (Table 17)
- OSC BMP 15.0, Animal Handling (Table 18)
- OSC BMP 16.0, Spill Response and Clean-Up (Table 19)

These BMPs are the basis for the Water Pollution Control Plan (WPCP) that each Port and tenant/facility location uses. Each WPCP states what BMPs are applicable to the specific location.

6.2 Structural Source Control BMPs

SSC BMPs have been implemented at Port and tenant operating areas at STIA. Existing SSC BMPs at STIA are listed in Table 20.

6.3 Treatment BMPs

Treatment BMPs are in use at Port and tenant operating areas. In addition to the existing and proposed stormwater treatment facilities discussed below, other BMPs at STIA will enable attainment of water quality objectives, defined as meeting the current NPDES Permit requirements.

Existing Treatment BMPs

Existing treatment BMPs at STIA are listed in Table 21. In addition to these, the main treatment BMP at STIA is the IWTP.

Industrial stormwater at STIA is stormwater that contacts the approximately 297 acres of airport operations surrounding terminal gate and maintenance areas, where fuel and aircraft de-icing fluids are likely to drip. Industrial stormwater flows to the IWS and is treated in the IWTP. Industrial stormwater is monitored and partitioned using on-line TOC/BOD analyzers to assist in meeting NPDES requirements.

Low-BOD-concentration stormwater is treated in the IWTP and discharged to Puget Sound via the Midway Outfall. High-BOD-concentration runoff is isolated and pretreated for oil and grease and total suspended solids (TSS) prior to discharge to King County Metro's South Plant via a pump station and force main.

Stormwater runoff is pretreated at the IWTP to remove petroleum hydrocarbons and suspended solids. Three large lagoons provide primary solids settling and are equipped with oil skimmers. The IWTP is designed to remove floating and emulsified petroleum hydrocarbons by DAF. The DAF float is skimmed from the surface of the tanks and dewatered offsite for disposal.

The Port has completed a Seattle-Tacoma International Airport Stormwater Engineering Report that summarizes AKART analyses of stormwater treatment BMPs (R.W. Beck and Parametrix, 2006.

Section J.1.c. of the September 2001 § 401 Certification requires that "retrofitting stormwater facilities (for flow control and water quality treatment) at the STIA shall occur at a rate commensurate with the construction of new impervious surface at the STIA. For every 10 percent of new impervious surface added at the [Master Plan Update] project site, the Port must demonstrate that 20 percent of retrofitting has occurred unless demonstrated that a 20 percent rate isn't feasible." The Comprehensive Stormwater Management Plan – Master Plan Update Improvements, Seattle-Tacoma International Airport (CSMP; Parametrix, 2001) defined the extent of retrofitting to occur at STIA. In doing so, Section 7.1.5 of the plan recognized that the Ecology Guidance Manual (Ecology, 2004) requires implementation of the minimum stormwater requirements (including water quality treatment) "to the maximum extent practicable."

The CSMP determined that "retrofitting of approximately 35.4 acres of subbasins SDE4 and 44.6 acres of subbasin SDS3 with conventional treatment BMPs would be impracticable, requiring extensive disturbance of complex drainage areas not scheduled for redevelopment." Although deemed "impracticable" for water quality treatment retrofit, the CSMP commits the Port to "continue to evaluate

the need for of use of innovative treatment BMPs to treat portions of SDS3 and SDE4 taxiways where practicable and cost-effective." These areas will be treated to the extent practicable by the implementation of the measures proposed in the Seattle-Tacoma International Airport Stormwater Engineering Report (R.W. Beck and Parametrix, 2006).

The Stormwater Engineering Report lists specific treatment BMPs that were implemented to achieve AKART for the various drainage basins. A summary of the retrofits can be found in Table 19.

6.4 Stormwater Peak Runoff Rate and Flow Control BMPs

BMPs to control flow at STIA are in use at Port and tenant operating areas. Existing stormwater peak runoff rate and flow control BMPs at STIA are listed in Table 20. Flow control BMPs applicable to construction are addressed in the Seattle-Tacoma International Airport Programmatic Construction Stormwater Pollution Prevention Plan (Port of Seattle, 2009).

The Port designed and constructed stormwater peak runoff rate and flow control BMPs to retrofit the entire airport. The Seattle-Tacoma International Airport Stormwater Engineering Report (R.W. Beck and Parametrix, 2006) evaluated all of the stormwater subbasins at the airport with respect to AKART. The report recommended additional source control, flow control, and treatment BMPS. These BMPS were implemented in 2008.

6.5 Erosion and Sediment Control BMPs

Erosion, dust, and sediment control related to construction activities, including contractor staging areas, is addressed in the Seattle-Tacoma International Airport Programmatic Construction Stormwater Pollution Prevention Plan (Port of Seattle, 2009).

Some limited areas of STIA may be subject to erosion, such as temporary soil stockpiles that are placed during airport maintenance activities. Some of the soil may be contaminated with petroleum hydrocarbons. The soil erosion and control BMP for temporary soil stockpiles requires stockpiles to be lined and covered with plastic sheeting and surrounded with temporary berms.

Other erosion and sediment control BMPs implemented at STIA not associated with construction activities include scheduled catch basin maintenance, sweeping, sediment pond cleaning, and fugitive dust control. These BMPs are implemented by the Port of Seattle Aviation Maintenance Division.

7.0 Operations and Maintenance

The BMPs listed in Section 6.0 and all facilities or systems that are used to manage stormwater at STIA are properly operated and maintained as discussed in the specific BMPs and in the applicable O&M manuals. IWS and SDS records are kept for seven years as required by the STIA NPDES Permit.

Proper O&M also includes adequate laboratory controls and appropriate quality assurance procedures (e.g., the laboratories used for chemical analyses must be accredited by Ecology).

7.1 Operations and Maintenance Manuals

The Port has separate O&M manuals for each permitted system:

- The storm drain system O&M is described in the *Stormwater Facilities Inspection, Maintenance and Operations Procedure Manual* (R.W. Beck and Port of Seattle, 2010- amended 2016).
- Construction BMP O&M is required by contract on all construction projects involving earth-disturbing activities; this requirement is identified in Construction Specification 02270, Temporary Erosion and Sediment Control Planning and Execution and Section 01631, Pollution Prevention Planning and Execution.
- The Operations and Maintenance Manual for the Industrial Wastewater System, which is kept at the IWS and was updated in 2010 (amended 2012) by Kennedy/Jenks Consultants, contains the following:
  - emergency procedures for shutdown and cleanup of the IWTP in the event of wastewater system upset or failure;
  - IWTP maintenance procedures; and
  - the IWTP process control monitoring schedule.

Backup or auxiliary facilities or similar systems are operated only when absolutely necessary.

The O&M Manual for each permitted system includes preventative maintenance schedules and procedures for structural BMPs. O&M manuals are reviewed annually per the Port's NPDES permit.

7.2 Bypass Procedures

Bypass is the intentional diversion from any portion of a treatment system of stormwater that is below the approved the design criteria for stormwater management. The approved design criteria for the IWS, the SDS flow controls, and the SDS water quality treatment systems are documented in the following:

- IWS - Engineering Report for Lagoon #3 Expansion (Kennedy/Jenks Consultants, March 2000)
- SDS Flow Controls - Proposed Design Refinements to the Comprehensive Stormwater Management Plan - Master Plan Improvements - Des Moines Creek Basin (Parametrix and R.W. Beck, 2004); Proposed Design Refinements to the Comprehensive Stormwater Management Plan Master Plan Improvements - Des Moines Creek Basin (Parametrix and Aqua Terra Consultants, 2005)
- SDS Water Quality Treatment – Seattle-Tacoma International Airport Stormwater Engineering Report (R.W. Beck and Parametrix, 2006)

Bypassing a stormwater management system is allowed only under certain circumstances. Before bypass is anticipated, the Port will take all known, available, and reasonable available precautions to try and avoid bypass, such as:

- Using auxiliary treatment facilities (e.g., package units)
- Retaining untreated wastes (e.g., in frac tanks)
- Changing the maintenance schedule to a time when bypass would not occur
- Transporting untreated wastes to another treatment facility

As discussed in the STIA NPDES Permit (Special Condition S5.B), stormwater bypass may be allowed by Ecology only if:

1. Bypass of stormwater is consistent with the design criteria and part of an approved management practice in the applicable Stormwater Management Manual.

2. Bypass is for essential maintenance without the potential to cause violation of permit limits or conditions. Bypass is authorized for essential maintenance and does not have the potential to cause violations of limitations or other conditions of the permit, or adversely impact public health.

3. Bypass of stormwater is unavoidable, unanticipated, and results in noncompliance of the permit.

The bypass is permitted only if:

1. Bypass is unavoidable to prevent loss of life. Personal injury or severe property damage. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which would cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass.

2. A severe storm event overwhelms properly designed and maintained stormwater management systems and there are no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, stopping production, maintenance during normal periods of equipment downtime (but not if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance), or transport of untreated wasted to another treatment facility.

3. Ecology is properly notified of the bypass as required in Condition S2.E of the NPDES permit.

4. A planned action that would cause bypass of stormwater and has the potential to result in noncompliance of the permit during a storm event.

The Permitee must notify Ecology at least thirty (30) days before the planned date of bypass. The notice must contain: (1) a description of the bypass and its cause; (2) an analysis of all know alternatives which would eliminate, reduce, or mitigate the need for bypassing; (3) a cost effectiveness analysis of alternatives including comparative resource damage assessment; (4) the minimum and maximum duration of bypass under each alternative; (5) a recommendation as to the preferred alternative for

conducting the bypass; (6) the projected date of bypass initiation; (7) a statement of compliance with SEPA; (8) a request for modification of water quality standards as provided for in WAC 173-201A-410, if an exceedance of any water quality standard is anticipated; and (9) steps taken or planned to reduce, eliminate, and prevent reoccurrence of the bypass.

For probable construction bypasses, the need to bypass will be identified as early in the planning process as possible. The analysis will be considered while preparing the engineering report or facilities plan and plans and specifications and will be included to the extent practical. In cases where the probable need to bypass is determined early in the planning process, continued analysis is necessary (up to and including the construction period) to try to minimize or eliminate the bypass.

8.0 Handling and Disposal of Solid and Liquid Wastes from Stormwater Treatment, Storage, and Conveyance Systems

Solid and liquid wastes are removed from the stormwater system and IWS facilities during maintenance (such as wastes from cleaning out catch basins and ponds). Such wastes will be sampled and tested (e.g., for Toxicity Characteristic Leaching Procedure [TCLP] constituents) to determine whether they are dangerous wastes. Alternatively, as the generator, the Port may designate the waste as dangerous or non-dangerous based on generator knowledge or by *book designation*.

If the wastes are dangerous wastes, they will be managed in accordance with WAC 173-303, Dangerous Waste Regulations, and disposed of as dangerous wastes.

If they are not dangerous wastes, the wastes will be managed and recycled/disposed of appropriately in accordance with WAC 173-350, Solid Waste Handling Standards.

9.0 References

Beck, R.W. January 2005. *Seattle-Tacoma International Airport Stormwater AKART Analysis.*

Beck, R.W., and Parametrix, Inc. March 2006. *Seattle-Tacoma International Airport Stormwater Engineering Report.*

Beck, R.W., and Port of Seattle. January 2010 amended 2016. *Stormwater Facilities Inspection, Maintenance and O*

Beck, R.W., Port of Seattle, October 2008 (or current version), Stormwater Management Manual for Port Aviation Division Property.

CH2M HILL. October 18, 2005. *Final Study Plan, Comprehensive Receiving Water and Stormwater Runoff Study.*

Cosmopolitan Engineering Group. August 1999. *Dissolved Oxygen Deicing Study (for SEATAC International Airport*. Agency Review Draft.

Kennedy/Jenks Consultants. March 2000. *Engineering Report for Lagoon #3 Expansion.*

Parametrix, Inc. December 2000; revised July 2001. *Comprehensive Stormwater Management Plan – Master Plan Update Improvements, Seattle-Tacoma International Airport.*

Parametrix, Inc., and Aqua Terra Consultants. June 2005. *Proposed Design Refinements to the Comprehensive Stormwater Management Plan Master Plan Improvements - Des Moines Creek Basin*.

Parametrix, Inc., and R.W. Beck. December 2004. *Proposed Design Refinements to the Comprehensive Stormwater Management Plan - Master Plan Improvements - Des Moines Creek Basin.*

Port of Seattle, Aviation Environmental. November 1998; Revision 1, April 1999; Revision 2, December 2001; Revision 3, 2003. *Stormwater Pollution Prevention Plan, Seattle-Tacoma International Airport.*

Port of Seattle, Aviation Environmental Programs. December 2016; Revised September 2017. *Low Impact Development Guideline, Seattle-Tacoma International Airport.*

Port of Seattle. November 2000. *Examining the Effects of Runway Deicing on Dissolved Oxygen in Receiving Waters: Results of the 1999-2000 Winter Season.*

Port of Seattle, Aviation Environmental. October 2004. *Tenant Spill Responsibilities, Sea-Tac Airport.*

Port of Seattle, Aviation Environmental. December 2011. *Industrial Wastewater System Policy* .

Port of Seattle. October 2014, revised December 2015 (or current version). *Spill Prevention, Control, and Countermeasures (SPCC) Plan.*

Port of Seattle. May 2009 (or current version). Programmatic Construction Stormwater Pollution Prevention Plan.

Port of Seattle. 2010 (or current version) . *Operations and Maintenance Manual for the Industrial Wastewater System, Seattle-Tacoma International Airport.*

Taylor Associates. August 2011. Quality Assurance Project Plan for General and Permanent Non-

Construction Stormwater Runoff Monitoring.

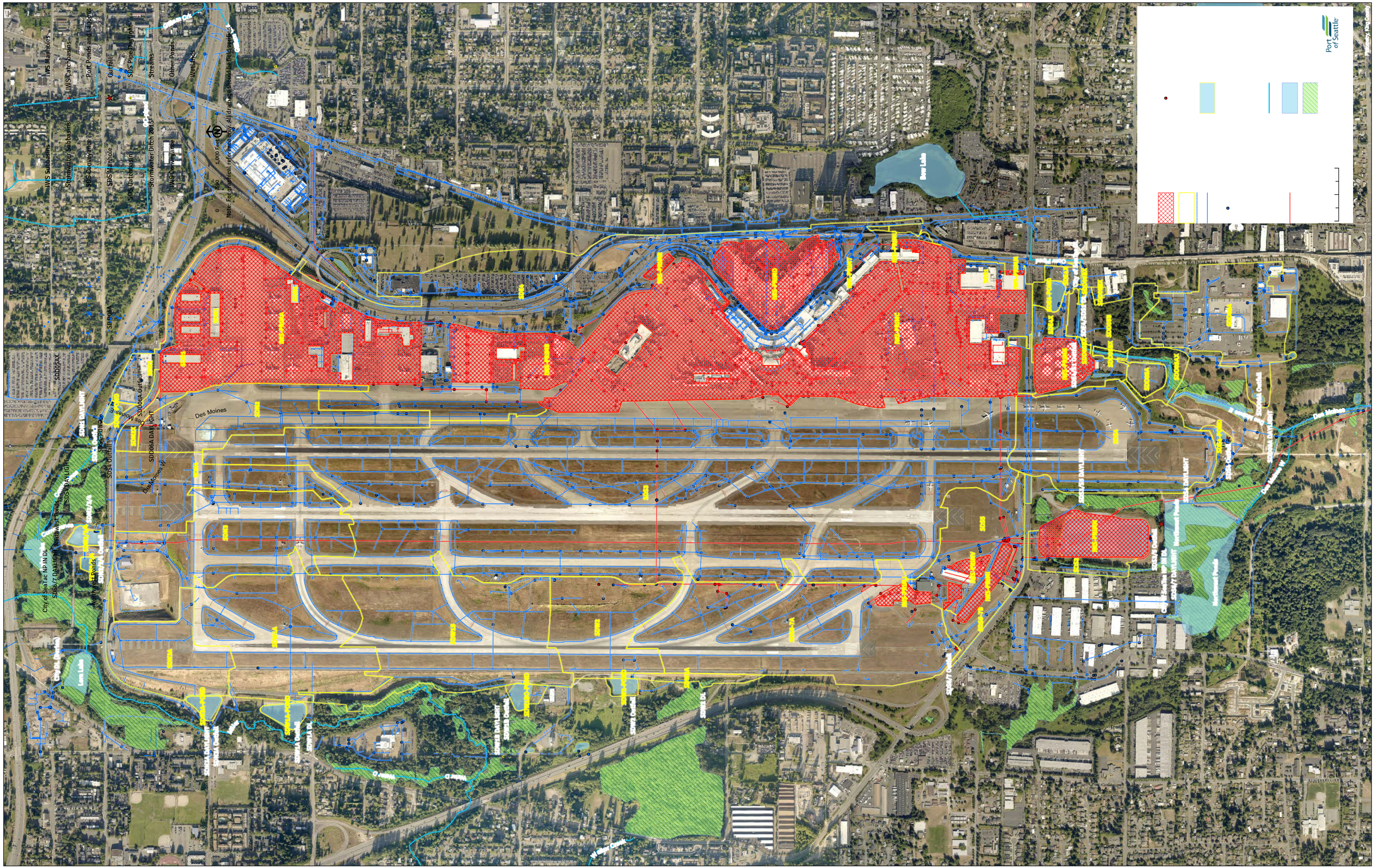
Washington State Department of Ecology (Ecology). April 2004. *Guidance Manual for Preparing/Updating a Stormwater Pollution Prevention Plan for Industrial Facilities.*

Washington State Department of Ecology. August 2012. *Stormwater Management Manual for Western Washington.*

Washington State Department of Ecology (Ecology). December 22, 2015. *National Pollutant Discharge Elimination System Waste Discharge Permit No. WA-0024651, Port of Seattle, SEATAC International Airport.*

Figure 1
Facility Assessment in the Vicinity of Seattle - Tacoma International Airport

Prepared by Parametrix August 03, 2004 File: pos-swater/plotamls2004/plots/facil-unique-shds-3600-0803.gra



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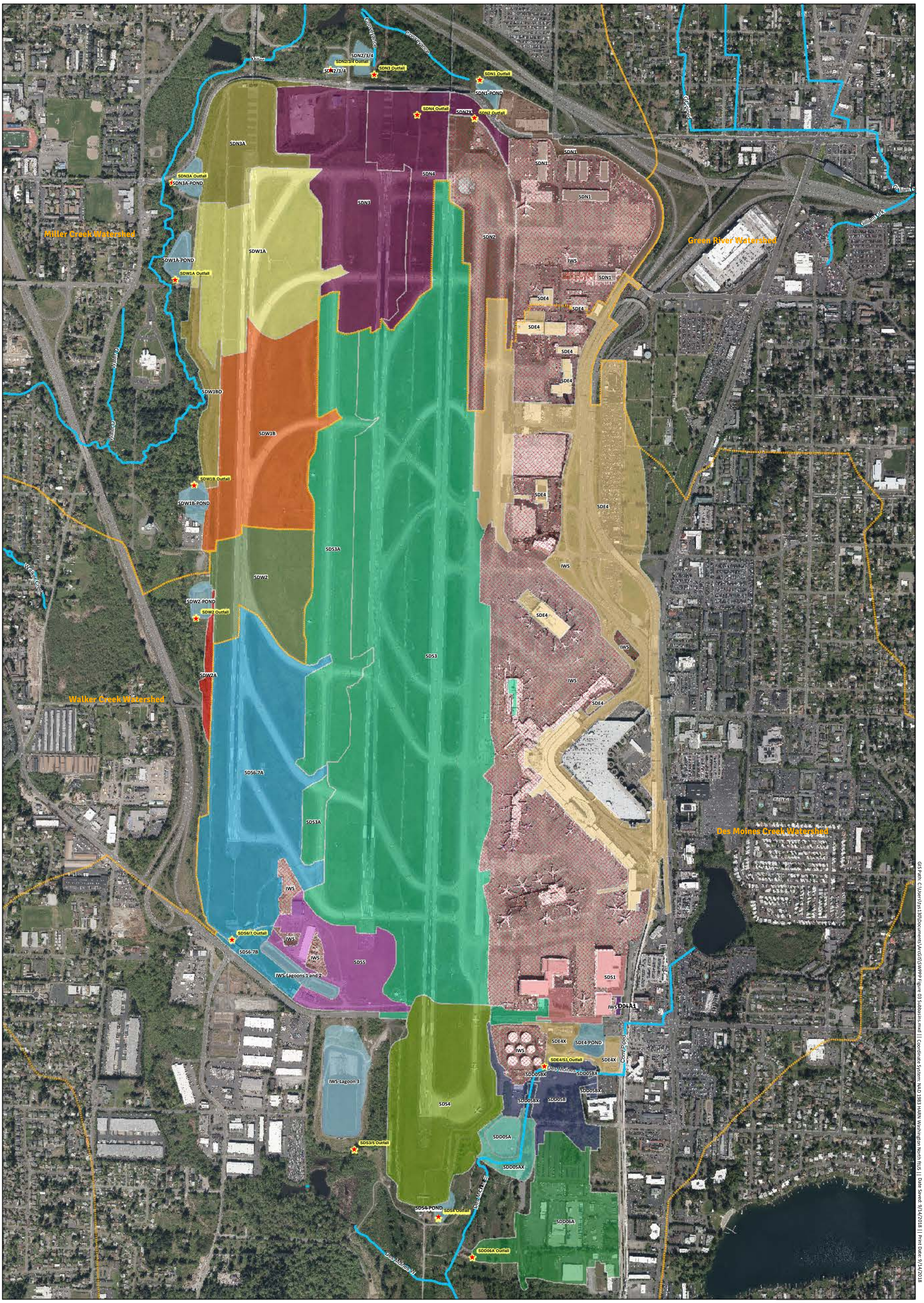

Outfall

Stream

Watershed Boundary

Note 1: Outfall locations are for associated subbasins (eg. Subbasin SDS3 discharges through outfall SDS3).

Note 2: Subbasins labeled with "IWS" discharge through the IWS to the IWTP. Runoff in the SDN2 subbasin is also pumped to the IWS up to the 6-month, 24-hour storm event, and flow in excess of this bypasses to the SDN2/3/4 outfall.

Note 3: Outfall SDN2/3/4 combines SDN2, SDN3 and SDN4 at the SDN2/3/4 pond.

N

0 500 1,000 2,000 Feet

Port of Seattle

Figure 03. Subbasins

GIS Path: C:\Users\tys130\Documents\ArcGIS\SWPPP Figure 03 Subbasins.mxd || Coordinate System: NAD 1983 HARN Washington North ftUS || Date Saved: 9/14/2018 || Print Date: 9/14/2018

Figure 04 Paved Areas and Buildings

Seattle-Tacoma International Airport

Building

Paved Area

N

0 425 850 1,700 Feet

Aerial Image: 2015

CONCOURSE B
CONCOURSE C
CONCOURSE A
CONCOURSE D
PASSENGER TERMINAL
SOUTH SATELLITE
NORTH SATELLITE
PARKING GARAGE

GIS Path: C:\Users\lvx130\Documents\ArcGIS\SWPPP Figure 04 Paved Areas and Buildings.mxd | | Coordinate System: NAD 1983 HARN Washington North FIUS | | Date Saved: 10/15/2018 | | Print Date: 10/15/2018

Figure 06
Seattle-Tacoma International Airport Facility Locations

Note: Not all tenants are shown on the this facility map. Several tenants can occupy one facility. Concession tenants are not specified on figure and are located within the STIA termial.

0 237.5 475 950 Feet

Source: V:\AV-Facilities\AV-Environmental\GIS\Projects\SWPPP_Fig_06_Facility Locations_07262011.mxd

Table 01 Tenant Facility Information

Tenant Name	Tenant Group	Services Contracted	Services Provided	Site Name	Physical Location	Address
A.C. Holdings, INC. /CNN Cable News Netowrk	Terminal Services			A.C. Holdings, INC. /CNN Cable News Netowrk	Main Terminal	
ABM Janitorial Services	Janitorial Services	Port biohazard material is collected by Sterocycle when boxes are full at load	Janitorial - cleaning services	ABM Janatorial Services	Main Terminal	
ABX Air Inc.	Airline	Lav/Potable Water - Worldwide; Fueling - ASIG, Signature; Ground service - CAS; Maintenance - ABX; Deicing - Worldwide; Solid		ABX Air Inc.		
AC Jazz (Air BC)/Air Canada	Airline			AOA Ramp - South Satellite	South Satellite AOA	
AFCO	Building Management/ Lease Holder			AFCO		
Africa Lounge	Bar and Lounge			A Concourse	STIA	
Air Canada	Airline	Fueling contracted through ASIG, Deicing conducted by United airlines. Potable water and Lavatory Services DGS, Cabin cleaning-G2,	International passenger airline with some limited cargo operations	North Satellite		
Air Canada	Airline	Fueling contracted through ASIG, Deicing conducted by United airlines. Potable water and Lavatory Services DGS, Cabin cleaning-G2,	International passenger airline with some limited cargo operations	AOA Ramp - A Concourse		
Air France	Airline	Fueling: Swissport, Deicing: Swissport, Cabin Cleaning: Swissport, Flight Kitchen: Flying Foods		Air France South Satellite	South Satellite Gate S-12	
Air Serv Corporation (Now ABM Aviation)	Janitorial Services	GSE Maintenance provided by Swissport, United, ELS	Aircraft Cabin Cleaning , Ground Transportation, Passenger Services, Ramp Handling, Lavatory Service	AOA Ramp		
Air Service International Group (ASIG) (NOW MENZIES)	Ground Services	none	Aircraft fueling/de-fueling, lavatory service and potable water servicing	General Aviation		
Air Service International Group (ASIG) (NOW MENZIES)	Ground Services	none	Aircraft fueling/de-fueling, lavatory service and potable water servicing	ASIG Maintenance Building & Storage Yard	South of Alaska Hangar	

Airport Terminal Services	Terminal Services		ATS provides personnel to Frontier Airlines ticketing and customer service counters as well as lavatory and potable water services.	AOA Ramp - B Concourse		
Airporter Shuttle/Bellair Charters	Ground Transportation			South GT Lot		
Alamo Rent-A-Car	Car Rental			Consolidated Rental Car Facility		
Alaska Airlines	Airline	Deicing: IDS, Fueling: Swissport, GSE maintenance: Elite Line Services, Hazardous waste: Stericycle, Solid Waste: Recology,	domestic and international cargo and passenger airline	Alaska Hangar, AOA Ramp - C Concourse, AOA Ramp - D Concourse, AOA Ramp - North Satellite, Alaska Air Cargp		
Alaska Lodge	Bar and Lounge			AOA Ramp - C Concourse		
Alki Bakery	STIA Terminal Food Vendor			STIA Terminal		
All Nippon Airways- (ANA)	Airline	Maintenance- United and ANA, Ground Handling- WFS, Flight Kitchen- Flying Foods, Cabin Cleaning- Huntleigh, De-icing/Anti-	International passenger and air cargo	South Satellite		
America West Airlines, Inc.	Airline			AOA Ramp - B Concourse		
American Airlines	Airline	GSE Maintenance - Menzines; Cabin Cleaning - ISS; Deicing - American Ramp; Potable Water - American Ramp; Lavatory - American Ramp; Fueling - Swissport Fueling; Ground	Passenger and cargo airline.	AMB 4, AOA Ramp - A Concourse, AOA Ramp - D Concourse, Transiplex Building E, Cargo 7		
Anthony's	STIA Terminal Food Vendor			STIA Terminal		
Asiana Airlines	Airline			AOA Ramp - South Satellite	South Satellite AOA	
ATZ & Doug Fox Parking	Offsite Airport Parking			Doug Fox Parking Lot		2626 South 170th Street
AV/M Air Field Crew	Maintenance	Waste disposal	Airfield Maintenance	AOA Ramp, Air Cargo 4 Building, Snow Shed, STIA Public Parking Garage,		
AV/M Auto Shop	Maintenance			Air Cargo 4 Building		
AV/M Boiler Crew	Maintenance			Air Cargo 4 Building, AOA Ramp - A Concourse, AOA		
AV/M Carpenter	Maintenance			Air Cargo 4 Building		
AV/M Conveyor Crew	Maintenance			STIA Terminal		
AV/M IWTP	Maintenance			Industrial Waste Treatment Plant, IWS Lagoons		
AV/M STS Shuttle Shop	Maintenance			AOA Ramp - A Concourse, AOA Ramp - North Satellite,		
Bellair Charger/Airporter Shuttle	Ground Transportation			South GT Lot		

Bremerton-Kitsap Airporter	Ground Transportation			South GT Lot		
British Airways	Airline	Fueling of aircraft and ramp vehicles: ASIG, deicing: Swissport; Potable Water; Menzies, Lavatory Service, Ground Handling: Menzies; Flight kitchen/international solid waste disposal: Flying Food Group; Cargo Prep:	Passenger and air cargo transportation	South Satellite - British Airways	South Satellite (usually S-10)	
Budget Rent-A-Car	Car Rental			Consolidated Rental Car Facility		
Burger King	STIA Terminal Food Vendor			A Concouse, AOA Ramp - D Concourse, STIA Terminal, South Satellite, North Satellite	STIA	
Capital Aeroporter	Ground Transportation			South GT Lot		
Cargolux Airlines	Airline	Ground services: Worldwide Flight Services; Aircraft Maintenance: Delta; Fueling: Swisspoprt; Deicing: Swissport; Lav Services: Worldwide	Cargolux is a large international cargo carrier conducting operations out of Seattle Tacoma International Airport.	Transiplex Building A, Cargo 2, Cargo 4, AMB 4		
Certified Aviation Services	Line Maintenance	Waste disposal contracted to Emerald Services		Transiplex Buildig A Cargo 2-3, S-11, B-5, & B-7		2330 S.156th St Rm 201
Chili's Too	STIA Terminal Food Vendor			STIA Terminal		
China Airlines	Airline			AOA Ramp - South Satellite	South Satellite AOA	
China Airlines Cargo	Airline	Fuel:ASIG, Lav:IAS, Deicing:Swissport. Maintenance:JetPro. Solid Waste: Sissport	Air Cargo	AMB Cargo 6	16745 Air Cargo Rd	
Condor	Airline			South Satellite		
DAL Global Services (DGS)	Ground Services	Vehicle and GSE maintenance is conducted by Elite Line Services	DAL handles one contract with Alaska Air.	AOA Ramp - D Concourse, AOA Ramp - A Concourse		
Delta Air lines	Airline	Deicing: Delta, GSE maintenance: ELS, Fueling: Swissport, Potable Water: AirServe, Lavatory services: AirServe, Flight Kitchen: Gate Gourmet, Hazardous	International passenger and air cargo carrier	AOA Ramp - South Satellite, Delta Cargo, Delta Hangar,		
DHL	Air Cargo Facility			Transiplex Building A	Transiplex Buildig A Cargo 2	2580 S 156th St
Dollar Ren-A-Car	Car Rental			Consolidated Rental Car Facility		
Elite Line Services (ELS)	GSE Maintenance	Alaska handles all their own maintenance waste and solid waste from the main	GSE Maintenance	AK Maintenance Buildings		

Emirates	Airline	Fueling: Swissport; Deicing: Swissport; Lav Services: Swissport; Cabin Cleaning: Swissport; GSE Maintenance: British Airways and TIMCO	Emirates is an international airline based in Dubai, United Arab Emirates. They operate 238 aircraft on 148 routes worldwide. Emirates performs two flights per day at SEA. Primary operational gate is S16.	South Satellite		
Eva Airways	Airline	Fueling: Menzies; Deicing: Swissport; Lavatory Service: WFS; Potable Water: SeaTac; Cabin Cleaning: IAS; Aircraft maintenance: Feam; Ground Operations: WFS	Operating primarily out of the South Satellite S-15, performing approximately 7 passenger flights per week. Cargo flights are active during the summer months and frequent at about 2 flights per week.	AOA Ramp - South Satellite		
Evergreen Trails dba Grayline	Ground Transportation			South GT Lot		
FEAM Aero	Maintenance			Cargo 2, Cargo 4, Cargo 6, Cargo 7		
Federal Aviation Administration	STIA Support Operations	Landscaping, chiller maintanence, boiler maintenance, GSA	Air Traffic Control, airfield lighting	AOA		
Federal Express	Cargo	Empire Air is FedEx's subcontractor for some cargo flights, ASIG is contracted for GSE fueling operations, Swissport is contracted for airline	Air cargo transportation	Cargo 3, Cargo 1		
Flying Food Group	Airline Food Caterer	Waste Management – International refuse (autoclave), Recology-Domestic refuse, Waste Management– Rodent control, SeQuential– Used cooking oil	Flight kitchen service provider, catering, garbage and refuse removal both domestic and international	Flying Food Group Building		2300 South 154th Street

Frontier Airlines	Airline	Fueling - Swissport; Deicing - Swissport; Ground handling - ATS; Lavatory/Potable Water - ATS; Garbage handling - ATS; Aircraft Maintenance - CAS; GSE Maintenance - Tug Tech.	Frontier conducts approximately five flights per day out of Seatac. Their operations include the loading, unloading, cleaning, lavatory/potable water servicing and operation of passenger aircraft and service vehicles. Frontier operates exclusively out of common use gates (primarily A concourse)	AOA Ramp - A Concourse		
Gate Gourmet	Airline Food Caterer	All waste services are contracted out. Refuse generated from international flights is autoclaved onsite and picked up by Waste Management along with domestic flight refuse. Waste is dumped into a compactor located under		Gate Gourmet		2755 S. 163rd St
Haeco Line Services	Line Maintenance		Line Care	Transiplex Building A, Cargo 2, South Satellite		
Hainan Airlines	Airline	Hainan has in-house maintenance staff for light aircraft maintenance. Heavy maintenance is contracted out to Jett Pro. Fueling- Swissport, Garbage	International passenger and cargo service five (5) times per week from SEA.	AOA Ramp - South Satellite	South Satellite AOA	
Hanjin Global Logistics	Cargo	Propane bottle refueling; all vehicles and equipment leased; maintenance is performed onsite and offsite as needed.	Hanjin acts as an accumulation/distribution center for Korean Air Cargo and Lufthansa's air cargo operations, breaking down and sorting incoming air and ground cargo for ground and air transport.	Transiplex Building A, Cargo 2	Transiplex Buildig A Cargo 2	2580 S 156th St

Hawaiian Airlines	Airline	Ground services provided by WFS. Minor maintenance is provided by Delta Airlines. Fueling Services provided by Aircraft Service International Group. Deicing provided by Swissport. Lavatory/potable water		South Satellite, AOA Ramp - A Concourse		
Hertz Corporation	Car Rental			Consolidated Rental Car Facility		
Holland America Line Inc.	Ground Transportation			South GT Lot		
Horizon Airlines	Airline	Fueling operations contracted with Swissport; waste handling is contracted to Clean Harbors, GSE Maintenance-Horizon, Potable Water-SeaTac, Lavatory Services-	Passenger airline, cargo loading/unloading/transport, maintenance and deicing of aircraft.	Alaska Air Cargo, Alaska Hangar, AOA Ramp- B Concourse, Cargo 4, AOA Ramp- South Satellite, AOA-Ramp-C Concourse	Cargo IV	2600 South 165th St
Icelandair	Airline	Aircraft Fueling: Swissport, Lavatory and Potable water service: Menzies, Aircraft Maintenance: Feam; Cargo -	International passenger and cargo airline service	Cargo 6, Cargo 7, AOA Ramp - South Satellite	Cargo 6, Cargo 7, AOA Ramp - South Satellite	
Integrated Airline Services, Inc.	GSE Maintenance	Fuel for vehicles and equipment is provided by Petrocard Hazardous Waste pickup contracted to Emerald Services	Loading/unloading of passenger and cargo aircraft for Korean, China, Eva and Hawaiian. Lavatory service for Eva air,	Transiplex Building A, Cargo 2, AOA Ramp - South Satellite, AOA Ramp - B Concourse		
Integrated Deicing Services, LLC	Aircraft Fueling; Aircraft De-icing	Anti-icing, deicing	Anti-icing, deicing	Integrated Deicing Services, Cargo 5		19815 International Blvd.
Jazz Air (Air Canada Jazz)	Airline			AOA Ramp - North Satellite		
JetBlue Airways	Airline	Deicing - Swissport; Garbage/cleaning services - ABM; Fueling - Swissport Fueling; Aircraft Maintenance - ATS; Lavatory/Potable water -	Passenger air services	AOA Ramp - B Concourse		
Korean Air Cargo	Air Cargo Facility	Services are contracted to Hanjin Global Logistics; fueling is contracted to Swissport; potable water, lavatory and ground services are contracted to Cargo Air Services (CAS); and maintenance is contracted with Delta Airlines; garbage is handled by Hanjin and contracted to Recology	Hanjin personnel provide all services for Korean Air Cargo acting as a distribution center for Korean Air cargo, breaking down and resorting pallets of cargo for distribution.	Cargo 2		

Korean Airlines	Airline	Swissport- ground services, potable water, deicing, lavatory services, Aircraft fueling. Flying Foods- Kitchen service, Delta	International passenger airline, limited cargo	AOA Ramp - South Satellite	South Satellite AOA	
LSG/Sky Chefs	Airline Food Caterer	Solid waste and recycling - Recology; Vehicle washing - Fleet Wash; Stormwater BMPs - ProVac; Grease trap maintenance - Baker Commodities (monthly); Compactor maintenance - Solid Waste Systems; Vehicle maintenance- Penske;Fuel Delivery- Mansfield	As a flight kitchen, LSG prepares and loads food and beverage for carriers, disposes of aircraft garbage and cleans any non-disposable dishware.	LSG Sky Chef Building	2358 South 154th Street	
LSG/Sky Chefs	Airline Food Caterer	Solid waste and recycling - Recology; Vehicle washing - Fleet Wash; Stormwater BMPs - ProVac; Grease trap maintenance - Baker Commodities (monthly); Compactor maintenance - Solid Waste Systems; Vehicle maintenance- Penske;Fuel Delivery- Mansfield	As a flight kitchen, LSG prepares and loads food and beverage for carriers, disposes of aircraft garbage and cleans any non-disposable dishware.	Transiplex Building F		
Lufthansa	Airline	Loading and underwing - WFS; Fueling - Menzies; Deicing - United; Ground Service - WFS; Cargo - Hanjin; Maintenance - Lufthansa; Garbage	Passenger airline, cargo airline	AOA Ramp - South Satellite	South Satellite AOA	
Martin Air	Airline			AMB Cargo 6	16745 Air Cargo Rd	
Matheson Flight Extenders, Inc	Ground Services	Solid Waste by Allied. Fluid recycling by Emerald, Fueling by Worldwide Flight Services	Terminal handling and ground support services	Transiplex Building G		

Menzies Aviation	Ground Services	Flying Food Group is contracted to handle International Waste. Clean Harbors is contracted to cleanup lav waste or other large spills. Safety Kleen is used for hazardous waste disposal; solid waste, and recycling- Port provided receptacles, Scrap metal recycling- Youngs Salvage	Ground Handling, Ticketing, Check-in , Aircraft loading and unloading, Cabin cleaning,Toilet and water services, Aircraft ground power and start-up, Pushback and towing. Menzies maintenance shop takes care of Menzies and American Airlines equipment.	AOA Ramp		
National Rent-A-Car	Car Rental			Consolidated Rental Car Facility		3150 S 160th St
Olympic Bus Lines	Ground Transportation			South GT Lot		
Olympic Pipeline Company	STIA Support Operations			POS Fuel Farm	2350 S 190th st	2350 S 190th st
Omni Air	Flight Services		Passenger Air Carrier	Transiplex Building A		
PACCAR	Flight Services		Corporate aviation hangar, aviation maintenance facility, building maintenance, fueling	PACCAR Hangar	General Aviation (former Weyerhaeuser Hangar)	1500 S 148th St.

Petro Card	Terminal Services	Cathodic protection provided by SME Solutions, Inc.. Fuel delivery provided by Keenan Advantage.	Their activities include the operation and maintenance of pumps, dispensers and underground storage tanks (UST's), as well as the care and maintenance of their area of operations, including specifically; refilling of 1x10,000 gallon gasoline UST and 10,000 gallon diesel fuel UST by PetroCard and third party fueling companies; cathodic protection and tightness testing by a third party contractor; some maintenance of the area (including limited concrete pad repair and light pressure washing); disposal of trash and other solid wastes in their area of operations.	Pump House		
Port of Seattle Fire	Fire Department			AOA Ramp		
Port of Seattle Police Department	Police Department			AOA Ramp, STIA Terminal		
Quick Shuttle	Ground Transportation			South GT Lot		
SEKO Worldwide	Freight			AMB 3		
Siemens (Swissport GSE)	GSE Maintenance			AMB Cargo 6	16745 Air Cargo Rd	
Skywest Airlines/United Express	Airline	Aircraft and GSE maintenance, fueling, flight kitchen, lavatory servicing- all dependant on airline carrier, hazardous waste	Passenger airline service, and some limited colaboration with United Air Cargo.	AOA Ramp - North Satellite		
Smarte Carte	Terminal Services			STIA Public Parking Garage		
Southwest Airlines	Airline	Aircraft Maintenance- CAS; Solid waste disposal, cleaning - Huntleigh;	Passenger airline service	AOA Ramp - B Concourse, AMB 4, Cargo 7,		

Spirit Airlines	Airline	Menzies -Fueling, Swissport GSE & Deicing, CAS-Contracted line	Airline	AOA Ramp		
Sun Country Airlines	Airline	Ground Service - WFS Lavatory and Potable Water -WFS; Aircraft maintenance Certified Aviation Services; Deicing - Swissport; Fueling - Swissport	Sun Country operates up to 3 flights daily out of SeaTac and provides some cargo and mail transport. Sun Country operates no flights from approximately January 3 through April 15.	AOA Ramp - South Satellite, AOA Ramp - A Concourse		
Swissport Cargo Services	Cargo	GSE maintenance conducted by Swissport USA; fueling conducted by Swissport Fueling; recycling provided by Recology.	Swissport Cargo provides cargo distribution services for various carriers at SeaTac International Airport. Primary area of operations is the 16745 Air Cargo Rd building, along with the west side (AOA side) of the building. Offices and main operations in warehouse building; equipment storage and cargo staging outside building on airfield (IWS); tractor/trailer loading docks and vehicle parking lot at the 16745 Air Cargo Rd building off of Air Cargo Rd (SDS).	AMB Cargo 6, AMB AFCO BLDG II,	16745 Air Cargo Rd	

Swissport Fueling	Aircraft Fueling	Maintenance: various civil, electrical, mechanical contractors. Industrial Services: Phillip Services.Waste disposal: Rabanco/Allied solid waste,Clean Harbors for hazardous waste. Sumped Jet Fuel Recycling: Sun West Petroleum	The Port of Seattle owns the SeaTac Jet Fuel Sorage & DIstribution System but leases the system to a consortium of airlines operating as SeaTac Fuels Facilities, LLC. SeaTac Fuels in turn contracts with Swissport to operate the entire system with some facility support from the Port of Seattle (Fire Department, Engineering, Environmental, etc)	Cargo 2, Cargo 6, AOA Ramp - South Satellite		
Swissport Fueling	Aircraft Fueling	Maintenance: various civil, electrical, mechanical contractors. Industrial Services: Phillip Services.Waste disposal: Rabanco/Allied solid waste,Clean Harbors for hazardous waste. Sumped Jet Fuel Recycling: Sun West Petroleum	The Port of Seattle owns the SeaTac Jet Fuel Sorage & DIstribution System but leases the system to a consortium of airlines operating as SeaTac Fuels Facilities, LLC. SeaTac Fuels in turn contracts with Swissport to operate the entire system with some facility support from the Port of Seattle (Fire Department, Engineering, Environmental, etc)	AOA Ramp - North Satellite, AOA Ramp - South Satellite		

Swissport Fueling	Aircraft Fueling	Maintenance: various civil, electrical, mechanical contractors. Industrial Services: Phillip Services.Waste disposal: Rabanco/Allied solid waste,Clean Harbors for hazardous waste. Sumped Jet Fuel Recycling: Sun West Petroleum	The Port of Seattle owns the SeaTac Jet Fuel Sorage & DIstribution System but leases the system to a consortium of airlines operating as SeaTac Fuels Facilities, LLC. SeaTac Fuels in turn contracts with Swissport to operate the entire system with some facility support from the Port of Seattle (Fire Department, Engineering, Environmental, etc)	POS Fuel Farm	2350 S 190th st	2350 S 190th st
Swissport USA	Ground Services	Hazardous waste disposal: Emerald Services. Fueling: Swissport Fuel	Ground handling services, GSE maintenance	Cargo 2, Cargo 6, AOA Ramp - North Satellite, AOA Ramp - South Satellite		
Timco Aviation Services	Line Maintenance	NA	Line Maintenance	Transiplex Building A	Transiplex Buildig A Cargo 2	2580 S 156th St
Transiplex, Inc.	Building Management/ Lease Holder			Transiplex Building A, Transiplex Building E, Transiplex Building F, Transiplex Building G		
Transportation Security Administration (TSA)	Security	Waste disposal: Clean Harbors Environmental Services	Airport Security, passenger/baggage screening. disposal of prohibited items surendered at checkpoints.	STIA Terminal, Snow Shed		
Tug Technology Corp. - Inactive	GSE Maintenance			Transiplex Building A	Transiplex Buildig A Cargo 2	2580 S 156th St
United Airlines	Airline	Fueling - Swissport Fueling; Aircraft Cleaning - G2; Cargo - Swissport; Flight Kitchen - Gate Gourmet; Potable Water/Lav Service - G2; GSE and aircraft maintenance - United	Passenger and Air cargo carrier	AOA Ramp - A Concourse, AOA Ramp - North Satellite, AOA Ramp, United Cargo		

UPS Freight Forwarding	Freight	Vehicle washing- Fleet Wash, Grabage handling- Recology/Republic, Forklift maintenance- NW Handling, Propane delivery- Suburban	Freight Forwarding	BT Properties		2625 South 161st St	2625 South 161st St
US Airways	Airline			AOA Ramp - A Concourse			
Volaris	Airline	Fueling - Swissport; Lavatory Service and Potable Water - CAS; Deicing - Swissport; Garbage/recycling - Sky	Three flights per week out of Gate S10	AOA Ramp - South Satellite			
Worldwide Flight Services	Ground Services	Toyota Forklift Services, Ramp services Cargolux, Solid waste and recycling by Recology	Cargo handling, aircraft loading and off-loaing, export/import services, below wing services	Cargo 2, AOA Ramp			
Xiamen Airlines	Airline						

Table 02: Tenants/Facilities with Pollutants with Potential to Discharge to Stormwater

Tenant name	Facility Name	Drainage																		
		IWS	SDS	Aircraft De-Icing Chemicals	Anti-Freeze	Diesel	Gasoline	Ground De-Icing Chemicals	Herbicides	Jet Fuel	Lavatory Chemicals	Lead Acid Batteries	Lubricants (Oil and Grease)	Other	Paint and Paint Related Materials	Pesticides	Soaps / Cleaning Solutions	Solvents	Tires (onsite or waste inventory)	Used Cooking Oil
ABM Janitorial Services	ABM Janatorial Services	X	X				X										X	X		
	STIA Terminal	X	X				X							X			X	X		
ABX Air Inc.	ABX Air Inc.	X		X	X		X			X	X	X	X		X		X	X	X	
AC Jazz (Air BC)/Air Canada	AOA Ramp - South Satellite	X		X						X	X		X				X		X	
AFCO	AFCO	X		X					X											
Africa Lounge	A Concourse	X															X			X
Air Canada	AOA Ramp - A Concourse	X		X						X	X		X				X		X	
	North Satellite	X		X						X	X		X				X		X	
Air France	Air France South Satellite	X		X						X		X	X				X	X	X	
AirTran Airways, Inc.	AOA Ramp - A Concourse	X		X						X	X		X				X			
Alamo Rent-A-Car	Quick Turn-Around (QTA)	X					X							X			X			
Alaska Airlines	Alaska Air Cargo	X		X	X	X	X			X	X	X	X		X		X	X	X	
	Alaska Hangar	X		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	
	AOA Ramp - C Concourse	X		X		X				X	X		X				X			
	AOA Ramp - D Concourse	X		X	X	X	X			X	X		X				X			
	AOA Ramp - North Satellite	X		X	X	X	X			X	X		X				X			
Alaska Lodge	AOA Ramp - C Concourse	X															X			X
All Nippon Airways- (ANA)	South Satellite	X		X	X		X			X	X		X				X		X	
American Airlines	AMB 4	X		X	X	X	X		X	X	X	X	X				X	X	X	
	AOA Ramp - A Concourse	X		X	X	X	X			X	X	X	X		X		X	X	X	
	AOA Ramp - D Concourse	X		X	X	X	X	X		X	X	X	X		X		X	X	X	
	Cargo 7	X		X																
	Transiplex Building E	X			X	X	X										X			
Anthony's	STIA Terminal	X															X			X

Asiana Airlines	AOA Ramp - South Satellite	X		X						X	X		X					X	
ATZ & Doug Fox Parking	Doug Fox Parking Lot		X		X	X	X	X	X				X		X	X	X	X	
AV/M Air Field Crew	AOA Ramp	X				X	X	X	X										
	Snow Shed	X				X	X	X					X						
	STIA Public Parking Garage		X					X											
AV/M Auto Shop	Air Cargo 4 Building	X			X	X	X					X	X		X		X	X	
AV/M Boiler Crew	Air Cargo 4 Building	X				X	X												
	AOA Ramp - A Concourse	X				X							X				X		
	AOA Ramp - North Satellite	X				X	X												
	AOA Ramp - South Satellite	X				X	X												
	Cooling Tower	X												X					
	IWS Lagoons	X		X		X			X	X			X				X	X	
	STIA Public Parking Garage	X				X	X												
	STIA Service Tunnel	X	X		X	X	X					X	X				X	X	
AV/M Carpenter	Air Cargo 4 Building	X										X		X	X		X	X	
AV/M Conveyor Crew	STIA Terminal	X				X	X					X	X	X	X		X	X	
AV/M IWTP	Industrial Waste Treatment Plant	X				X	X							X	X		X		
	IWS Lagoons	X				X	X												
AV/M STS Shuttle Shop	AOA Ramp - A Concourse	X				X	X					X	X	X	X		X	X	
	AOA Ramp - D Concourse	X				X						X	X		X		X	X	
	AOA Ramp - North Satellite	X												X					
	AOA Ramp - South Satellite	X												X					
British Airways	South Satellite - British Airways	X		X	X		X			X	X	X	X				X		X	
Budget Rent-A-Car Systems, Inc.	Quick Turn-Around (QTA)	X				X							X	X			X			
Burger King	North Satellite	X															X			X
	South Satellite	X															X			X
	STIA Terminal	X															X			X
Cargolux Airlines	AMB Cargo 4	X		X	X	X	X			X	X	X							X	

	Cargo 2	X		X	X	X				X	X	X	X				X		X	
	Transiplex Building A	X		X	X	X				X	X	X	X		X		X		X	
Certified Aviation Services	Certified Aviation Services	X			X		X			X			X				X	X	X	
Chili's Too	STIA Terminal	X															X			X
China Airlines	AOA Ramp - South Satellite	X		X						X	X		X							
	Cargo 2	X		X						X	X		X							
China Airlines Cargo	AMB Cargo 6	X		X						X	X		X							
Condor	South Satellite	X		X						X	X		X				X		X	
DAL Global Services (DGS)	AOA Ramp - A Concourse	X		X	X	X					X	X					X			
	AOA Ramp - D Concourse	X		X	X	X	X				X	X	X				X			
Delta Air lines	AOA Ramp - South Satellite	X		X	X	X	X			X	X	X	X		X		X	X	X	
	Delta Cargo	X				X	X			X			X				X			
	Delta Hangar	X		X	X	X	X		X	X	X	X	X		X	X	X	X	X	
DHL	Transiplex Building A	X		X	X	X	X			X	X	X	X				X	X	X	
Elite Line Services (ELS)	AK Maintenance Buildings	X		X	X	X	X				X	X	X		X		X	X	X	
Emirates	South Satellite	X		X	X		X			X	X	X	X				X		X	
Eva Airways	AOA Ramp - South Satellite	X		X	X		X			X	X	X	X				X		X	
FEAM Aero	Cargo 2	X			X	X	X					X	X		X		X	X	X	
	Cargo 4	X			X	X	X					X	X		X					
	Cargo 6	X			X	X	X					X	X		X					
	Transiplex Building A	X			X	X	X					X	X		X		X	X	X	
Federal Aviation Administration	AOA	X			X	X	X		X			X	X		X		X	X		
Federal Express	Cargo 1	X		X		X	X			X			X						X	
	Cargo 3	X		X	X	X	X			X	X	X	X		X		X	X	X	
Flying Food Group	Flying Food Group Building	X	X		X	X	X	X	X			X	X			X	X			X
Frontier Airlines	AOA Ramp - A Concourse	X		X	X	X	X			X	X	X	X		X		X	X	X	
Gate Gourmet	Gate Gourmet	X	X		X	X	X		X			X	X		X	X	X	X	X	
Haeco Line Services	Transiplex Building A	X			X	X	X			X		X	X		X			X	X	
Hainan Airlines	AOA Ramp - South Satellite	X		X						X	X		X				X		X	
Hanjin Global Logistics	Cargo 2	X										X	X		X				X	

	Transiplex Building A	X										X	X		X				X	
Hawaiian Airlines	AOA Ramp - A Concourse	X		X	X	X	X			X	X	X	X				X		X	
	South Satellite	X		X	X	X	X			X	X	X	X				X		X	
Hertz Corporation	Consolidated Rental Car Facility	X					X						X	X			X			
Horizon Airlines	Alaska Air Cargo	X		X						X	X		X				X			
	Alaska Hangar	X		X						X			X						X	
	AOA Ramp - B Concourse	X		X	X	X	X	X		X	X	X	X		X		X	X	X	
	AOA Ramp - C Concourse	X		X	X	X	X	X		X	X	X	X		X		X	X	X	
	AOA Ramp - North Satellite	X		X	X	X	X	X		X	X		X							
	AOA Ramp - South Satellite	X		X						X	X		X					X		
	Cargo 4	X		X						X	X		X				X			
Icelandair	AOA Ramp - South Satellite	X		X						X	X		X				X		X	
	Cargo 7	X								X	X		X				X			
Integrated Airline Services, Inc.	Cargo 2	X		X		X	X				X	X	X	X	X		X	X	X	
	Transiplex Building A	X			X	X	X				X	X	X		X		X	X	X	
Integrated Deicing Services, LLC	Cargo 5	X		X	X	X	X	X				X	X				X			
	Integrated Deicing Services	X			X	X	X						X				X	X		
Jazz Air (Air Canada Jazz)	AOA Ramp - North Satellite	X		X						X	X		X							
JetBlue Airways	A Concourse	X		X						X	X		X				X		X	
	AOA Ramp - A Concourse	X		X						X	X		X				X		X	
	AOA Ramp - D Concourse	X		X						X	X		X				X		X	
	AOA Ramp- A Concourse	X		X						X	X		X				X		X	
Jett Pro - Inactive	AOA Ramp	X			X		X		X	X		X	X		X		X		X	
Korean Air Cargo	Cargo 2	X		X						X	X		X						X	
Korean Airlines	AOA Ramp - South Satellite	X		X	X		X			X	X	X	X				X			
LSG/Sky Chefs	LSG Sky Chef Building	X	X		X	X	X	X	X			X	X	X	X		X	X	X	X
	Transiplex Building F	X			X	X											X			

Lufthansa	AOA Ramp - South Satellite	X		X	X		X			X	X		X				X		X	
Matheson Flight Extenders, Inc	Transiplex Building G	X			X		X					X	X				X	X	X	
Menzies Aviation	AOA Ramp	X		X	X	X	X	X		X	X	X	X		X		X	X	X	
Mesa Airlines Inc.- Inactive	AOA Ramp - North Satellite	X		X						X	X		X				X		X	
National Rent-A-Car	Quick Turn-Around (QTA)	X					X						X	X			X			
Olympic Pipeline Company	POS Fuel Farm	X								X										
Omni Air	Transiplex Building A	X		X	X	X	X			X	X	X	X		X		X	X	X	
PACCAR	PACCAR Hangar	X			X				X	X		X	X		X	X	X	X	X	
Petro Card	Pump House	X				X	X													
Port of Seattle Fire Department	AOA Ramp	X	X		X	X	X						X		X			X		
Port of Seattle Police Department	AOA Ramp	X				X	X							X						
	STIA Terminal	X					X					X								
SEKO Worldwide	AMB 3	X				X	X	X					X							
Siemens (Swissport GSE)	AMB Cargo 6	X			X	X	X			X	X	X	X		X			X	X	
Skywest Airlines/United Express	AOA Ramp - North Satellite	X		X	X	X	X			X	X	X	X		X		X	X	X	
Smarte Carte	STIA Public Parking Garage	X					X					X					X	X		
Southwest Airlines	AMB 4	X		X	X	X	X	X		X	X	X	X				X		X	
	AOA Ramp - B Concourse	X		X	X	X	X			X	X	X	X		X		X		X	
	Cargo 7	X		X																
Spirit Airlines	AOA Ramp	X		X						X	X		X							
Sun Country Airlines	AOA Ramp - A Concourse	X		X						X	X		X				X			
	AOA Ramp - D Concourse	X		X						X	X						X			
	AOA Ramp - South Satellite	X		X						X	X		X				X			
Swissport Cargo Services	AMB Cargo 6	X										X							X	
	Cargo 6	X			X	X	X					X	X		X		X		X	
Swissport Fueling	Cargo 2	X		X		X	X			X	X	X	X							
	POS Fuel Farm	X			X	X	X		X	X		X	X	X	X	X	X	X	X	
Swissport USA	AOA Ramp - North Satellite	X		X	X	X	X			X	X	X	X							

	AOA Ramp - South Satellite	X		X		X	X			X	X		X							
	Cargo 2	X		X	X	X	X			X	X	X	X							
	Cargo 6	X		X	X	X	X			X	X	X	X		X		X	X	X	
Test Tenant	Air Cargo 4 Building	X				X														
Timco Aviation Services	Transiplex Building A	X			X	X	X			X			X		X			X	X	
Transportation Security Administration (TSA)	Snow Shed	X					X							X	X		X	X		
	STIA Terminal	X												X			X			
United Airlines	AOA Ramp	X		X		X	X			X	X	X	X		X			X	X	
	AOA Ramp - A Concourse	X		X	X	X	X		X	X	X	X	X		X	X	X	X	X	
	AOA Ramp - North Satellite	X		X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	
	United Cargo	X		X	X	X	X			X	X	X	X	X			X	X	X	
UPS Freight Forwarding	BT Properties	X			X	X	X					X	X	X			X			
US Airways	AOA Ramp - A Concourse	X		X	X	X				X	X		X				X		X	
Volaris	AOA Ramp - South Satellite	X		X						X	X		X				X			
Worldwide Flight Services	AOA Ramp	X		X	X	X	X				X	X	X							
	Cargo 2	X		X	X	X	X				X	X	X		X		X	X	X	

TABLE 03
Summary of Reportable Spills and Leaks During Previous Three Years

Date	Substance	Amount Released	Affected Waterbody	Cause	Action taken
02/17/2016	Oil product	Light sheen	Des Moines Creek	Illicit connection identified in the SDS1 Storm Drain System.	A project was initiated to correct the identified illicit connection located between an Aircraft Hangar and Cargo Facility. Identified drains were rerouted to Port's IWS system in addition to the installation of a new IWS CB. All storm drain manholes lids in the SDS1 area on ramp were resealed with caulking.

TABLE 04

SEATTLE-TACOMA INTERNATIONAL AIRPORT

OSC BMP 1.0	GENERAL INDUSTRIAL ACTIVITIES

PURPOSE

Prevent or reduce the discharge of pollutants to storm water from STIA Port of Seattle and tenant activities.

TARGETED ACTIVITIES	TARGETED POLLUTANTS	KEY APPROACHES
• Aircraft/vehicle/equipment maintenance • Aircraft, ground vehicle, and equipment cleaning • Aircraft, ground vehicle, and equipment storage • Outdoor handling, storage, and disposal of waste and materials • Fuel storage and delivery • Building and grounds maintenance • Vehicle and equipment painting • Garbage handling and disposal • Aircraft de-icing and anti-icing • Aircraft lavatory waste servicing • Potable water system flushing • Roadway, ramp, and runway maintenance and cleaning • Fire suppression and AFFF discharge • Animal handling • Spill Response and Spill Clean-up	• Anti-freeze chemicals • Batteries • De-icing chemicals • Fuel • Herbicides • Lavatory chemicals • Oil and grease • Paint • Pesticides • Soap/cleaning chemicals • Solvents • Other	• Maintain good housekeeping practices. • Minimize exposure to storm water. • Perform preventative maintenance. • Follow spill prevention and response procedures. • Conduct facility inspections. • Provide training.

APPLICABILITY

OSC BMP 1.0, General Industrial Activities, is generally applicable to all operations with potential to impact storm water. In addition to these generally applicable BMPs, activity-specific BMPs must also be implemented for each of the following activities performed:
OSC BMP 2.0. Aircraft, Ground Vehicle, and Equipment Maintenance
OSC BMP 3.0. Aircraft, Ground Vehicle, and Equipment Cleaning
OSC BMP 4.0. Aircraft, Ground Vehicle, and Equipment Storage
OSC BMP 5.0. Outdoor Handling, Storage, and Disposal of Waste and Materials
OSC BMP 6.0. Fuel Storage and Delivery
OSC BMP 7.0. Building and Grounds Maintenance
OSC BMP 8.0. Vehicle and Equipment Painting
OSC BMP 9.0. Garbage Handling and Disposal
OSC BMP 10.0. Aircraft De-icing and Anti-icing
OSC BMP 11.0. Aircraft Lavatory Waste Servicing
OSC BMP 12.0. Aircraft and Vehicle Potable Water System Flushing
OSC BMP 13.0. Roadway, Ramp, and Runway Maintenance and Cleaning
OSC BMP 14.0. Fire Suppression and Aqueous Film Forming Foam Discharge
OSC BMP 15.0. Animal Handling
OSC BMP 16.0 Spill Response and Spill Clean-up.

TABLE 04

SEATTLE-TACOMA INTERNATIONAL AIRPORT		
OSC BMP 1.0	**GENERAL INDUSTRIAL ACTIVITIES**	
Pollution Prevention Team		
1.1	Form Pollution Prevention Team	Assign one or more individuals to be responsible for storm water pollution control. Hold regular meetings to review the overall operation of the BMPs. Establish responsibilities for inspections, operation and maintenance, and availability for emergency situations. Train team members in the operations, maintenance and inspections of BMPs and reporting procedures.
Good Housekeeping Practices		
1.2	General	Maintain exposed areas in a clean, orderly manner. Take necessary steps to prevent pollutants from contacting storm water.
1.3	Sweep paved areas	Vacuum or sweep paved material handling and storage areas and AOA regularly as needed to minimize dust and deposition of other materials. Do not hose down pollutants from any areas to the SDS, ground, ditches, streams, or ponds.
1.4	Clean BMP systems regularly	Clean oils, debris, sludge, etc. from BMP systems regularly, including catch basins, settling/detention basins, oil/water separators, and conveyance systems to prevent contamination to storm water.
1.5	Prompt repair of damaged areas subjected to pollutant material leaks or spills	Promptly repair or replace substantially cracked or damaged paved secondary containment, high-intensity parking areas, and other areas which are subjected to pollutant material leaks or spills.
1.6	Prompt repair of leaks	Promptly repair or replace leaking connections, pipes, hoses, valves, etc., which can contaminate storm water.
1.7	Clean exterior equipment surfaces	Keep exterior surfaces of aircraft, vehicles, equipment, and containers clean by eliminating excessive amounts of external oil and grease buildup. Use water-based cleaning agents or non-chlorinated solvents to clean equipment, and collect and properly dispose of cleaning fluids. Use drum-top absorbent pads to contain small leaks.
1.8	Recycle, reduce, and reuse	Identify opportunities to recycle, reclaim, and/or reuse materials to reduce the volume of materials brought into the facility and reduce the volume of waste.
1.9	Product substitution	Use biodegradable products and substitute materials with less hazardous properties where feasible.
1.10	Limit material inventory	Limit inventory of materials stored onsite to reduce the magnitude of potential spills and waste generation.
1.11	Provide security	Entire AOA is secured; areas outside the AOA are secured during non-working hours. Perform random inspections to routinely evaluate the facility to prevent an accidental or intentional release of materials. Improve general awareness by training personnel on

TABLE 04

SEATTLE-TACOMA INTERNATIONAL AIRPORT		
OSC BMP 1.0	**GENERAL INDUSTRIAL ACTIVITIES**	
		storm water pollution prevention.
Minimize Exposure of Pollutants to Storm Water		
1.12	Location of industrial activities	All industrial activities must be conducted in the IWS area, except in the event of an emergency.
1.13	Storm-resistant shelter for industrial materials and activities	Where practicable, industrial materials and activities should be protected by a storm resistant shelter to prevent exposure.
1.14	Anti-icing/deicing	Use approved materials in approved locations. See OSC BMP 13.0, Roadway, Ramp, and Runway Maintenance and Cleaning, and OSC BMP 10.0 Aircraft De-Icing and Anti-Icing.
1.15	Snow storage	Operate pump stations to divert glycol-contaminated snowmelt to IWS.
1.16	Outdoor water supplies	Limit availability of outdoor water supplies (e.g., hose bibs).
Preventative Maintenance		
1.17	Port of Seattle STIA Preventative Maintenance	Inspect and maintain storm water drainage and treatment.
1.18	Maintain as-built drawings	Maintain as-built prints for all projects.
1.19	Design for pollution prevention	Work with design and construction project managers to incorporate storm water management features into project design. Features may include: appropriate surface grading, containment, waste repositories, cover, storm water quality structures (e.g., oil/water separators, dead-end sumps, first-flush diversion basins), use of concrete paving rather than asphalt, fluid recycling systems, and other control measures to eliminate potential material exposure to storm water. Evaluate existing facilities for opportunities to improve functionality and efficiency, and decrease the potential for storm water pollution.
1.20	Approval of new drainage connections	Approval by STIA Aviation Environmental required for new drainage connections to prevent inappropriate discharge to SDS or other.
1.21	Stencil warnings at storm water catch basins and drains	STIA maintains stenciled warnings at storm water catch basins and drains for SDS system (“Dump no waste, drains to stream” white in color) and IWS system (“Dump no waste, drains to bay” orange in color).
1.22	Compatible paving materials	Construct impervious areas that are compatible with the materials handled. Portland cement, concrete, asphalt, or equivalent materials may be considered.
1.23	Paving over	Do not pave over contaminated soil unless groundwater is not impacted or will not be impacted. Call STIA Aviation Environmental

TABLE 04

SEATTLE-TACOMA INTERNATIONAL AIRPORT		
OSC BMP 1.0	**GENERAL INDUSTRIAL ACTIVITIES**	
	contaminated soil	for assistance.
Spill Prevention and Response		
1.24	Implement Port of Seattle Spill Response Procedures	Tenants and Port facilities shall follow Port of Seattle Spill Response Procedures in the case of a spill of fuel or other material. See Port of Seattle Spill Response Procedures in OSC BMP 16.0.
1.25	Maintain spill response equipment and supplies	Maintain adequate supplies of spill response equipment and materials in accessible locations near areas where spills may be likely to occur, including on appropriate vehicles (maintenance vehicles, lavatory trucks and fueling tankers) that may be likely to respond to or be involved in an incident.
1.26	Spill containment and response	Use drip pans to contain leaks and absorbent booms, mats, or other devices to contain liquid materials (wash water, fuel, etc.) and prevent them from entering the SDS. Immediately clean up all spills and leaks.
1.27	Procedures for cleaning up spills and leaks	Use absorbent materials and spill control equipment for temporary and immediate control of spills and leaks of liquid materials see OSC BMP 16.0. Absorbent materials can be used in conjunction with curbing to provide cleanup of small spills within a containment area. Collect and remove absorbent materials from the area soon after use and dispose of in an appropriate manner. Hazardous waste spill response must be consistent with 40 CFR 264 and 265 (RCRA) and Washington State Dangerous Waste rules WAC 173-303.
1.28	Disposal of collected fluids	Properly dispose of any collected fluids or spill clean-up materials according to applicable regulations. **Never discharge collected materials to a catch basin (IWS/SDS) or a storm drain.**
1.29	Minimizing exposure	Where practicable, industrial materials and activities will be protected by a storm-resistant shelter to prevent exposure to rain or runoff. It is noted that because of the nature of operations (routine service of jet aircraft), cover is not always practical.
1.30	Implement SPCC Plan at applicable facilities	Develop and implement Spill Prevention Countermeasures and Control (SPCC) Plan at facilities that fall under requirements under 40 CFR 112.
Facility Inspections		
1.31	Activity inspections	STIA Aviation Environmental staff perform frequent activity inspections to identify and eliminate non-storm water discharges. Stagger inspection times to cover all work periods.
1.32	Outfall inspections	Perform monthly visual inspections of the permitted outfalls. Observe uncharacteristic volumes, colors, turbidity, odors, deposition, staining, floatables, and foaming characteristics of any flow.

TABLE 04

SEATTLE-TACOMA INTERNATIONAL AIRPORT		
OSC BMP 1.0	**GENERAL INDUSTRIAL ACTIVITIES**	
1.33	Inspections for facility upgrades	Perform inspections during design review and project construction phases to help verify that drainage and wastewater connections are correct (no cross connections or illicit hookups).
1.34	Illicit connections inspections	Review design documents to prevent construction of illicit connections. Perform construction-phase, post-construction, and existing facility inspections to identify improper physical connections to the SDS from sanitary sewers, floor drains, industrial process discharge lines, and wash racks. Corrective measures are required to eliminate illicit connections.
Employee/Tenant/Contractor Training		
1.35	General employee training	Provide the appropriate level of employee training in the following areas: STIA environmental policies and procedures, spill response and prevention, storm water pollution prevention education, right-to-know awareness training, and hazardous materials management.
1.36	Storm water training	Provide annual storm water management training as required in the STIA NPDES Permit. Incorporate required elements in training program and maintain a log of employee attendance. A training log is included with the SWPPP training link. Required elements include orientation of SDS and IWS, PPT, SWPPP, SWPPP responsibilities, summary of operational source control BMPs for major activities with emphasis on good housekeeping and material management, spill response procedures, STIA Aviation Environmental contact information.
1.37	Contractor education	Provide construction and operational contractors and haulers with copies of pertinent BMPs, as required by the Programmatic Construction Stormwater Pollution Prevention Plan (Port of Seattle, December 2003). Require contractor/hauler adherence to BMP specifications. Provide contractors and subcontractors with copies of relevant BMPs during specification and bidding phases.
1.38	SPCC training	Provide adequate implementation training for facilities with an SPCC Plan, if required developed under guidelines set forth in 40 CFR, Section 112.3(a), (b).

TABLE 04

SEATTLE-TACOMA INTERNATIONAL AIRPORT

OSC BMP 1.0	GENERAL INDUSTRIAL ACTIVITIES	
Recordkeeping and Reporting		
1.39	STIA Aviation Environmental shall comply with recordkeeping and reporting requirements of the NPDES Permit	The recordkeeping and reporting requirements contained in the NPDES Permit kept by STIA Aviation Environmental. • SWPPP Program Manager is responsible for inspection of BMPs (structural and non-structural) and other equipment and plant areas of Part I and Part II of the STIA NPDES Permit • Visual and storm water quality monitoring will be documented and reported as required by the NPDES Permit. • Monitoring records will be kept as required by the NPDES Permit. • Employee training records will be kept as required by the NPDES Permit.

General BMP Notations

REQUIREMENTS

- Capital and O&M may be required to eliminate or control non-storm-water discharges.
- O&M costs may increase or decrease with more capital investment.
- Educational programs are ongoing. Information and training must be provided at regular intervals, but at a minimum at the frequency required by applicable permit(s) or local, state, or federal regulations.
- Secondary Containment - Placing tanks or containers within an impervious structure capable of containing 110% of the volume contained in the largest tank within the containment structure. Double-walled tanks do not require additional secondary containment. Dike volume must be sufficient height to provide a volume of either 10% of the total enclosed container volume or 110% of the volume contained in the largest container (whichever is greater).

LIMITATIONS

- **Identifying discharges.** Activity-based (subtle) non-storm-water discharges from a particular facility are typically sporadic, transient, and often require frequent inspections to detect.
- **Moving activities indoors.** There may be limitations to activities being performed indoors.
- **Introduction of pollutants.** Implementation of some BMPs (such as construction of cover or cleaning exterior surfaces) may require the use of potential pollutants.
- **Engineering and maintenance for pollution control equipment.** Pollution control equipment, such as oil/water separators, must be appropriately sized and regularly maintained to be effective.
- **Limitations on discharge to POTW by permit.** POTW(s) may require pre-treatment and monitoring of wash water and/or deicing fluid prior to discharge.
- **Disposal of collected fluids.** Some waste fluids may require permitting, monitoring, pre-treatment or special disposal considerations.
- **Product substitution.** Alternative products may not be available, suitable, or effective in every case.

RELEVANT RULES, REGULATIONS, AND GUIDANCE DOCUMENTS

RCW 90.48 State of Washington Water Pollution Control Law
WAC 173-201A Surface Water Quality Standards
WAC 173-220 NPDES Permit Program
Washington State Department of Ecology, 2012 (or most current version), Stormwater Management Manual for Western Washington.
Washington State Department of Ecology, 2004 (or most current version), Guidance Manual for Preparing/Updating Stormwater Pollution Prevention Plan for Industrial Facilities.

TABLE 04

SEATTLE-TACOMA INTERNATIONAL AIRPORT	
OSC BMP 1.0	**GENERAL INDUSTRIAL ACTIVITIES**

WAC 173-303 Dangerous Waste Regulations
FR Vol. 60, No. 189, Sept. 25, 1995 Multi-Sector Storm Water General Permit
40 CFR 110.3 Discharge of Oil
40 CFR 112 Oil Pollution Prevention (SPCC/OPA Plans)
40 CFR 117.3 Determination of Reportable Quantities for a Hazardous Substance
40 CFR 122-124 NPDES Regulations for Stormwater Discharges
40 CFR 401 Effluent Limitation Guidelines
40 CFR 260 et. seq. Identification and Listing of Hazardous Waste
NPDES Permit No. WA-0024651, Port of Seattle, SEATAC International Airport
Port of Seattle, STIA Rules & Regulations

TABLE 05

SEATTLE-TACOMA INTERNATIONAL AIRPORT

OSC BMP 2.0 — AIRCRAFT, VEHICLE, AND EQUIPMENT MAINTENANCE

PURPOSE

Prevent the discharge of pollutants to storm water from aircraft, vehicle, and equipment maintenance and repair, including ground vehicle and equipment painting/stripping and floor wash downs.

TARGETED ACTIVITIES	TARGETED POLLUTANTS	KEY APPROACHES
• Aircraft/vehicle/equipment maintenance • Aircraft/vehicle/equipment painting or stripping • Apron/floor wash down • Potable water system cleaning (see OSC BMP 12.0, Aircraft and Vehicle Potable Water System Flushing)	• Oil and grease • Vehicle fluids • Solvents/cleaning solutions • Fuel • Battery acid • Paint	• Conduct maintenance indoors or in a covered area. • Perform outdoor maintenance in IWS drainage areas only. • Clean catch basins regularly. • Collect and properly dispose of all fluids.

APPLICABILITY

OSC BMP 2.0, Aircraft, Vehicle, and Equipment (AVE) Maintenance, applies to all AVE maintenance operations with potential to impact storm water in IWS drainage areas. No AVE maintenance activities may be performed in SDS drainage areas.

Good Housekeeping Practices		
2.1	Keep AVE maintenance areas clean	Keep AVE areas clean and free of debris. Dry sweep areas to keep pavement clean.
2.2	Parts cleaning and degreasing	Contain the use of solvents and other cleaning compounds to designated covered areas to promote safe handling and to minimize exposure to storm water. Dispose of wastes properly.
2.3	Aircraft lavatories maintenance	See OSC BMP 11.0, Aircraft Lavatory Waste Servicing.
2.4	Procedures for servicing aircraft potable water systems	See OSC BMP 12.0, Aircraft and Vehicle Portable Water System Flushing.
2.5	Waste disposal	All waste must be disposed of offsite.
2.6	Waste recycling	Actively recycle all wastes, if possible.
Minimize Exposure of Pollutants to Storm Water		
2.7	Perform maintenance activities indoors or within IWS areas	Where practicable, perform aircraft, vehicle and equipment maintenance activities indoors to prevent exposure of pollutants to storm water. No maintenance may be performed in SDS areas.
2.8	Perform aircraft deicing in IWS areas	Perform aircraft deicing in IWS areas to prevent exposure of pollutants to storm water. See OSC BMP 10.0, Aircraft De-icing

TABLE 05

SEATTLE-TACOMA INTERNATIONAL AIRPORT		
OSC BMP 2.0	**AIRCRAFT, VEHICLE, AND EQUIPMENT MAINTENANCE**	
		and Anti-icing.
2.9	Use drip pans and properly recycle or dispose of liquids	Use drip pans under parts or vehicles that drip or that are likely to drip liquids. Empty pans as needed to prevent overflow, and recycle or dispose of liquids properly.
2.10	Remove fluids and batteries for vehicles and equipment stored outside	Remove fluids and batteries from vehicles and equipment out of service and stored outside to prevent storm water contamination. Store cracked batteries in a covered non-leaking secondary containment system.
Preventative Maintenance		
2.11	Do not connect AVE maintenance and repair area drains to SDS	Do not connect AVE maintenance and repair shops and outdoor areas to SDS or surface water.
Spill Prevention and Response		
2.12	Spill response	Immediate response required for spills. See Port of Seattle Spill Response and Spill Clean-up Procedures, OSC BMP 16.0.
Routine Facility Inspections		
2.13	AVE maintenance inspections	Perform leak inspection on stored vehicles, parts, and equipment.
Aircraft RON on Taxiways: Low level aircraft maintenance may occur on Taxiways within SDS areas during RON parking situations. Maintenance may include topping off of hydraulic fluids (no more than 5 gallons). Proper BMPs must be implemented, including (but not limited to), spill kits on hand, cell phone or radio communications, and property trained personnel. In the event of spills immediately report any release or spill to Port ACC or 911.		

TABLE 06

SEATTLE-TACOMA INTERNATIONAL AIRPORT

OSC BMP 3.0 — AIRCRAFT, VEHICLE, AND EQUIPMENT CLEANING

PURPOSE

Prevent the discharge of pollutants to storm water drains from aircraft, vehicle, and equipment washing, and cleaning and degreasing activities.

TARGETED ACTIVITIES	TARGETED POLLUTANTS	KEY APPROACHES
• Aircraft/vehicle/equipment painting or stripping • Aircraft/vehicle/equipment Washing or cleaning	• Oil and grease • Solvents • Vehicle fluids • Cleaning solutions	• Use wash rack or designated area in IWS drainage areas only. • Use dry washing techniques. • Recycle wash water or discharge appropriately. • Provide training. • Fill out IWTP Discharge Request Form.

APPLICABILITY

OSC BMP 3.0, Aircraft, Vehicle, and Equipment (AVE) Cleaning, applies to all cleaning operations with potential to impact storm water that drains to IWS. AVE cleaning operations are not allowed in the SDS drainage areas. Unless dry-washed, AVE cleaning must be performed at an approved location (e.g., a wash rack).

Good Housekeeping Practices		
3.1	Washing aircraft, vehicles, and equipment	Use off-site commercial washing or "dry" washing and surface preparation techniques when possible. Use biodegradable phosphate-free detergents. Use designated wash areas within the IWS drainage. .
Minimize Exposure of Pollutants to Storm Water		
3.2	Equipment surfaces approved for washing	Only exterior surfaces are approved for washing. No engines or under carriages may be washed.
3.3	Product substitution	Use biodegradable products and substitute materials with less hazardous properties where feasible.
3.4	Equipment wash area requirements	Outdoor washing operations should have the following design characteristics: • Paved and sloped to facilitate wash water collection. • Water is collected or discharged to the sanitary sewer or discharged to the IWS with permission from Port of Seattle STIA Aviation Environmental (IWTP Discharge Request Form).

TABLE 06

SEATTLE-TACOMA INTERNATIONAL AIRPORT		
OSC BMP 3.0	**AIRCRAFT, VEHICLE, AND EQUIPMENT CLEANING**	
		• Wash areas should be clearly identified with signage.
Preventative Maintenance		
3.5	Maintain oil/water separators	Regularly clean and maintain oil/water separators if applicable. Characterize and properly dispose of cleaning waste. Follow maintenance schedule and procedures for these activities.
3.6	Maintain nozzles/ hoses/valves	Regularly maintain nozzles, hoses, and valves to prevent leaks.
Routine Facility Inspections		
3.7	Wash area inspections	Inspect wash areas for cracks or breaches to berms or concrete surfaces and repair.
Management of Storm Water Runoff		
3.8	Use designated wash areas	Use designated areas for washing, steam cleaning, and degreasing.
Recordkeeping and Reporting		
3.9	Wash rack monthly/annual reporting	Wash racks that discharge to the sanitary sewer require monthly reporting for flow (daily monitoring), pH, oil & grease, TSS, total glycols, BOD_5, and COD and annual reporting for Total Priority Pollutants and Heavy Metals.

TABLE 07

SEATTLE-TACOMA INTERNATIONAL AIRPORT

OSC BMP 4.0	AIRCRAFT, VEHICLE, AND EQUIPMENT STORAGE

PURPOSE

Prevent fuel spills and leaks, prevent contact with petroleum products and metals, and reduce their impacts to storm water.

TARGETED ACTIVITIES	TARGETED POLLUTANTS	KEY APPROACHES
• Aircraft/vehicle/equipment storage • Apron/floor wash down	• Oil and grease • Vehicle fluids • Metals	• Store ground surface equipment in IWS drainage areas only. • Store under cover. • Remove batteries and drain fluids prior to long-term storage. • Use drip pans or absorbent materials under equipment that may leak.

APPLICABILITY

OSC BMP 4.0. Aircraft, Vehicle, and Equipment (AVE) Storage, applies to outdoor storage activities where there is a potential to impact storm water because of exposure of surface contaminants (e.g., oil and grease) and contained fluids (e.g., fuel, antifreeze, oil, etc.).

Good Housekeeping Practices		
4.1	Aircraft, vehicle, and equipment storage	Inspect for leaks all incoming vehicles, parts, and equipment stored temporarily outside. Use drip pans or specially-designed absorbent pads to contain releases. Repair leaks in an expeditious manner. Store AVE in an area established to contain any incidental leaks and under cover, if possible. Store AVE away from storm drains.
4.2	Ground surface equipment storage	Store all ground surface equipment in IWS drainage areas.
4.3	Temporary parking of tanker trucks and materials transport vehicles	Designate areas for parking tanker trucks and material transport vehicles where spills and leaks can be contained and cleaned. Use covered loading/unloading areas for transfer of potential pollutants (especially liquid materials), such as building overhangs to reduce exposure of materials, vehicles, and equipment to storm water.
4.4	Do not hose down storage areas	Do not hose down area to SDS or surface water. Sweep storage areas regularly to collect dirt, waste, and debris.
Minimize Exposure of Pollutants to Storm Water		
4.5	Long term storage of equipment outside	Remove fluids and salvage batteries from vehicles and equipment retired for scrap. Clean oil, grease, or chemical residue off exterior surfaces prior to long-term storage.

TABLE 08

SEATTLE-TACOMA INTERNATIONAL AIRPORT

OSC BMP 5.0	OUTDOOR HANDLING, STORAGE, AND DISPOSAL OF WASTES AND MATERIALS

PURPOSE

Prevent or reduce the discharge of pollutants to storm water from outdoor handling, storage, and disposal of materials and waste.

TARGETED ACTIVITIES	TARGETED POLLUTANTS	KEY APPROACHES
• Loading/unloading • Cargo handling • Fuel/chemical storage • AVE fueling • AVE maintenance • Aircraft lavatory servicing • Pesticide/herbicide usage	• Anti-freeze chemicals • Batteries • De-icing chemicals • Fuel • Herbicides • Lavatory chemicals • Oil and grease • Paint • Pesticides • Soap/cleaning chemicals • Solvents • Other	• Conduct loading/unloading under cover. • Store materials and waste under cover. • Use appropriate secondary containment. • Transfer materials in paved areas away from drain inlets. • Follow Port of Seattle Spill Response Procedures (OSC BMP 16.0). • Maintain readily accessible spill kits.

APPLICABILITY

OSC BMP 5.0, Outdoor Handling, Storage, and Disposal of Wastes and Materials, applies to all handling, storage, and disposal of waste and/or other materials with potential to impact storm water.

Good Housekeeping Practices		
5.1	Material/waste handling	Transfer, use, and store liquid materials in IWS areas only areas.
5.2	Dispensing liquids	Avoid dispensing from drums positioned horizontally in cradles. Dispensing materials from upright drums equipped with hand pumps is preferred. Always use secondary containment.
5.3	Waste/materials storage procedures	Designate central storage locations where materials are contained (e.g., diking, curbing, secondary containment) and covered to prevent contact with storm water runoff and to reduce the risks of accidental spills. Segregate wastes to improve handling and promote recycling.
5.4	Signage for storage locations	Post signs at all storage locations in clearly visible locations noting the materials stored, emergency contacts, and spill cleanup procedures.

TABLE 08

SEATTLE-TACOMA INTERNATIONAL AIRPORT		
OSC BMP 5.0	**OUTDOOR HANDLING, STORAGE, AND DISPOSAL OF WASTES AND MATERIALS**	
5.5	Containers and container labeling	Store all materials sealed in their original containers or containers approved for that use. Place tight-fitting lids on all containers. Clearly label all containers with contents to prevent commingling of materials, storage of incompatibles, and improper handling, and to promote proper material handling and storage. Use required labeling procedures for storage of all hazardous wastes. Identify and properly dispose of all unlabeled and unknown materials.
5.6	Used battery management	Recycle used batteries after removal to promote recycling of materials and reduction of waste. Store batteries on spill containment and under cover.
5.7	Used oil containers and filters	Drain oil filters and containers before recycling or disposal. Store waste filters/containers in a leak-proof container. Dispose or recycle waste oil properly.
5.8	Used fluorescent light bulbs	Do not dispose of fluorescent light bulbs or sodium bulbs in dumpsters. Properly store and handle bulbs to prevent breakage. Bulbs must be recycled or managed as hazardous waste.
5.9	Fluorescent light ballasts	Verify if the light ballast is PCB or non-PCB containing. Manage appropriately.
5.10	Eliminate bone yards	Eliminate bone yards, which tend to conceal and lead to mismanaged waste and materials.
5.11	Waste and unusable material disposal	Do not dispose of liquid wastes such as oils or hazardous materials into dumpsters. Regularly inspect storage and work areas for unusable materials and waste that can be disposed of. Schedule waste pickup as frequently as needed to minimize storage time and avoid overloaded containers. Ensure that all materials and waste are properly characterized and disposed of.
5.12	Garbage collection (dumpster) area maintenance	See OSC BMP 9.0, Garbage Handling and Disposal.
5.13	Hazardous Materials and Dangerous Waste	Dangerous Waste management must comply with Washington State regulations. Storage of reactive, ignitable, or flammable liquids must comply with the Uniform Fire Code.
Minimize Exposure of Pollutants to Storm Water		
5.14	Product substitution	Use biodegradable products and substitute materials with less hazardous properties where feasible.
5.15	Outdoor storage area requirements	Outdoor storage areas should be covered if possible. When selecting storage sites, avoid excessive slope, locations near storm drain inlets, and locations near public access areas.

TABLE 08

SEATTLE-TACOMA INTERNATIONAL AIRPORT		
OSC BMP 5.0	**OUTDOOR HANDLING, STORAGE, AND DISPOSAL OF WASTES AND MATERIALS**	
5.16	Use secondary containment	Use secondary containment for storing drums or other containers. Secondary containment can include pallets with secondary containment.
5.17	Covered loading/unloading	Use covered loading/unloading docks.
Preventative Maintenance		
5.18	Maintain outdoor storage covers and secondary containment	Replace damaged covers used in outdoor storage areas. Pump out clean rainwater collected in secondary containment structures and dispose of properly.
Spill Prevention and Response		
5.19	Preventing pollutant exposure during material transfer	Position vehicles used for material transfer such that activities are protected from rainfall and that possible spills can be contained. Provide hand pumps, containment devices, and other transfer devices to facilitate material transfer.
5.20	Preventing pollutant exposure for material or waste storage	Move materials and waste indoors or store away from drains. All material stored outside, no matter how temporary, should be placed on secondary containment and under cover if possible. Materials not stored under cover should be covered, and exposed exterior surfaces should be clean.
Routine Facility Inspections		
5.21	Material/waste transfer area inspections	Inspect loading/unloading areas and material use areas for repair and patching.
5.22	Material and waste storage area inspection (containers and tanks)	Periodically inspect storage areas (containers and tanks): • Check containers for external corrosion and structural failure. • Check for spills and overfills due to operator failure. • Check for failure of piping system (pipes, pumps, flanges, couplings, hoses, and valves). • Check for leaks or spills during pumping of liquids or gases. • Visually inspect new tanks or containers for loose fittings, poor welds, and improper or poorly fitted gaskets. • Inspect tank foundations and storage area coatings.
Employee/Contractor Training		
5.23	Waste management training	Train employees on the proper disposal procedures for operations-derived wastes.
Management of Storm Water Runoff		
5.24	Protect storage areas from run-on and runoff	Protect all significant materials from rainfall, run-on, runoff, and wind dispersal. Options include: • Store material indoors or in a fully enclosed area.

TABLE 08

SEATTLE-TACOMA INTERNATIONAL AIRPORT		
OSC BMP 5.0	**OUTDOOR HANDLING, STORAGE, AND DISPOSAL OF WASTES AND MATERIALS**	
		• Permanently cover an outdoor storage area with a roof, an overhang, or an awning. • Use temporary covering of polyethylene, polypropylene, or hypalon. • Use control measures such as berms and secondary containment. • Reduce the amount of material stored outdoors.
Recordkeeping and Reporting		
5.25	Track waste generation	Characterize waste streams and maintain accurate information on waste streams using: manifests, bills of lading, biennial reports, permits, environmental audits, SARA Title III reports, emission reports, Material Safety Data Sheets (MSDSs), inventory reports, data on chemical spills, and emissions data.
5.26	Oil/water separator maintenance	Document all inspections and maintenance operations.

TABLE 09

SEATTLE-TACOMA INTERNATIONAL AIRPORT

OSC BMP 6.0	FUEL STORAGE AND DELIVERY

PURPOSE

Prevent fuel spills and leaks, and reduce their impacts to storm water.

TARGETED ACTIVITIES	TARGETED POLLUTANTS	KEY APPROACHES
• Aircraft/vehicle/equipment mobile fueling • Aircraft hydrant fueling • Stationary fueling stations • Fuel storage	• Petroleum products	• Keep spill response kits at fueling locations, including mobile fueling locations. • Construct berms or curbing around fueling areas. • Use absorbent materials and/or vacuum equipment for spills. • Use proper equipment for fuel dispensing and tank monitoring to prevent spills, leaks and overflows.

APPLICABILITY

OSC BMP 6.0, Fuel Storage and Delivery, applies to bulk and small-quantity storage and delivery of petroleum products. Petroleum products can be delivered through fixed fueling stations, tanker truck, and fuel hydrant systems.

Good Housekeeping Practices		
6.1	Vehicle fueling station signage	Fuel pumps intended for vehicular use must be posted with signs stating "No Topping Off" to prevent overflow.
Minimize Exposure of Pollutants to Storm Water		
6.2	Fueling and fuel storage must take place within secondary containment	Fueling is allowed in IWS areas only.
6.3	Delivery of fuel to and from the tank farm	Fuel delivery to the tank farm and from the tank farm to the air field must occur via pipeline. Storm water from the tank farm must go to the IWS.
6.4	Use of the IWTP	The IWTP is designed to remove petroleum products from storm water. The IWTP is manned based on expected storm water events, and may be manned 24-hours a day if needed.

TABLE 09

SEATTLE-TACOMA INTERNATIONAL AIRPORT		
OSC BMP 6.0	**FUEL STORAGE AND DELIVERY**	
Preventative Maintenance		
6.5	Maintain spill kits	Maintain spill kits, and restock spill kit supplies following each use.
6.6	Maintain shut-off nozzles, hoses, and other fueling fittings	Replace automatic shut-off nozzles as recommended by the manufacturer. Maintain and replace equipment on fueling or pumping vehicles, particularly hoses and nozzles, at established intervals as recommended by the manufacturer to prevent failures.
6.7	Maintain sumps and oil/water separators	Regularly clean and maintain sump and oil/water separators. Characterize and properly dispose of cleaning waste. Keep effluent shutoff valve closed during cleaning operations. Follow maintenance schedule and procedures for these activities.
Spill Prevention and Response		
6.8	STIA Spill Response Procedures	Implement STIA Spill Response Procedures as discussed in the applicable Water Pollution Control Plan for spills of fuel or other materials. Notification requirements are included.
6.9	Use fuel tank monitoring and release prevention systems	STIA rules and regulations governing fuel storage tanks apply. Provide appropriate monitoring for tanks containing fuel (i.e., level indicators and gauges, overfill protection with alarms, interstitial leak detection for double-walled tanks, routine inspection/lockout for drainage valves for tank containment areas). Fuel dispensing equipment should be equipped with "breakaway" hose connections that will provide emergency shut-down of flow should the fueling connection be broken through movement. Automatic shut-off mechanisms should be in place on fuel tankers and fuel pump trucks. These valves should remain in the closed position unless manually opened during fueling.
6.10	Use adequate lighting for fueling operations	Use adequate lighting system at fueling points. Provide fueling vehicle and operators with adequate flashlights or other mobile lighting to view fill openings with poor accessibility, and with two-way radios for communication. Consult with local fire department for additional lighting requirements.
6.11	Spill kits on fueling vehicles and fueling stations	Maintain a minimum of the following spill clean-up materials in all fueling vehicles and fueling stations, that are readily available for use: • Non-water absorbents capable of absorbing 15 gallons of fuel • A storm drain plug or cover kit • A non-water absorbent containment boom of a minimum 10 feet in length with a 12-gallon absorbent capacity • A non-metallic shovel • Two 5-gallon buckets with lids

TABLE 09

SEATTLE-TACOMA INTERNATIONAL AIRPORT		
OSC BMP 6.0	**FUEL STORAGE AND DELIVERY**	
6.12	Preventing pollutant exposure when fueling	Fuel equipment in designated areas, covered if possible. Maintain spill kits on fueling tankers. Avoid mobile fueling of equipment if possible. If mobile fueling is needed, fuel only in IWS drainage areas and use drip pans/absorbent pads to prevent drips or spills from reaching the pavement. If emergency situation requires fueling in SDS areas, cover nearby storm drains and outlets to surface drainages with spill control mats or block off with absorbent booms to prevent accidental release of pollutants in the event of a spill.
6.13	Fueling operation procedures	Fueling operations must meet Fire Department requirements and comply with local and Washington State fire codes. The operating procedures for the driver/operator should be simple, clear, effective and their implementation verified by the organization that will potentially be liable for environmental and third-party damage.
6.14	Collection of aircraft fuel samples	Use GATS jars to take fuel samples. Dispose of samples at designated collection sites. Use fire-rated containers for storage of fuel samples.
Routine Facility Inspections		
6.15	Fuel storage and handling inspections	Regularly inspect fuel hydrants, fueling pumps, fueling areas, and storage tanks. (Underground storage tanks ([USTs] should be tested as required by federal and state laws.)
6.16	Secondary containment inspections	Regularly inspect secondary containment. Check integrity of containment berms or walls and flooring. Check to see that valves work properly and that they are kept closed. Check to see if containment needs to be pumped out or cleaned.
Employee/ Tenant Training		
6.17	Fuel spill response training	Train employees performing fueling activities on spill prevention and spill response procedures for fuel spills on an annual basis. Make all employees aware of the significant liability associated with fuel spills.
6.18	Fueling operation procedures	The fueling operating procedures should be properly signed and dated by the responsible manager, distributed to the operators, retained in the organization files, and made available in the event an authorized government agency requests a review. Employees who perform fueling must be trained to use the operating procedures.
6.19	Into-plane fueling operator training	All into plane fuelers must comply with all FAA training requirements (14 CFR 139).

TABLE 09

SEATTLE-TACOMA INTERNATIONAL AIRPORT		
OSC BMP 6.0	**FUEL STORAGE AND DELIVERY**	
Recordkeeping and Reporting		
6.20	UST leak detection systems	Maintain records of UST leak detection assessments. Have records available for STIA Aviation Environmental inspections.
6.21	Inspection records	Maintain inspection records for fuel storage and handling and secondary containment inspections.
Emergency Fueling of Aircraft: All aircraft must be fueled in areas draining to the Port's Industrial Waste System (IWS) per the Port's NPDES permit. Taxiway Alpha between the intersections of Golf north bound to the intersection of Taxiway Bravo is the only location authorized for non-gate fueling on taxiways. There is to be **no** fueling on Taxiway Alpha during large rainstorms (more than 1" in 24 hours). Fueling may occur at the General Aviation ramp as this drains to the IWS. Fueling on the West side of the airfield is **not** authorized except during emergency situations (and after required BMPs are in place). AV/ENV must be notified of emergency fueling in non-IWS drainage areas.		

TABLE 10

SEATTLE-TACOMA INTERNATIONAL AIRPORT

OSC BMP 7.0	BUILDING AND GROUNDS MAINTENANCE

PURPOSE

Prevent or reduce the discharge of pollutants to storm water from building and grounds maintenance by washing and cleaning up with as little water as possible, preventing and cleaning up spills immediately, keeping debris from entering storm drains, and maintaining the storm water collection system.

TARGETED ACTIVITIES	TARGETED POLLUTANTS	KEY APPROACHES
• Building maintenance • Grounds maintenance • Pesticide/herbicide use • Outdoor wash down	• Pesticides/herbicides/ fertilizers • Oil and grease • Zinc • Sediment • Landscape waste • Wash down waste • Building maintenance materials (paint, roofing, etc.)	• Keep paved surfaces cleaned and swept. • Clean catch basins regularly using vacuum trucks. • Manage use of pesticides/herbicides/ fertilizers.

APPLICABILITY

OSC BMP 7.0, Building and Grounds Maintenance, applies to non-AVE maintenance operations with potential to impact storm water.

Good Housekeeping Practices

7.1	Limit materials inventory	Limit inventory of materials stored onsite to reduce the magnitude of potential spills and waste generation.
7.2	Disposal of landscaping and grounds maintenance waste	Properly dispose of landscape waste, wash water, sweepings, and sediments. Do not dispose of into SDS, ditches, or surface water.
7.3	Immediately clean up spills, follow STIA Spill Response Procedures	Clean up any spilled pesticides and manage clean up wastes. Follow STIA Spill Response Procedures.
7.4	Implement vegetation management practices	Follow Ecology seeding and planting BMPs, aerate lawns regularly in areas of heavy use, and set grass mowing heights to minimize stress on turf grass. Generally mowing only 1/3 of grass blade height prevents stress. Use proper irrigation practices to prevent over-watering. Manage fertilizer application to minimize use.
7.5	Cleaning interior floors and exterior ground surfaces	Maintain clean, dry floors and exterior surfaces by methods other than hosing and washing (e.g., using brooms, shovels, vacuum cleaners, etc.). Do not hose down work areas to the IWS drain system or use concrete cleaning products unless the drain inlet is blocked and wash water is collected and properly disposed of. Use seals or door skirts to prevent material exposure to rainfall.

TABLE 10

SEATTLE-TACOMA INTERNATIONAL AIRPORT		
OSC BMP 7.0	**BUILDING AND GROUNDS MAINTENANCE**	
Minimize Exposure of Pollutants to Storm Water		
7.6	Implement Integrated Pest Management Plan	The Integrated Pest Management Plan includes a list of selected pesticides, specific uses, brands, formulations, application methods and quantities used, equipment use and maintenance procedures, safety, storage, disposal methods, and monitoring, recordkeeping, and public notice procedures. Procedures shall comply with requirements of WAC 16-228.
7.7	Product substitution	Use biodegradable products and substitute materials with fewer hazardous properties where feasible.
7.8	Minimize, herbicide and fertilizer use	Minimize use of herbicides and fertilizers. Use only approved herbicides and fertilizers and apply according to directions. Choose the least toxic herbicide that is effective for the intended use. Target application for vulnerable life stages of pest(s). Contact Port staff wildlife biologist for pest control.
7.9	Mix and store herbicides in paved areas away from storm drainage	Mix herbicides and clean application equipment in an area where accidental spills will not enter SDS or surface or ground waters, and will not contaminate soil. Store herbicides and equipment in enclosed areas or in covered impervious containment. Do not hose down the areas to a storm drain, a ditch, or surface water.
7.10	Herbicide application limits	Spray applications only during weather conditions as specified in label directions and applicable local and state regulations. Do not apply during rain or immediately before expected rain. Do not spray herbicides within 100 feet of surface waters or drainage ditches. Sensitive areas including streams and wetlands must be flagged prior to spraying. Complete public posting of the area to be sprayed prior to application as required by local or state regulations.
7.11	Fertilizer management	Use type and quantity of fertilizers appropriate for target vegetation. Select slow-release fertilizers. Apply at the time of year that minimized losses through runoff and targets maximum plant uptake. Do not fertilize during drought periods or when soil is dry. Do not apply fertilizers within 3 days of predicted rain. Do not apply to grass swales, filter strips, or buffer areas that drain to sensitive water bodies.
7.12	Dust control	Sprinkle or wet down soil or dust with water as long as it does not result in a discharge.
Preventative Maintenance		
7.13	Grounds/landscaping design considerations	Consider the following design characteristics for grounds/landscaping design: • Follow Ecology BMPs for vegetation management in design of landscaped areas.

TABLE 10

SEATTLE-TACOMA INTERNATIONAL AIRPORT		
OSC BMP 7.0	**BUILDING AND GROUNDS MAINTENANCE**	
		• Incorporate areas of landscape into project design. (Landscape areas are pervious and will result in less runoff discharge from a site.) • Incorporate design considerations such as leaving or planting native vegetation to reduce irrigation, fertilizer, and pesticide needs. • Select landscaping plants that require little maintenance and/or pest control. • Incorporate storm water detention/retention to reduce peak runoff flows and for water quality control.
7.14	Maintain storm water control devices and outfalls	Regularly inspect and patch or repair storm water control devices (e.g., berms, swales, etc.) to keep them in working order. Place devices such as hay bales or filter fabric over storm drain culverts or at other areas to capture debris generated during construction or runway rubber removal activities.
7.15	Maintain catch basins	Regularly clean any catch basins which receive runoff from a maintenance area, especially after larger storms. Install and maintain catch basin filter inserts that assist in the removal of oil and grease, sediments, and floatables.
7.16	Install oil/water separators	Either collect storm water in areas exposed to pollutants or install an appropriately-sized oil/water separator (regulatory agency approval may be required). Oil/water separators are typically used in areas where the concentrations of petroleum hydrocarbons, floatables, or sediment may be abnormally high and source control techniques are not very effective. Design, sizing, and placement of oil/water separators are dependent on several factors including: tributary area, type of activity, pollutant type and concentration, and water temperature. Separators should be selected, sized, and designed by a qualified engineer.
7.17	Maintain sumps and oil/water separators	Regularly clean and maintain sumps and oil/water separators. Port Maintenance will remove sediments from catch basin sumps at least annually. Characterize and properly dispose of cleaning waste. Keep effluent shutoff valve closed during cleaning operations. Follow maintenance schedule and procedures for these activities.
7.18	Label storm drains	Label storm water catch basins and drains for SDS system with “Dump no waste, drains to stream” painted in white. Label IWS system catch basins and drains with “Dump no waste, drains to bay” painted in orange.
Routine Facility Inspections		
7.19	Sump and oil/water separator inspections	Regularly inspect sumps and oil/water separators to identify when preventative maintenance is needed.

TABLE 10

SEATTLE-TACOMA INTERNATIONAL AIRPORT		
OSC BMP 7.0	**BUILDING AND GROUNDS MAINTENANCE**	
7.20	Inspect aqueous film forming foam (AFFF) deluge system	Regularly inspect, clean, and maintain AFFF testing facility and collection sumps.
Management of Storm Water Runoff		
7.21	Erosion control	Provide landscaped areas where erosion is becoming a problem. Plantings and appropriate grading are means to controlling erosion and containing runoff.
7.22	Minor construction or maintenance that may expose soils	Provide sediment control devices such as silt fences, catch basin filter inserts, hay bales, or filter fabric over storm water culverts. Provide hydroseeding or similar stabilization once construction or maintenance is complete.
7.23	Minimize exposure of treated metal surfaces	All galvanized materials (e.g., fencing, roofs) used outdoors shall be painted, coated, or drain to pervious surfaces such as grass swales, filter strips, or buffer areas.[1]
Employee/Contractor Training		
7.24	Trained landscape management personnel	Persons applying fertilizers and pesticides should have training in proper use and application.

GUIDANCE DOCUMENTS

[1]Beck, R.W., Port of Seattle, October 2008 (or current version), Stormwater Management Manual for Port Aviation Division Property

Port of Seattle Landscape Maintenance and Integrated pest Management Plan Management Plan (1997 or current version). – As of this writing (Jan 4, 2017) an updated version of this document is anticipated to be 6 months out.

Washington State Department of Ecology, August 2012 (or most current version), Stormwater Management Manual for Western Washington.

TABLE 11

SEATTLE-TACOMA INTERNATIONAL AIRPORT

OSC BMP 8.0 — VEHICLE AND EQUIPMENT PAINTING

PURPOSE

Prevent the discharge of pollutants to storm water from vehicle and equipment painting.

TARGETED ACTIVITIES	TARGETED POLLUTANTS	KEY APPROACHES
• Vehicle and equipment painting • Pavement painting • Outdoor wash down	• Paint • Metals • Solvents	• Use permitted paint booths. • Perform touch-up painting indoors. • Store paint indoors. • Manage paint waste.

APPLICABILITY

OSC BMP 8.0, Vehicle and Equipment Painting, applies to all non-facility painting operations with potential to impact storm water. Vehicle and equipment painting must be performed at an approved location (e.g., a paint booth). Contact Port Aviation Environmental for approved locations.

Good Housekeeping Practices		
8.1	Painting aircraft, vehicles, and equipment	Use offsite commercial painting and surface preparation techniques when possible. Remove all materials (e.g., drippings and residue) using vacuum methods and dispose of properly.
8.2	Painting aircraft, vehicles, and equipment	Use ground or drop cloths underneath outdoor painting, scraping, sandblasting work, and properly clean and temporarily store collected debris daily.
8.3	Painting cleanup	Clean brushes and tools covered with non-water-based paints, finishes, or other materials in a manner that allows collection of used solvents (e.g., paint thinner, turpentine, xylol, etc.) for recycling or proper disposal.
8.4	Paint storage and paint waste disposal	Properly store paint materials and paint waste, and dispose of waste in accordance with fire code and environmental regulatory requirements.
8.5	Signage for paint storage locations	Post signs at all storage locations in clearly visible locations noting the materials stored, emergency contacts, and spill cleanup procedures.
Minimize Exposure of Pollutants to Storm Water		
8.6	Painting aircraft, vehicles, and equipment	Use a storm drain cover, filter fabric, or similarly effective runoff control device if dust, grit, wash water, or other pollutants may escape the work area and enter a catch basin. The containment device(s) must be in place at the beginning of the workday. Collect contaminated runoff and solids and properly dispose of such wastes before removing the containment device(s) at the end of the workday. Do not hose down work area.

TABLE 11

SEATTLE-TACOMA INTERNATIONAL AIRPORT		
OSC BMP 8.0	**VEHICLE AND EQUIPMENT PAINTING**	
8.7	Painting aircraft, vehicles, and equipment	Enclose and/or contain all work while using a spray gun or conducting grit blasting and in compliance with applicable air pollution control, OSHA, and WISHA requirements. Do not conduct outside spraying, grit blasting, or sanding activities during windy conditions which render containment ineffective.
8.8	Waste minimization	Recycle paint, paint thinner, solvents, pressure wash water, and any other recyclable materials.
Preventative Maintenance		
8.9	Painting aircraft, vehicles, and equipment	Maintain painting equipment and containment to ensure proper function.
Spill Prevention and Response		
8.10	Preventing pollutant exposure for paint material or waste storage	All material stored outside, no matter how temporary, should be placed on secondary containment and under cover if possible. Materials not stored under cover should be covered, and exposed exterior surfaces should be clean.
Routine Facility Inspections		
8.11	Paint area inspections	Inspect storage areas for cracks or breaches to berms or concrete surfaces and repair.
Management of Storm Water Runoff		
8.12	Use designated paint areas	Only pavement surface painting is allowed in SDS areas.
8.13	Use designated paint areas in IWS area only	Use a drain cover, filter fabric, or similarly effective runoff control device if dust, grit, wash water, or other pollutants may escape the work area and enter a catch basin. The containment device(s) must be in place at the beginning of the workday. Collect contaminated runoff and solids and properly dispose of such wastes before removing the containment device(s) at the end of the workday.
Employee/Contractor Training		
8.14	Trained personnel	Personnel who apply paint or other finishes shall be trained in proper application and cleanup procedures.

TABLE 12

SEATTLE-TACOMA INTERNATIONAL AIRPORT

OSC BMP 9.0	GARBAGE HANDLING AND DISPOSAL

PURPOSE

Prevent or reduce the discharge of pollutants to storm water from garbage/municipal solid waste handling and disposal by preventing runoff from trash compactors and dumpsters.

TARGETED ACTIVITIES	TARGETED POLLUTANTS	KEY APPROACHES
• Garbage/solid waste management and disposal • Food service	• Dumpster waste • Trash compactor fluids • FOD • BOD	• Cover dumpsters. • Perform dumpster washing offsite. • Regularly inspect and clean waste storage areas. • Recycle materials. • Properly dispose of all fluids. • Properly recycle or dispose of all Universal Wastes (e.g., batteries, fluorescent bulbs).

APPLICABILITY

OSC BMP 9.0, Garbage Handling and Disposal, applies to all handling, storage, and disposal of putrescible waste and trash with potential to impact storm water. For other waste disposal, see OSC BMP 5.0, Outdoor Handling, Storage, and Disposal of Waste and Materials.

Good Housekeeping Practices

9.1	Garbage handling, storage, and disposal	Designate central locations where garbage and trash are contained and covered to prevent contact with storm water runoff. Segregate wastes to improve handling and promote recycling. Completely drain liquid waste containers prior to disposal of containers. Do not dispose of liquid or hazardous materials in dumpsters or compactors.
9.2	Garbage collection (dumpster) area	Provide shelter and secondary containment for dumpsters if possible. Use covered dumpsters. Use only dumpsters with plugged drain holes to prevent discharge of leachate or fluids. Leachate collected in compactors should be collected and disposed of to the sanitary sewer.
9.3	Garbage pickup	Schedule trash pickup as frequently as needed to minimize storage time and avoid overloaded containers.

TABLE 12

SEATTLE-TACOMA INTERNATIONAL AIRPORT		
OSC BMP 9.0	**GARBAGE HANDLING AND DISPOSAL**	
Minimize Exposure of Pollutants to Storm Water		
9.4	Dumpster covers	Use garbage dumpsters and compactors with solid covers and secondary containment (e.g. within sanitary sewer or IWS) to prevent leachate from entering SDS.
9.5	Dumpster drainage	Use only dumpsters or compactors with plugged drain holes to prevent discharge of leachate or fluids. Leachate from compactors and dumpsters must be discharged to the sanitary sewer.
9.6	Dumpster locations	When selecting dumpster sites, avoid excessive slopes, locations near storm drain inlets, and locations near public access areas.
Preventative Maintenance		
9.7	Dumpster and compactor maintenance	Perform dumpster or compactor cleaning in designated areas that are bermed to contain wash water for subsequent discharge to the sanitary sewer.
Routine Facility Inspections		
9.8	Inspect dumpster and compactor areas	Inspect dumpsters and compactors to ensure that they are covered and leachate is not leaking to the ground.
Management of Storm Water Runoff		
9.9	Protect storage areas from run-on and runoff	Protect all waste materials from rainfall, run-on, runoff, and wind dispersal. Options include: • Store material indoors or in a fully enclosed area. • Permanently cover an outdoor storage area with a roof, overhang or awning. • Use control measures such as berms and secondary containment. • Reduce the amount of material stored outdoors.

TABLE 13

SEATTLE-TACOMA INTERNATIONAL AIRPORT

OSC BMP 10.0	AIRCRAFT DE-ICING AND ANTI-ICING

PURPOSE

Prevent the discharge of pollutants to storm water from aircraft de-icing and anti-icing procedures.

TARGETED ACTIVITIES	TARGETED POLLUTANTS	KEY APPROACHES
• Aircraft de-icing and anti-icing • Apron/floor wash-down	• Ethylene glycol • Propylene glycol • BOD	• Perform de-icing/anti-icing in IWS areas. • Apply only required amounts of fluid. • Clean ramp area when done. • Implement FAA recommendations. • Maintain tanks and secondary containment for de-icing and anti-icing chemicals.

APPLICABILITY

OSC BMP 10.0, Aircraft De-icing and Anti-icing, applies to all aircraft de-icing and anti-icing operations and training exercises.

Good Housekeeping Practices		
10.1	De-icing and anti-icing aircraft	Keep equipment and de-icing and anti-icing chemicals storage areas clean and orderly.
Minimize Exposure of Pollutants to Storm Water		
10.2	De-icing and anti-icing operations in designated IWS areas	Perform aircraft de-icing and anti-icing operations in IWS drainage areas only. Follow FAA and manufacturer guidance for product use for aircraft safety. Do not allow de-icing or anti-icing chemicals to be discharged to the SDS, surface water, or groundwater.
10.3	Deicing and anti-icing chemicals transfer and storage	Transfer de-icing and anti-icing chemicals on impervious containment pad or equivalent. Transfer in IWS drainage areas only. Store de-icing and anti-icing products in secondary containment within IWS drainage areas.
10.4	Deicing truck parking	All deicing trucks should be parked within IWS areas.
10.5	Wastewater containing de-icing and anti-icing chemicals	Storm water that accumulates in secondary containment around de-icing and anti-icing chemicals storage tanks should be tested for contaminants prior to being pumped out. Submit IWS discharge request to Aviation Environmental if discharge to the

TABLE 13

SEATTLE-TACOMA INTERNATIONAL AIRPORT		
OSC BMP 10.0	**AIRCRAFT DE-ICING AND ANTI-ICING**	
		IWS is desired. Never discharge wastewater from secondary containment to SDS drains.
10.6	Use designated snowmelt areas	Place plowed glycol-contaminated snow in designated snowmelt areas to convey drainage to IWS.
Preventative Maintenance		
10.7	Outdoor de-icing and anti-icing requirements	Outdoor aircraft de-icing and anti-icing operations should have the following design characteristics: • Conducted in IWS drainage areas only. • Water is collected or discharged to the sanitary sewer(2007).
Spill Prevention and Response		
10.8	Preventing pollutant exposure when deicing or anti-icing	All deicing and anti-icing must be conducted in IWS areas.
10.9	Port of Seattle Spill Response Procedures	Follow Port of Seattle Spill Response Procedures (see Appendix F) in the event of a spill.
Routine Facility Inspections		
10.10	Inspect and maintain de-icing and anti-icing chemicals tanks and secondary containment and deicing trucks	Inspect de-icing and anti-icing chemicals tanks, containers, and secondary containment and deicing trucks to ensure proper function of valves. If equipment is not operating properly or leaking, perform maintenance as required.

TABLE 14

SEATTLE-TACOMA INTERNATIONAL AIRPORT

OSC BMP 11.0	AIRCRAFT LAVATORY WASTE SERVICING

PURPOSE

Prevent discharges to the storm drain system associated with servicing of aircraft lavatory facilities. The sanitary sewage and associated rinse waters produced during the servicing of aircraft lavatory facilities must be discharged to the sanitary sewer.

TARGETED ACTIVITIES	TARGETED POLLUTANTS	KEY APPROACHES
• Aircraft lavatory service • Lavatory truck cleanout/backflushing	• Lavatory chemicals • Lavatory waste • Lavatory truck wash water	• Do not discharge lavatory waste to sanitary sewer connections other than the STIA "biffy dump". • Do not perform lavatory truck cleanout or backflushing at any location other than the STIA "biffy dump". • Use buckets or pans to capture drippage from aircraft lavatory access fittings. • Carry absorbent and other containment equipment on the lavatory service equipment.

APPLICABILITY

OSC BMP 11.0, Aircraft Lavatory Waste Servicing, applies to lavatory deodorant storage, mixing, and lavatory servicing of aircraft.

Good Housekeeping Practices		
11.1	Lavatory servicing	Keep equipment and deodorant storage areas clean and orderly.
11.2	Use only approved fluids for aircraft lavatories	Use only deodorants that can be discharged to the sanitary sewer system.
Minimize Exposure of Pollutants to Storm Water		
11.3	Procedures for	Drain the aircraft connecting hose as completely as possible into

TABLE 14

SEATTLE-TACOMA INTERNATIONAL AIRPORT		
OSC BMP 11.0	**AIRCRAFT LAVATORY WASTE SERVICING**	
	servicing aircraft lavatories	the storage tank after servicing an aircraft. Properly secure all hoses, valves, and equipment when transporting waste to eliminate leakage and spills. If possible, perform deodorant mixing and transfers under cover. Use buckets or pans to capture leaks from aircraft lavatory access fittings. Immediately dump the fluids into the bulk storage tank on the service cart or truck. Do not hose down spills. Contact Airport Duty Manager for assistance with spill cleanup if necessary.
11.4	Disposal of lavatory waste	Do not discharge lavatory waste or clean/back-flush lavatory trucks anywhere other than the approved location (the “biffy dump”).
11.5	Lavatory trucks	Lavatory trucks must be parked in IWS areas only.
Preventative Maintenance		
11.6	Lavatory service equipment maintenance	Perform regular inspections of the hose and fittings used for transferring lavatory waste. Keep the equipment in good working order. Replace worn equipment before leaks develop.
Spill Prevention and Response		
11.7	Procedures for cleaning up spills and leaks	Use absorbent materials and spill control equipment for temporary and immediate control of spills and leaks of liquid materials. Absorbent materials can be used in conjunction with curbing to provide cleanup of small spills within a containment area. Collect and remove absorbent materials from area soon after use and dispose of in an appropriate manner. Do not hose down the area unless the storm/IWS drain is blocked and drainage is collected and disposed of through a permitted connection to the sanitary sewer.
Routine Facility Inspections		
11.8	Lavatory service equipment inspections	Perform regular inspections of the hose and fittings used for transferring lavatory waste. Keep the equipment in good working order. Replace worn equipment before leaks develop.
11.9	Lavatory waste sanitary sewer discharge area inspections	Inspect lavatory waste sanitary sewer discharge area for proper function and signs of spills.
Management of Storm Water Runoff		
11.10	Lavatory waste servicing in IWS areas	Lavatory waste servicing, including storage and mixing of deodorant is to be performed in IWS areas only. Lavatory waste to

TABLE 14

SEATTLE-TACOMA INTERNATIONAL AIRPORT		
OSC BMP 11.0	**AIRCRAFT LAVATORY WASTE SERVICING**	
	only, discharge of waste to sanitary sewer only	be discharged to sanitary sewer only.

TABLE 15

SEATTLE-TACOMA INTERNATIONAL AIRPORT

OSC BMP 12.0	AIRCRAFT AND VEHICLE POTABLE WATER SYSTEM FLUSHING

PURPOSE

Prevent discharges to the storm drain system associated with flushing of aircraft and vehicle potable water systems.

TARGETED ACTIVITIES	TARGETED POLLUTANTS	KEY APPROACHES
• Aircraft potable water system cleaning and flushing • Water truck cleaning and flushing	• Purine • Chlorine bleach	• Perform water truck flushing in designated areas only. • Collect all discharge from aircraft potable water flushing or water truck flushing, and discharge to a permitted sanitary sewer connection or request permission to discharge to IWS. • Do not discharge water to the ground or the SDS.

APPLICABILITY

OSC BMP 12.0, Aircraft and Vehicle Potable Water System Flushing, applies to all non-facility potable water systems on aircraft or water trucks with potential to impact storm water.

Minimize Exposure of Pollutants to Storm Water

12.1	Procedures for servicing aircraft potable water systems	Operators supervise potable water filling to prevent overflows. Perform water truck flushing operations only in designated areas. Do not perform flushing near or discharge to storm drains. Collect all discharge from aircraft potable water flushing or water truck flushing containing purine, chlorine bleach, or other chemicals and properly discharge to a permitted sanitary sewer connection, or recycle the water.
12.2	Potable water system chemicals	Store chlorine bleach or other chemicals used for potable water systems indoors in accordance with requirements.

TABLE 16

SEATTLE-TACOMA INTERNATIONAL AIRPORT

OSC BMP 13.0 — ROADWAY, RAMP, AND RUNWAY MAINTENANCE AND CLEANING

PURPOSE

Prevent or reduce the discharge of pollutants to storm water from maintenance and cleaning of roads, ramps, and runways.

TARGETED ACTIVITIES	TARGETED POLLUTANTS	KEY APPROACHES
• Snow and ice management • Road, ramp, and runway cleaning • Road, ramp, and runway maintenance • Outdoor/power washing	• Oil and grease • Fuel • Aqueous film-forming foam (AFFF) • De-icing/anti-icing materials (e.g., potassium acetate [PA], sodium acetate [SA], calcium/magnesium acetate [CMA]) • Solvents/cleaning solutions • Sediments • Foreign Object Debris (FOD) • No Chloride containing deicer (on AOA per FAA AC 150/5200-30C)	• Use dry sweeper to keep paved areas clean. • Maintain catch basins and oil/water separators. • Use approved materials for road, ramp, and runway anti-icing/deicing. • Collect and discharge road and ramp wash water to IWS.

APPLICABILITY

OSC BMP 13.0. Roadway, Ramp, and Runway Maintenance and Cleaning, applies to non-AVE maintenance operations with potential to impact storm water.

Good Housekeeping Practices		
13.1	Keep AOA clean	Sweep AOA pavement frequently.
Minimize Exposure of Pollutants to Storm Water		
13.2	Ground de-icing/anti-icing	Use approved ground anti-icers and de-icers. Apply materials to ramps and roadways as required for safe operation, but avoid excess application. Store all products on impervious surface and under cover. Use all weather forecasting and surface pavement condition system information prior to chemical application.
13.3	Snow storage	Operate pump stations to divert glycol-contaminated snowmelt to IWS.
13.4	Runway skid mark cleaning	Hydro blasting waste of runway skid mark rubber must be contained. Use of chemicals for cleaning is prohibited.
Preventative Maintenance		
13.5	Maintain storm water control devices and outfalls	Regularly inspect and patch or repair storm water control devices (i.e., berms, etc.) to keep them in working order. Place devices such as hay bales or filter fabric over storm drain culverts or at

TABLE 16

SEATTLE-TACOMA INTERNATIONAL AIRPORT		
OSC BMP 13.0	**ROADWAY, RAMP, AND RUNWAY MAINTENANCE AND CLEANING**	
		other areas to capture debris generated during construction or runway rubber removal activities.
13.6	Maintain catch basins	Regularly clean any catch basins which receive runoff from a maintenance area. Install and maintain catch basin filter inserts in areas prone to high volumes of debris; such inserts assist in the removal of oil and grease, sediments, and floatables.
13.7	Maintain sumps and oil/water separators	Regularly clean and maintain sumps and oil/water separators. Characterize and properly dispose of cleaning waste. Keep effluent shutoff valve closed during cleaning operations. Follow maintenance schedule and procedures for these activities.
Routine Facility Inspections		
13.8	Inspect catch basins	Inspect catch basin sumps annually and clean as needed.
13.9	Inspect AOA for FOD	Inspect AOA for FOD and clear as encountered.
Management of Storm Water Runoff		
13.10	Snowmelt management	Operate pump stations to divert glycol-contaminated snowmelt to IWS.

TABLE 17

SEATTLE-TACOMA INTERNATIONAL AIRPORT

OSC BMP 14.0	FIRE SUPPRESSION AND AQUEOUS FILM FORMING FOAM DISCHARGE

PURPOSE

Prevent discharges to the storm drain system associated with flushing or testing of firefighting foam systems.

TARGETED ACTIVITIES	TARGETED POLLUTANTS	KEY APPROACHES
• Firefighting equipment testing and flushing	• Aqueous film-forming foam (AFFF)	• Perform testing operations in designated areas. • Properly dispose of, or recycle, AFFF discharge.

APPLICABILITY

OSC BMP 14.0, Fire Suppression and AFFF Discharge, applies to firefighting and maintenance operations with potential to impact storm water.

Good Housekeeping Practices		
14.1	AFFF deluge system testing procedures	Perform AFFF testing operations only in designated areas deemed appropriate for such activities. AFFF must be collected. Contact POS Fire Department for all AFFF testing or releases.
Minimize Exposure of Pollutants to Storm Water		
14.2	Fire deluge system design considerations	Design deluge (foam) testing system with the following characteristics: • Located away from storm drain inlets, drainage facilities or water bodies. Discharged AFFF must be contained to the extent possible. AFFF waste shall not be discharged to storm drains or water bodies. • Paved with concrete or asphalt, or stabilized with aggregate base. • Bermed to contain AFFF and to prevent run-on. • Configure discharge area with a sump to allow collection and disposal of AFFF.
14.3	Discharge AFFF to IWS	**Environmental and IWTP notification and approval must be obtained prior to discharge.**
Preventative Maintenance		
14.4	Maintain AFFF deluge systems	Regularly clean and maintain AFFF testing facility and collection sumps.

SEATTLE-TACOMA INTERNATIONAL AIRPORT		
OSC BMP 14.0	**FIRE SUPPRESSION AND AQUEOUS FILM FORMING FOAM DISCHARGE**	
Routine Facility Inspections		
14.5	Inspect AFFF deluge system	Regularly inspect, clean, and maintain AFFF testing facility and collection sumps.
GUIDANCE DOCUMENTS: Port of Seattle, Aviation Environmental. April 2019 (or most current version). Standard Operating Guideline-003. AFFF Testing Notifications.		

TABLE 18

SEATTLE-TACOMA INTERNATIONAL AIRPORT	
OSC BMP 15.0	**ANIMAL HANDLING**

PURPOSE

Prevent discharges to the storm drain system associated with animal handling and cargo.

TARGETED ACTIVITIES	TARGETED POLLUTANTS	KEY APPROACHES
• Animal handling and cargo	• Fecal coliform	• Manage animal waste.

APPLICABILITY

OSC BMP 15.0, Animal Handling, applies to all facilities and tenants that handle, ship, or store live animals.

Good Housekeeping Practices		
15.1	Keep animal areas clean	Regularly sweep and clean animal keeping areas to collect and properly dispose of droppings, uneaten food, and other potential storm water contaminants.
Minimize Exposure of Pollutants to Storm Water		
15.2	Animal containment	Animals must be kept in cages or in contained areas that prevent them from moving out of controlled areas where BMPs are used.
15.3	Animal containment	If animals/livestock are kept in unpaved and uncovered areas, the ground must either have vegetative cover or some other type of ground cover such as mulch.
15.4	Do not wash animal containment areas	Do not hose down animal areas, cages, or shipment containers to storm drains.
15.5	Discharge to storm water to sanitary only	Discharge runoff from animal containment areas to sanitary sewer drains only.

TABLE 19

SEATTLE-TACOMA INTERNATIONAL AIRPORT

OSC BMP 16.0 | SPILL RESPONSE AND SPILL CLEAN-UP

PURPOSE
Identify roles and responsibilities for all spills at STIA.

TARGETED ACTIVITIES	TARGETED POLLUTANTS		KEY APPROACHES
• Aircraft Fueling • Vehicle Fueling • AVE Maintenance • Facility Maintenance • GSE Maintenance	• Jet Fuel • Diesel • Gasoline • Biffy	• Hydraulic fluid • Motor oil • Glycol • Deicing Anti-icing Chemical	• Call 911 or 787-5380 • Notify ACC 787-5229 • Safety

Applicability
OSC BMP 16.0, Spill Response, applies to all facilities and tenants that have the potential to spill any material STIA.
Depending upon the material spilled and location there are different protocols implemented. A Spill is defined as:

1. Any release of material that causes immediate danger to human safety.
2. Any release that enters the Industrial Wastewater System (IWS) or Storm Drainage System (SDS) conveyance system, soil, or sanitary sewer.
3. Any release that could affect the normal operations of Seattle Tacoma International Airport (STIA).
4. Any release that could affect human health or the environment.

NOTIFICATION ALL SPILLS *EXCEPT* LAVATORY AND HYDRAULIC FLUID		
16.1	Notify the Port of Seattle Fire Department (911) or 787-5380 OR Airport Communications Center (787-5229).	Provide the following information: • Location • Type of Material Spilled • Size of spill (gallons or dimensions). • Contact Name and Number. • Source of Spill
16.2	If a spill **ENTERS** the drainage system or if **material is still flowing** or is greater than 5'x5' in dimension.	The Fire Department evaluates and determines appropriate response measures. • Do not use kitty litter type absorbent material - this will get washed into drains slowing incident response.
	If the spill **DOES NOT** enter a drain, **is not flowing**, and is less than 5'x5' in dimension.	• The tenant is responsible for spill clean-up. • If the tenant is not capable of properly cleaning up the spill request assistance from Maintenance Department and/or Fire Department.

NOTIFICATION ALL SPILLS *EXCEPT* LAVATORY AND HYDRAULIC FLUID cont.

SEATTLE-TACOMA INTERNATIONAL AIRPORT		
OSC BMP 16.0	**SPILL RESPONSE AND SPILL CLEAN-UP**	
16.3	Absorbent Material	Kitty litter type absorbent material may be applied to non-flowing manageable (5'x5') spills but must be immediately cleaned up. Material must be collected and appropriately disposed of. Absorbent pads may be used but must be picked up and properly disposed of after use. Pads are less likely to interfere with fire response.
16.4	Fuel Spills on Taxi-lanes or taxiways	Have FC assist with sweeper if possible **BEFORE** fire washes down. Response should be discussed and coordinated with Fire.
LAVATORY (BIFFY) SPILL		
16.5	Notify the Airport Communications Center (787-5229).	Provide the following information: • Location • Type of Material Spilled • Size of spill (gallons or dimensions). • Contact Name and Number. • Source of Spill
16.6	Clean-up	• Kitty litter type absorbent materials may be used but must be swept up immediately once it is worked into the spilled material. • Material must be properly disposed of. • Kitty litter type absorbent material creates FOD and drainage issues if not properly used. • If unable to clean up, Port Maintenance may assist with sweeper. Refer to OSC BMP 11.0 Aircraft Lavatory Waste Servicing.
DE-ICING/ANTI-ICING FLUIDS, HYDRAULIC FLUID SPILLS		
16.7	Notify the Airport Communications Center (787-5229).	Provide the following information: • Location • Type of Material Spilled • Size of spill (gallons or dimensions). • Contact Name and Number. • Source of Spill
16.8	Clean-up	• Kitty litter type absorbent materials may be used but must be swept up immediately once it is worked into the spilled material. • Material must be properly disposed of. • Kitty litter type absorbent material creates FOD and drainage issues if not properly used. • If unable to clean up, Port Maintenance may assist with sweeper.

Table 20 Structural Source Control BMPs- Completed Drainage Reroutes and Improvements

Project Name	BMP Description	Completed
Hazardous Materials Sheds Relocation	Relocate hazardous materials sheds	July 1995
Taxi Yard Wash Pad	Connect taxi yard wash pad to sanitary sewer	July 1995
Airfield Maintenance Sediment Storage	Connect airfield maintenance sediment storage shed	July 1995
Loading Dock Dumpster	Connect loading dock dumpster to slot drain	July 1995
North Satellite to IWS	Connect North Satellite to IWS	October 1995
D Concourse to IWS	Connect D Concourse to IWS	October 1995
C Concourse Ramp Area to IWS	Connect C Concourse ramp area to IWS	November 1995
Gate C8	Seal SDS inlet near Gate C8	December 1995
Gate B5	Seal SDS inlet near Gate B5	December 1995
Port Maintenance Shop Yard to IWS	Connect Port Maintenance Shop Yard to IWS	August 1996
Cargo Area 4 to IWS	Connect Cargo Area 4 to IWS	August 1996
S. Satellite and B Concourse to IWS	Connect SDS area between South Satellite and the B Concourse to the IWS	May1997
Federal Express Loading Dock to IWS	Connect Federal Express loading dock to IWS	July 1997
Food Service Loading Dock (Lufthansa) Drain to Sanitary	Connect food service loading dock drain to sanitary sewer (Lufthansa)	September 1997
Flying Foods Compactor Area	Connect food service compactor area drain to sanitary sewer (Flying Food)	September 1998
South Satellite 0.6-Acre to IWS	Diversion of 0.6-acre area under South Satellite Overhand and ramp areas to IWS	August 2000
Port Loading Dock to IWS	Plug loading dock drain and divert to IWS	September 2000
Former Delta Hangar Parking Lot to IWS	Diversion of former Delta Hangar parking lot to IWS	January 2001
Former South Ground Transportation Lots to IWS	Diversion of former south ground transportation lots to IWS	June 1995
Aircraft Lavatory Disposal Drainage Structural Source Control	New system was constructed to eliminate trackout	December 2003
S. 170th Northbound Expressway Ramp CBs	Clean CB areas and daylight other CBs for better flow to bioswales	September 2004
Rental Car Fueling Transfer/Wash Station Berm	Install berm; include in spill control plan	October 2004
Temporary North Airfield Staging Area Paving	Pave gravel area	October 2004
Terminal Area Unpaved Vehicle Turnaround Improvement	Area improved as part of duct bank project to prevent vehicle access. Vehicles were driving over the curb and using as a turnaround.	March 2004
Unpaved Vehicle Standby Area Near Air Cargo 4 Paving	Pave narrow strip on road shoulder	August 2004

Table 20 Structural Source Control BMPs- Completed Drainage Reroutes and Improvements

Project Name	BMP Description	Completed
Inlet Erosion and Landscape Restoration	Implement drainage and inlet erosion control	February 2004
Unpaved Vehicle Turnaround on 154th, TSS Tracking	Block vehicle access using Jersey barriers	October 2004
South Entrance CBs at S. 182nd Entrance CBs	Sealed various unnecessary CBs that were in landscaping	October 2004
Seal NWA Wet Vault with Steel Plates	Seal NWA wet vault with steel plates.	June 2004
Flying Foods Bioswale Improvement	Improve bioswale for Flying Foods drainage	Summer 2004
Paint ~4,000 ft of POS Guardrail	Paint galvanized fence to prevent zinc leaching	October 2004
Afco Building(s) Roof Painting	Paint galvalum rooftops to prevent zinc leaching	November 2004
Rooftop Painting - Fed Ex & SW Air Cargo	Paint galvalum rooftops to prevent zinc leaching	November 2004
SDS2 Infiltration facility	Infiltration facility	July 2005
Combine SDS6/SDS7 drainage	Combine SDS6/SDS7 drainage into a single outfall	Summer 2005
NWA AOA Ramp Berm/Glycol Control	Construct berm to prevent AOA ramp flows from entering SDS1 near NE corner of NWA hangar (minor drips from NWA hangar glycol dispensing)	February 2005
SDN2 Sediment Removal	Remove sediment from paved area and stabilize exposed slope adjacent to N2 pavement	November 2005
ASIG Maintenance Area Curb Repair	Repaired curb to prevent IWS drainage overflow to SDS1 basin	January 2006
Alaska Parking Lot CB Berm Repair	Repair asphalt berm in Alaska Parking lot at CB to prevent overflow to landscape area	February 2006
SDS3 – SDS5 drainage connection	Route SDS5 to SDS3 via new pipeline	March-06
SDE4 60-inch Diversion Pipe	60” diversion pipe segregates SDE4 basin from City of SeaTac under International Blvd	May 2006
Garage / IWS Pump Station	Construct pumpstation diverting Public Parking Garage to IWS	
SDS1 Roof Painting	Inert paint applied to Alaska Airlines Maintenance Building roof	June 2006
SDS1 Paint Alaska Rooftop and HVAC I-Beams	Paint galvalum rooftops to prevent zinc leaching	August 2006
SDS6/7 Vault	SDS6/7 3.5acft vault	Fall 2006
SDS4 Pond	SDS4 Detention Facility	October 2006
Bioswale Improvements SDS5	Reconstruct Snowshed Bioswale	October 2006

Table 20 Structural Source Control BMPs- Completed Drainage Reroutes and Improvements

Project Name	BMP Description	Completed
North Satellite Drainage Improvement	Expand IWS drainage area around the east side of the North Satellite	November 2006
SDS1 North Bioswale	Bioswale on the North side of Alaska Maintenance Entrance drive	November 2006
SDS1 South Bioswale	Bioswale on south side of Alaska Maintenance entrance drive	November 2006
SDS3 Vault	4.72 acft Vault for SDS3 basin	December 2006
Snowshed Structural Source Control	Divert snow shed floor drains to IWS	
SDN1 Pond	Wet pond in combination with level 2 detention	November 2006
SDE4 Filter Vault	600 Filter Capacity filter vault	June 2007
SDE4 Pond	11-Acre foot flow control pond for the SDE4 Basin	June 2007
Connect SDS5 to SDS5a	Connect SDS5a to SDS5 CB via approx. 50’ pipe	July 2007
SDE4/SDS1 Outfalls	Combine SDE4/SDS1 outfalls	August 2007
SDE4/SDS1 swale	Combine SDE4 and SDS1 outfalls and route to bioswale	August 2007
SDW2 pond/outfall	SDW2 Pond/outfall	November 2008
SDN3A Pond	Detention/flow control pond for SDN3a	November 2008
SDW1A Pond	Detention/flow control pond for SDW1A	November 2008
SDW1B Pond	Detention/flow control pond for SDW1B	November 2008
SDD06a Distribution center bioswale	Bioretention swale for consolidated distribution center warehouse	October 2009
SDD06a Logistics bioswale upgrades	Improved bioretention/media contact swale to provide additional metals treatment	October 2009
ARFF Railing painting-SDE4	Source control, inert paint applied to galvanized railing to prevent leaching	November 2009
SDS3 Filter Strip Expansion	Lengthened effective filter strips by moving CBs further from edge of runway during runway 16l/34R reconstruction	November 2009
SDN3 Filter Strip Expansion	Lengthened effective filter strips by moving CBs further from edge of runway during runway 16l/34R reconstruction	November 2009
SDN4 Filter Strip Expansion	Lengthened effective filter strips by moving CBs further from edge of runway during runway 16l/34R reconstruction	November 2009

Table 20 Structural Source Control BMPs- Completed Drainage Reroutes and Improvements

Project Name	BMP Description	Completed
SDS4 Filter Strip Expansion	Lengthened effective filter strips by moving CBs further from edge of runway during runway 16l/34R reconstruction	Nov-09
SDS1 Dumpster lid painting	Inert paint applied to Alaska Airlines galvanized dumpster lied to prevent zinc leaching in SDS1	May 2010
SDN1 Energy Dissipater at pond inlet	Energy dissipation structure added to the end of the SDN1 inlet pipe to prevent resuspension of sediment large rain events	September 2010
SDN2/3/4 Combine Conveyance to SDN2/3/4	SDN2/3/4 conveyance construction to SDN2/3/4 pond	September 2010
SDN2 Pump Station Upgrades	Added additional pumping capacity along with ultrasonic level indicators and telemetry to Central Boiler Shop	February 2010
SDE4 Pond Gravity Drain	Gravity drain pipe installed to drain down pond dead storage to bioswale in summer to prevent summer algal growth	February 2010
SDN2/3/4 Detention Facility	New detention facility, collects water from SDN2, SDN3, and SDN4 Subbasins, discharges via one outfall.	May 2011
SDS4 Bioretention Swale	Bioretention/media contact channel to provide additional metals removal	June 2011
SDS1 Bioretention Swale	Bioretention/media contact channel	June 2011
SDS1/SDE4 Flow Splitter Modifications	Modified SDE4/SDS1 to send all SDS1 flows to bioretention/media channel	June 2011
SDD06a Flow splitter modifications	Improve flow splitters to Bioretention swales	June 2011
Solar Pump System SDN1 Pond	Solar Pump system allows summer stormwater to be held in the pond and slowly treated in the Bioretention/media contact channel	Summer 2011
SDE4 Bioretention/media treatment swale	Bioretention media contact swale to treat dead storage from SDE4 gravity drain	June 2011
SDN1 Bioretention/media treatment swale	Bioretention/media contact channel to treat water from solar pump system and allows summer draw down of the SDN1 Pond	Summer 2011
SDD06a distribution center drainage modifications	Install new tight-line conveyance to better utilize Distribution Center Swale	September 2011
SDD06a Bus Maintenance Facility OWS	OWS for Bus Maintenance Facility site stormwater drainage (sanitary and storm)	May 2012
LID bioretention swale	Installed a LID bioretention swale to treat flows from cell phone parking lot	July 2014
AMB Building Demo - Cargo 2	AMB building demolition. Rooftop was SDN1 now entire hardstand area is IWS.	December 2014
Former USPS to Cargo 5	Former USPS facility converted to Cargo 5 hard stand. Roof top from FMR USPS Facility was SDE4, Cargo 5 is now IWS.	January 2015

Table 20 Structural Source Control BMPs - Completed Drainage Reroutes and Improvements

Project Name	BMP Description	Completed
SDE4 Flow control vault – Doug Fox lot	Improved drainage and flow control vault that serves the Doug Fox Parking lot. (SDE4 Basin)	Summer 2015
IWS Slot Drain Drainage Connections	ENV staff Identified improperly connected slot drain at SDS1 Hangar area. Drain rerouted to new IWS CB and removed from SDS1 drainage basin. Sealed all SDS manhole covers in area.	May 2016
South Employee Parking Lot Pond Modifications (SDD05B)	SDD05B outlet flow control structure was modified for improved flow control up to 2-year event level as part of the addition of downstream bioretention treatment improvements	July 2016
South Employee Parking Lot Bioretention Swale installation (Contractor Parking Lot – CPL)	Bioretention cell (constructed in 2016) located downstream from SDD05B pond	August 2016
16C-34C Filter Strips	Filter Strip Improvements with 16C-34C completion	Summer 2016
AUF Oil Water Separator with belowground secondary containment installed	Contech VCL60 oil/water separator with an oil coalescing media pack. Secondary containment is provided by Two 90-foot-lengths of 48-inch fiberglass-reinforced polymer mortar pipe connected by a short length of 12-inch cast iron pipe. Details may be found in a separate SPCC Plan completed in May 2018 by Hart Crowser.	Winter 2017-2018
Fire Station (North Satellite) PS	Added downturned elbow to pump station.	Winter 2017-2018
Oil Water Separator installed as part of North Satellite Modernization Project, connected to IWS	Concrete precast structure featuring an oil retaining baffle and three manholes for access. Receives runoff from concrete generator pad.	Summer 2018

Table 21 Structural Source Control, Treatment, Spill, and Stormwater Peak Runoff Rate and Volume Control BMPs

SWPPP BMP Number	BMP Description	Port Drainage Basin	Port Drainage Subbasin	BMP TYPE
BMP-D13-01	Des Moines Creek Low Flow Well	Des Moines	D13	Low Stream Flow Mitigation
BMP-D13-02	Learning Center Pond	Des Moines	D13	Stormwater Peak Runoff Rate and Volume Control
BMP-D13-03	Police Training Facility Pond (removed)	Des Moines	D13	Stormwater Peak Runoff Rate and Volume Control
BMP-D13-04	S. 200th Detention Pond	Des Moines	D13	Stormwater Peak Runoff Rate and Volume Control
BMP-D13-05	Police Training Facility Bioswale	Des Moines	D13	Treatment
BMP-D4a-01	Alaska Airlines/28th Ave Detention Vault	Des Moines	D4a	Stormwater Peak Runoff Rate and Volume Control
BMP-D4a-02	Alaska Airlines/28th Ave Treatment Vault	Des Moines	D4a	Treatment
BMP-D4a-03	SEPL EXP Bioswale	Des Moines	D4a	Treatment
BMP-D5a-01	South Remote Employee Parking Facility Expansion Pond	Des Moines	SDD05a	Stormwater Peak Runoff Rate and Volume Control
BMP-D5b-01	SEPL Pond (now CPL)	Des Moines	SDD05b	Stormwater Peak Runoff Rate and Volume Control
BMP-D5b-02	S. 192nd St. Bioswale	Des Moines	SDD05b	Treatment
BMP-D5b-03	CPL Bioretention Swale (2016)	Des Moines	SDDD05b	Treatment
BMP-D6-01	Tyee pond	Des Moines	SDD06	Stormwater Peak Runoff Rate and Volume Control
BMP-D6a-01	SDD06A (Logistics Construction Pond)	Des Moines	SDD06a	Stormwater Peak Runoff Rate and Volume Control
BMP-D6a-02	Logistics Construction Bioswales (3)	Des Moines	SDD06a	Treatment
BMP-D6a-03	Flow Splitter with Oil Control - Logistics	Des Moines	SDD06a	Structural Source Control
BMP-D6a-04	Distribution Center Bioswale	Des Moines	SDD6a	Treatment
BMP-D6a-05	Bus Maintenance Facility OWS	Des Moines	SDD06A	Structural Source Control
BMP-D7-01	Northwest ponds (Flood Area)/RDF Booms	Des Moines	D7, D10, D11	Spill Control
BMP-D8-01	Starling Road Bioswales	Des Moines	D6	Treatment
BMP-E1-05	CRCF Vault	City	E1	Treatment
BMP-E1-06	CRCF Filter Vault	City	E1	Treatment
BMP-E1b-01	SDE1 Bioswale (REMOVED)	City	SDE1b	Treatment
BMP-E1b-02	SDE1 Pond (REMOVED)	City	SDE1d	Stormwater Peak Runoff Rate and Volume Control
BMP-E1B-03	160th Loop Pond	City	SDE1B	Stormwater Peak Runoff Rate and Volume Control

NOTE: ALL STIA BMPs are included in this table. This includes BMPs that are outside of the Port's NPDES Permit Boundary. "0's" were added to SWPPP BMP Numbers for sorting purposes on this sheet.

Table 21 Structural Source Control, Treatment, Spill, and Stormwater Peak Runoff Rate and Volume Control BMPs

SWPPP BMP Number	BMP Description	Port Drainage Basin	Port Drainage Subbasin	BMP TYPE
BMP-E1B-04	160th Loop Bioswale	City	SDE1B	Treatment
BMP-E4-01	CB and Manhole Cleaning	Des Moines	SDE4	Operational Source Control
BMP-E4-02	Dog Exercise Area	Des Moines	SDE4	Operational Source Control
BMP-E4-03	Regenerative Sweeping	Des Moines	SDE4	Operational Source Control
BMP-E4-04	South Sea-Tac Substation Detention Pipe and Infiltration	Des Moines	SDE4	Stormwater Peak Runoff Rate and Volume Control
BMP-E4-05	SDE4 Pond (Enhanced Level 1)	Des Moines	SDE4	Stormwater Peak Runoff Rate and Volume Control/Treatment
BMP-E4-06	North Bagwell Pump Station	Des Moines	SDE4	Operational Source Control
BMP-E4-07	Biffy Dump Pump Station	Sanitary Sewer	SDE4	Structural Source Control
BMP-E4-08	South Lift Station (Garage / IWS Pump Station)	Des Moines	SDE4	Structural Source Control
BMP-E4-09	North Satellite Drainage Improvement	Des Moines	SDE4	Structural Source Control
BMP-E4-10	Paint ~4000ft of POS Guardrail	Des Moines	SDE4	Structural Source Control
BMP-E4-11	Rooftop Painting - Fed Ex & SW Air Cargo	Des Moines	SDE4	Structural Source Control
BMP-E4-12	Air Cargo Rd N. Bioswale for STEP	Des Moines	SDE4	Treatment
BMP-E4-13	Air Cargo Rd S. Bioswale for STEP	Des Moines	SDE4	Treatment
BMP-E4-14	Bioswale (next to UA Fuel Farm)	Des Moines	SDE4	Treatment
BMP-E4-15	SDE4/Emergency Pond Overflow Swale	Des Moines	SDE4	Treatment
BMP-E4-16	Doug Fox Infiltration Pipes	Des Moines	SDE4	Treatment
BMP-E4-17	Doug Fox Infiltration Trench	Des Moines	SDE4	Treatment
BMP-E4-18	Ecology Embankment	Des Moines	SDE4	Treatment
BMP-E4-19	NCBL (North Cruise ship Bus Lot) Infiltration/Sand filter	Des Moines	SDE4	Treatment
BMP-E4-20	Fire Station (North Satellite) PS	Des Moines	SDE4	Operational Source Control
BMP-E4-21	Rooftop Treatment (Aeroground)	Des Moines	SDE4	Treatment
BMP-E4-22	SDE4 Stormfilter Vault	Des Moines	SDE4	Treatment
BMP-E4-24	STEP StormFilter Vault	Des Moines	SDE4	Treatment
BMP-E4-25	60-inch Diversion Pipe	Des Moines	SDE4	
BMP-E4-26	Outfall to Des Moines Creek (Flume) Booms	Des Moines	SDE4	Spill Control
BMP-E4-27	North Expressway Ecology Embankment	Des Moines	SDE4	Treatment
BMP-E4-28	NER Stormwater Quality Vault	Des Moines	SDE4	Treatment
BMP-E4-29	NER Stormwater Liftsation	Des Moines	SDE4	Operational Source Control
BMP-E4-30	Doug Fox Bioswale	Des Moines	SDE4	Treatment

NOTE: ALL STIA BMPs are included in this table. This includes BMPs that are outside of the Port's NPDES Permit Boundary. "0's" were added to SWPPP BMP Numbers for sorting purposes on this sheet.

Table 21 Structural Source Control, Treatment, Spill, and Stormwater Peak Runoff Rate and Volume Control BMPs

SWPPP BMP Number	BMP Description	Port Drainage Basin	Port Drainage Subbasin	BMP TYPE
BMP-E4-31	ARFF Training Tower Stair and Railing Painting	Des Moines	SDE4	Structural Source Control
BMP-E4-32	Radison Bioswale	Des Moines	SDE4	Treatment
BMP-E4-33	Cell Lot Bioretention Swale	Des Moines	SDE4	Treatment
BMP-E4-34	Doug Fox Vault	Des Moines	SDE4	Treatment
BMP-E4-35	AUF Oil Water Separator	Des Moines	SDE5	Treatment
BMP-IWS-01	Industrial Wastewater Treatment Plant	IWS	IWS	Treatment
BMP-IWS-02	IWS Lagoon 1	IWS	IWS	Treatment
BMP-IWS-03	IWS Lagoon 2	IWS	IWS	Treatment
BMP-IWS-04	IWS Lagoon 3	IWS	IWS	Treatment
BMP-IWS-05	IWS Pipe Network	IWS	IWS	Treatment
BMP-IWS-06	United (Central) Snowmelt PS	IWS	IWS	Operational Source Control
BMP-IWS-07	Transiplex (North Cargo) PS	IWS	IWS/SDN2	Operational Source Control
BMP-IWS-08	North Runway Snowmelt (North Snowmelt) PS	IWS	IWS/SDN2	Operational Source Control
BMP-IWS-09	North Exit Toll Plaza Vault	IWS	IWS	Treatment
BMP-IWS-10	North Satellite Snowmelt Facility	IWS	IWS	Operational Source Control
BMP-IWS-11	Oil Water Separator - Decant Station	IWS	IWS	Treatment
BMP-IWS-12	Oil Water Separator - UAL Maintenance	IWS	IWS	Treatment
BMP-IWS-13	Oil Water Separator - UAL Maintenance	IWS	IWS	Treatment
BMP-IWS-14	Oil Water Separator - UAL Maintenance	IWS	IWS	Treatment
BMP-IWS-15	Sand Storage Water Quality Vault	IWS	IWS	Treatment
BMP-IWS-16	Sand/Oil Separator - Alaska Cargo	IWS	IWS	Treatment
BMP-IWS-17	Sand/Oil Separator - Fire Station	IWS	IWS	Treatment
BMP-IWS-18	South Snowmelt (Tank Farm) PS	IWS	IWS	Operational Source Control
BMP-IWS-19	Terminal Garage Section A Vault	IWS	IWS	Treatment
BMP-IWS-20	Terminal Garage Section D Vault	IWS	IWS	Treatment
BMP-IWS-21	Terminal Garage Section E Vault	IWS	IWS	Treatment
BMP-IWS-22	POS Tank Farm Spill Control Containment	IWS	IWS primary	Structural Source Control
BMP-IWS-23	Snowmelt area - Lagoon 3	IWS	IWS/D11	Operational Source Control
BMP-IWS-24	Center Lift Station (GARAGE)	IWS	IWS	Structural Source Control
BMP-IWS-25	Oil Water Separator - NSAT	IWS	IWS	Treatment
BMP-MC2-01	Lake Reba Booms	Miller Creek	MC2	Spill Control
BMP-MC2-02	Miller Creek Detention Facilities (continuous wetland areas) Booms	Miller Creek	MC2, MC3	Spill Control
BMP-MC2-03	Miller Creek Regional Detention Facility	Miller Creek	MC2, MC3	Stormwater Peak Runoff Rate and Volume Control

NOTE: ALL STIA BMPs are included in this table. This includes BMPs that are outside of the Port's NPDES Permit Boundary. "0's" were added to SWPPP BMP Numbers for sorting purposes on this sheet.

Table 21 Structural Source Control, Treatment, Spill, and Stormwater Peak Runoff Rate and Volume Control BMPs

SWPPP BMP Number	BMP Description	Port Drainage Basin	Port Drainage Subbasin	BMP TYPE
BMP-MC5-01	TRACON Pond (East)	Miller Creek	MC5	Stormwater Peak Runoff Rate and Volume Control
BMP-MC5-02	TRACON Pond (West)	Miller Creek	MC5	Stormwater Peak Runoff Rate and Volume Control
BMP-MC5-03	TRACON Bioswale (East)	Miller Creek	MC5	Treatment
BMP-MC5-04	TRACON Bioswale (West)	Miller Creek	MC5	Treatment
BMP-MC7-01	ASR pond	Miller Creek	MC7	Stormwater Peak Runoff Rate and Volume Control
BMP-MC7-02	SR-509 Temporary Interchange Construction Pond	Miller Creek	MC7	Stormwater Peak Runoff Rate and Volume Control
BMP-MC7-03	SR-509 Temporary Interchange Bioswale	Miller Creek	MC7	Treatment
BMP-N1-01	CB and Manhole Cleaning	Miller Creek	SDN1	Operational Source Control
BMP-N1-02	Regenerative Sweeping	Miller Creek	SDN1	Operational Source Control
BMP-N1-03	SDN1 Pond	Miller Creek	SDN1	Stormwater Peak Runoff Rate and Volume Control/Treatment
BMP-N1-04	Afco Building(s) Roof Painting	Miller Creek	SDN1	Structural Source Control
BMP-N1-05	Air Cargo Road Bioswales	Miller Creek	SDN1	Treatment
BMP-N1-06	Outfall Booms	Miller Creek	SDN1	Spill Control
BMP-N1-07	Flight Kitchen Constructed Wetland	Miller Creek	SDN1	Treatment
BMP-N1-08	Flight Kitchen Drainage Ditch / Bioswale	Miller Creek	SDN1	Treatment
BMP-N1-09	Oil Water Separator - Flight Kitchen	Miller Creek	SDN1	Treatment
BMP-N1-10	SDN1 Bioswale(VOID)	Miller Creek	SDN1	Treatment
BMP-N1-11	SDN1 Bioretention Swale	Miller Creek	SDN1	Treatment
BMP-N1-12	SDN1 Solar Pumps	Miller Creek	SDN1	Structural Source Control
BMP-N2-01	CB and Manhole Cleaning	Miller Creek	SDN2	Operational Source Control
BMP-N2-02	Outfall Booms	Miller Creek	SDN2	Spill Control
BMP-N3-01	CB and Manhole Cleaning	Miller Creek	SDN3	Operational Source Control
BMP-N3-02	Runway Touchdown Area Rubber Removal	Miller Creek	SDN3	Operational Source Control
BMP-N3-03	Runway Filter Strips	Miller Creek	SDN3	Treatment
BMP-N3-04	Outfall Booms	Miller Creek	SDN3	Spill Control
BMP-N3A-01	SDN3A (Pond C)	Miller Creek	SDN3A	Stormwater Peak Runoff Rate and Volume Control Level 2
BMP-N3A-02	Runway Filter Strips	Miller Creek	SDN3A	Treatment
BMP-N3X-01	Lighting Vault Bioswale	Miller Creek	SDN3X	Treatment

NOTE: ALL STIA BMPs are included in this table. This includes BMPs that are outside of the Port's NPDES Permit Boundary. "0's" were added to SWPPP BMP Numbers for sorting purposes on this sheet.

Table 21 Structural Source Control, Treatment, Spill, and Stormwater Peak Runoff Rate and Volume Control BMPs

SWPPP BMP Number	BMP Description	Port Drainage Basin	Port Drainage Subbasin	BMP TYPE
BMP-N4-01	CB and Manhole Cleaning	Miller Creek	SDN4	Operational Source Control
BMP-N4-02	Runway Filter Strips	Miller Creek	SDN4	Treatment
BMP-N4-03	Outfall Booms	Miller Creek	SDN4	Spill Control
BMP-NEPL-01	CB and Manhole Cleaning	Miller Creek	NEPL	Operational Source Control
BMP-NEPL-02	NEPL Pond	Miller Creek	NEPL	Stormwater Peak Runoff Rate and Volume Control
BMP-NEPL-3	NEPL Vault	Miller Creek	NEPL	Stormwater Peak Runoff Rate and Volume Control
BMP-NEPL-4	NEPL Bioswale and Addition to Bioswale	Miller Creek	NEPL	Treatment
BMP-NEPL-5	Outfall Booms	Miller Creek	NEPL	Spill Control
BMP-S1-01	CB and Manhole Cleaning	Des Moines	SDS1	Operational Source Control
BMP-S1-02	Regenerative Sweeping	Des Moines	SDS1	Operational Source Control
BMP-S1-03	Paint Alaska Rooftop and HVAC I-Beams	Des Moines	SDS1	Structural Source Control
BMP-S1-04	North Alaska Bioswale	Des Moines	SDS1	Treatment
BMP-S1-05	Delta (fmr NW) Air Hangar/Cargo (Water Quality Vault 1)	Des Moines	SDS1	Treatment
BMP-S1-06	Delta (Fmr NW) Air Hangar/Cargo (Water Quality Vault 2)	Des Moines	SDS1	Treatment
BMP-S1-7	South Alaska Bioswale	Des Moines	SDS1	Treatment
BMP-S1-8	SDS1 Bioswale (fmr SDE4/S1)	Des Moines	SDE4	Treatment
BMP-S2-01	SDS2 Biofiltration	Des Moines	SDS2	Treatment
BMP-S3-01	CB and Manhole Cleaning	Des Moines	SDS3	Operational Source Control
BMP-S3-02	Runway Touchdown Area Rubber Removal	Des Moines	SDS3	Operational Source Control
BMP-S3-03	SDS3 Vault	Des Moines	SDS3	Stormwater Peak Runoff Rate and Volume Control
BMP-S3-04	Biofiltration channel	Des Moines	SDS3	Treatment
BMP-S3-05	Catch Basin Inserts (removed)	Des Moines	SDS3	Treatment
BMP-S3-06	Filter Strip Edge Dam Removal, Grading and Reseeding	Des Moines	SDS3	Operational Source Control
BMP-S3-07	Runway Filter Strips (udgraded 2016)	Des Moines	SDS3	Treatment
BMP-S3-08	S. 188th St. Bioswale	Des Moines	SDS3	Treatment
BMP-S3-10	Weyerhaeuser Bioswale	Des Moines	SDS3	Treatment
BMP-S3-11	Outfall Booms	Des Moines	SDS3	Spill Control
BMP-S3-9	SDS3A Vault	Des Moines	SDS3	Treatment
BMP-S4-01	CB and Manhole Cleaning	Des Moines	SDS4	Operational Source Control
BMP-S4-02	Runway Touchdown Area Rubber Removal	Des Moines	SDS4	Operational Source Control

NOTE: ALL STIA BMPs are included in this table. This includes BMPs that are outside of the Port's NPDES Permit Boundary. "0's" were added to SWPPP BMP Numbers for sorting purposes on this sheet.

Table 21 Structural Source Control, Treatment, Spill, and Stormwater Peak Runoff Rate and Volume Control BMPs

SWPPP BMP Number	BMP Description	Port Drainage Basin	Port Drainage Subbasin	BMP TYPE
BMP-S4-03	SDS4 Pond	Des Moines	SDS4	Stormwater Peak Runoff Rate and Volume Control Enhanced Level 1
BMP-S4-04	Runway Filter Strips	Des Moines	SDS4	Treatment
BMP-S4-05	SDS4 Oil Water Separator	Des Moines	SDS4	Treatment
BMP-S4-06	Outfall Booms	Des Moines	SDS4	Spill Control
BMP-S4-07	SDS4 Bioswale	Des Moines	SDS4	Treatment
BMP-S5-01	CB and Manhole Cleaning	Des Moines	SDS5	Operational Source Control
BMP-S5-02	Snow shed Structural Source Control	Des Moines	SDS5	Structural Source Control
BMP-S5-03	Runway Filter Strips	Des Moines	SDS5	Treatment
BMP-S5-04	SDS5 Bioswales	Des Moines	SDS5	Treatment
BMP-S5-05	Starling Road Bioswale 2	Des Moines	SDS5	Treatment
BMP-S5-06	Outfall Booms	Des Moines	SDS5	Spill Control
BMP-S6/7-01	CB and Manhole Cleaning	Des Moines	SDS6/7	Operational Source Control
BMP-S6/7-02	SDS6/7 Vault	Des Moines	SDS6/7	Stormwater Peak Runoff Rate and Volume Control
BMP-S6/7-03	Runway Filter Strips	Des Moines	SDS6/7	Treatment
BMP-S6/7-04	Runway Touchdown Area Rubber Removal	Des Moines	SDS6/7	Operational Source Control
BMP-SDN234-01	SDN2/3/4 (Pond M)	Miller Creek		Stormwater Peak Runoff Rate and Volume Control
BMP-W1A-01	SDW1A (Pond G)	Miller Creek	SDW1A	Stormwater Peak Runoff Rate and Volume Control
BMP-W1A-02	Runway Filter Strips	Miller Creek	SDW1A	Treatment
BMP-W1B-1	SDW1B (Pond D)	Miller Creek	SDW1B	Stormwater Peak Runoff Rate and Volume Control
BMP-W1B-2	Runway Filter Strips	Miller Creek	SDW1B	Treatment
BMP-W2-01	SDW2 (Pond F)	Walker	SDW2	Stormwater Peak Runoff Rate and Volume Control
BMP-W2-02	Runway Filter Strips	Walker	SDW2	Treatment
BMP-W2A-01	Walker Creek Low Flow Well	Walker	SDW2	Low Stream Flow Mitigation
IWS-overflow-01	SDE4-IWS flow splitter	Des Moines	SDE4	Flow Splitter

NOTE: ALL STIA BMPs are included in this table. This includes BMPs that are outside of the Port's NPDES Permit Boundary. "0's" were added to SWPPP BMP Numbers for sorting purposes on this sheet.

Appendix A
National Pollutant Discharge Elimination System
Waste Discharge Permit No. WA-002465-1

Port of Seattle

The current Port NPDES Permit and associated Fact Sheet are available at the Department of Ecology Website. Copy the links below into your web browser to download (attempting to open the link directly from the document will not work).

Link to permit: https://fortress.wa.gov/ecy/paris/DownloadDocument.aspx?id=164123
Link to Fact Sheet: https://fortress.wa.gov/ecy/paris/DownloadDocument.aspx?id=164122

Appendix B
Industrial Wastewater System Policy

Port of Seattle

Industrial Wastewater System Policy

Background

The Seattle-Tacoma International Airport (STIA), owned and operated by the Port of Seattle (POS), operates and maintains an Industrial Waste System (IWS) that collects stormwater contaminated by industrial activities from airline and maintenance operations. The Port restricts all aircraft maintenance, fueling and deicing operations to those areas served by the IWS stormwater collection and conveyance system.

Contaminates that enter the IWS consist primarily of spilled fuel, de-icing and anti-icing fluids, and lubricants, however, wastewater from aircraft and motor vehicles can also enter the IWS. Materials entering the IWS flow into IWS flush gutters or IWS catch basins and reside there until precipitation events provide sufficient runoff to convey the material to the IWS storage lagoons. If flammable or hazardous materials enter the IWS, the Port Fire Department may flush the area with water to mitigate safety hazards. All discharges from the IWS are regulated by the Port's individual NPDES permit issued by the Washington State Department of Ecology.

Intentional discharge of pollutants or potential pollutants, including but not limited to grease, oil, fuel, detergents, deicing fluids, off-spec deicing fluids/chemical, debris, ect., to the IWS is prohibited, except for overspray and drips of deicing fluids properly applied to aircraft, and Port approved wash water requests (via IWTP Discharge request form) . The IWS system may be used to manage unintentional spills and discharges of fuel that cannot be safely and effectively managed otherwise, consistent with established and applicable spill control planning and best management practices.

Routine Discharges

The Industrial Wastewater System (IWS) collects industrial wastewater that is primarily from rainfall that falls around the ramp side of the terminal and on fueling areas, the air cargo area, de-icing areas, hangars, and maintenance areas at STIA. Industrial wastewater is water- or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater, noncontact cooling water, or storm water associated with industrial activities.

Industrial wastewater may result from any process or activity of industry, manufacturing, trade, or business, and includes (but is not limited to): water used for industrial processes such as pipe integrity pressure testing and vehicle and aircraft wash water; storm water contaminated with fuel, lubricants, firefighting foam, cleaning agents and aircraft and ground surface de-icing/anti-icing agents; contaminated construction dewatering waters; excess water from ground water well construction and monitoring; and leachate from solid waste facilities.

The miniscule amount of de-icing/anti-icing fluid (i.e., shear and drip) that may fall from aircraft after they leave the IWS drainage area is not considered industrial wastewater. In addition, at the Port of Seattle's discretion, construction storm water, if treatable by the Industrial Wastewater Treatment Plant (IWTP), may be discharged to the IWS.

Non-routine and Unanticipated Discharges

Occasionally, operations at STIA may generate wastewaters that are not routine discharges and were not anticipated when the STIA National Pollutant Discharge Elimination System (NPDES) Permit was developed. These typically are: waters used to pressure-test storage tanks or fire water systems; or leaks from drinking water systems.

These are usually clean wastewaters, but they may be contaminated with pollutants. The NPDES Permit requires characterization of these wastewaters for pollutants and an examination of the opportunities for reuse. Depending on the pollutants in these wastewaters and opportunities for reuse, the Washington State Department of Ecology may authorize a direct discharge via the process wastewater outfall or through a storm water outfall for clean water; require the wastewater to be discharged through the facility's IWS; or require the water to be reused.

Contact Aviation Environmental Programs to determine how to characterize, evaluate, and manage such discharges.

POS Policy for the Utilization of the IWS

Approvals: Any use of the IWS by tenants or contractors other than previously discussed approved discharges requires the submittal of an IWTP Discharge Request form (See table 1 for contact info). The form must be completed in its entirety including start and end date as well as volumes discharged. Due to potential discharge restrictions placed on the IWTP, a contingency plan must be in place, to be implemented within 24 hours, if the project's discharge approval is revoked for any reason. The IWS Discharge Request form is included below.

Treatment Options: The use of the IWS as treatment for non-process construction storm water can only be done during times of high flow, October thru June. Use of the IWS for treatment of construction storm water during low flow, July thru September can only be done in the event of an emergency. The IWS may be approved for treatment of construction process water, such as wheel wash water.

TABLE 1: IWS Discharge Request Contacts List

Name	Title	Email	Phone number
Sarah Cox	**Environmental Program Manager**	**Cox.S@portseattle.org**	**(206) 787-7137**
Chris Milewski	**Environmental Program Manager**	**Milewski.C@portseattle.org**	**(206) 787-4633**
Tiffany Sevilla	**Environmental Management Specialist**	**Sevilla.T@portseattle.org**	**(206) 787- 3937**

Industrial Waste System Discharge Request

7 Day Notice Required prior to Release to the IWS

Please note: Discharge Approval can be canceled at anytime with minimal notice, due to potential restrictions placed on the IWTP. Therefore, all projects must have a contingency plan in place that can be activated within 24 hours after notification to cease discharge to IWS.

Date of Request: Duration:	Date of Discharge: Start Date: End Date:
Person Requesting: Phone Number:	Company performing work: Project (If applicable):
Contact During Discharge: Phone Number:	Location of discharge:
One-time Discharge: ☐ Continuous or On-going Discharge: ☐	Volume: Maximum discharge rate (GPM):
Reason for Discharge:	
Contingency Plan:	

Type of Material: * Please provide copy of Material Safety Data Sheet or laboratory analytical

_____ Stormwater contaminated with Jet Fuel	_____ Wash water	_____ Ground Water*
_____ Stormwater contaminated with glycol*	_____ Potable water	_____ Other*
_____ Stormwater from secondary containment*	_____ Drill cutting decant water	
_____ Stormwater contaminated with oil	_____ Construction Stormwater*	

APPROVAL		***Approved***	***Rejected***
Aviation Maintenance: IWTP Head Operator	Jared Goodspeed	☐	☐
Aviation Maintenance: Manager, Maintenance & Operations, Mechanical Systems.	Jim Witzman	☐	☐
Aviation Environmental: Environmental Program Manager	Sarah Cox	☐	☐

FOR DEPARTMENT USE ONLY:

Limitations:

pH: **6.5 - 8.5**
Oil & Grease: **100 mg/L**
Turbidity: **200 NTU's** OR Settleable solids: **100 mg/L (Per ENV may be required to sample for both)**

PLEASE RETURN A COPY OF THE COMPLETED SIGNATURE FORM TO Sarah Cox, AV/ENV at cox.sarah@portseattle.org and Jim Witzman at witzman.j@portseattle.org

Revised 02/21/2017

Appendix C
Sample Tenant Inspection Data Sheets | Paper Version

Port of Seattle

SeaTac Airport Annual SWPPP Inspection

SECTION 1: TENANT/FACILITY INFORMATION	
Tenant/Facility	
Port of Seattle Inspectors	
Inspection Date(s)	
Facility Location	
Tenant Status	
Description of Tenant Activities	
Contracted Activities	
Additional Information	

SECTION 2: TENANT CONTACT INFORMATION	
Contact 1: Name, Title	
Address	
Phone	
Email	
Comments	
Contact 2: Name, Title	
Address	
Phone	
Email	
Comments	

SECTION 3: ENVIRONMENTAL/REGULATORY INFORMATION	
Is the Tenant a Hazardous Waste Generator?	☐ **Yes** ☐ **No** **Comments:**
If yes, Generator Status:	☐ **LQG** ☐ **MQG** ☐ **SQG**
If yes, RCRA ID #:	
Does the Tenant conduct SARA Title III/Toxic Release Inventory? (TRI Reporter)	☐ **Yes** ☐ **No** **Comments:**
Does the Tenant hold a PSCAA Air Permit?	☐ **Yes** ☐ **No** **Comments:**
Is the Tenant regulated by Federal SPCC Rule at SeaTac? (40 CFR 112)	☐ **Yes** ☐ **No** **Comments:**
Does the Tenant operate any underground storage tanks?	☐ **Yes** ☐ **No** **Comments:**
Does the Tenant operate any aboveground storage tanks?	☐ **Yes** ☐ **No** **Comments:**
Does the Tenant have a DOT hazardous materials certificate of registration?	☐ **Yes** ☐ **No** **Comments:**

SECTION 4: TENANT ACTIVITIES (CHECK ALL THAT APPLY)	
Activity	**Reference BMPs**
☐ Aircraft/vehicle/equipment maintenance	OSC BMP 1.0, 2.0
☐ Aircraft/ground vehicle/equipment cleaning	OSC BMP 1.0, 3.0
☐ Aircraft/ground vehicle/equipment storage	OSC BMP 1.0, 4.0
☐ Outdoor handling, storage and disposal of waste and materials	OSC BMP 1.0, 5.0
☐ Fuel Storage and Delivery	OSC BMP 1.0, 6.0
☐ Building and Grounds Maintenance	OSC BMP 1.0, 7.0
☐ Vehicle and Equipment Painting	OSC BMP 1.0, 8.0
☐ Garbage handling and disposal	OSC BMP 1.0, 9.0
☐ Aircraft de-icing and anti-icing	OSC BMP 1.0, 10.0
☐ Aircraft lavatory waste servicing	OSC BMP 1.0, 11.0
☐ Potable water servicing/system flushing	OSC BMP 1.0, 12.0
☐ Roadway, Ramp and Runway Maintenance/Cleaning	OSC BMP 1.0, 13.0
☐ Fire Suppression and Aqueous Film Forming Foam Discharge	OSC BMP 1.0, 14.0
☐ Animal Handling	OSC BMP 1.0, 15.0
☐ Spill Response and Spill Clean-up	OSC BMP 1.0, 16.0
☐ Other:	
☐ Other:	
Comments:	

SECTION 5: CHEMICAL/PRODUCT USE (POTENTIAL POLLUTANTS)		
Chemical/Product	**Area Use**	
☐ Aircraft De-icing/Anti-icing Chemicals	☐ IWS	☐ SDS
☐ Antifreeze	☐ IWS	☐ SDS
☐ Lead Acid Batteries	☐ IWS	☐ SDS
☐ Diesel	☐ IWS	☐ SDS
☐ Gasoline	☐ IWS	☐ SDS
☐ Herbicides/Pesticides	☐ IWS	☐ SDS
☐ Jet Fuel	☐ IWS	☐ SDS
☐ Lavatory Chemicals	☐ IWS	☐ SDS
☐ Lubricants (Oil & Grease)	☐ IWS	☐ SDS
☐ Paint and Paint Related Material	☐ IWS	☐ SDS
☐ Soaps/Cleaning Solutions	☐ IWS	☐ SDS
☐ Solvents	☐ IWS	☐ SDS
☐ Tires (onsite inventory or waste tires)	☐ IWS	☐ SDS
☐ Other:	☐ IWS	☐ SDS
☐ Other:	☐ IWS	☐ SDS
☐ Other:	☐ IWS	☐ SDS
☐ Other:	☐ IWS	☐ SDS
Comments:		

SECTION 6: OBSERVATIONS
This section is used to document general conformance with applicable BMPs

Aircraft/vehicle/equipment maintenance (OSC BMP 1.0, 2.0)	☐ Not Applicable ☐ IWS ☐ SDS	☐ BMP Conformance ☐ BMP Nonconformance ☐ Requires Follow Up
Comments:		

Aircraft/ground vehicle/equipment cleaning (OSC BMP 1.0, 3.0)	☐ Not Applicable ☐ IWS ☐ SDS	☐ BMP Conformance ☐ BMP Nonconformance ☐ Requires Follow Up
Comments:		

Aircraft/ground vehicle/equipment storage (OSC BMP 1.0, 4.0)	☐ Not Applicable ☐ IWS ☐ SDS	☐ BMP Conformance ☐ BMP Nonconformance ☐ Requires Follow Up
Comments:		

Outdoor handling, storage and disposal of waste and materials (OSC BMP 1.0, 5.0)	☐ Not Applicable ☐ IWS ☐ SDS	☐ BMP Conformance ☐ BMP Nonconformance ☐ Requires Follow Up
Comments:		

Fuel Storage and Delivery (OSC BMP 1.0, 6.0)	☐ Not Applicable ☐ IWS ☐ SDS	☐ BMP Conformance ☐ BMP Nonconformance ☐ Requires Follow Up
Comments:		

Building and Grounds Maintenance (OSC BMP 1.0, 7.0)	☐ Not Applicable ☐ IWS ☐ SDS	☐ BMP Conformance ☐ BMP Nonconformance ☐ Requires Follow Up
Comments:		

Vehicle and Equipment Painting (OSC BMP 1.0, 8.0) ☐ Not Applicable	☐ Not Applicable ☐ IWS ☐ SDS	☐ BMP Conformance ☐ BMP Nonconformance ☐ Requires Follow Up
Comments:		

Garbage handling and disposal (OSC BMP 1.0, 9.0) ☐ Not Applicable	☐ Not Applicable ☐ IWS ☐ SDS	☐ BMP Conformance ☐ BMP Nonconformance ☐ Requires Follow Up
Comments:		

Aircraft de-icing and anti-icing (OSC BMP 1.0, 10.0) ☐ **Not Applicable**	☐ **Not Applicable** ☐ **IWS** ☐ **SDS**	☐ **BMP Conformance** ☐ **BMP Nonconformance** ☐ **Requires Follow Up**
Comments:		

Aircraft lavatory waste servicing (OSC BMP 1.0, 11.0) ☐ **Not Applicable**	☐ **Not Applicable** ☐ **IWS** ☐ **SDS**	☐ **BMP Conformance** ☐ **BMP Nonconformance** ☐ **Requires Follow Up**
Comments:		

Potable water servicing/system flushing (OSC BMP 1.0, 12.0) ☐ **Not Applicable**	☐ **Not Applicable** ☐ **IWS** ☐ **SDS**	☐ **BMP Conformance** ☐ **BMP Nonconformance** ☐ **Requires Follow Up**
Comments:		

Roadway, Ramp and Runway Maintenance/Cleaning (OSC BMP 1.0, 13.0) ☐ **Not Applicable**	☐ **Not Applicable** ☐ **IWS** ☐ **SDS**	☐ **BMP Conformance** ☐ **BMP Nonconformance** ☐ **Requires Follow Up**
Comments:		

Fire Suppression and Aqueous Film Forming Foam Discharge (OSC BMP 1.0, 14.0) ☐ **Not Applicable**	☐ **Not Applicable** ☐ **IWS** ☐ **SDS**	☐ **BMP Conformance** ☐ **BMP Nonconformance** ☐ **Requires Follow Up**
Comments:		

Animal Handling (OSC BMP 1.0, 15.0) ☐ **Not Applicable**	☐ **Not Applicable** ☐ **IWS** ☐ **SDS**	☐ **BMP Conformance** ☐ **BMP Nonconformance** ☐ **Requires Follow Up**
Comments:		

Spill Response and Spill-Clean-up: (OSC BMP 1.0,16.0) ☐ **Not Applicable**	☐ **Not Applicable** ☐ **IWS** ☐ **SDS**	☐ **BMP Conformance** ☐ **BMP Nonconformance** ☐ **Requires Follow Up**
Comments:		

SECTION 7: PICTURES
Paste applicable pictures in this section with picture date and detailed description.

Date/Description:

Date/Description:

Date/Description:

Appendix D
Facility Assessment Technical Memorandum 2004 and Follow-up Memorandum 2004

Port of Seattle

For access to the Facility Assessment documents, please email the Port of Seattle at: Sevilla.T@portseattle.org. Please note that this is a large document and may exceed email attachment limits.

Appendix E
Port of Seattle Spill Response Procedures

Discharge Response Guidelines and Procedures

It is the Port's goal to eliminate the migration of discharges from STIA, thereby minimizing environmental impacts and subsequent cleanup costs. A cooperative effort between facility personnel, oil and fuel vendors, and emergency responders is essential to accomplish this goal.

For additional spill response information, see the Dangerous Waste Contingency Plan and Emergency Response Procedure, attachment to this Appendix and the Environmental Spill Response Maps.

1.0 Discharge Response Stakeholders

Discharge response guidelines and procedures are designed to assist facility personnel and oil and fuel vendors to prevent discharge migration. Several critical roles are performed by the following parties in order to contain a discharge:

- Person discovering the discharge
- Port of Seattle Fire Department (POS-FD)
- Airport Duty Manager (ADM)
- Aviation Maintenance (AV/M)
- Aviation Environmental (AV/ENV)
- Spill Response Contractors

Discharge response stakeholder roles are addressed in the following sections.

2.0 Definition of a Spill

A spill is defined as:

- Any release of material that causes immediate danger to human safety.
- Any release that enters the Industrial Wastewater System (IWS) or Storm Drainage System (SDS) conveyance system, soil or sanitary sewer.
- Any release that could affect the normal operations of Seattle Tacoma International Airport (STIA).
- Any release that could affect human health or the environment.

3.0 Groups That May Report a Spill

Groups that may report a spill are:

1. Port employees: POS-FD, AV/M, AV/ENV, ADM, etc.
2. Tenants

3. Consultants
4. Contractors
5. Public

4.0 Responsibilities of Involved Parties

POS-FD - 911 or 4787-5380 (from cell phone)

1. Receive notification from any of the potential spill reporting parties.
2. Fire dispatch immediately contacts the ADM of the incident, if notification was not originally received from ADM.
3. Respond to spills and act as Incident Command and first responder.
4. Perform mitigation and communicate hazards to cleanup personnel.
5. Contact AFC or outside contractor to perform in cleanup.
6. Coordinate with AV/ENV to minimize environmental impacts.

ADM - 787-4635

1. Receive notification from any of the potential spill reporting parties.
2. Gather all necessary information by completing AV/ENV Environmental Incident Report (EIR) located at the following link: http://collab.portseattle.org/sites/avenvsurfwat/AirportNPDESSWPPP/SWPPPSourceDocumentsLibrary/STIA Environmental Incident Report.docx, or refer to Section D of Spill Responsibilities Plan.
3. Determine if POS-FD should be notified. If you're not sure call and report. If POS-FD is notified document POS-FD run # on Environmental Incident Form.
4. Immediately contact AV/ENV Spill Team via cell phone or Everbridge Paging - Spills. If confirmation phone call response is not received after 5 min. Re-page AV/ENV Spill Team. If still no response use callout roster in Section HSection 9.0.
5. Contact AV/M to help with countermeasures and or cleanup.
6. Verify that all parties are aware of the spill (POS-FD, AV/M, AV/ENV, & POS-PD, Air Traffic Control Tower (if necessary). (Refer to Section 8.0 for AV/M call out list) and submit to AV/ENV within 24 hrs via fax: 787-6617 or email: Fox.s@portseattle.org

Aviation Maintenance (AV/M)

1. Receive notification from ADM or POS-FD of spill.
2. Initiate response procedures as permissible due to safety concerns.
3. Initiate controls and countermeasures as applicable, coordinate with AV/ENV.
4. Initiate IWTP response procedures, if applicable.
5. Provide cleanup/support to POS-FD or tenant if requested. Generate Work Request if, applicable.

Aviation Environmental (AV/ENV) Spill Team – (See Callout Roster in Section 9.0)

1. After receiving page, call ADM and gather known information about the spill and contact information for personnel on-site.
2. If possible, determine drainage basin(s) affected, facilitate activation of spill controls and countermeasures using AV/ENV Environmental Spill Response Plan. Coordinate with AV/M.
3. Respond to scene, if necessary. Contact on-site personnel to get any updated information.
4. Verify with Incident command personnel how material with be cleaned up.
5. Commence with AV/ENV Environmental Spill Response Plan, including agency notification.

5.0 ADM Questions to Gather Pertinent Information Record on Environmental Incident Report

1. Safety: Ask if there are any injuries and if there is a concern about immediate safety or any threat to themselves or others.
2. Date and Time Spill was reported.
3. Time spill occurred, if known.
4. Name of person and contact information from individual reporting spill.
5. Name of responsible parties involved, if known (ex. Tenant, contractor).
6. Identify type of material spilled (Jet fuel, deicing fluid, lavatory fluid (biffy)), if known.
7. Est. volume of material spilled or area covered by spill.
8. Ask for exact location of spill and equipment involved. If safe, request that reporting party locate nearest drain and read drain label.
9. Ask if spill has reached any drains and if so which ones.
10. Ask if spill reached soil, if so where.
11. Ask current weather conditions.
12. Identify measures taken to contain the spill and secure the area.
13. Instruct caller to stay at site until help arrives (POS-FD or AV/M).

6.0 Spills that Must be Reported to the POS-FD, AV/M and AV/ENV

1. Any fuel spill.
2. All spills other than fuel defined as the following:
    a) any unknown material;

b) any material other than fuel with flash point less than 200ºF (ex. solvent cleaners, oil-based paint, paint thinners);

c) any other material regulated as hazardous under DOT, EPA or any local government agency regulations. (ex. concentrated soaps, bleach other concentrated cleaners, hazardous waste, used antifreeze).

7.0 Spills not Specified in Section 6.0 That Must be Reported to AV/M and AV/ENV

All spills not specified in Section 6.0 must be reported to AV/M and AV/ENV. (ex. lavatory (Biffy) waste, oil or hydraulic fluid, deicing fluids)

8.0 AV/M Callout Roster

AV/M Shops utilized to provide cleanup and countermeasure activation.

1. Airfield Crew (AFC) 787-4490
2. Boiler Room 787-5475
3. Electrician Shop 787-5311
4. IWTP 787-5911

9.0 AV/ENV Callout Roster

DURING REGULAR BUSINESS HOURS THE FOLLOWING CALL OUT IS IN EFFECT (General Airport Coverage)		
Name	**Work Phone**	**Cell Phone**
Chris Milewski	206/787-4633	206/605-8333
Sarah Cox	206/787-7137	206/605-0662
Don Robbins	206/787-4918	206/369-0808
Josh Feigin	206/787-6798	206/291-4736
Chipper Maney	206/787-5516	206/914-2139
Greg Ferris	206/787-6494	206/637-4710
Tiffany Sevilla	206/787-3937	206/573-0751

Appendix F
Spill Reporting Form

Port of Seattle

Aviation Environmental Incident Report(EIR) Rev. 07/15

To be completed for all Environmental Incidents:

This section to be completed by Airport Duty Manager or Intial Investigator (by end of shift, doesn't replace SWN)
Email to: z-AV-ENV-Spill-Response-Team

1. Date & Time lncident was Reported: Click here to enter a date.
2. Estimated Time Incident Occurred: Click here to enter a date.
3. Name & Phone # of Person whom First Reported Incident: Click here to enter text.
4. Responsible Party and Cause: Click here to enter text.
5. Aircraft Tail # or Equipment ID #: Click here to enter text.
6. Type of Material (Describe Odor/color, if unknown): Choose Item Click here to enter text.
7. Quantity or Dimensions of Area Affected:Click here to enter text.
8. Exact Location of Incident: Click here to enter text.
9. Did Material Reach a Catch Basin (CB)? Choose Item Drain Type: Choose an item
10. Volume of water used by FD to flush through IWS. Click here to enter text.
11. POS-FD Run #, if applicable: Click here to enter text.
12. Report Completed by Click here to enter text.

This section to be completed by AV/ENV On-Duty Spill Team Member or Initial Investigator (by next business day)
Email report to: z-AV-ENV-Environmental Incident Form Reviewer

13. Type of Incident:Choose Item
14. Is Material Fully Contained in and/or being managed by the IWS and IWTP or cleaned up using absorbant? Choose an item
    If Answer to 13 is YES, complete questions 22 and 23 and submit to Env Incident Report Reviewer(EIRR).

---

15. Did or can material reach an SDS Catch Basin Choose an item
16. Did material reach Port Stormwater Detention Facility NO Which One? Choose Item Click here to enter text.
17. Did material reach Creek/Wetland: Choose Item Which One? Choose an item.
18. Did Material Soak into Soil? Choose an item Estimated Quantity (gal): Click here to enter text.
19. Action Taken (Description of Initial Containment/Recover Procedures): Choose an item Click here to enter text.
20. Weather Conditions/Precipitation: Choose an item.
21. Rain Gauge Readings(206-787-4360): Prev.hr Click here to enter text.Prev.2Hrs Click here to enter text.Prev.12Hrs Click here to enter text. Max 1hr Intensity Click here to enter text.
22. Additional Details:
23. Name of Individual Preparing Report: Choose an item
24. Date & Time Report was Completed and sent to EIR Reviewer: Click here to enter a date.

All POS necessary notifications made ☐POS-FD, ☐AV/ENV, ☐AV/OPS, ☐AV/M, ☐AV/PA, ☐ AV/Community Relations
Attach associated pictures to email Choose an item.

This section to be completed by Aviation Environmental Manager (by end of next business day)

1. Additional Countermeasures implemented, not listed above? Click here to enter text.
2. Agencies Contacted: NA, Choose an item Choose an item Report #: Click here to enter text.
3. Resolution/COMMENTS:

AV/ENV Management Review Certification – As a result of this incident, has there been a release or is there a potential for release of pollutants to waters of the state. Choose an item Choose an item

Appendix G
Monthly Tenant Glycol Reporting Form

Port of Seattle

MONTHLY GLYCOL REPORT FOR SEA-TAC AIRPORT

NAME OF APPLICATOR:_____ **RETURN TO: Sarah Cox, (206) 787-7137**

MONTH: **YEAR** **FAX#: (206) 787-6617**

DUE BY THE 5th OF FOLLOWING MONTH **E-mail: cox.sarah@portseattle.org**

☐ **Please check box & send if you did not deice this month**

DAY (Date)	AIRLINE	Manufacturer of Product	VOLUME APPLIED		VOLUME APPLIED	
			TYPE (I/IV)	Gallons of Product	TYPE (I/IV)	Gallons of Product
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
13.						
14.						
15.						
16.						
17.						
18.						
19.						
20.						
21.						
22.						
23.						
24.						
25.						
26.						
27.						
28.						
29.						

30.						
31.						
Total			**Type I**		**Type IV**	**0**

Name of Sender: Phone: Date:

Appendix H
Subbasin Sizes and Landcover

Port of Seattle

The acreages of each STIA subbasin are identified below. Subbasin ponds and the IWS lagoons are parsed out. The total acreages of those include the actual surface area of the waterbody as well as the adjoining pervious and impervious land that drains into the pond and is cartographically represented as being part of the pond, rather than the subbasin. For example, the total acres for the SDE-4 Pond include the vegetated slope north of the pond.

Subbasin	Subbasin Total Acres	Pond Surface Acres	Impervious Acres	Pervious Total Acres
SDN1	18.60	--	14.84	3.75
SDN1-POND	1.70	0.95	0.24	0.51
Basin Group Total	*20.29*	*0.95*	*15.08*	*4.27*
SDN5 To Pond	29.23	1.30	18.49	9.44
SDN5 To Pond/Vault	5.52	--	5.41	0.11
SDN5 To Vault	7.25	0.00	5.68	1.58
Basin Group Total	*42.01*	*1.30*	*29.58*	*11.13*
SDN3A	31.20	--	8.09	23.11
SDN3A-POND	2.72	2.63	0.01	0.08
Basin Group Total	*33.92*	*2.63*	*8.09*	*23.20*
SDW1B	72.16	--	23.05	49.11
SDW1B-POND	3.01	2.16	0.25	0.60
SDW1BO	12.36	--	1.96	10.40
Basin Group Total	*87.53*	*2.16*	*25.25*	*60.12*
SDW2	37.47	--	10.27	27.20
SDW2-POND	2.71	2.36	0.00	0.35
SDW2A	4.18	--	0.52	3.66
Basin Group Total	*44.36*	*2.36*	*10.79*	*31.21*
SDW1A	70.14	--	26.03	44.11
SDW1A-POND	3.60	3.60	--	--
Basin Group Total	*73.74*	*3.60*	*26.03*	*44.11*
SDN2/3/4 (Pond M)	3.02	2.98	0.01	0.03
SDN2X	4.26	--	0.92	3.34
SDN3	71.64	--	31.77	39.87
SDN4	36.96	--	11.87	25.09
Basin Group Total	*115.88*	*2.98*	*44.58*	*68.33*
SDE4	166.84	--	126.27	40.57
SDE4-POND	3.13	1.65	0.12	1.36
SDS1	12.78	--	11.80	0.98
Basin Group Total	*182.74*	*1.65*	*138.18*	*42.91*
SDS3	349.56	--	206.52	143.04
SDS3A	77.22	--	34.42	42.80
SDS5	30.06	--	9.63	20.43
Basin Group Total	*456.84*	--	*250.57*	*206.27*
SDS4	66.33	--	25.88	40.45
SDS4-POND	1.27	0.42	0.06	0.78

Basin Group Total	*67.60*	*0.42*	*25.94*	*41.23*
SDS2	7.48	0.00	2.48	5.00
SDS6-7A	102.62	--	44.14	58.48
SDS6-7B	6.97	--	1.56	5.41
Basin Group Total	*117.07*	*0.00*	*48.17*	*68.89*
SDD05B	20.34	--	9.09	11.25
SDD05B SEPL Bioretention Swale	0.06	--	--	0.06
Basin Group Total	*20.40*	--	*9.09*	*11.31*
SDD06A	45.34	--	27.17	18.16
D04A1	0.40	--	0.40	0.00
Garage	26.49	--	25.19	1.30
IWS	282.84	--	278.81	4.03
IWS-Lagoon 3	16.30	12.10	1.37	2.83
IWS-Lagoons 1 and 2	4.07	3.92	0.03	0.12
SDN2	42.29	--	33.25	9.03
Basin Group Total	*372.39*	*16.03*	*339.05*	*17.31*
SDD05A	4.13	--	3.74	0.40
SDD05AX	6.58	--	0.32	6.26
SDD05BX	2.42	--	0.52	1.90
SDE4X	4.85	0.00	2.34	2.50