

# **Stormwater Pollution Prevention Plan**



**Naval Air Station Whidbey Island**

**December 2015**

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# Stormwater Pollution Prevention Plan



**Naval Air Station Whidbey Island**

**December 2015**

**Prepared By:**



**Naval Facilities Engineering Command Northwest  
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## **Public Disclaimer**

Portions of this Stormwater Pollution Prevention Plan are withheld from public access. The following materials have been redacted:

- Building names and numbers;
- Personally identifiable information of personnel;
- Facility Descriptions and/or Objectives;
- Facility Maps;
- Outfall Locations; and
- Off-base inflows.

These items are Restricted Information as defined in the Multi-Sector General Permit 2015 Appendix A.

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UPDATE (24 October 2016): Due to a change of command, the below certification is no longer valid. See following page for current Commanding Officer certification and signature.

## Certification and Signature

I 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 the 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 fines and imprisonment for knowing violations.

MEJ

(Signature)

17 Dec 2015

(Date)

Name: Mike Nortier Captain US Navy  
Title: Commanding Officer  
Organization: Naval Air Station Whidbey Island  
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Oak Harbor, WA 98278-5000

## Certification and Signature

I 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 the 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 fines and imprisonment for knowing violations.

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# 1 Introduction

## 1.1 Purpose and Scope

This Stormwater Pollution Prevention Plan (SWPPP) was prepared for Naval Air Station (NAS) Whidbey Island located in Oak Harbor, Washington to comply with the terms and conditions of the Multi-Sector General Permit, Authorization to Discharge Under the National Pollutant Discharge Elimination Systems (NPDES) for Stormwater Discharges Associated with Industrial Activity, United States Environmental Protection Agency (EPA) (2015).

This SWPPP identifies the sources and potential sources of pollutants that may reasonably be expected to significantly affect the quality of stormwater discharges associated with industrial activities at NAS Whidbey Island; defines practices and measures that will help to minimize and control pollutants in those discharges; establishes a plan for the implementation of these practices and measures, and a mechanism that will ensure their implementation; and establishes a plan for the evaluation of the effectiveness of the plan in controlling and reducing pollution of stormwater discharges.

NAS Whidbey Island was established in 1942. Before this period the area was woodlands and agricultural lands. The station was originally built as a base for [REDACTED]

[REDACTED] At the end of World War II, the station was placed on reduced operating status until December 1949. After this date, NAS Whidbey Island was developed into a multi-function, all-weather Navy field.

Currently, NAS Whidbey Island provides base support for [REDACTED]

[REDACTED] The station is the center for regional Navy and Marine Air Reserve training activities. Search and rescue operations are also provided in support of civil authorities in the northwest counties of Washington State.

## 1.2 Document Organization

This document is organized into eight sections. Section 1 provides general information regarding this document including a brief summary of the regulatory history of NPDES industrial stormwater permits and specific information regarding the EPA's Multi-Sector general permit for federal facilities in the state of Washington. In addition, a comparison to other existing environmental management plans in place at NAS Whidbey Island, the document was developed to identify overlaps in requirements among the various plans.

Site characteristics of NAS Whidbey Island that affect rainfall runoff are described in Section 2 including brief descriptions of the island's hydrometeorological and topographic conditions and a brief land use history. Existing natural and man-made storm drainage features are described. Stormwater outfalls and their corresponding drainage basins are identified including those associated with industrial activities.

The non-stormwater discharge investigation conducted for NAS Whidbey Island is presented in Section 3 along with a plan for illicit discharge elimination and prevention.

Site-specific pollution prevention assessments for each of the individual or groups of industrial facilities identified at NAS Whidbey Island are presented in Section 4. The assessments include

pollutant source identification, and a description of existing, and recommended BMPs for each industrial facility.

Section 5 presents existing stormwater characterization data for NAS Whidbey Island. Future monitoring and reporting requirements for stormwater sampling are discussed in detail.

Section 6 details facility inspections required under the MSGP.

Corrective action and recordkeeping requirements are discussed in Section 7. References are presented in Section 8.

A set of drawings, including the SWPPP base maps, are provided in Appendix A. A glossary of terms is provided in Appendix B. A copy of EPA's Multi-Sector general permit is provided in Appendix C. Appendix D contains a copy of the NOIs filed for NAS Whidbey Island to comply with that permit and the EPA acknowledgement. Appendix E contains the analysis of permit eligibility with respect to endangered species, critical habitat, and historic properties protection. Appendix F contains the analytical monitoring standard operating procedures. An index of all alternative and recommended BMPs is provided in Appendix G. The completed Illicit Discharge Survey Forms are provided in Appendix H. Existing stormwater characterization data for NAS Whidbey Island are provided in Appendix I. Annual monitoring reports are provided in Appendix J. A record of spills is provided in Appendix K. Inspection reports and maintenance reports are provided in Appendices L and M. Corrective actions reports are provided in Appendix N. Employee training records are provided in Appendix O. Appendix P is provided for the filing of Comprehensive Site Inspection reports.

## 1.3 Regulatory Background

### 1.3.1 Federal Stormwater Regulations

The 1972 amendments to the Federal Water Pollution Control Act (referred to as the Clean Water Act) stipulated that the discharge of any pollutant to surface waters without a NPDES permit was unlawful. After initial passage of the Clean Water Act, several nationwide studies identified stormwater discharges as a significant source of water pollution. These results and pressure from environmental groups resulted in the reauthorization of the Clean Water Act (CWA) in 1987 with the passage of the Water Quality Act (WQA), which established a framework for regulating municipal and industrial stormwater discharges under the NPDES permit program. Final federal regulations regarding the EPA's NPDES stormwater permit program were published in the Federal Register on November 16, 1990.

Stormwater discharges associated with industrial activity have been divided into two categories: those associated with industrial activity except construction activity and those associated with industrial activity from construction activity.

The stormwater regulation allows two permit application options for stormwater discharges associated with industrial activity except construction activity. One option is application for an individual NPDES stormwater permit. The other option is a NOI to comply with a general permit, including the Multi-Sector general permit.

Individual NPDES stormwater permits are issued to a specific facility for stormwater discharges related to industrial activity. In most instances the permit is tailored to meet the discharge

characteristics of the facility and/or special requirements of the receiving waters. Individual NPDES stormwater permits are issued by states that have been delegated NPDES permitting authority or by the EPA in states that do not have this authority.

The Multi-Sector general permit for industrial activities is the result of the group permitting process initiated by EPA in the late 1980s. The permit was originally issued until September 29, 1995. EPA reissued the permit in 2000, 2008, and most recently in June 2015.

### 1.3.2 Navy Stormwater Policy

Requirements and policies regarding stormwater discharges for Navy facilities are stipulated in the Department of the Navy's Environmental and Natural Resources Program Manual, OPNAVINST 5090.1D (U.S. Navy 2014). These requirements, which are a part of the Clean Water Ashore Program, state that Navy facilities must comply with all substantive and procedural requirements applicable to point and non-point sources of pollution as required by Executive Order (EO) 12088 and the CWA. Navy policy regarding point source stormwater discharges from Navy facilities is that these discharges must meet all applicable federal, state, or local permit requirements, including control requirements for toxic and non-conventional pollutants, and best conventional technology (BCT) limits for conventional pollutants.

Further, Navy facilities must comply with all requirements of federal, state, interstate, and local laws and regulations respecting the control and abatement of water pollution in the same manner and to the same extent as any non-governmental entity. Navy policy also states that the discharge of any pollutant that does not comply with effluent standards or other procedural requirements is unlawful.

The Navy's stormwater compliance strategy for NAS Whidbey Island is discussed in the following section.

### 1.3.3 Stormwater Compliance Strategy, NAS Whidbey Island

The State of Washington is an NPDES-delegated state with general permitting authority. However, industrial stormwater discharges from federal facilities in the state of Washington are handled by the EPA and are eligible for coverage under EPA's Multi-Sector General Permit, or an individual NPDES permit. Administration of these permits is by EPA, Region 10, Water Management Division (WD-134), Stormwater Staff, Seattle, Washington.

NAS Whidbey Island is eligible for coverage under EPA's Multi-Sector general permit. A copy of portions of the final Multi-Sector general permit, which pertain to NAS Whidbey Island, is provided in Appendix C.

NAS Whidbey Island has filed four NOIs requesting coverage under the Multi-Sector general permit (MSGP) with the EPA Director. EPA responded to the first NOI with a notice dated September 20, 1996, authorizing NAS Whidbey Island to discharge stormwater associated with industrial activity under general permit number WAR05A03F. The second NOI was answered by an EPA notice dated March 12, 2001, which provided discharge authorization under general permit number WAR05A59F. The third NOI was answered by an EPA notice dated July 27, 2011, which provided discharge authorization under general permit number WAR05B91F. The fourth NOI has not been responded to at the time of this SWPPP update. Copies of the NOIs and EPA coverage notices are provided in Appendix D.

An NOI must be submitted in order to comply with the General Permit for Discharges from Construction Activities for all construction activities to be undertaken at NAS Whidbey Island that will disturb in excess of one acre of land. Compliance with that permit requires the development of a site specific stormwater management plan not related to this SWPPP document. Please refer to the 2012 General Permit for Discharges from Construction Activities for additional guidance and requirements.

#### 1.3.4 Permit Eligibility determination

The Multi-Sector General Permit requires that stormwater discharges, allowable non-stormwater discharges, and discharge-related activities are protective of endangered species, critical habitat, and historic properties. Documentation of permit eligibility with respect to protection of endangered species, critical habitat, and historic properties is presented in Appendix E.

### 1.4 Comparison to Other Environmental Management Plans

Environmental management plans for NAS Whidbey Island that are required by other environmental laws and regulations relate primarily to the prevention and management of spills and leaks of hazardous materials and minimizing hazardous waste generation on base. Existing plans of this type for NAS Whidbey Island include the Spill Prevention Control and Countermeasure Plan (SPCC), Consolidated Hazardous Material Reutilization and Inventory Management Program (HMC&M); these plans include sections for hazard communications (HAZCOM) and material control, hazardous materials control and management, ozone depleting substances, emergency planning and community right-to-know (EPCRA), polychlorinated biphenyls (PCB), pesticides, asbestos, and hazardous waste minimization. Some of the practices identified in this SWPPP for preventing stormwater pollution by industrial activity at NAS Whidbey Island are required or recommended by these plans; some are already in place. Overlaps in the plans are identified in the following paragraphs.

#### 1.4.1 Spill Prevention Control and Countermeasure Plan

The most recent version of the NAS Whidbey Island SPCC Plan was completed in August 2014 (NAVFAC Northwest, August 2014). The updated SPCC Plan was prepared in accordance with planning standards of Title 40 of the Code of Federal Regulations, Section 112 (40 CFR 112), and revisions to 40 CFR 112 as published in the July 17, 2002 Federal Register, and the Facility Oil Spill Prevention Plan Standards (Chapter 173-180D of the Washington Administrative Code (WAC)). Information regarding existing activities related to oil pollution control including equipment testing, required inspections, oil handling procedures, and security is provided in this plan.

The SPCC also outlines current training programs and requirements related to fuel oil and hazardous materials. All appropriate civil service, Base Operating Support Contract (BOSC) and fuel contractor personnel involved with fuel handling operations receive training as detailed in the SPCC. In addition, the fuel contractor is contractually required to conduct training in the following areas on a monthly basis: safety in fuel handling; fire prevention; first aid; operational and preventive maintenance; Navy fuel handling practices and procedures; oil spill detection, containment, and cleanup procedures; inventory control; security responsibility; quality surveillance; and driver training. The NAS Whidbey Island Facility Oil Handling Personnel

Training and Certification Program, includes position descriptions and duties, competency testing, refresher training lesson plans, and recordkeeping procedures. Existing environmental training programs that are provided under other environmental management plans at NAS Whidbey Island are summarized in Table 1-1.

The requirements of the SPCC Plan are compatible with the goals of the SWPPP because several procedures, practices, and measures that are helpful in reducing the potential for stormwater pollution are already in place or recommended/required through the SPCC Plan. These include: periodic inspection and testing of aboveground storage tanks (ASTs) and underground storage tanks (USTs); secondary containment berms for bulk fuel storage tanks and fuel truck loading racks; third party monitoring of fuel transfers; carrying of sorbent material by fuel truck operators; inspection and maintenance programs for fuel transfer and storage equipment; facility security; training programs and requirements; and standard operating procedures for drum and small container handling, oil tank containment area draining operations, fuel and hazardous substance emergencies, loading and unloading procedures for fuel transfer, and ship to shore loading procedures.

Stormwater pollution control BMPs that are presently either in place and/or recommended by the SPCC Plan are summarized in Table 1-2.

#### 1.4.2 Integrated Contingency Plan

COMNAVREGNW has developed a regional Oil/Hazardous Substance (OHS) Integrated Contingency Plan (ICP). The plan was updated in July 2013. The purpose of the ICP is to provide specific direction to be followed by Navy personnel to allow prompt, efficient coordination and response to any OHS spill that occurs in the Navy's Northwest Region. All spills at NAS Whidbey Island are reported to the Spill Response Team, which implements the ICP to contain and clean up the spill. Potential stormwater pollution BMPs that are in place at NAS Whidbey Island and/or are required as a result of the program include: keeping records of all spills and leaks of toxic or hazardous materials; providing adequate spill control/containment material for the control of spills and leaks; properly disposing of any significant materials or contaminated waste; training of personnel for proper storage, use, cleanup, and disposal of materials; and recordkeeping practices. These are summarized in Table 1-2.

#### 1.4.3 Consolidated Hazardous Material (HM) Reutilization and Inventory Management Program (CHRIMP)

A hazardous material identification and tracking system was put in place at NAS Whidbey Island in December 1993. This consists of a computerized system to measure the type and amount of HM arriving at the central storehouse and other locations on base from all sources and a system to measure the kind and amount of material distributed from the central supply warehouse to the shops. CHRIMP promotes compliance with the broad range of Federal, State, and local environmental rules and regulations. It mandates procedures to control, track, and reduce the variety and quantity of HM in use. As part of this system, the Hazardous Material Control and Management (HMC&M) Committee compiled a hazardous substance authorized use (AU) list. This list serves as the basis for monitoring and controlling all incoming HM and functions as a tool for setting realistic goals on procurement by tracking HM at specific locations, including usage and stock quantities.

Existing environmental training programs conducted at NAS Whidbey Island required/recommended by other environmental management plans are summarized in Table 1-1.

The goals of CHRIMP are compatible with the goals of the SWPPP because reducing the amount of HM and hazardous waste (HW) on site helps to reduce the potential for stormwater pollution. Potential Hazardous Waste Minimization BMPs that are presently in place at NAS Whidbey Island include: substituting existing solvent with a non-chlorinated solvent, use of efficient painting equipment, inventory of hazardous substances (HS) checklist, training, use spill control materials efficiently, and segregation of spent paint solvents for recovery. These are summarized in Table 1-2.

#### 1.4.4 Hazardous Waste Management (HWM) Plan

The HWM Plan (NAVFAC Northwest, revised, 2013) establishes procedures and provides guidance regarding HW generation and accumulation as required by WAC Chapter 173-303 and 40 CFR 260 through 268, 270, 271, 272, and 279 (Resource Conservation and Recovery Act or RCRA). This program also meets the requirements of Naval Command Policy, OPNAVINST 5090.1B. The procedures identified in the HWM Plan are designed to maintain NAS Whidbey Island's status as a generator and avoid the more stringent requirements of a treatment, storage, and disposal (TSD) facility. In general, this program covers management and operating procedures for collecting, containerizing, labeling, marking, recordkeeping, transferring, storing, and disposing of HW on NAS Whidbey Island.

Through this program, less-than-90-day accumulation points have been established at locations where HW is generated. These are maintained by an assigned Work Center HW Manager or HM Control Coordinator (HMCC) at that location who is responsible for compliance with waste regulations through periodic inspections, recordkeeping and reporting requirements, and proper waste accumulation and handling activities.

A copy of the NAS Whidbey Island Hazardous Material and Hazardous Waste Training Plan is included in the HWM Plan. This plan identifies training requirements and assigns responsibilities for NAS Whidbey Island personnel including tenant commands, contractors, and organizations operating under an inter-service support agreement, and visitors who use HM or generate HW at facilities under the authority of the commanding officer (CO), NAS Whidbey Island. Training requirements for each HM/HW regulation are summarized in the HWM Program. These training requirements Hazard Communication which include (HAZCOM) Training, Emergency Response Contingency Training, HW Management Training, and required job-specific specialized training, are summarized along with training programs resulting from other environmental management plans at NAS Whidbey Island in Table 1-1.

The goals of the HWM Plan are compatible with the goals of the SWPPP because the proper handling and disposal of hazardous wastes helps to reduce the potential for stormwater pollution. Potential stormwater pollution control BMPs that are in place at NAS Whidbey Island and/or are required as a result of the HWM Program include: labeling of containers and drums, providing sufficient space around containers to allow for unobstructed movement of personnel and spill control, providing adequate spill control/containment material for the control of spills and leaks, routine inspections of HM storage areas, training, recordkeeping practices, security practices, storing reactive/ignitable waste according to the Uniform Fire Code, providing secondary

containment for bulk waste storage tanks, and monitoring of HW loading and pumping operations. These are summarized in Table 1-2.

**Table 1-1: Summary of Existing Training Programs  
 Provided Under Other Environmental Management Plans  
 At NAS Whidbey Island**

Title	Personnel Who Receive Training	Program Provided Under <sup>a</sup>
Oil Spill Response and Cleanup	All Civil Service, BOSC, and Fuels Contractor personnel involved with fuel handling operations	SPCC
Oil Spill Response Equipment Operation	All Civil Service, BOSC, and Fuels Contractor personnel involved with fuel handling operations	SPCC
Fuel Transfer and Storage Facility Operation	All Civil Service, BOSC, and Fuels Contractor personnel involved with fuel handling operations	SPCC
Federal Requirements of DLA 600-88-5088	All Civil Service, BOSC, and Fuels Contractor personnel involved with fuel handling operations	SPCC
Alongside Fueling Requirements	All Civil Service, BOSC, and Fuels Contractor personnel involved with fuel handling operations	SPCC
Naval Energy & Environmental Support Activity Spill Response and Cleanup Course for Government Employees	All Civil Service, BOSC, and Fuels Contractor personnel involved with fuel handling operations	SPCC
Safety in Fuel Handling (monthly)	Fuels Contractor personnel	SPCC
Fire Prevention (monthly)	Fuels Contractor personnel	SPCC
First Aid (monthly)	Fuels Contractor personnel	SPCC
Operational and Preventive Maintenance (monthly)	Fuels Contractor personnel	SPCC
Navy Fuel Handling Practices and Procedures (monthly)	Fuels Contractor personnel	SPCC
Oil Spill Detection, Containment, and Cleanup (monthly)	Fuels Contractor personnel	SPCC
Inventory Control (monthly)	Fuels Contractor personnel	SPCC
Security Responsibility and Quality Surveillance (monthly)	Fuels Contractor personnel	SPCC
Driver Training (monthly)	Fuels Contractor personnel	SPCC
Waste Reduction Training Program	Site Managers, Coordinators, and Major Generators	CHRIMP
HAZCOM	All personnel	HAZCOM
Emergency Response Contingency Training	All hazardous waste facility personnel	HWM
Hazardous Waste Management Training	All hazardous waste facility personnel	HWM
OSHA/HAZWOPER 40-hr training	All hazardous waste facility personnel	HWM
Annual OSHA/HAZWOPER 8-hr refresher	All hazardous waste facility personnel	HWM

Key:

- HWM = Hazardous Waste Management Program
- CHRIMP = Consolidated Hazardous Material Reutilization and Inventory Management Program
- SPCC = Spill Prevention Control and Countermeasures Plan
- HAZCOM = Hazard Communication
- HAZMIN = Hazardous Waste Minimization
- OSHA = Occupational Safety and Health Administration
- HAZWOPER = Hazardous Waste Operations and Emergency Response
- BOSC = Base Operating Support Contract

<b>Table 1-2: Stormwater Controls in Place and/or Required by                      Other Environmental Management Plans                      at NAS Whidbey Island</b>		
BMP Designator	BMP Title <sup>a</sup>	Management Plan
001	Label all drums, cans, containers, tanks and valves	HWM
002	Restrict access to area and equipment	HWM, SPCC
006	Control spills	HWM, SPCC
006A	Keep records of all spills and leaks of toxic or hazardous materials	SPCC
014A	Inspect water accumulated in containment area for oil sheen prior to discharge	SPCC
015	Recycle	CHRIMP
016	Store waste and recycling materials in proper containers	HWM
016A	Store waste in appropriate area	HWM
016C	Regularly inspect storage areas for leaking materials	HWM, SPCC
017	Limit significant materials inventory	CHRIMP
017A	Keep inventory of significant materials	CHRIMP
021	Reduce waste	CHRIMP, HWM
031	Conduct refresher courses in operating and safety procedures	HWM, SPCC
039A	Recycle or properly dispose of all used vehicle fluids	HWM
040B	Store drained oil filters in proper containers and dispose of properly	HWM
043	Recycle pressure wash solvents	CHRIMP
048	Reduce the amount of liquid cleaning agents used	CHRIMP
050	Substitute non-toxic or less-toxic cleaning solvents	CHRIMP
051	Use solvents efficiently	CHRIMP
053	Protect storage containers from being damaged by vehicles	SPCC
057A	Properly dispose of any significant materials or contaminated wastes	HWM
061	Employ proper handling procedures to transport materials and waste	HWM
062	Provide overflow protection	SPCC
064	Monitor major fueling operations	SPCC
065	Provide absorbent booms in unbermed fueling areas	SPCC
070	Lock fuel tanks when not in use or on standby	SPCC
071	Keep tanks, piping, and valves in good condition	SPCC
072	Protect tanks from being damaged by vehicles	SPCC
073	Protect fill pipe from being damaged by vehicles	SPCC
075	Provide secondary containment for ASTs	HWM, SPCC
075A	Provide secondary containment for other POL containing structures/ facilities	HWM
082	Use efficient painting equipment	CHRIMP
087	Use oil containment booms	SPCC
111	Regularly inspect and test equipment	HWM, SPCC
144	Train employees on proper loading/ unloading techniques	HWM, SPCC
158	Train employees on procedures for storing and inspecting chemicals	CHRIMP
161	Train employees on proper filling and transfer procedures	HWM, SPCC
185	Recycle paint, paint thinner, and solvents	CHRIMP
192	Label and track the recycling of waste material	HWM, CHRIMP
199	Store reactive, ignitable, or flammable liquids in compliance with the Local Fire Code	HWM
200	Control excessive purchasing, storage, and handling of potentially hazardous materials	CHRIMP
202	Secure and carefully monitor hazardous materials to prevent theft, vandalism and	HWM

Table 1-2: Stormwater Controls in Place and/or Required by Other Environmental Management Plans at NAS Whidbey Island		
BMP Designator	BMP Title <sup>a</sup>	Management Plan
	misuse of materials	
203	Educate personnel for proper storage, use, cleanup, and disposal of materials	HWM, SPCC
207	Inspect connecting hoses for leaks	SPCC
209	Use appropriate material transfer procedures, including spill prevention and containment procedures	HWM, SPCC
215	Develop operation plan for loading/unloading	SPCC
216	Keep records of required inspections, maintenance activities, employee training sessions, chemical application rates and locations	HWM, SPCC

<sup>a</sup> A complete list of stormwater BMPs and detailed descriptions are provided in Appendix G.

Key: CHRIMP = Consolidated Hazardous Material Reutilization and Inventory Management Program  
 HWM = Hazardous Waste Management Program  
 SPCC = Spill Prevention, Control, and Countermeasure Plan  
 BMP = Best Management Practice  
 AST = Aboveground Storage Tank  
 POL = Petroleum Oil and Lubricants

## 1.5 SWPPP Compliance Requirements

Ongoing activities related to the SWPPP that are required for compliance under the Multi-Sector general permit are outlined in the following paragraphs. These SWPPP compliance requirements are summarized in Table 1-3. A copy of the Multi-Sector general permit is included in Appendix C.

### 1.5.1 Pollution Prevention Team

As required by the Multi-Sector general permit, this SWPPP for NAS Whidbey Island must designate and identify a specific individual or group of individuals as members of a stormwater pollution prevention team to provide coordination for the implementation, maintenance, and revisions to this SWPPP. The responsibilities of each team member should be clearly identified and the responsibilities of the team should address all compliance aspects of this SWPPP including the implementation plan, comprehensive site evaluations, revisions, updates, and renewals. The individuals assigned to the stormwater pollution prevention team and their respective responsibilities are identified below.

#### Stormwater Program Manager:

- Implement and coordinate overall SWPPP program.
- Ensure that BMPs are implemented.
- Visually examine and monitor outfalls (discharges) and submit reports.
- Complete facility visual inspections and record results.
- Coordinate updates to the facility SWPPP.
- Ensure annual Comprehensive Site Inspections are performed and documented.

- Complete employee training and record.

**NAS Whidbey Island Environmental Director:**

Program funding for compliance with SWPPP and stormwater permit requirements including upgrades and corrective actions needed for NAS Whidbey Island facilities.

**Oil and Hazardous Substances Spill Manager:**

Track and report spills.

**Public Works Director:**

- Maintain and inspect equipment (conveyance system and oil/water separators) and record.
- Program funding for routine inspection and maintenance of stormwater system and associated structural stormwater pollution control facilities.

**NAVFAC NW Stormwater Program Manager:**

Provides SWPPP updates, Comprehensive Site Inspections, regulatory assistance, and technical assistance as requested by the NAS Whidbey Island Stormwater Program Manager and Environmental Director.

### 1.5.2 Spill Response and Reporting Requirements

In the event of a spill of oil or hazardous substances the following contacts should be notified immediately:

**Regional Watch Commander** [REDACTED]

#### **Quantities**

Reporting requirements of the Multi-Sector general permit for releases of hazardous substances or oil are summarized below. A full description of these requirements is provided in Appendix B or Subsection F of the Multi-Sector general permit.

#### **SWPPP Modification**

Within 14 calendar days of knowledge of a release of a reportable quantity of hazardous substance, NAS Whidbey Island must modify the SWPPP to include the following: a description of the release including the type and amount of material released; the date and time of the release; the circumstances leading to the release; and steps taken to identify and implement measures to prevent the reoccurrence of such releases and to respond to such releases in the future. (See Part 4.1 of the permit.)

#### **Reporting Requirements Under 40 CFR**

The requirements of this SWPPP do not relieve NAS Whidbey Island from the reporting requirements of 40 CFR 117 and 40 CFR 302. NAS Whidbey Island is required to notify the National Response Center (NRC) at 800-424-8802 in accordance with the requirements of 40 CFR 117 and 40 CFR 302 as soon as a discharge is discovered. (See Part 2.1.2.4 of the permit.)

A spill report summary is included as in Appendix K of this SWPPP. This summary includes information regarding all spills or releases of hazardous pollutants that occur at NAS Whidbey

Island. All future spills, leaks or releases of toxic or hazardous pollutants at NAS Whidbey Island shall be recorded in Appendix K.

### 1.5.3 Plan Availability

This SWPPP will be kept on site at NAS Whidbey Island and will be made available upon request to the EPA regional director or an authorized representative. The EPA may notify the Navy at any time that this SWPPP does not meet one or more of the minimum requirements of Part 5 of the Multi-Sector general permit. A notification of this type will identify the provisions of the Permit that are not being met by the SWPPP and will identify which provisions of the plan require modification. The required revisions will be made to the SWPPP as soon as possible.

Public access to SWPPP information is required by the 2015 MSGP. A publicly available SWPPP can be found at the following URL: <http://go.usa.gov/kQ6e>.

### 1.5.4 Revisions and Updates

This SWPPP will be amended whenever there is a change in design, construction, operation, or maintenance of the facilities at NAS Whidbey Island covered by this plan or the addition of a new industrial facility that has a significant effect on the potential for the discharge of pollutants to the waters of the United States. In addition, this SWPPP will be amended if it proves to be ineffective in eliminating or significantly minimizing pollutants from the sources identified or in otherwise achieving the general objectives of controlling pollutants in stormwater associated with industrial activity. (See Part 5.3 of the permit.)

### 1.5.5 Retention of Records

Requirements for retention of SWPPP records are identified in Part 7.8 of the MSGP. In general, the Navy is required to retain this SWPPP, records of all monitoring information, copies of all reports required by the SWPPP, and records of all data used to complete the NOI until at least three years after coverage under the permit is terminated.

### 1.5.6 Revisions and Updates

This SWPPP will be amended whenever there is a change in design, construction, operation or maintenance of the facilities at NAS Whidbey Island covered by this plan or the addition of a new industrial facility that has a significant effect on the potential for the discharge of pollutants to the waters of the United States. In addition, this SWPPP will be amended if it proves to be ineffective in eliminating or significantly minimizing pollutants from the sources identified or in otherwise achieving the general objectives of controlling pollutants in stormwater associated with industrial activity. (See Part 5.3 of the permit.)

### 1.5.7 Signatory Requirements

As required by the Multi-Sector general permit, this SWPPP and all reports required by this SWPPP shall be signed by a principal executive officer or ranking elected official. A principal executive office of a federal agency includes (1) the chief executive officer of the agency, or (2) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency or a duly authorized representative of (1) or (2). An individual is

considered “duly authorized” only if the principal executive officer of the federal facility has documented the delegation in writing and a copy of the delegation letter is included with the SWPPP. All documents shall have the following certification.

"I 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 the 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."

**Table 1-3: Summary of SWPPP Compliance Requirements**

SWPPP Compliance Requirement	SWPPP Section	Multi-Sector Permit Part
Form a Stormwater Pollution Prevention Team.	1.5.1	5.2.1
Implement Control Measures/BMPs	4	2
Perform stormwater sampling and prepare reports.	5	6
Prepare and submit reports of releases of hazardous materials or oil in excess of reportable quantities.	1.5.2	2.1.2.4
Complete Routine Facility Inspections and record.	6	3.1
Complete Maintenance and record	7	2.1.2.3, 5.5
Complete Employee Training and record	7	2.1.2.8, 5.5
Submit Annual Report	6.3	7.5
Update SWPPP when a change in industrial facilities occurs or if current SWPPP is ineffective.	1.5.5	4.3, 5.3
Implement and document Corrective Actions	7	4
Retain SWPPP reports and records on site for at least three years after coverage under the permit expires	1.5.5, 7	7.8
All reports must be signed by an appropriate authority.	1.5.6	B.11

## 2 Description of Stormwater Drainage

### 2.1 Site Characteristics

#### 2.1.1 Location

NAS Whidbey Island is located on Whidbey Island in Island County, Washington. The narrow 64-mile-long island is oriented north-south and is at the confluence of the Puget Sound and the Strait of Juan de Fuca. NAS Whidbey Island is located in the northern portion of Whidbey Island (Figure 2-1).

The station is composed of two bases located 5 miles apart: the Naval Air Station (also known as Ault Field) and the Seaplane Base. Ault Field is on the western shore of Whidbey Island and contains most of the station's military activities. The Seaplane Base is to the south of Ault Field and east of the city of Oak Harbor.

#### 2.1.2 Climate

Whidbey Island has a mild maritime climate. The average daily temperature in the area is 49.7 °F, with an average daily low of 41.3 °F and an average daily high of 58.1 °F. The average total annual precipitation for the area is 21.12 inches. The average total annual snowfall is 6.0 inches. A predominant southwest wind occurs between September and April at an average velocity of 9 knots. Between the months of March and August, the wind direction changes to a westerly.

#### 2.1.3 Topography

Ault Field consists of a combination of lowlands and hills. The runways, aprons, and taxiways are built on lowland consisting of scattered wetlands that cross Whidbey Island from Skagit Bay to the east to the Strait of Juan de Fuca to the west. The southern portion of Ault Field consists of hills that rise to an elevation of approximately 100 feet.

Seaplane Base is located on a hilly extension of the island between Crescent Harbor to the east and Oak Harbor to the west. The crest of the hill extends north to south with elevations reaching approximately 190 feet to the north and 90 feet to the south.

### 2.2 Description of Stormwater Drainage Facilities

Stormwater drainage facilities at NAS Whidbey Island (i.e., Ault Field and Seaplane Base) include natural drainage conveyances such as streams, creeks, and ditches; man-made drainage conveyances such as engineered swales/ditches; and underground storm drain systems including catch basin inlets, manholes, pipelines, and outlets. A number of oil/water separators are also incorporated into the storm drain systems (e.g., at select POL sources/facilities or within the storm drain system). Existing storm drain facilities are shown on the SWPPP base maps provided in Appendix A.

Stormwater runoff from all areas of Ault Field may infiltrate into soils, enter the underground storm drain system, and/or drain via engineered open channels. Stormwater runoff from the

northern and western portions of Ault Field entering the underground storm drain system or open channels is routed to several outfalls draining to the Strait of Juan de Fuca. In the southwestern portion of Ault Field, runoff is conveyed primarily overland and within open channels, ultimately infiltrating into wetlands, draining to the Strait of Juan de Fuca, or flowing off base to the south. In the central, southern, and eastern portions of Ault Field, stormwater runoff entering the underground storm drain system or conveyed via swales or ditches will enter into a network of engineered open channels located within the flight line (runways and taxiways). Runoff flowing through this series of open channels infiltrates into large marshy wetland areas within the flight line or continues east to Dugualla Bay.

Similarly, stormwater runoff from portions of Seaplane Base may infiltrate or enter the storm drain system. The vast majority of the developed industrial area is located in the central portion of the base and is covered by impervious surfaces. The majority of the runoff will enter the underground storm drain system. Runoff entering the system in the eastern and western portions of the developed area is routed to several outfalls draining to Oak Harbor and Crescent Harbor, respectively. In the southern portion of Seaplane Base, runoff is conveyed primarily via natural swales/ditches to Oak Harbor and Crescent Harbor. Some localized underground storm drain systems exist within a housing development, from which stormwater reemerges to swales/ditches. Within the housing development immediately north of the industrial area, stormwater is conveyed via underground storm drains, where it is routed both southwest to Oak Harbor and southeast to Crescent Harbor. From [REDACTED] to the east, runoff is conveyed via swales/ditches and ultimately discharges to Crescent Harbor. Some localized underground storm drains also exist within a housing development that discharges to grassy swales/ditches.

### 2.3 Drainage Basin Delineation

Drainage basins identified within this SWPPP for both Ault Field and Seaplane Base are based on major storm drain systems, major outfall points, and topographic contours. In some cases, drainage sub-basins were identified where multiple outfalls exist within a specific drainage basin or where an excessive number of industrial facilities were found to be located within one drainage basin. Drainage basins/sub-basin boundaries, on Ault Field and Seaplane Base outfalls, and industrial facilities are identified on the SWPPP maps provided in Appendix A.

Drainage basin/sub-basin boundaries at NAS Whidbey Island were initially identified (prior to field inspections) using two sets of General Development Maps (GDMs). For Ault Field, these included one set of two drawings (1":600' scale) that present 5-foot elevation contour intervals, spot elevations, and open channels, and one set of three drawings (unscaled, approximately 1":200') that include major features of the stormwater conveyance system (e.g., underground pipelines and open channels). For Seaplane Base, the GDMs included one drawing (1":600' scale) presenting 5-foot elevation contour intervals, spot elevations, and open channels, and one set of three drawings (1":200' scale) indicating major features of the stormwater conveyance system. The set of 64 1":50' scale maps, which were updated in 1995, were used during field inspections to verify or revise drainage basin boundaries and create the detailed storm drain system maps provided in Appendix A (Sheets 4 through 11).

Two series of maps are included in Appendix A. The first set consists of two maps representing the Ault Field area and the Seaplane Base area (Sheets 2 and 3). These maps of bases, which are at a scale of 1":800', indicate the drainage basin delineation and basin outfalls. The maps of

bases also indicate a grid to reference the second set of eight detailed maps (Sheets 4 through 11). The detailed maps are provided at a scale of 1":200' and cover most of the study areas. These eight detailed 1":200' maps were created from a set of 64 GDMs that were updated and approved in 1995. The majority of industrial facilities included in the study are shown on these maps. However, some industrial facilities were located outside of the area covered by these detail maps.

As a result of in-office review and field observations seven drainage basins (AF-1 through AF-7) were identified at Ault Field, each of which were segregated into sub-basins; a total of 24 sub-basins were identified. Seaplane Base was divided into eight drainage basins (SB-1 through SB-8), five of which were subdivided; a total of 22 basins/sub-basins were identified. Sheet-flow areas were also identified. For the purposes of this SWPPP, sheet-flow areas are industrial areas of concern that do not drain to a point discharge (e.g., outfall), but drain by sheet flow over an impervious surface directly to a receiving water body.

The following subsections provide descriptions of the drainage associated with each basin/sub-basin. The discussion identifies drainage basins and sub-basins, their locations, area features, types of stormwater runoff conveyance, and the total number facilities located within each basin or sub-basin that were inspected under this SWPPP. Tables 2-1 and 2-2 provide drainage basin summaries for Ault Field and Seaplane Base respectively. These tables identify outfalls associated with each basin/sub-basin, outfall locations, drainage basin acreage, percent impervious cover, and receiving waters.

Tables 2-3 and 2-4 provide lists of facilities located within each basin at Ault Field and Seaplane Base, respectively. It should be noted that several facilities are located within more than one basin/sub-basin; therefore, the sum of facilities as listed on these tables (and discussed below) may not correspond with the total number of facilities inspected, as identified on other facility listings within this SWPPP. Facilities inspected under this SWPPP are discussed also in Section 3 with respect to the illicit discharge investigation and in Section 4, Site-Specific Pollution Source Identification, Assessment, and BMPs.

### 2.3.1 Ault Field Drainage Basins

#### **Drainage Basin AF-1**

Drainage Basin AF-1, located immediately north of the flight line in the northern extreme of Ault Field, contains three outfalls (OAF-1A, OAF-1B, and OAF-1C) that discharge subareas AF-1A, AF-1B, and AF-1C, respectively to the Strait of Juan de Fuca. Although shown on the map of bases, this drainage basin is located outside the area identified on the detailed map grids. Boundaries of this basin include the strait to the west, the station boundary to the north and east, and Drainage Basin AF-2 to the south. Drainage Basin AF-1 consists primarily of open space (with grass cover), due to its proximity to the flight line. Impervious areas within Drainage Basin AF-1 include [REDACTED] and the northern fringe of [REDACTED]. Some dirt/gravel access roads are also located within this basin. Stormwater runoff within Drainage Basin AF-1 is conveyed primarily via overland flow and open channels; there is no underground piping system with the exception of roadway culverts. No industrial facilities are located within Drainage Basin AF-1.

### **Drainage Basin AF-2**

Drainage Basin AF-2 consists of three sub-basins (AF-2A, AF-2B, and AF-2C), which are located outside the area depicted by available detailed map grids. Outfalls associated with each of these sub-basins include OAF-2A, OAF-2B, and OAF-2C, respectively. This drainage basin is located along the Strait of Juan de Fuca (the station's western boundary), immediately south of Drainage Basin AF-1. Runway 13 and the station boundary bound this basin to the east; Drainage Basin AF-3 marks the basin's southern limit. Impervious areas within Drainage Basin AF-2 include portions of [REDACTED].

Drainage within Sub-basin AF-2A is routed to a marshy topographic depression enclosed by [REDACTED] and a gravel access road. Runoff entering this lowland area consists of stormwater routed via underground piping from areas east of [REDACTED] and from the runway itself, and from overland flow over grassy areas. This marshy area is drained via underground piping that transports stormwater to the west of Saratoga Street to Outfall OAF-2A at the strait. Sub-basins AF-2A and AF-2B jointly collect additional runoff from the perimeter of the former Sewage Lagoon and nearby grassy areas. Runoff enters a ditch along the east side of Saratoga Street, and is drained through culverts to Outfalls OAF-2A and OAF-2B. Two industrial facilities inspected under this SWPPP are located within AF-2A/B.

Stormwater runoff from Sub-basin AF-2C, primarily an open grassy area, is conveyed primarily via overland flow and open channel until reaching Saratoga Street, where it enters a culvert, ultimately discharging at Outfall OAF-2C to the strait. No facilities were inspected within Sub-basin AF-2C.

### **Drainage Basin AF-3**

Drainage Basin AF-3 is located along the Strait of Juan de Fuca, immediately south of Drainage Basin AF-2. This basin is located outside the area depicted on the enclosed detailed maps. Outfalls OAF-3A and OAF-3B drain stormwater within Sub-basins AF-3A and AF-3B, respectively. Impervious areas within AF-3A include the entire [REDACTED] and portions of [REDACTED] and [REDACTED]. All stormwater runoff within this sub-basin is routed to an oil/water separator (Building No. [REDACTED]) prior to discharge to Outfall OAF-3A at the strait; runoff is conveyed through a combination of overland flow, engineered open channels, and underground piping. Runoff within Sub-basin AF-3B travels via overland flow to a culvert beneath [REDACTED], ultimately discharging to the strait at Outfall OAF-3B. No industrial facilities inspected under this SWPPP are located within Drainage Basin AF-3.

### **Drainage Basin AF-4**

Drainage Basin AF-4 consists of Sub-basins AF-4A, AF-4B, and AF-4C, which discharge to Outfalls OAF-4A, OAF-4B, and OAF-4C, respectively. Portions of Sub-basin AF-4A are located both within and outside the area depicted by the enclosed detailed maps. Sub-basins AF-4B and AF-4C are primarily within the depicted area. Drainage Basin AF-4 is comprised of the western corner of the taxiway network, the northwest portion of [REDACTED] (and associated buildings/facilities), and grassy areas near the Strait of Juan de Fuca. The basin extends south of the jet engine test cells (Bldg. Nos. [REDACTED]) and consists of a combination of pervious vegetated areas and impervious areas such as taxiways, paved roads/parking areas, and buildings. Stormwater runoff within Drainage Basin AF-4 is conveyed primarily through the underground storm drain system; open channel flow is also incorporated into the drainage system.

Sub-basin AF-4A consists of the western portion of the flight line including taxiways and facilities located along the northern end of [REDACTED]. Prior to discharge to the strait at Outfall OAF-4A, stormwater runoff from AF-4A is routed primarily via underground piping to an oil/water separator (Building No. [REDACTED]). Five facilities located within Sub-basin AF-4A were inspected under this SWPPP.

Sub-basin AF-4C encompasses a small area west of AF-4A where stormwater is conveyed exclusively via roadside ditches and culverts. Runoff within this area discharges to the strait via Outfall OAF-4C. One facility located in sub-basin AF-4C was inspected under this SWPPP.

Sub-basin AF-4B drains runoff from areas south and west of Sub-basin AF-4C in the developed area around the jet engine test cells. All stormwater flow within the underground storm drain system in this sub-basin is directed to the sanitary sewer overflow line located north of the test cells (Buildings [REDACTED]), which discharges to the strait (outfall OAF-4B). Stormwater runoff east of [REDACTED] is routed through Manhole [REDACTED] (along the sanitary overflow line), approximately 150 feet north of Building [REDACTED]. Stormwater entering catch basins west of [REDACTED] passes through Manhole [REDACTED], which houses Oil/Water Separator [REDACTED], prior to discharge to the sanitary overflow line at Manhole [REDACTED]. Six facilities in Sub-basin AF-4B were inspected as part of this SWPPP.

#### **Drainage Basin AF-5**

Drainage Basin AF-5 is located along the Strait of Juan de Fuca, southwest of Drainage Basin AF-4. Four sub-basins were identified (AF-5A, AF-5B, AF-5C, and AF-5D) which are located outside the area depicted on the enclosed detailed maps.

Sub-basins AF-5A and AF-5B are partially developed, consisting of a combination of open grassy areas, paved roads and parking lots, and buildings. Stormwater runoff is conveyed through a combination of open channels and underground piping, ultimately discharging to the strait at Outfalls OAF-5A and OAF-5B, respectively.

Stormwater runoff from Sub-basins AF-5C and AF-5D discharges to the Strait of Juan de Fuca via overland flow, at several locations due to the coastal topography. Sub-basin AF-5C consists primarily of open and forested areas, with some development. Some areas of this sub-basin drain to a wetland located in the northern portion of this sub-basin. Runoff within AF-5C is conveyed primarily via open channels. Local underground stormwater piping networks convey stormwater to open channels from developed areas (e.g., buildings, large parking areas). Sub-Basin AF-5D is located immediately south of Sub-basin AF-5C along the strait. The area is undeveloped and heavily wooded.

No facilities within Sub-basins AF-5A, AF-5B, or AF-5D were inspected under this SWPPP. Two facilities within Sub-basin AF-5C were inspected.

#### **Drainage Basin AF-6**

Drainage Basin AF-6 is located in the southwestern extreme of Ault Field and consists of Sub-basins AF-6A, AF-6B and, AF-6C. This drainage basin is bound by Sub-basin AF-5D, the Strait of Juan de Fuca, and station boundaries to the north, west, south, and east, respectively. This basin lies outside the area depicted on the enclosed detailed maps. The Ault Field golf course is the prevalent feature of this drainage basin (open/wooded), located in the eastern portion of AF-6

along the station boundary (and within each of the three identified sub-basins). Other areas of Drainage Basin AF-6 vary from lightly developed to undisturbed wooded and open areas.

Stormwater runoff from all sub-basins within AF-6 is conveyed via open channel; there is no underground storm drain system with the exception of roadway culverts. Since Sub-basin AF-6A contained no industrial facilities, the point of discharge was not determined within Sub-basins AF-6B and AF-6C discharges to wetlands located near the strait to the west.

No facilities within Sub-basins AF-6A were inspected under this SWPPP. Sub-basins AF-6B and AF-6C each contain one facility that was inspected.

### **Drainage Basin AF-7**

Drainage Basin AF-7 encompasses the vast majority of area at Ault Field, including the central, southern, southeastern, and eastern portions of the station. Stormwater runoff in all areas of this drainage basin is routed to a network of engineered open channels located within the marshy wetland area in the southern half of the flight line. Drainage from Sub-basins AF-7A through AF-7E and portions of AF-7F (see below) reaching the open channel network is routed to an in-ground oil/water separator located in the center of the flight line. At this location, oil was historically captured with the use of weirs and mechanical skimmer; however, the oil/water separator is currently inoperable. Sub-basins AF-7A through AF-7D are delineated on the enclosed maps; only portions of Sub-basins AF-7E and AF-7F are shown. Effluent from the oil/water separator flows via open channel to the east where it combines with additional drainage from the remaining portions of Sub-basin AF-7F (east and south of the flight line). Runoff is subsequently discharged through Outfall OAF-7F beyond the eastern boundary of the station. The wetland ultimately discharges to Dugalla Bay. Due to the presence of the wetland through which open channels flow, a significant amount of runoff potentially infiltrates into wetlands before reaching Outfall OAF-7F.

Due to the expanse of this drainage basin and the large number of industrial facilities within it, Drainage Basin AF-7 was divided into six sub-basins, AF-7A through AF-7F. Also, development of these sub-basins provided for additional dry weather inspection locations (see Section 4). A brief description of each sub-basin is provided below.

Sub-basins AF-7A through AF-7D were identified based on observation of four point discharge locations (OAF-7A through OAF-7D) from the underground storm drain system to the open channel network and wetlands within the flight line, immediately east of [REDACTED]. These four discharge locations, or outfalls, were determined to drain the majority of the highly developed, central area of Ault Field as indicated on the enclosed maps. Impervious areas are predominant within Sub-basins AF-7A through AF-7D, including paved roads and parking areas, taxiways, and rooftops. Stormwater runoff from each of these four sub-basins is conveyed primarily via an underground storm drain system.

Sub-basin AF-7E was delineated based on the presence of an open channel located in the southeast corner of [REDACTED]. This channel enters the flight line open channel network from the west. Its discharge location (OAF-7E) was selected in order to further segregate Drainage Basin AF-7 and to provide for an additional dry weather inspection location (see Section 4). This open channel receives drainage from a vast area bound by [REDACTED] to the south and Drainage Basin AF-5 to the west. The sub-basin extends north to include the Auto Hobby

Shop (Bldg. No. [REDACTED]) and the Recycling Center (Bldg. No. [REDACTED]), and east beyond [REDACTED]. This sub-basin consists of predominantly open, grassy areas, with isolated areas of development. Stormwater is conveyed exclusively within open channels in Sub-basin AF-7E, with the exception of the housing development along [REDACTED], where runoff enters a storm drain system prior to reemerging to a runoff ditch to the east.

Finally, Sub-basin AF-7F was identified within Drainage Basin AF-7. This sub-basin encompasses the southern half of the flight line and extends south to the station boundary. This sub-basin is highlighted by a significant amount of wetland area. Sub-basin outfall OAF-7F drains the entire Drainage Basin AF-7 (i.e., receives drainage from all sub-basins).

Numerous facilities inspected under this SWPPP are located within Drainage Basin AF-7, including 18 facilities within Sub-basin AF-7A, three facilities within Sub-basin AF-7B, five facilities within Sub-basin AF-7C, five facilities within Sub-basin AF-7D, 18 facilities within Sub-basin AF-7E, and five facilities within Sub-basin AF-7F.

### 2.3.2 Seaplane Base Drainage Basins

#### **Drainage Basin SB-1**

Drainage Basin SB-1 is located north of the heavily developed industrial Seaplane Base area, and consists of the western portion of the [REDACTED] housing development. No sub-basins were identified within this drainage basin. Drainage Basin SB-1 is comprised of a combination of impervious and pervious areas common to housing developments. Stormwater entering catch basins along roadways is routed to the west through the underground storm drain system to a trunk line along [REDACTED]. Stormwater entering this trunk line flows to the south, combining with other runoff associated with the town of Oak Harbor, and ultimately discharges to Oak Harbor via Outfall OSB-1. No industrial facilities are located within Drainage Basin SB-1.

#### **Drainage Basin SB-2**

Drainage Basin SB-2 consists of four sub-basins (SB-2A, SB-2B, SB-2C, and SB-2D); it is located along Crescent Harbor in the eastern portion of the industrial Seaplane Base development. Sub-basins are delineated on the enclosed detailed maps. Outfalls associated with these sub-basins are discussed below. As it is covered primarily by concreted and paved surfaces, stormwater within this drainage basin is conveyed primarily via underground piping. Some impervious areas exist in its southern extreme and along the coast of Crescent Harbor.

Drainage Basin SB-2A consists of two separate land-locked areas covered almost completely by impervious surfaces. Stormwater runoff within this sub-basin is conveyed entirely via the underground storm drain system. Drainage within the lower section of Sub-basin SB-2A, a land-locked area on the east side of [REDACTED], is conveyed via underground piping to the east, where it flows through an oil-water separator before discharging to Crescent Harbor via Outfall OSB-2A. The upper section of this sub-basin is comprised of the [REDACTED] development. Runoff from this area is routed to the south to a storm sewer pipeline along [REDACTED], where it combines with drainage from the lower section of Sub-basin SB-2A. Four facilities located in Sub-basin SB-2A were inspected under this SWPPP.

Sub-basin SB-2B is essentially a large flat concrete surface with minimal structures, located between Crescent Harbor and Sub-basin SB-2A. This is a portion of the parking and driveway

area associated with the Commissary (██████████) and other facilities located east of Coral Sea Avenue. The vast majority of drainage from the concrete surface flows to the east, entering a concrete channel along the edge of the concrete pad at the Crescent Harbor shoreline. Drainage from the channel is discharged from 11 outfalls (OSB-2B-01 through -11) into Crescent Harbor. Some runoff in the northern extreme of this sub-basin flows off the concrete surface through slotted curbing onto the Crescent Harbor shoreline. Three industrial facilities located in Sub-basin SB-2B were inspected under this SWPPP.

Sub-basin SB-2C consists of impervious and grassy areas along ██████████, between Coral Sea Avenue and Crescent Harbor. Impervious areas within the sub-basin consist of ██████████ and some concrete surfaces north of the road. Stormwater runoff is collected in catch basins along the road, and routed to the east, discharging to Crescent Bay via Outfall OSB-2C. Base maps indicate an "oil interceptor" manhole at this outfall. This interceptor was observed during field investigations, but is not expected to be maintained. Three facilities located within Sub-basin SB-2C were inspected under this SWPPP.

Sub-basin SB-2D is located along the Crescent Harbor shoreline, and consists of the eastern extreme of ██████████ and the Fuel Pier (██████████) area. Impervious areas within this sub-basin include ██████████, and portions of the marina parking area. Drainage is discharged to the harbor at numerous locations. These include pipeline outlets which drain catch basins and small ditch in the marina area, pipeline outlets from catch basins along the ██████████, and overland flow locations along the shoreline. Six facilities located in Sub-basin SB-2D were inspected as part of this SWPPP.

### **Drainage Basin SB-3**

Drainage Basin SB-3 is located along Oak Harbor and consists of the western portion of the industrial area of Seaplane Base. Stormwater runoff within this basin is routed to the harbor through a combination of overland flow through swales/ditches and via the underground storm drain system. Seven sub-basins were identified based on the presence of several outfalls within the drainage basin: SB-3A through SB-3G. These sub-basins and their respective outfalls are discussed below and are identified on the enclosed detailed maps.

Stormwater runoff within Sub-basin SB-3A, located in the northwestern portion of Drainage Basin SB-3, is drained by a ██████████ culvert that discharges to Oak Harbor near its intersection with ██████████ (Outfall OSB-3A). This sub-basin is comprised of a small area relative to other sub-basins, and consists of a combination of pervious and impervious areas north of ██████████. Stormwater runoff travels primarily overland, reaching subsurface only at two roadway culverts. One facility located within Sub-basin SB-3A was inspected under this SWPPP.

Sub-basin SB-3B drains stormwater in the northern portion of Drainage Basin SB-3 including grassy and paved areas north of ██████████ and impervious areas south of the road; this sub-basin is bound by ██████████ to the east and by Oak Harbor to the west. Runoff north of ██████████ flows to the south passing under ██████████ via culverts. Drainage south of the road enters catch basins and is subsequently routed to the west, discharging to Oak Harbor via Outfall OSB-3B. One facility within this sub-basin was inspected under this SWPPP.

Sub-basin SB-3C consists of paved and grassy surfaces between ██████████ and Oak Harbor in the area of the Oak Harbor Marina. Stormwater within the grassy areas along ██████████

██████████ at the intersection of ██████████ both infiltrates and flows to the south and west onto paved surfaces. Drainage from concrete parking areas is directed to the west where it enters a series of catch basins situated along Oak Harbor as indicated on GDMs (1":200' scale). These catch basins drain directly into the Harbor. No facilities within Sub-basin SB-3C were inspected under this SWPPP.

Sub-basin SB-3D lies in the central western portion of the heavily developed industrial portion of Seaplane Base. This area is covered primarily by impervious concrete and asphalt surfaces, with some localized grassy areas. Runoff is collected within catch basins. Extensive ponding occurs in some locations as a result of flat topography. Drainage within catch basins is routed via the underground storm drain system to the west, where it discharges to Oak Harbor via Outfall OSB-3D. Eight facilities located within Sub-basin SB-3D were inspected as part of this SWPPP.

Sub-basin SB-3E consists of a small area of land along Oak Harbor that is drained by one catch basin. Drainage within this sub-basin, which comprises an area between ██████████, is routed to the west, draining to the harbor via Outfalls OSB-3E-01 and OSB-3E-02. Outfall OSB-3E-01 receives drainage exclusively from Catch Basin SDCB50-03, which is located in the gravel lot between ██████████. Outfall OSB-3E-02 received drainage exclusively from a sink within ██████████. The sink was removed in 1997. ██████████ was demolished and the area re-vegetated in 2008. Three facilities located within Sub-basin SB-3E were inspected under this SWPPP.

Stormwater runoff within Sub-basin SB-3F, located immediately south of the heavily developed industrial area of Sub-basin SB-3D, consists primarily of pervious grassy areas. Runoff within this sub-basin travels overland into a drainage ditch located south of ██████████. This ditch comprises outfall OSB-3F, draining to Oak Harbor immediately south of ██████████. Some runoff within the sub-basin flows within another drainage ditch into a small wetland area near the Oak Harbor shoreline. A gravel road beyond the small wetland to the west precludes runoff from reaching the harbor. Three facilities located within Sub-basin SB-3F were inspected as part of this SWPPP.

Sub-basin SB-3G is a land-locked area drained entirely by Outfall OSB-3G. Stormwater runoff flowing underground to this outfall is that which enters several catch basins located near the intersection of ██████████. The majority of area drained by this sub-basin includes open grassy areas south of the intersection, bound by ██████████. Stormwater from this area flows north overland and within swales along these two roadways before entering catch basins. Three facilities located within Sub-basin SB-3G were inspected as part of this SWPPP.

#### **Drainage Basin SB-4**

Drainage Basin SB-4, located in the extreme southwest portion of Seaplane Base, consists of Sub-basins SB-4A and SB-4B (see enclosed maps). Sub-basin SB-4A encompasses ██████████, which is primarily open space, and another large open grassy area to the west of ██████████. Stormwater runoff within this sub-basin travels east via overland flow and discharges to Crescent Harbor at several locations ditches and swales. Sub-basin SB-4B, located south of Sub-basin SB-4A consists of the eastern portion of the ██████████ housing development (██████████) and open grassy areas which border Crescent Harbor. Stormwater runoff within the housing area is conveyed within local storm drain system and discharged to ditches and open channels to the

south and east; runoff ultimately discharges to Crescent Harbor at several locations. One facility within Sub-basin SB-4A was inspected under this SWPPP. No industrial facilities are located within Sub-basin AF-4B.

#### **Drainage Basin SB-5**

Drainage Basin SB-5 is located in the extreme southwestern portion of Seaplane Base, outside the area identified on the enclosed maps; two Sub-basins were identified (SB-5A and SB-5B). Sub-basin SB-5A consists primarily of open space. The sub-basin also includes a portion of the [REDACTED] housing development ([REDACTED]). All runoff within this sub-basin is routed through a large wetland to Outfall OSB-5A, discharging to Oak Harbor. Sub-basin SB-5B, located south of Sub-basin SB-5A, also consists of open grassy areas and a portion of the housing development. Stormwater within the housing area is discharged to grassy areas where it travels overland, reaching several points of discharge along Oak Harbor. One facility located within Sub-basin SB-5A and none within Sub-basin 5B were inspected under this SWPPP.

#### **Drainage Basin SB-6**

Drainage Basin SB-6 is located along Crescent Harbor and north of the Seaplane Base industrial area. This drainage basin consists of Sub-basins SB-6A, SB-6B, SB-6C, and SB-6D. All stormwater runoff within this drainage basin is routed to five outfalls (OSB-6A through OSB-6E) which discharge to the harbor. Outfalls, as described below for Sub-basins SB-6B and SB-6D, are identified on the enclosed maps; however, other outfalls within this basin exist outside the area presented by available detailed map grids.

Sub-basin SB-6A, a land-locked area, encompasses the southeastern portion of the Saratoga Heights housing development, and is comprised of a combination of impervious and pervious areas common to housing developments. Drainage from this area is conveyed via underground storm drains to Outfall OSB-6A at Crescent Harbor. Sub-basins SB-6B, and SB-6C, and SB-6D border the harbor and consist of open, grassy areas, which straddle [REDACTED]. Runoff from Sub-basins SB-6B and SB-6C is directed to culverts passing under [REDACTED], which discharge to the harbor (Outfalls OSB-6B and OSB-6C). Similarly, drainage from Sub-basin SB-6D discharges to the harbor. However, this sub-basin has two co-located outfalls (OSB-6D-01 and OSB-6D-02) consisting of a pipeline draining a local storm drain system around [REDACTED], and a culvert passing under [REDACTED].

No facilities located within Drainage Basin SB-6 were inspected under this SWPPP.

#### **Drainage Basin SB-7**

Drainage Basin SB-7 encompasses a vast area, consisting predominantly of open space, including also the northeast extreme of the Saratoga Heights housing development and the western portion of the [REDACTED] housing development ([REDACTED]). No sub-basins were identified. Stormwater runoff from all areas of this basin is routed to a large wetland in the center of this drainage basin which surrounds the Oak Harbor sewage lagoon. Runoff travels primarily through open channels and overland flow; local storm drain systems exist within the housing areas which convey water to nearby open fields and ditches prior to discharge into the wetland. Discharge from the wetland occurs via Outfall OSB-7 at Crescent Harbor. Three facilities located within Drainage Basin SB-6 were inspected under this SWPPP.

### **Drainage Basin SB-8**

Drainage Basin SB-8 is located in the northeastern portion of Seaplane Base. This Drainage Basin is comprised of the eastern portion of the Capehart housing development (Area A), and a vast area of open space which extends east to the Seaplane Base boundary. This sub-basin is bound to the north and south by the station boundary and Crescent Harbor, respectively. Stormwater runoff travels primarily overland; some local storm drains exist in the housing area, which discharge to open grassy areas. Drainage from grassy areas flows to the south and discharges to the harbor through numerous culverts that underpass [REDACTED]. No facilities within this sub-basin were inspected under this SWPPP.

## **2.4 Identification of Stormwater Discharges Associated with Industrial Activities**

Industries that are affected by the stormwater regulations are defined based on their Standard Industrial Classification (SIC) Code. Those facilities at NAS Whidbey Island that have been identified as requiring stormwater compliance are listed in Table 2-1.

A total of 50 outfalls were identified at NAS Whidbey Island. All industrial facilities are identified in conjunction with the outfall through which associated stormwater discharges are identified and are listed in Tables 2-3 and 2-4. As these tables indicate, industrial facilities discharge through 22 of the 50 outfalls. Ten of these outfalls are located on Ault Field and twelve are located on Seaplane Base. In addition, three sheetflow areas are located on Seaplane Base where stormwater runs off the facility area directly into a receiving water body. Also indicated are those facilities where stormwater runoff infiltrates prior to reaching a receiving water body or is diverted to the sanitary sewer system.

**Table 2-1: Drainage Basin Summary  
 Ault Field, NAS Whidbey Island**

Basin/ Sub-basin	Outfall	Outfall Location/Description	Drainage Area (acres)	% Impervious Cover	Receiving Water
AF-1A	OAF-1A	[REDACTED]	150	5	Strait of Juan de Fuca
AF-1B	OAF-1B	[REDACTED]	18	5	Strait of Juan de Fuca
AF-1C	OAF-1C	[REDACTED]	22	5	Strait of Juan de Fuca
AF-2A	OAF-2A	[REDACTED]	75	10	Strait of Juan de Fuca
AF-2B	OAF-2B	[REDACTED]	45	10	Strait of Juan de Fuca
AF-2C	OAF-2C	[REDACTED]	18	< 5	Strait of Juan de Fuca
AF-3A	OAF-3A	[REDACTED]	120	25	Strait of Juan de Fuca
AF-3B	OAF-3B	[REDACTED]	30	< 5	Strait of Juan de Fuca
AF-4A	OAF-4A	[REDACTED]	115	55	Strait of Juan de Fuca
AF-4B	OAF-4B	[REDACTED]	50	30	Strait of Juan de Fuca
AF-4C	OAF-4C	[REDACTED]	16	5	Strait of Juan de Fuca
AF-5A	OAF-5A	[REDACTED]	65	30	Strait of Juan de Fuca
AF-5B	OAF-5B	[REDACTED]	60	20	Strait of Juan de Fuca
AF-5C	—	[REDACTED]	105	10	Wetlands/Strait of Juan de Fuca
AF-5D	—	[REDACTED]	45	< 5	Strait of Juan de Fuca
AF-6A	—	[REDACTED]	65	< 5	Strait of Juan de Fuca
AF-6B	—	[REDACTED]	205	< 5	Wetlands/Strait of Juan de Fuca
AF-6C	—	[REDACTED]	90	< 5	Wetlands/Strait of Juan de Fuca

**Table 2-1: Drainage Basin Summary  
Ault Field, NAS Whidbey Island**

Basin/ Sub-basin	Outfall	Outfall Location/Description	Drainage Area (acres)	% Impervious Cover	Receiving Water
AF-7A	OAF-7A	[REDACTED]	180	75	Open Channel Network/Flight Line
AF-7B	OAF-7B	[REDACTED]	35	90	Open Channel Network/Flight Line
AF-7C	OAF-7C	[REDACTED]	45	95	Open Channel Network/Flight Line
AF-7D	OAF-7D	[REDACTED]	35	85	Open Channel Network/Flight Line
AF-7E	OAF-7E	[REDACTED]	850	10	Open Channel Network/Flight Line
AF-7F	OAF-7F	[REDACTED]	1500	10	Wetlands

Key:

— = Discharge occurs at several undefined locations; no outfall exists.

**Table 2-2: Drainage Basin Summary  
 Seaplane Base, NAS Whidbey Island**

Basin/ Sub-basin	Outfall	Outfall Location/Description	Drainage Area (acres)	% Impervious Cover	Receiving Water
SB-1	OSB-1	[REDACTED]	>60	80	Oak Harbor
SB-2A	OSB-2A	[REDACTED]	19	90	Crescent Harbor
SB-2B	OSB-2B-01 thru -11	[REDACTED]	17	> 95	Crescent Harbor
SB-2C	OSB-2C	[REDACTED]	18	20	Crescent Harbor
SB-2D	OSB-2D-01	[REDACTED]	7	15	Crescent Harbor
	OSB-2D-02	[REDACTED]			Crescent Harbor
	OSB-2D-03	[REDACTED]			Crescent Harbor
SB-3A	OSB-3A	[REDACTED]	8	15	Crescent Harbor
SB-3B	OSB-3B <sup>a</sup>	[REDACTED]	40	20	Crescent Harbor
SB-3C	—	[REDACTED]	13	80	Crescent Harbor
SB-3D	OSB-3D	[REDACTED]	15	95	Crescent Harbor
	OSB-3E-01	[REDACTED]			Crescent Harbor
SB-3E	OSB-3E-02	[REDACTED]	4	45	
	OSB-3F	[REDACTED]			Crescent Harbor
SB-3G	OSB-3G	[REDACTED]	38	5	Crescent Harbor
SB-4A	—	[REDACTED]	75	10	Crescent Harbor
SB-4B	—	[REDACTED]	100	10	Crescent Harbor

**Table 2-2: Drainage Basin Summary  
Seaplane Base, NAS Whidbey Island**

Basin/ Sub-basin	Outfall	Outfall Location/Description	Drainage Area (acres)	% Impervious Cover	Receiving Water
SB-5A	OSB-5	[REDACTED]	160	10	Oak Harbor
SB-5B	—	[REDACTED]	30	35	Oak Harbor
SB-6A	OSB-6A	[REDACTED]	20	75	Crescent Harbor
SB-6B	OSB-6B	[REDACTED]	14	5	Crescent Harbor
SB-6C	OSB-6C	[REDACTED]	28	< 5	Crescent Harbor
SB-6D	OSB-6D-01	[REDACTED]	5	< 5	Crescent Harbor
	OSB-6D-02	[REDACTED]			
SB-7	OSB-7	[REDACTED]	> 850	10	Crescent Harbor
SB-8	—	[REDACTED]	> 1000	10	Crescent Harbor

\* Identification of outfall based on review of General Development Maps.

Key:

— = Discharge occurs at several undefined locations; no defined outfall exists.

Table 2-3: Summary of Facilities Within Each Basin/Sub-Basin Ault Field, NAS Whidbey Island					
Basin/ Sub-basin	Outfall <sup>c</sup>	Facility	Facility Description	SWPPP Map Grid No.	SWPPP Map Sheet No.
AF-1A	OAF-1A	█	█	—	—
AF-1B	OAF-1B	█	█	—	—
AF-1C	OAF-1C	█	█	—	—
AF-2A/B	OAF-2A/B	█	█	NG	NG
		█	█	NG	NG
AF-3A	OAF-3A	█	█	—	—
AF-3B	OAF-3B	█	█	—	—
AF-4A	OAF-4A	█	█	2	5
		█	█	2	5
		█	█	2	5
		█	█	2	5
	None <sup>f</sup>	█	█	2	5
		█	█	2	5
AF-4B	OAF-4B	█	█	1	4
		█	█	1	4
		█	█	1	4
		█	█	1	4
		█	█	1	4
		█	█	1	4
		█	█	1	4
AF-4C	OAF-4C	█	█	2	5
AF-5A	OAF-5A	█	█	—	—
AF-5B	OAF-5B	█	█	—	—
AF-5C	None	█	█	3	6
AF-5D	N/O	█	█	—	—
AF-6A	N/O	█	█	—	—
AF-6B	None <sup>f</sup>	█	█	NG	NG

Table 2-3: Summary of Facilities Within Each Basin/Sub-Basin Ault Field, NAS Whidbey Island					
Basin/ Sub-basin	Outfall <sup>c</sup>	Facility	Facility Description	SWPPP Map Grid No.	SWPPP Map Sheet No.
AF-6C	None <sup>f</sup>			NG	NG
AF-7A	OAF-7A			2	5
				4	7
				2	5
				4	7
				4	7
				4	7
				2	5
				2	5
				2	5
				4	7
				2	5
				2	5
				2	5
AF-7A	None <sup>f</sup>			4	7
AF-7B	OAF-7B			2	5
				4	7
				4	7
				2, 4	5, 7
AF-7C	OAF-7C			4	7
				4	7
				4	7
				4	7
				4	7
				4	7
AF-7D	OAF-7D			4	7
				4	7
				4	7
				4	7

Table 2-3: Summary of Facilities Within Each Basin/Sub-Basin Ault Field, NAS Whidbey Island						
Basin/ Sub-basin	Outfall <sup>c</sup>	Facility	Facility Description	SWPPP Map Grid No.	SWPPP Map Sheet No.	
AF-7E	None <sup>f</sup>	[REDACTED]	[REDACTED]	4	7	
		[REDACTED]	[REDACTED]	4	7	
	OAF-7E	[REDACTED]	[REDACTED]	4	7	
		[REDACTED]	[REDACTED]	NG	NG	
		[REDACTED]	[REDACTED]	4	7	
		[REDACTED]	[REDACTED]	4	7	
		[REDACTED]	[REDACTED]	4	7	
		[REDACTED]	[REDACTED]	5	8	
		[REDACTED]	[REDACTED]	NG	NG	
		[REDACTED]	[REDACTED]	NG	NG	
		[REDACTED]	[REDACTED]	4	7	
		None <sup>f</sup>	[REDACTED]	[REDACTED]	5	8
			[REDACTED]	[REDACTED]	5	8
			[REDACTED]	[REDACTED]	5	8
			[REDACTED]	[REDACTED]	5	8
	[REDACTED]	[REDACTED]	3	6		
	[REDACTED]	[REDACTED]	3	6		
AF-7F	OAF-7F	[REDACTED]	[REDACTED]	NG	NG	

- <sup>a</sup> These facilities are located within both Sub-basin AF-4A and AF-7A.
- <sup>b</sup> This facility is located in both Sub-basins AF-7A and AF-7B.
- <sup>c</sup> No outfall indicated when runoff from facilities infiltrates into soils, or when drainage is contained and routed to dedicated oil/water separator with discharge to sanitary sewer.
- <sup>d</sup> Fuel Farm 3 tanks are located in Sub-basin AF-7A; its associated [REDACTED] fall within AF-7E and AF-7D, respectively.
- <sup>e</sup> Facility located in both Sub-basins AF-4B and AF-4C.
- <sup>f</sup> Outfall not identified; runoff infiltrates or is directed to sanitary sewer.

Key:

- N/O = Outfall not identified; discharge within basin occurs via overland flow at several locations.
- NG = No GDM map available for facility. Facility only located on SWPPP Base Maps for Ault Field (Sheet 2) or Sea Plane Base (Sheet 3).

Table 2-4: Summary of Facilities Within Each Basin/Sub-Basin Seaplane Base, NAS Whidbey Island					
Basin/ Sub-basin	Outfall <sup>f</sup>	Facility	Facility Description	Grid No.	Sheet No.
SB-1	OSB-1	█		—	—
SB-2A	OSB-2A	█		—	—
SB-2B	OSB-2B-01	█	█	6	9
SB-2C	OSB-2C	█		—	—
	None <sup>f</sup>	█	████████████████████	7	10
SB-2D	OSB-2D-01	█	████████████████████	7	10
	OSB-2D-02	█	████████████████████	7	10
	OSB-2D-03	█	████████████████████	7	10
	Sheet Flow	█	██████	7	10
SB-3A	OSB-3A	█	█	6	9
SB-3B	OSB-3B	█	█	—	—
SB-3C	Several <sup>e</sup>	█	█	—	—
SB-3D	OSB-3D	█	████████████████████	7	10
		█	████████████████████	7	10
		█	████████████████████	7	10
SB-3E	OSB-3E-01	█	████████████████████	7	10
	OSB-3E-02	█	████████████████████	7	10
SB-3F	OSB-3F	█	████████████████████	7	10
SB-3G	OSB-3G	█	████████████████████	7	10
		█	████████████████████	7	10
SB-4A	N/O	█	█	—	—
SB-4B	N/O	█	█	—	—
SB-5A	OSB-5A	█	████████████████████	8	11

Table 2-4: Summary of Facilities Within Each Basin/Sub-Basin Seaplane Base, NAS Whidbey Island					
Basin/ Sub-basin	Outfall <sup>f</sup>	Facility	Facility Description	Grid No.	Sheet No.
SB-5B	N/O	■	■	—	—
SB-6A	OSB-6A	■	■	—	—
SB-6B	OSB-6B	■	■	—	—
SB-6C	OSB-6C	■	■	—	—
SB-6D	OSB-6D-01	■	■	—	—
	OSB-6D-02	■	■	—	—
SB-7	OSB-7	■	■	NG	NG
SB-8	N/O	■	■	—	—

<sup>a</sup> This facility located in both Sub-basins SB-2A and SB-3D.

<sup>b</sup> This facility located in both Sub-basins SB-3D and SB-3G.

<sup>c</sup> This facility located in both Sub-basins SB-3F and SB-3G.

<sup>d</sup> These facilities located in both Sub-basins SB-3D and SB-3E.

<sup>e</sup> Discharge from Sub-basin SB-3B occurs through several CBs located along the Oak Harbor Marina.

<sup>f</sup> No outfall indicated. Runoff infiltrates into soils or drainage is directed to sanitary sewer.

<sup>g</sup> This facility drains to both Outfalls OSB-3E-01 (from catch basin) and OSB-3E-02 (from sink).

Key:

N/O = Outfall not identified; discharge within basin occurs at several locations via overland flow.

NG = No GDM Map available for location of this facility. Facility located on SWPPP Base Maps for Ault Field (Sheet 2) or Sea Plane Base (Sheet 3).

## 3 Illicit Discharge Investigations

### 3.1 Introduction

Stormwater runoff is typically defined as the portion of precipitation that drains from surfaces exposed to precipitation and flows through natural or constructed drainage systems, into receiving waters (EPA 1993). Studies (Montoya 1987; Pitt and McLean 1986) have found that a significant portion of the flow and pollutant loadings in stormwater drainage systems arise from illicit and/or inappropriate discharges to those systems. To identify such sources at NAS Whidbey Island, illicit discharge investigations (IDI) have been performed as part of the overall stormwater and wastewater studies. Major objectives of the investigations were to identify non-stormwater entries into the stormwater system and to identify and evaluate controls to reduce the discharge of pollutants to the maximum extent practicable. Such controls may include management practices, control techniques, and system design and engineering methods.

An investigation was performed in 2009 for the SWPPP update. New industrial facilities were evaluated through review of as-built drawings and by site visits. Updates to the original illicit discharge investigation are noted in italics.

Typical non-stormwater entries include: sanitary wastewater or septic system seepage; non-contact or contaminated industrial process waters; infiltrated groundwater; glycols, detergents, and petroleum, oil, and lubricants (POLs) from vehicle repair shops and storage areas; and runoff from pesticide or fertilizer applications. The method of entry can be through direct connections (where illicit discharges are plumbed directly to the drainage system), by indirect entry (through below-grade system infiltration), or from spills (through overland flow into catch basins). The IDI was specifically targeted at non-stormwater discharges originating at industrial facilities.

Illicit discharges can be investigated using two categories of methodologies: upstream surveys and dry weather flow samples and analyses. Upstream surveys such as mapping and industrial facility investigations are useful in prioritizing areas of concern, locating specific pollutant sources, and identifying direct illicit connections (using dye or smoke tests). Dry weather flows are characterized through visual tracer studies (pH, temperature, conductivity, and other analyses) at stormwater outfalls. The relative degree to which each of these methodologies is used depends on site-specific conditions, data availability, and time constraints.

Specific procedures used during the IDI included:

- Review and confirmation of NAS Whidbey Island General Development Maps (GDMs) to identify potential non-stormwater illicit discharges or cross-connections to the system;
- Facility inspections of all industrial facilities-of-concern and interviews of facility personnel at each designated industrial area; and
- Dry weather inspection and tracer testing of all outfalls identified in the field.

## 3.2 Illicit Discharge Investigation Methods

### 3.2.1 Review of Sanitary and Storm Sewer Facility Maps

GDMs were initially reviewed prior to the field investigation to identify potential illicit discharges, potential cross connections between the sanitary and storm sewers, locate direct discharges to the storm sewer lines from industrial sources, and narrow the areas requiring field testing efforts.

Ault Field GDMs used to perform this review consisted of one set of three drawings (unscaled) indicating major features of the underground storm drain system and a set of 27 drawings (1":50' scale) indicating storm and sanitary sewer detail. GDMs used during the in-office identification of potential illicit discharges associated with Seaplane Base included one set of three drawings (1":200' scale) and one set of 37 drawings (1":50' scale).

Industrial facility locations were noted on GDMs. Stormwater lines and outfalls downstream of each of these industrial areas were considered high priority; residential and other non-industrial-related stormwater lines were considered minor.

In-office review of storm drain system as identified on GDMs revealed several tentatively identified illicit discharges (as indicated by pipeline entries to the storm system connecting from industrial facilities). No sanitary sewer cross connections were identified during review of GDMs prior to fieldwork.

Potential illicit discharges that were identified during in-office review of GDMs were confirmed or refuted during industrial facility inspections at NAS Whidbey Island. Section 3.3 provides a discussion of illicit discharge investigation results, including a list of identified illicit discharges at both Ault Field and Seaplane Base.

Results from the facility and dry weather inspections indicated that the stormwater and sanitary sewer systems details shown on GDMs (1":50' scale) contained inconsistencies and omissions, and substantial ground truthing was required. The GDM storm drain systems associated with industrial facilities were updated as appropriate during facility inspections.

Modified GDMs were used to produce the SWPPP maps (Grids 1 through 8), which are provided in Appendix A. The GDMs, which consist of 64 separate maps, were combined into eight maps in order to better illustrate the storm drain system within drainage basins. The 1":200' scale maps represent the primary industrial areas of NAS Whidbey Island and show facilities, roadways, impervious areas related to facilities, and stormwater conveyance systems. All stormwater manholes and catch basins associated with industrial facilities of concern have been identified by an alphanumeric code. Each code begins with the letters "SD," indicating that the structure is associated with the storm drain system ("SS" identifies sanitary sewer structures). The prefix is followed by two more letters indicating the type of structure (e.g., "CB" for catch basin, "MH" for manhole). A two-digit GDM map grid identification number follows. Finally, a two-digit suffix (following a hyphen) designates the sequential numbering of that specific type of storm drain structure. For example, "SDCB50-04" indicates the fourth storm drain catch basin located on GDM map grid 50. Only those identifying features that are necessary to indicate potential pollutant transport are shown on these maps because of size considerations. These features also are shown on site maps associated with facilities (Section 6) and on the electronic version of the maps.

### 3.2.2 Facility Inspections and Personnel Interviews

During initial preparation of the SWPPP in 1995, 61 facilities at Ault Field and 35 facilities at Seaplane Base were visited to gather information concerning potential illicit discharges. The facility inspections were completed in conjunction with facility interviews performed for other sections of the SWPPP. Physical inspections of the existing stormwater systems, testing of potential discharges, and personnel interviews were performed whenever appropriate during the facility inspections. Also, drainage basin boundaries were checked and revised during the facility inspections. As part of the 1997 update to the SWPPP, 5 additional facilities at Ault Field were visited to gather information regarding potential illicit discharges. Facilities added to the SWPPP after 1997 were investigated for illicit discharges at the time they were added to the plan.

Potential illicit connections discovered during physical inspections were tested to determine if they were connected to the storm system. Flush tests and dye tests were used to determine the fate of flows into the potential illicit connections. These tests were performed by pouring water or water with dye, or both into a potential connection and watching for discharge in the potential downgradient stormwater and sanitary systems. Connections determined to drain into the stormwater system were designated illicit connections.

Also during the inspections, facility operators or building contacts were interviewed to determine if any known illicit connections existed. Operators and contacts were questioned regarding the discharge point of potential connections and regarding the history and maintenance of the stormwater system for the facility. The historical and present use of illicit connections was discussed as well as potential contaminants of concern that may enter into the connections.

All identified illicit discharges were addressed after the 1995 inspection. By 2011, no illicit discharges remained from the original listing, and no new illicit discharges have been identified since that time during the annual CSIs.

### 3.2.3 Allowable Non-Stormwater Discharges

Not all non-stormwater discharges are considered illicit. The 2015 multi-sector general permit authorizes a number of non-stormwater discharges for all sectors of industrial activity, as identified below.

- Discharges from emergency/unplanned fire-fighting activities
- Fire hydrant flushing
- Potable water sources, including waterline flushing
- Uncontaminated condensate from air conditioners, coolers/chillers, and other compressors and from the outside storage of refrigerated gases or liquids
- Irrigation drainage
- Landscape watering provided all pesticides, herbicides, and fertilizers have been applied in accordance with the approved labeling
- Pavement wash waters where no detergents or hazardous cleaning products are used (e.g., bleach, hydrofluoric acid, muriatic acid, sodium hydrochloride, nonylphenols), and

the wash waters do not come into contact with oil and grease deposits, sources of pollutants associated with industrial activities, or any other toxic or hazardous materials, unless residues are first cleaned up using dry clean-up methods (e.g., applying absorbent materials and sweeping, using hydrophobic mops/rags) and you have implemented appropriate control measures to minimize discharges of mobilized solids and other pollutants (e.g., filtration, detention; settlement)

- Routine external building washdown/power wash water that does not use detergents or hazardous cleaning products (e.g. those containing bleach, hydrofluoric acid, muriatic acid, sodium chloride, nonylphenols)
- Uncontaminated groundwater or spring water
- Foundation or footing drains where flows are not contaminated with process materials
- Incidental windblown mist from cooling towers that collects on rooftops or adjacent portions of the facility, but not intentional discharges from the cooling tower (e.g., “piped” cooling tower blowdown; drains).

All other non-stormwater discharges are not permitted. A number of allowable non-stormwater discharges are present at NAS Whidbey Island and are documented in Table 3-1.

**Table 3-1: Summary of Allowable Non-Stormwater Discharges Identified at Ault Field, NAS Whidbey Island**

Discharge Description	Locations	Outfall
Potable water leaks from fire suppression systems	Floor drain discharges flow from a sprinkler system pressure release valve in the northern end of Hangar █ (██████████) to the storm sewer.	OAF-4A
	Floor drain discharges flow from a sprinkler system pressure release valve in the southern end of Hangar █ (██████████) to the storm sewer.	OAF-4A
	Floor drain discharges flow from a sprinkler system pressure release valve in the western end of Hangar █ (██████████) to the storm sewer.	OAF-7C
	Floor drain discharges flow from a sprinkler system pressure release valve in the western end of Hangar █ (██████████) to the storm sewer.	OAF-7C
	Floor drain discharges flow from a sprinkler system pressure release valve on the southern side of Hangar █ (██████████) to the storm sewer.	OAF-7C
	Floor drain discharges flow from a sprinkler system pressure release valve on the northern side of Hangar █ (██████████) to the storm sewer.	OAF-7C
	Floor drain discharges flow from a sprinkler system pressure release valve on the northern side of Hangar █ (██████████) to the storm sewer.	OAF-7C
	Floor drain discharges flow from a sprinkler system pressure release valve in the eastern end of Hangar █ (██████████) to the storm sewer.	OAF-7C
	Floor drain discharges flow from a sprinkler system pressure release valve in the eastern end of Hangar █ (██████████) to the storm sewer.	OAF-7C
Potable Water Washdown of Aircraft Display "Statues"	A-6 Displays at main gate on ██████████.	OAF-7E
	P-3 Display, corner of ██████████.	OAF-7A
Potable Water Washdown of Buildings	Various locations throughout the station.	Various
Flushing of Drinking Water Supply Lines	Various locations throughout the station.	Various
Uncontaminated Compressor and air conditioning condensate	Various locations throughout the station.	Various
Uncontaminated Springs	Various locations throughout the station.	Various
Lawn Watering	Various locations throughout the station.	Various
Footing/Foundation Drains	Various locations throughout the station.	Various

## 4 Site-Specific Industrial Stormwater Pollution Source Identification, Assessment, and BMPs

This section presents the results of the site specific industrial facility stormwater pollution source identification and assessment activities conducted at the individual or groups of industrial facilities at NAS Whidbey Island including recommended site-specific BMPs. Industrial facilities are grouped by major tenants or organizations into 11 subsections. These subsections are further divided into individual facilities that are operated by each major tenant. To facilitate use of this document, Table 4-1 provides the subsection number for each tenant or department and the total number of their associated industrial facilities included in this plan. At the beginning of each subsection, an index of the facilities contained and section number is provided to facilitate use of this plan.

<b>Table 4-1: Major Tenant or Organizations and Industrial Facilities</b>		
<b>Section</b>	<b>Number of Tenant or Organization</b>	<b>Number of Facilities</b>
4.2	Fleet Readiness Center Northwest (FRC NW) Facilities	11
4.3	Air Operations (AO) Facilities	1
4.4	Base Operating Support Contract (BOSC) Facilities	12
4.5	MWR Facilities	2
4.6	Naval Air Station (NAS) Facilities	8
4.7	Naval Air Reserve (NAVAIRES) Facilities	2
4.8	Public Works Department (PW) Facilities	4
4.9	Supply Department (SU) Facilities	9
4.10	██████████ Warehouse	1
4.11	MSRON 9 & Grounds Maintenance Contractor Facilities	2

Table 4-2 below provides a planning tool that presents a summary of potential pollutants from NAS Whidbey Island industrial activities.

## 4.1 Identification of Control Measures/Best Management Practices (BMPs)

BMPs are measures or procedures that are used to prevent or reduce the potential for water pollution. There are numerous BMPs to choose from in order to achieve this purpose; however, some are more appropriate for an individual site than others based on site-specific characteristics. Some BMPs are readily implemented at all sites.

EPA identifies baseline BMPs (good housekeeping and preventive maintenance practices; inspections; employee training and testing; spill prevention and response; sediment and erosion control; management of runoff; and recordkeeping and reporting) that are required of all facilities and advanced BMPs that specifically address particular pollutant sources. These BMPs and additional industrial specific BMPs identified in the Multi-Sector permit for stormwater associated with industrial facilities were added to an index of BMPs developed for Northwest Division, Naval Engineering Facilities Command. These BMPs have been grouped into 14 categories expanded from the BMP classifications cited above. The BMP categories are listed in Table 4-5. Summary lists of the BMPs are provided in Appendix G along with a detailed description of each BMP. Table 4-2 presents a summary of potential contaminants from NAS Whidbey Island industrial activities.

In this section existing BMPs currently in use at NAS Whidbey Island that help reduce the potential for contamination of stormwater and the recommended BMPs to help further reduce the potential for pollution of stormwater are presented for all industrial facilities at NAS Whidbey Island. Existing BMPs that are currently employed on base are summarized in Table 4-6. Various alternative BMP options from the BMP Index described above were considered during the planning stages of this document for each specific location or purpose. These alternatives were then evaluated in terms of existing BMPs in use, pollution reduction effectiveness, ease of implementation, and other concerns, and those best suited for implementation at NAS Whidbey Island were recommended.

### 4.1.1 Core BMPs

Core BMPs are those required in the body of the 2015 MSGP (Section 2.1.2) that generally apply to all industrial sectors at NAS Whidbey Island. Core BMPs for NAS Whidbey Island are included in Table 4-3, and may include applicable core BMPs not included in the MSGP.

### 4.1.2 Sector Specific BMPs

Sector specific BMPs contained in part 8 of the 2015 MSGP must be considered for those portions of NAS Whidbey Island that fall into one of the industrial sectors defined in the MSGP. Control measures for Sectors N (Scrap Recycling), P (Land Transportation and Warehousing), Q (Water Transportation) and S (Air Transportation Facilities) were considered and are presented in Table 4-4.

### 4.1.3 Facility Specific BMPs

New site specific BMPs identified to help further reduce the potential for stormwater pollution are presented for industrial facilities at NAS Whidbey Island where deemed necessary. New facility specific BMPs are summarized in Table 4-7.

**Table 4-2: Summary of NAS Whidbey Island Industrial Facilities and Potential Contaminants**

Tenant	Report Section	Facility (Building Number)	Permit Sector	Potential Contaminants	Potentially Affected Outfall(s)
Fleet Readiness Center Northwest (FRC NW)	4.2.1	[REDACTED]	S - Air Transportation	NA	OAF-7A
	4.2.2	[REDACTED]		POLs, Suspended Solids	OAF-4B
	4.2.3	[REDACTED]		POLs, Suspended Solids, Solvents, Glycols, Acetates, Battery Acid	OAF-7C
	4.2.4	[REDACTED]		Battery Acid, POLs, Heavy Metals	OAF-7B
	4.2.5	[REDACTED]		POLs, Solvents	OAF-4B
	4.2.6	[REDACTED]		POLs	OAF-4B
	4.2.7	[REDACTED]		POLs, Heavy Metals	OAF-4A
Air Operations	4.3.1	[REDACTED]		POLs	Infiltrates
Base Operating Support Contract (BOSC)	4.4.1	[REDACTED]	P - Land Transportation and Warehousing	POLs, Glycols, Suspended Solids, Heavy Metals	OSB-3D

**Table 4-2: Summary of NAS Whidbey Island Industrial Facilities  
 and Potential Contaminants**

Tenant	Report Section	Facility (Building Number)	Permit Sector	Potential Contaminants	Potentially Affected Outfall(s)
Base Operating Support Contract (BOSC)	4.4.2	[REDACTED]		POLs, Heavy Metals	OSB-3F
	4.4.3	[REDACTED]		POLs, Heavy Metals, Methyl Ethyl Ketone	OAF-7A
	4.4.5	[REDACTED]	S – Air Transportation Facilities	POLs, Heavy Metals, Paint Chips	OAF-7A
	4.4.6	[REDACTED]		POLs, Solvents, Paint, Suspended Solids	OAF-4A
	4.4.7	[REDACTED]	NA	—	OAF-4C
	4.4.8	[REDACTED]	T	Suspended Solids	OAF-2B
	4.4.9	[REDACTED]	S – Air Transportation	POLs, Suspended Solids, Solvents	None (Flows to Sanitary)
	4.4.10	[REDACTED]		POLs, Suspended Solids, Solvents	None (Flows to Sanitary)
	4.4.11	[REDACTED]	P	POLs, Suspended Solids	OAF-7A
	4.4.12	[REDACTED]	P	POLs, Suspended Solids	OAF-7E

Table 4-2: Summary of NAS Whidbey Island Industrial Facilities and Potential Contaminants						
Tenant	Report Section	Facility (Building Number)	Permit Sector	Potential Contaminants	Potentially Affected Outfall(s)	
	4.4.13	[REDACTED]	S - Air Transportation	POLs, Suspended Solids	OAF-7E	
Morale, Welfare and Recreation (MWR)	4.5.1	[REDACTED]	Q	POLs, Suspended Solids, Heavy Metals	OSB-2D-02	
	4.5.3	[REDACTED]	Q	POLs, Suspended Solids	OSB-2D-01	
Naval Air Station (NAS)	4.6.1	[REDACTED]		POLs, Suspended Solids, Solvents, Glycols, Acetates	OAF-7A	
	4.6.2	[REDACTED]		POLs, Suspended Solids, Solvents, Glycols, Acetates	OAF-4A	
	4.6.3	[REDACTED]		POLs, Suspended Solids, Solvents, Glycols, Acetates	OAF-7C	
	4.6.4	[REDACTED]	S - Air Transportation	POLs, Suspended Solids, Solvents, Glycols, Acetates	OAF-7B	
	4.6.5	[REDACTED]		POLs, Solvents	OAF-7E	
	4.6.6	[REDACTED]		POLs, Solvents, Acetates	OAF-7B	
Naval Air Station	4.6.7	[REDACTED]		POLs, Solvents, Paint, Acetates	OAF-7A	

**Table 4-2: Summary of NAS Whidbey Island Industrial Facilities  
 and Potential Contaminants**

Tenant	Report Section	Facility (Building Number)	Permit Sector	Potential Contaminants	Potentially Affected Outfall(s)
(NAS)	4.6.8	[REDACTED]		POLs, Suspended Solids	OAF-7D
	4.7.1	[REDACTED]		POLs, Solvents, Paint, Acetates	OAF-7D
		4.7.2	[REDACTED]		Solvents, Glycols, Acetates
Public Works (PW)	4.8.1	[REDACTED]	N – Scrap Recycling	POLs, Heavy Metals	OAF-7E
	4.8.2	[REDACTED]	S – Air Transportation	—	Sanitary
	4.8.3	[REDACTED]	P	POLs, Suspended Solids, Solvents	OAF-7E
		4.8.4	[REDACTED]	P	POLs, Suspended Solids, Pesticides
Supply Department (SU)	4.9.1	[REDACTED]	S – Air Transportation	POLs	OAF-7E
	4.9.2	[REDACTED]	P	POLs	OSB-3D
		4.9.3	[REDACTED]	S – Air Transportation	POLs
	4.9.4	[REDACTED]	P	—	OAF-7E
	4.9.5	[REDACTED]	S – Air Transportation	POLs	OSB-2D-03
		4.9.6	[REDACTED]	P	POLs

Table 4-2: Summary of NAS Whidbey Island Industrial Facilities and Potential Contaminants						
Tenant	Report Section	Facility (Building Number)	Permit Sector	Potential Contaminants	Potentially Affected Outfall(s)	
	4.9.7	[REDACTED]	P	POLs, Glycols	OAF-7E	
	4.9.8	[REDACTED]	S	POLs	OAF-7F	
Hazardous Waste Minimization	4.10	[REDACTED]	S	POLs, Solvents, Paint	OAF-7E	
Explosive Ordinance Facilities	4.11.1	[REDACTED]	Q	POLs, Suspended Solids, Solvents, Paints, Heavy Metals	OSB-3D	
	4.11.2	[REDACTED]	P	POLs, Suspended Solids, Glycols, Solvents, Paints, Heavy Metals	OSB-3D	

<b>Table 4-3: Core BMPs</b>			
BMP Number	BMP Title	Issue	BMP Text
<b>Base wide Core BMPs</b>			
C-1	Minimize Exposure	Minimizing exposure of pollutants to stormwater is a core BMP required under the MSGP.	<p>A. Where practicable, industrial materials and activities will be protected by a storm resistant shelter to prevent exposure to rain, snow, snowmelt, or runoff. Pay particular attention to minimizing exposure from dust/debris causing activities and non-ferrous (copper, aluminum, zinc, etc.) metals storage.</p> <p>B. Do not conduct outdoor vehicle, equipment or material washing/rinsing activities that will drain into the storm sewer. Certain exceptions using only potable water are authorized in the SWPPP.</p> <p>C. All outdoor trash and recycling containers shall be covered to minimize rainfall exposure.</p> <p>D. Dispose of obsolete equipment and unused metal stock.</p> <p>E. Cover metal stock stored outside.</p>
C-2	Good Housekeeping	The MSGP requires implementation of good housekeeping practices.	<p>A. Keep all exposed areas of in a clean, orderly manner where such exposed areas could contribute pollutants to stormwater discharges.</p> <p>B. Conduct all maintenance work inside to the maximum extent practicable. If work is conducted outside vacuum all particulates.</p>

**Table 4-3: Core BMPs**

<b>BMP Number</b>	<b>BMP Title</b>	<b>Issue</b>	<b>BMP Text</b>
C-3	Maintenance	Preventative maintenance is one of the core BMPs required under the MSGP.	<p>A. The NAS Whidbey Island preventive maintenance program will include timely inspection and maintenance of stormwater management devices (e.g. cleaning oil/water separators, catch basins) as well as inspection, testing maintaining and repairing facility equipment and systems to avoid breakdowns or failures that may result in discharge of pollutants to surface waters.</p> <p>B. Oil water separators will be cleaned at least yearly. The separators will be checked for oil buildup on a periodic schedule which varies based on past experience with a respective separator.</p> <p>C. Store materials in appropriate containers.</p> <p>D. Keep all dumpster and recycling lids closed (except when in use)</p> <p>E. Minimize potential for waste, floatable debris to be discharged – keep area clean or intercept before discharge.</p>

<b>Table 4-3: Core BMPs</b>			
<b>BMP Number</b>	<b>BMP Title</b>	<b>Issue</b>	<b>BMP Text</b>
C-4	Spill Prevention and Response	<p>Spill prevention and response measures are required as a core BMP under the MSGP.</p> <p>Spill prevention and response procedures are thoroughly addressed in the NAS Whidbey Island SPCC Plan and OHS Response Plan. The "SPCC plan establishes minimum spill prevention procedures, methods, equipment and facility design requirements to prevent and control the spillage of all types of oil (Petroleum Oils and Lubricants (POL) and Non-Petroleum Oils). This Plan also includes evaluations and recommended actions for oil storage facilities at NAS Whidbey Island where spills may have a negative impact on the environment."</p>	<p>The NAS Whidbey Island SPCC and OHS Response plans are active and effective in preventing and responding to spills. No significant actions with regard to spill prevention and response procedures are included or necessary in this plan. The plan does, however, require that regular (monthly and annual) inspections include consideration of spill potential. Spill response numbers are included in SWPPP section 2.9.3.</p> <p>A. Applicable personnel shall be trained in spill response. Adequate spill response supplies will be stationed near potential spill locations.</p> <p>B. Applicable personnel shall be trained in spill response.</p> <p>C. Adequate spill response kits and absorbent will be stationed near potential spill locations.</p> <p>D. All liquid significant materials with the potential to contact stormwater shall be stored within secondary containment (including ASTs, drums, small containers, batteries).</p> <p>E. Liquid storage areas will be inspected regularly.</p> <p>F. All spills regardless of size will be cleaned up immediately.</p> <p>G. Seal interior floor drain in industrial areas.</p> <p>H. Use drip pans under leaking equipment.</p>
C-5	Erosion and Sediment Controls	<p>The MSGP requires that the SWPPP identify areas of the facility that have the potential for erosion and implement BMPs to control that erosion.</p>	<p>No significant areas of erosion were noted during the site visits. All new construction project contract specifications</p> <p>A. Practices for controlling erosion from new construction are addressed in NAVFAC NW standard construction specifications. All projects exceeding one acre are permitted under the EPA general permit for construction activities.</p>
C-6	Management of Runoff	<p>The MSGP requires that stormwater runoff management practices such as permanent structural BMPs be described in the SWPPP.</p>	<p>Permanent structural runoff management measures in use at NAS Whidbey Island include oil water separators and biofiltration swales.</p> <p>A complete listing of permanent runoff management measures is discussed in Section 2.</p>

**Table 4-3: Core BMPs**

BMP Number	BMP Title	Issue	BMP Text
C-7	Salt Storage Piles	Control measures including covering piles must be described and implemented through the SWPPP.	A. If salt is used at NAS Whidbey Island for ice control, it will be stored to minimize contact with stormwater. Implement appropriate measures to minimize exposure resulting from adding or removing materials from the pile.
C-8	Employee Training	Employee training is required as a core BMP under the MSGP.	A. NAS Whidbey Island will train employees that work in areas where industrial materials or activities are exposed to stormwater, and for employees that are responsible for implementing activities identified in the SWPPP (e.g., inspectors, maintenance people) as necessary: <ul style="list-style-type: none"> <li>• Personnel who are responsible for the design, installation, maintenance, and/or repair of controls</li> <li>• Personnel responsible for the storage and handling of chemicals and materials that could become contaminants in stormwater discharges.</li> <li>• Personnel who are responsible for conducting and documenting monitoring and inspections.</li> <li>• Personnel who are responsible for taking and documenting corrective actions as required in Part 4.</li> </ul> B. Training will focus on the components and goals of the SWPPP: <ul style="list-style-type: none"> <li>Spill response procedures, good housekeeping, maintenance requirements, material management practices.</li> <li>• Location of all controls on the site as required by this permit, and how they are to be maintained.</li> <li>• Proper procedures to follow with respect to the permit's pollution prevention requirements.</li> <li>• When and how to conduct inspections, record applicable findings, take corrective actions</li> </ul> C. Training should focus on the components and goals of the SWPPP. Training will be conducted on an annual basis.

**Table 4-3: Core BMPs**

<b>BMP Number</b>	<b>BMP Title</b>	<b>Issue</b>	<b>BMP Text</b>
C-9	Non-Stormwater Discharges.	Permittees must eliminate non-stormwater discharges not authorized by an NPDES permit. See Part 1.2.3 for a list of non-stormwater discharges authorized by this permit.	Non-Stormwater discharges addressed in SWPPP section 3
C-10	Dust Generation and Vehicle Tracking of Industrial Materials.	Permittees must minimize generation of dust and off-site tracking of raw, final, or waste materials.	A. Minimize generation of dust and off-site tracking of raw, final, or waste materials in order to minimize pollutant discharges.
C-11	Facility Inspections	Routine facility inspections should be conducted as discussed in Section 6 of the SWPPP. At least one member of the Pollution Prevention Team must participate in routine facility inspections. Inspections will be documented as required by the permit.	A. Inspect storage areas for leaking materials. B. Check vehicles and materials for leaks. C. Inspect all industrial areas for exposed materials, housekeeping lapses which could contribute to stormwater contamination, and proper implementation of BMPs.

**Table 4-4: Sector Specific BMPs**

BMP Number	BMP Description	Issue	Action
<b>Sector N BMPs</b> (applies to bldgs [redacted] )			
N-1	Inbound Recyclable and Waste Material Control Program	Minimize the chance of accepting materials that could be significant sources of pollutants by conducting inspections of inbound recyclables and waste materials.	A. All inbound materials will be inspected for potential spillable materials.
N-2	Scrap and Waste Material Stockpiles and Storage (Outdoor).	Minimize contact of stormwater runoff with stockpiled materials, processed materials, and nonrecyclable wastes.	A. All stored materials should be covered to the maximum extent practicable. Metals will be covered or stored in dumpsters with weatherproof lids. Scrap processing area catch basins will be outfitted with filter socks.
N-3	Stockpiling of Turnings Exposed to Cutting Fluids (Outdoor Storage)	Minimize contact of surface runoff with residual cutting fluids.	A. Metal turnings will be covered or otherwise protected from exposure.
N-4	Scrap and Waste Material Stockpiles and Storage (Covered or Indoor Storage)	Minimize contact of residual liquids and particulate matter from materials stored indoors or under cover with surface runoff.	A. Materials stored outdoors will be in containers or on pallets to minimize contact with runoff.
N-5	Scrap and Recyclable Waste Processing Areas.	Minimize surface runoff from coming in contact with scrap processing equipment.	A. Scrap processing slab is designed to prevent run-on
N-6	Scrap Lead-Acid Battery Program.	Properly handle, store, and dispose of scrap lead-acid batteries.	A. Batteries will be stored inside secondary containment protected from the weather.

**Table 4-4: Sector Specific BMPs**

BMP Number	BMP Description	Issue	Action
N-7	Spill Prevention and Response Procedures.	Install alarms and/or pump shutoff systems on outdoor equipment with hydraulic reservoirs exceeding 150 gallons in the event of a line break. Alternatively, a secondary containment system capable of holding the entire contents of the reservoir plus room for precipitation can be used. Use a mercury spill kit for any release of mercury from switches, anti-lock brake systems, and switch storage areas.	
N-8	Supplier Notification Program	As appropriate, notify major suppliers which scrap materials will not be accepted at the facility or will be accepted only under certain conditions.	A. NAS Whidbey Island Recycle will provide guidance to served Navy commands on acceptable materials.
<b>Sector P BMPs</b>			
P-1	Good Housekeeping Measures	<p><i>Vehicle and Equipment Storage Areas:</i> Minimize the potential for stormwater exposure to leaky or leak-prone vehicles/equipment awaiting maintenance.</p> <p><i>Fueling Areas:</i> Minimize contamination of stormwater runoff from fueling areas.</p> <p><i>Material Storage Areas:</i> Maintain all material storage vessels (e.g., for used oil/oil filters, spent solvents, paint wastes, hydraulic fluids) to prevent contamination of stormwater and plainly label them (e.g., "Used Oil," "Spent Solvents," etc.).</p>	<p>(applies to bldgs )</p> <p>A. Vehicles awaiting maintenance will be inspected at least weekly. Drip pans will be used to capture leaks. Any spills will be cleaned up promptly.</p> <p>B. Fueling station is bermed and covered with runoff draining to an oil/water separator.</p> <p>C. All material storage containers will be labeled and protected from contact with stormwater.</p>
P-1 continued	Good Housekeeping	<i>Vehicle and Equipment Cleaning Areas:</i> Minimize contamination of stormwater runoff from all areas used for	D. Outdoor equipment cleaning is performed only on closed loop washracks or washracks draining to the sanitary sewer.

**Table 4-4: Sector Specific BMPs**

BMP Number	BMP Description	Issue	Action
	Measures	vehicle/equipment cleaning.	
P-2	Locomotive Sanding (Loading Sand for Traction)	<p><i>Vehicle and Equipment Maintenance Areas:</i> Minimize contamination of stormwater runoff from all areas used for vehicle/equipment maintenance.</p> <p>Consider the following (or other equivalent measures): covering sanding areas; minimizing stormwater run on/runoff; or appropriate sediment removal practices to minimize the offsite transport of sanding material by stormwater.</p>	<p>E. Sector P equipment maintenance will be conducted indoors to the maximum extent practicable. Drip pans will be used for leaking vehicles.</p> <p>Not applicable to Whitbey; no rail access.</p>
P-3	Employee Training.	Train personnel at least once a year and address the following activities, as applicable: used oil and spent solvent management; fueling procedures; general good housekeeping practices; proper painting procedures; and used battery management.	Addressed under Core BMP C-9.
<b>Sector Q BMPs</b>			
<b>(applies to bldgs. [REDACTED])</b>			
Q-1	Good Housekeeping Measures	<p><i>Pressure Washing Area:</i> If pressure washing is used to remove marine growth from vessels, the discharge water must be permitted by a separate NPDES permit. Collect or contain the discharges from the pressure washing area so that they are not co-mingled with stormwater discharges authorized by this permit.</p> <p><i>Blasting and Painting Area:</i> Minimize the potential for spent abrasives, paint chips, and overspray to discharge into receiving waters or the storm sewer systems.</p>	<p>A. Pressure washing of vessels shall only take place only in areas that drain to the sanitary sewer or in contained locations that can be pumped out for disposal.</p> <p>B. No outdoor blasting or painting is conducted. Grit collection locations will be inspected monthly and cleaned as necessary.</p>
Q-1	Good Housekeeping Measures		

<b>Table 4-4: Sector Specific BMPs</b>			
<b>BMP Number</b>	<b>BMP Description</b>	<b>Issue</b>	<b>Action</b>
continued		<p><i>Material Storage Areas:</i> Store and plainly label all containerized materials (e.g., fuels, paints, solvents, waste oil, antifreeze, batteries) in a protected, secure location away from drains. Minimize the contamination of precipitation or surface runoff from the storage areas. Specify which materials are stored indoors, and consider containment or enclosure for those stored outdoors. If abrasive blasting is performed, discuss the storage and disposal of spent abrasive materials generated at the facility. Consider implementing an inventory control plan to limit the presence of potentially hazardous materials.</p> <p><i>Engine Maintenance and Repair Areas:</i> Minimize the contamination of precipitation or surface runoff from all areas used for engine maintenance and repair.</p> <p><i>Material Handling Area:</i> Minimize the contamination of precipitation or surface runoff from material handling operations and areas (e.g., fueling, paint and solvent mixing, disposal of process wastewater streams from vessels).</p> <p><i>Drydock Activities:</i> Routinely maintain and clean the drydock to minimize pollutants in stormwater runoff. Address the cleaning of accessible areas of the drydock prior to flooding, and final cleanup following removal of the vessel and raising the dock. Include procedures for cleaning up oil, grease, and fuel spills occurring on the drydock.</p>	<p>C. All containerized materials will be labeled and stored in contain areas. Hazardous material inventory will be controlled through the Hazardous Material Control and Management Plan.</p> <p>D. All engine maintenance will be conducted indoors.</p> <p>E. Material handling will be conducting indoors to the maximum extent practicable.</p> <p>No drydock facilities on site.</p>

<b>Table 4-4: Sector Specific BMPs</b>			
<b>BMP Number</b>	<b>BMP Description</b>	<b>Issue</b>	<b>Action</b>
Q-2	Employee Training.	As part of your employee training program, address, at a minimum, the following activities (as applicable): used oil management, spent solvent management, disposal of spent abrasives, disposal of vessel wastewaters, spill prevention and control, fueling procedures, general good housekeeping practices, painting and blasting procedures, and used battery management.	Addressed under Core BMP C-9.
Q-3	Preventive Maintenance.	As part of your preventive maintenance program, perform timely inspection and maintenance of stormwater management devices (e.g., cleaning oil and water separators and sediment traps to ensure that spent abrasives, paint chips, and solids will be intercepted and retained prior to entering the storm drainage system), as well as inspecting and testing facility equipment and systems to uncover conditions that could cause breakdowns or failures resulting in discharges of pollutants to surface waters.	Addressed under Core BMP C-3.
<b>Sector S BMPs</b>			
S-1	Good Housekeeping Measures	<i>Aircraft, Ground Vehicle and Equipment Maintenance Areas:</i> Minimize the contamination of stormwater runoff from all areas used for aircraft, ground vehicle and equipment maintenance (including the maintenance conducted on the terminal apron and in dedicated hangers).  <i>Aircraft, Ground Vehicle and Equipment Storage Areas:</i> Store all aircraft, ground vehicles and equipment awaiting maintenance in designated areas only and minimize the contamination of stormwater runoff from these storage	<p>A. Maintenance will be conducted inside Hangars to the maximum extent practicable. If any maintenance is conducted outdoors appropriate spill containment and drip pans will be used. If outdoor sanding is necessary all debris will be collected by vacuuming.</p> <p>B. Ground service equipment awaiting maintenance will be stored in [REDACTED] which drains to an oil/water separator.</p>

**Table 4-4: Sector Specific BMPs**

BMP Number	BMP Description	Issue	Action
S-1 continued		<p>areas.</p> <p><i>Material Storage Areas:</i> Maintain the vessels of stored materials (e.g., used oils, hydraulic fluids, spent solvents, and waste aircraft fuel) in good condition, to prevent or minimize contamination of stormwater. Also plainly label the vessels (e.g., "used oil," "Contaminated Jet A," etc.). Minimize contamination of precipitation/runoff from these areas.</p> <p><i>Airport Fuel System and Fueling Areas:</i> Minimize the discharge of fuel to the storm sewer/surface waters resulting from fuel servicing activities or other operations conducted in support of the airport fuel system.</p> <p><i>Source Reduction:</i> Minimize, and where feasible eliminate, the use of urea and glycol-based deicing chemicals, in order to reduce the aggregate amount of deicing chemicals used and/or lessen the environmental impact.</p> <p><i>Runway Deicing Operation:</i> Minimize contamination of stormwater runoff from runways as a result of deicing operations. Evaluate whether over-application of deicing chemicals occurs by analyzing application rates, and adjust as necessary, consistent with considerations of flight safety.</p>	<p>C. All materials will be clearly labeled and stored inside roofed areas with secondary containment.</p> <p>D. The majority of aircraft refueling is conducted in the hot pit refueling area which is designed with oil/water separation and spill containment equipment.</p> <p>E. Urea is not used at NAS Whidbey Island. Runway deicing will be accomplished using an acetate based compound. Aircraft deicing is performed with propylene glycol.</p> <p>F. Runway deicing is periodically conducted using liquid aqueous potassium acetate. Estimated annual usage is approximately 5,000 gallons. Solid anhydrous sodium acetate may also be used in the future. The following deicing control measures will be followed:</p> <ol style="list-style-type: none"> <li>a. In order to reduce the possibility of dry weather discharges liquid deicer will only be applied during periods of active snowfall or, to melt accumulated snow.</li> <li>b. Deicing runoff will be directed to heavily vegetated areas lining the runways and taxiways to the maximum extent practicable.</li> <li>c. Application rates will be controlled by metered application with a GPS equipped towable applicator. The minimum amount of deicer needed to ensure safe airfield operations will be applied. Conditions will be monitored using vehicles equipped with Dynamic</li> </ol>

**Table 4-4: Sector Specific BMPs**

BMP Number	BMP Description	Issue	Action
S-2	Deicing Season	<p><i>Aircraft Deicing Operations:</i> Minimize contamination of stormwater runoff from aircraft deicing operations. Determine whether excessive application of deicing chemicals occurs and adjust as necessary. Considerations of flight safety. This evaluation should be carried out by the personnel most familiar with the particular aircraft and flight operations in question (versus an outside entity such as the airport authority).</p> <p><i>Management of Runoff:</i> Where deicing operations occur, implement a program to control or manage contaminated runoff to minimize the amount of pollutants being discharged from the site.</p>	<p>Friction Decelerometers.</p> <p>d. The NAS Whidbey Island Air Operations department will maintain records of monthly deicing chemical application. A summary of monthly chemical usage will be provided to the NAS Whidbey Island Environmental department on an annual basis.</p> <p>G. Aircraft deicing is conducted in a manner designed to minimize fluid use (approximately 2,000 gallons per year) and maximize spent fluid collection (see Source Reduction above).</p> <p>H. NAS Whidbey Island has implemented a base deicing instruction (NASWHIDBEYINST 13600.3D) which requires that spent fluid from aircraft deicing be captured by placing gel mats over catch basins prior to operation of the deicing equipment. After the treated plane leaves the site, the spent fluid is collected using vacuum trucks and transferred into one of two aboveground storage tanks (ASTs) located along the flight line for offsite disposal or recycling.</p>
		<p>You must determine the seasonal timeframe (e.g., December-February, October - March, etc.) during which deicing activities typically occur at the facility. Implementation of control measures, including any BMPs, facility inspections and monitoring must be conducted with particular emphasis throughout the defined deicing season.</p>	<p>A. The deicing season typically runs beginning of November through the beginning of March. During the deicing season monthly inspections will be conducted and documented as discussed in section 6 of this SWPPP.</p>

<b>Table 4-4: Sector Specific BMPs</b>			
<b>BMP Number</b>	<b>BMP Description</b>	<b>Issue</b>	<b>Action</b>
S-3	Vehicle and Equipment Washwater Requirements	Attach to or reference in your SWPPP, a copy of the NPDES permit issued for vehicle/equipment washwater or, if an NPDES permit has not been issued, a copy of the pending application. If an industrial user permit is issued under a local pretreatment program, include a copy in your SWPPP. In any case, if you are subject to another permit, describe your control measures for implementing all non-stormwater discharge permit conditions or pretreatment requirements in your SWPPP. If washwater is handled in another manner (e.g., hauled offsite, retained onsite), describe the disposal method and attach all pertinent documentation/information (e.g., frequency, volume, destination, etc.) in your SWPPP.	Aircraft and vehicle washwater for all Sector S facilities is directed to the sanitary sewer. Sewage is treated by a NOTW, no pretreatment permit is necessary.
S-4	Documentation of Control Measures Used for Management of Runoff	Document in your SWPPP the control measures used for collecting or containing contaminated melt water from collection areas used for disposal of contaminated snow.	A. Airfield snow removal or deicing is rarely performed. Snow is pushed to the side of the runway. The majority of the runways and taxiways are lined with heavy vegetation which will absorb and filter melting snow.

**Table 4-5: BMP Categories**

<b>BMP Category No.</b>	<b>BMP Category Description</b>
1	Good Housekeeping/Preventive Maintenance
2	Inspections
3	Training
4	Spill Prevention and Response
5	Structural Runoff and Sediment Controls
6	Non-Structural Runoff and Sediment Controls
7	General Structural Source Controls
8	Loading/Unloading Practices
9	Reduce/Reuse/Recycle and Disposal
10	Procedures and Practices for Significant Materials Storage and Handling
11	Non-Structural Storage Containment
12	Vehicle/Equipment Maintenance and Storage
13	Illicit Discharges/Connections
14	Activity Specific/Site Specific:
14.1	Pesticide/Herbicide/Fertilizer Application
14.2	Deicing
14.3	Painting/Sanding/Sandblasting/Pressure Washing
14.4	Coal Handling Activities
14.5	Ship/Boat Building, Maintenance and Repair
14.6	Railroad
14.7	Treatment Works
14.8	Site Specific (NAS Whidbey Island)

**Table 4-6: Summary of Existing BMPs**

BMP Number	BMP Description	BMP Category	Facility Number	Facility Name
42	Discharge Wash Water to a Sanitary Sewer	13		
44	Use Drip Pans under Leaking Equipment	12		
45	Perform Equipment Maintenance in Designated Areas	12		
46	Designate Areas for Washing Non-Vehicular Air Filters and Other Greasy Equipment	12		
47	Conduct Maintenance within a Building or Covered Area	12		
52	Use Outside Contractor for Handling Used Solvents and Other Significant Materials	10		
54	Properly Store Containers	10		
55	Use Overpack Containers or Containment Pallets to Store 55-Gallon Drums Outside of Storage Areas	11		
57	Do Not Store Used Parts or Containers Directly on Ground	10		
57	Do Not Store Used Parts or Containers Directly on Ground	10		
57	Do Not Store Used Parts or Containers Directly on Ground			

**Table 4-6: Summary of Existing BMPs**

BMP Number	BMP Description	BMP Category	Facility Number	Facility Name
57a	Properly Dispose of Any Significant Materials or Contaminated Wastes	9		
61b	Store Liquids and Significant Materials within a Building or Covered Area	10		
62	Provide Overfill Protection	4		
64	Monitor Major Fueling Operations	4		
65	Provide Absorbent Booms in Unbermed Fueling Areas	4		
67	Install Leak Detection System	4		
69	Restrict Access to Tanks	4		
71	Keep Tanks, Piping, and Valves in Good Condition	4		
71	Keep Tanks, Piping, and Valves in Good Condition	4		
72	Protect Tanks from Being Damaged by Vehicles	4		
73	Protect Fill Pipe from Being Damaged by Vehicles	4		
75	Provide Secondary Containment for ASTs	4		
75	Provide Secondary Containment for ASTs			

**Table 4-6: Summary of Existing BMPs**

BMP Number	BMP Description	BMP Category	Facility Number	Facility Name
75a	Provide Secondary Containment for Other POL Containing Structures/Facilities	4		
77	Vacuum Particulate Wastes from Sanding or Painting Operations	14.3		
79	Conduct Indoor Sanding and Painting in an Enclosed Area	14.3		
87	Use Oil Containment Booms	4		
96	Divert Drainage to Treatment Facility/Sanitary Sewer	13		
98	Construct Oil/Water Separator	5		
110	Regularly Inspect and Maintain Stormwater Conveyance Systems	5		
115	Store Containers Inside Secondary Containment	11		
115	Store Containers Inside Secondary Containment			

**Table 4-6: Summary of Existing BMPs**

BMP Number	BMP Description	BMP Category	Facility Number	Facility Name
130	Treat and Recycle Water Back to Boilers	13		
135	Provide Good Housekeeping Practices to Minimize Pollutants Exposure to Stormwater	1		
136	Confine Loading/Unloading Activities to a Designated Area	8		
136	Confine Loading/Unloading Activities to a Designated Area	8		
137	Consider Performing Loading/Unloading Activities Indoors or in a Covered Area	8		
138	Consider Covering Loading/Unloading Area with Permanent Cover (e.g., Roofs) or Temporary Cover (e.g., Tarps)	8		
171	Prevent All Blasting and Painting Residuals From Reaching Stormwater	14.3		
175	Perform Pressure Washing in Designated Areas	14.3		
194	Do Not Pour Liquid Waste Down Floor Drains, Sinks, or Outdoor Storm Drain Inlets	13		
195	Plug Floor Drains Connected to the Storm or Sanitary Sewer	13		
199	Store Reactive, Ignitable, or Flammable Liquids in Compliance with the Local Fire Code	10		
199	Store Reactive, Ignitable, or Flammable Liquids in Compliance with the Local Fire Code	10		

**Table 4-6: Summary of Existing BMPs**

BMP Number	BMP Description	BMP Category	Facility Number	Facility Name
204	Use Spill Troughs for Drums with Taps	4 4		
207	Inspect Connecting Hoses For Leaks	4		
209	Use Appropriate Material Transfer Procedures, Including Spill Prevention and Containment Activities	4		



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## 4.2 Fleet Readiness Center Northwest (FRC NW) Facilities

Eight FRC NW related facilities were inspected during this SWPPP effort. These facility names and building number are listed below:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

### 4.2.1 FRC Storage (Building [REDACTED])

**Facility Description:** The FRC Storage and FRC NW facility is located [REDACTED], as shown on Sheet 7 (Grid 4) of the SWPPP base maps.

Building [REDACTED] is a concrete structure that sits on a platform. It contains offices, equipment, and [REDACTED] storage areas, and a general work area.

A detailed map showing the site layout and surrounding area is provided in Figure 4-[REDACTED].

**Facility Objective:** [REDACTED].

**Stormwater Drainage Description:** This facility is surrounded by a gravel parking area with no designed stormwater catchment/control. Runoff flowing to the north and east reaches a grassy slope and infiltrates into soils. Similarly, runoff to the west flows to a grassy slope. However, a portion of this drainage will reach the concrete lot of [REDACTED], where it will enter Manhole SDMH14-06, which also functions as a catch basin. Runoff to the south flows onto [REDACTED] and is captured by a series of manhole catch basins.

[REDACTED] is located within Drainage Basin AF-7 and Sub-basin AF-7A. Stormwater runoff reaching catch basins to the east is routed to the northeast via the underground piping network to Outfall OAF-7A, where it reemerges to the Open Channel network within the flight line. Discharge waters from this outfall are directed through the open channels to Outfall OAF-7F, associated with the entire Drainage Basin AF-7.

**Material Inventory:** All materials used, stored, or produced at this facility in 2009 are listed in Table 4-[REDACTED]. Each material was assessed and evaluated in terms of its potential to contribute pollutants to stormwater runoff.

Because no materials have been found to be exposed to stormwater over the past three years, Table [REDACTED] is not included.

**Significant Spills and Leaks:** Significant spills or leaks associated with the facility in the past three years are shown in Table 4-[REDACTED].

**Site Assessment Inspection:** A site assessment inspection was performed by NAVFAC NW field personnel in 2015 and the site was found to generally be clean and no issues were noted.

**Existing BMPs:** Existing BMPs are provided in Table 4-[REDACTED].

**Recommended BMPs and Implementation Plan:** Recommended BMPs for this facility and the associated implementation phase are identified in Table [REDACTED]. Implementation of BMPs is required by the terms of the Multi-Sector Permit as authorized by 40 CFR 122.

Table 4- [REDACTED] Material Inventory									
Material	Purpose/Location	Quantity (units)			Exposed in 2006-2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak		
		Used	Produced	Stored			Yes	No	
Scrap metal	Temporary storage/Outside in bin	—	—	1 bin	Yes	Yes, open bin		X	
Metal parts	Storage/Outside on ground	—	—	<1/2-acre area	Yes	Yes, stored uncovered		X	
Lacquer aerosol cans	Equipment repair/Inside flam. locker	15 cans per week	—	2 dozen 10.5-oz. cans	No	No, stored inside flam. locker		X	
Primer coating	Equipment repair/Inside flam. locker	—	—	3 to 4 dozen cans	No	No, stored inside flam. locker		X	
Lubricant	Equipment repair/Inside flam. locker	—	—	2 dozen cans	No	No, stored inside flam. locker		X	
House paint	Equipment repair/Inside flam. locker	—	—	5 gallons	No	No, stored inside flam. locker		X	
Corrosion preventive compound	Equipment repair/Inside flam. locker	—	—	3 5-gallon drums	No	No, stored inside flam. locker		X	
Latex paint	Equipment repair/Inside flam. locker	—	—	2 5-gallon drums	No	No, stored inside flam. locker		X	
Deck adhesive	Equipment repair/Inside flam. locker	—	—	2 5-gallon drums	No	No, stored inside flam. locker		X	
Synthetic lube oil	Equipment repair/Inside flam. locker	—	—	<5 gallons	No	No, stored inside flam. locker		X	
Alcohol	Equipment repair/Inside flam. locker	—	—	1 5-gallon drum	No	No, stored inside flam. locker		X	
Sealing compound	Equipment repair/Inside flam. locker	6 tubes per week	—	1 to 2 dozen tubes	No	No, stored inside flam. locker		X	

**Table 4-** [REDACTED]

**List of Significant Spills and Leaks**

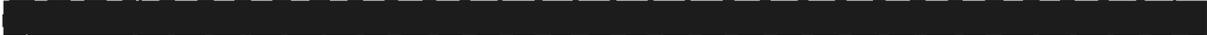
Date (month/day/year)	Spill	Leak	Location (As Indicated on Site Map)	Description				Response Procedure		Preventive Measures Taken
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered	Material No Longer Exposed to Storm Water (True/False)	

**Table 4- [REDACTED]  
 Pollutant Sources, Existing BMPs, and Recommended BMPs**

Storm Water Pollutant Sources	Existing BMPs <sup>a</sup>	Recommended BMPs <sup>a</sup>
General Housekeeping (Indoors)	Provide Good Housekeeping Practices to Minimize Pollutants Exposure to Storm Water (135)	Core BMPs
Loading Dock	Confine Loading/Unloading Activities to a Designated Area (136)	
Scrap Metal Outdoor Storage	Do Not Store Used Parts or Containers Directly on Ground (057)	

<sup>a</sup>Number in parentheses refers to BMP Index Number (see Appendix E)





#### 4.2.2 [REDACTED] (Buildings [REDACTED])

**Facility Description:** These FRC NW facilities are located [REDACTED] [REDACTED] [REDACTED], as shown on Sheet 4 (Grid 1) of the SWPPP base maps.

The [REDACTED] is a concrete pad used as [REDACTED].

The [REDACTED] is a concrete structure that consists of an [REDACTED] [REDACTED]. A detailed map showing the site layout and surrounding area is provided in Figure 4-[REDACTED].

**Facility Objective:** These facilities are [REDACTED].

**Stormwater Drainage Description:** The [REDACTED] is surrounded by a combination of grassy, concrete, and asphalt areas. Stormwater runoff from the concrete-covered areas to the north and from outside the bay door area on the west side of the [REDACTED] flows southwest to Catch Basin SDCB01-01. Some runoff from grassy and paved-covered surfaces south and east of the [REDACTED] overland to the east where it infiltrates into soils. Stormwater entering the [REDACTED], the northern portion of which is exposed, is routed to the sanitary sewer via an oil/water separator located northeast of the building near SDMH 01-01.

The [REDACTED] pad is served by four catch basins. Three of the catch basins, SDCB01-03A, SDCB01-02 and SDCB01-03, drain to OWS01-02 prior to discharge to the storm sewer system at SDMH01-01. The fourth catch basin located inside a bermed area in the center of the [REDACTED] concrete pad. Engine testing is performed directly above this catch basin. Flow from this catch basin is directed to the oils water separator located near SDMH 01-01 and to the sanitary sewer via a lift station. An overflow line within the lift station allows discharge from the oil/water separator to flow to the storm sewer if the pumps are inoperable.

Flow from the storm sewer system surrounding these facilities discharges to the Strait of Juan de Fuca via Outfall OAF-4B. These facilities are located within Sub-basin AF-4B.

**Material Inventory:** All materials used, stored, or produced at this facility in 2009 are listed in Table 4-[REDACTED]. Each material was assessed and evaluated in terms of its potential to contribute pollutants to stormwater runoff.

Because no materials have been found to be exposed to stormwater over the past three years, Table 4-[REDACTED] is not included.

**Significant Spills and Leaks:** Significant spills or leaks associated with the facility in the past three years are shown in Table 4-[REDACTED].

**Site Assessment Inspection:** The initial site assessment inspection was performed by E & E field personnel on Tuesday, December 6, 1994. The site has been reassessed regularly by NAVFAC NW personnel. During the 2015 inspection, both Building [REDACTED] was found to be generally clean and no issues were noted.

**Existing BMPs:** Existing BMPs are provided in Table 4-[REDACTED].

**Recommended BMPs and Implementation Plan:** Recommended BMPs for this facility and the associated implementation phase are identified in Table 4-[REDACTED]. Implementation of BMPs is required by the terms of the Multi-Sector Permit as authorized by 40 CFR 122.

Table 4-

Material Inventory

Material	Purpose/Location	Quantity (units)			Exposed in 2006-2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Preservative oil	Engine testing/inside Fuel room	100 gal/month	—	100-gallon tank	Yes	Yes, small amounts of oil may be discharged to floor drain or tracked outside.		
Turbine engine gas path cleaner	Engine testing/inside Jet Test room	~ 5 gallons per month	—	2 5-gallon drums	No	Yes, no secondary containment and stored near floor drain which discharges to oil/water separator and ocean.		
Synthetic turbine engine lube oil	Engine testing/inside Jet Test room	55-gallons per month	—	1 55-gallon drum	No	Yes, no secondary containment, stored near floor drain which discharges to oil/water separator and ocean.		
JP5	Engine test fuel/Outside on concrete test pad	25,000 gallons per month	—	1,000-gallon AST	Yes	No, tank has containment wall		
Waste JP5	Temporary storage/Oil/water separator on east corner of concrete pad	—	—	1,000-gallon holding tank	No	No, secondary containment provided		

Key:  
AST = Aboveground storage tank.  
UST = Underground storage tank.

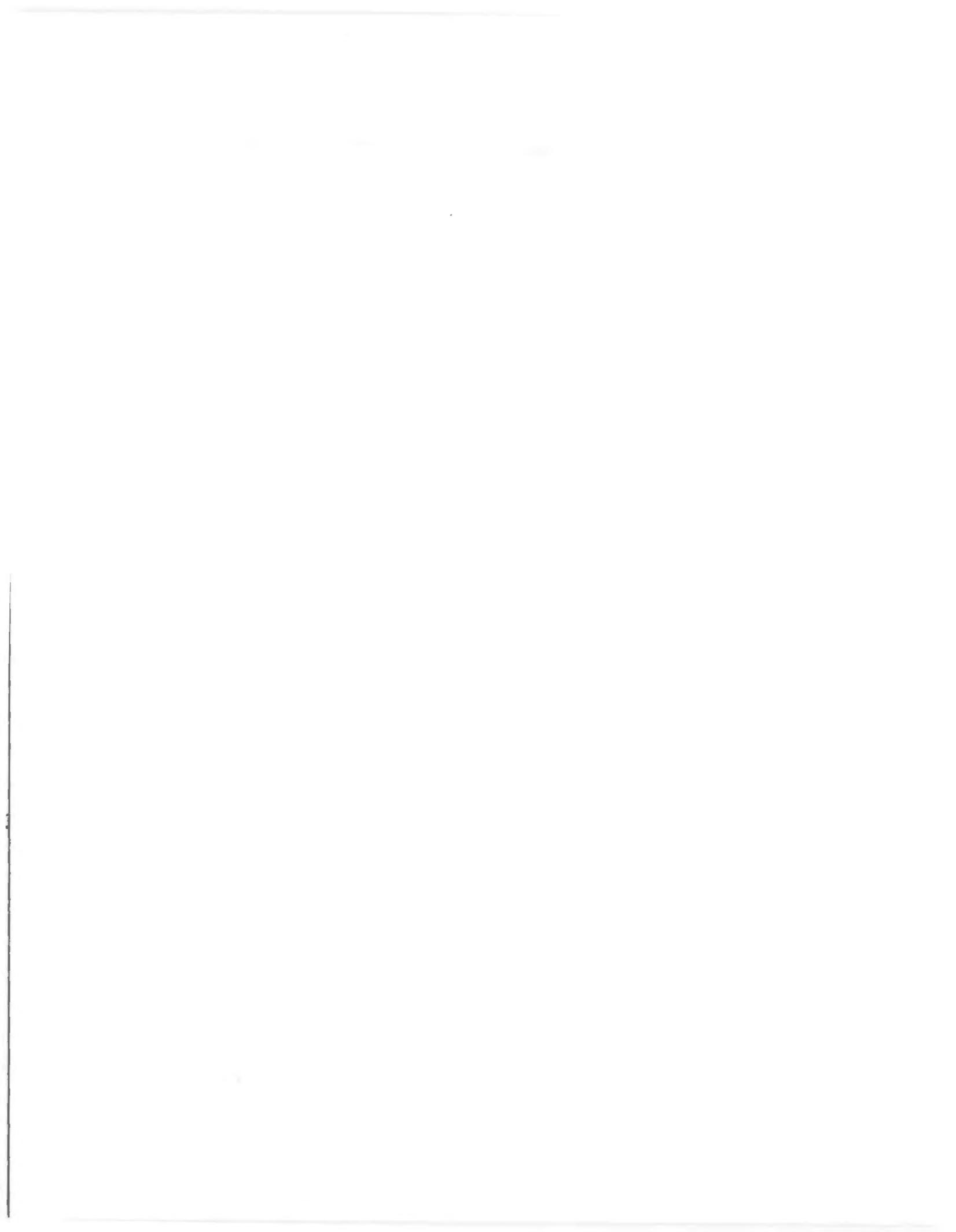


<b>Table 4- [REDACTED]</b> <b>Pollutant Sources, Existing BMPs, and Recommended BMPs</b>		
Storm Water Pollutant Sources	Existing BMPs <sup>a</sup>	Recommended BMPs <sup>a</sup>
10/10 Oil Tank ([REDACTED])	Keep Absorbent Material On Hand (010)	Core BMPs  Sector S BMPs
Concrete Pad ([REDACTED])		
Drum Storage on Concrete Pad		
Engine Path Cleaner and Lube Oil ([REDACTED])		
[REDACTED] Drum Storage	Store Liquids and Significant Materials within a Building or Covered Area (061B)	
Exhaust Augmenter Soot		
Floor Drains ([REDACTED])		
Fuel Room ([REDACTED])	Store Liquids and Significant Materials within a Building or Covered Area (061B)	
JP5 Bowser	Store Liquids and Significant Materials within a Building or Covered Area (061B)	
JP5 USTs		
Oil/Water Separator OWS 01-01	Protect Tanks from Being Damaged by Vehicles (072) Protect Fill Pipe from Being Damaged by Vehicles (073)	

<sup>a</sup> Number in parentheses refers to BMP Index Number (see Appendix E)



**Figure 4-**   
**SWPPP Site Map**



#### 4.2.3 [REDACTED] Equipment Facility (Buildings [REDACTED])

**Facility Description:** The [REDACTED] Equipment building (Building [REDACTED]), an FRC NW facility, is located [REDACTED] as shown on Sheet 7 (Grid 4) of the SWPPP base maps. Buildings [REDACTED] are also used for ground support equipment maintenance, were included in the storm drain system survey.

Building [REDACTED], is a one story concrete structure housing:

- Offices and a class room;
- A tools and parts storage room; and
- Various workshops (tractor, weld, miscellaneous parts and equipment, hydraulic, preventive maintenance, electrical, and tire and component repair).
- Building [REDACTED] consists of covered vehicle bays and contains:
  - A steam cleaning area;
  - Material storage areas;
  - Building [REDACTED], is a one story steel structure housing:
    - Paint and abrasive blast booths;
    - Vehicle maintenance bays equipped with a lift and overhead hoists;
    - A lubricant storage room equipped with a blind sump and a lube distribution system;
    - A small office space.

Building [REDACTED] is a former garage now used as an office. Building [REDACTED], which consists of covered vehicle bays like Building [REDACTED], contains equipment awaiting maintenance. Building [REDACTED], a Quonset hut located on the west side of [REDACTED] is used for issuing and receiving GSE from the squadrons. Building [REDACTED] is an open sided steel building used for storage of larger GSE. Building [REDACTED] is used primarily for storage of tires and parts. Three open ended Quonset hut type sheds provide covered storage for equipment between buildings [REDACTED]. A detailed map showing the site layout and the surrounding area is provided in Figure 4-[REDACTED].

**Facility Objective:** This FRC NW facility is used [REDACTED].

**Stormwater Drainage Description:** Building [REDACTED] is surrounded by a paved lot and by Buildings [REDACTED]. A grassy fringe borders the facility to the west along [REDACTED]. Catch Basin SDCB10-66, located immediately west of Building [REDACTED] receives water runoff from a wash rack used for equipment steam-cleaning operations when a closed loop water recycling system located at the rack is not functioning. Drainage around Building [REDACTED] and within the maintenance bays enters Catch Basins SDCB10-67, SDCB10-68, SDCB10-69, and SDCB15-23A. This drainage leaves the site to the south through a connection to the storm

sewer system that drains to outfall OAF-7C. Drainage from Buildings [REDACTED] enters a series of catch basins encircling Building [REDACTED]. This stormwater passes through an oil/water separator located near the oil bowser containment structure and into the storm system leading to OAF-7B. A single catch basin located adjacent to the oil bowser drains the area around the bowser and the west end of Building [REDACTED] and discharges to the storm system just downstream of the oil/water separator discussed above. Drainage from the vicinity of Building [REDACTED] enters four catch basins arrayed along the west end of the building. The three catch basins located in the center of the [REDACTED] paved area flow through an oil/water separator.

This facility is located within Drainage Basin AF-7 and Sub-basins AF-7C and AF-7B. Stormwater runoff entering the catch basins surrounding Building [REDACTED] is routed to the southeast via the underground storm drain system to Outfall OAF-7C. Storm drainage from the areas surrounding buildings [REDACTED] flows through the storm drain system east to Outfall OAF-7B. Drainage from both areas subsequently enters the open channel network within the flight line where it flows to Outfall OAF-7F, discharging to wetlands located east of the station boundary. Ultimate discharge is to Dugualla Bay.

**Material Inventory:** All materials from 2009 used, stored, or produced at this facility are listed in Table 4-[REDACTED]. Each material was assessed and evaluated in terms of its potential to contribute pollutants to stormwater runoff.

Table 4-[REDACTED] lists significant materials (as defined in the glossary found in Appendix B of this report) exposed to stormwater during 2006-2009.

**Significant Spills and Leaks:** Significant spills or leaks associated with the facility in the past three years as shown in Table 4-[REDACTED].

**Site Assessment Inspection:** The initial site assessment inspection was performed by E & E field personnel on Monday, December 5, 1994. The site has been reassessed regularly by NAVFAC NW personnel. In 2015, Building [REDACTED] was investigated and a top for a metals bin was left open and it appears that washrack overspray also could enter the bin. [REDACTED] were not observed.

**Existing BMPs:** Existing BMPs are provided in Table 4-[REDACTED].

**Recommended BMPs and Implementation Plan:** Recommended BMPs for this facility and the associated implementation phase are identified in Table 4-[REDACTED]. Implementation of BMPs is required by the terms of the Multi-Sector Permit as authorized by 40 CFR 122.

**Table 4- [REDACTED]**

**Material Inventory**

Material	Purpose/Location	Quantity (units)			Exposed in 2006-2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Deicing fluid	Aircraft deicing/Outside	< 40 - 55-gallon drums per year	—	40 55-gallon drums	Yes	Yes, no secondary containment.		
Lube oil	Vehicle maintenance/Outside covered storage	—	—	12 55-gallon drums; 70 1-gallon cans	No	Yes, no secondary containment.		
Antifreeze	Vehicle maintenance/Outside covered storage	7 - 55-gallon drums/year	—	1 55-gallon drum	No	Yes, no secondary containment.		
Floor wax	Building maintenance/Outside covered storage	—	—	5 1-gallon drums	No	No, stored in locker.		
Solvent (PD680)	Parts cleaning/Outside covered storage	—	—	2 5-gallon drums	No	Yes, no secondary containment.		
Fuel system icing inhibitor	Vehicle maintenance/Outside covered storage	—	—	9 5-gallon drums	No	Yes, no secondary containment.		
Alcohol	Vehicle maintenance/Outside covered storage	—	—	2 55-gallon drums	No	Yes, no secondary containment.		
Waste paint	Temporary storage/Outside covered storage	—	10 gallons per month	1 55-gallon drum	No	Yes, no secondary containment.		
Paint	Vehicle maintenance/Outside flam. locker	Varies	—	1 gallon kits	No	No, stored in flam. locker.		
Polymide resin	Vehicle maintenance/Outside flam. locker	Varies	—	20 quarts	No	No, stored in flam. locker.		
Thinner	Vehicle maintenance/Outside	0.5 gallon per	—	3 gallons	No	No, stored in flam. locker.		

**Table 4-** [REDACTED]  
**Material Inventory**

Material	Purpose/Location	Quantity (units)			Exposed in 2006-2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
	flam. locker	day						
Corrosion prevention chemicals	Vehicle maintenance/Outside flam. locker	—	—	Several small containers	No	No. stored in flam. locker.		
Engine oil	Vehicle maintenance/Outside covered storage	—	—	2 55-gallon drums	No	Yes. no secondary containment.		
Lo-suds cleaner	Vehicle cleaning/Outside	9 55-gallon drums per year	—	4 55-gallon drums	Yes	Yes. vehicles washed outside, outside storage, biodegradable		
Scrap metal	Temporary storage/Outside	—	—	1 trash bin	Yes	Yes. open storage bin.		
Plastic impact beads	Storage/Inside storage building	4 250-pound cardboard drums/week	—	9 250-pound cardboard drums	No	No. stored inside.		
Used oil	Temporary storage/Outside	—	3,272 gallons per year	250-gallon bowser	No	secondary containment.		
Hydraulic fluid	Vehicle maintenance/Outside	—	—	4 55-gallon drums	Yes	Yes. no secondary containment.		
Used vehicle batteries	Temporary storage/Outside	—	—	5	Yes	Yes. stored outside on ground.		
Various hazardous waste	Temporary storage/Inside hazardous waste storage building	—	—	6 55-gallon drums, 1 35-gallon drum, 2 20-gallon drums	No	No. stored inside.		X
Various petroleum, oil, and lubricants	Vehicle maintenance/Inside lube room	46 55-gallon drums per year	—	10 55-gallon drums	No	No. stored inside.		X
Solvent	Parts cleaning/Inside tire, tractor, electric, and	—	—	5 35-gallon Clean Care units	No	No. stored inside.		X

Table 4

Material Inventory

Material	Purpose/Location	Quantity (units)			Exposed in 2006-2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
	preventative maintenance shops							
Waste plastic impact beads	Sand blasting/Inside miscellaneous parts shop	—	1,065 lbs per week	1 25-gallon drum	No	No, stored inside.		X
Crushed oil filters	Temporary storage/Inside preventative maintenance shop	—	238 lbs per year	1 55-gallon drum	No	No, stored inside.		X
Used oil	Temporary storage/Inside preventative maintenance shop oil filter crusher	—	—	1 55-gallon drum	No	No, stored inside.		X
Waste hydraulic fluid/PD680	Temporary storage/Inside hydraulic shop	—	459 gallons per year	3 20-gallon drums (partially filled, emptied daily)	No	No, stored inside.		X
Hydraulic fluid	Vehicle maintenance/Inside hydraulic shop	384 gallons per year	—	8 - 12 one gallon drums	No	No, stored inside.		X
Solvent (PD680)	Parts cleaning/Inside hydraulic shop	75 gallons per year	—	1 10-gallon drum	No	No, stored inside.		X
Grease	Vehicle maintenance/Inside tool room flam. lockers	820 pounds per year	—	2 5-pound containers	No	No, stored inside flam. locker.		X
Anti seize compound	Vehicle maintenance/Inside tool room flam. lockers	—	—	3 pints	No	No, stored inside flam. locker.		X
Corrosion preventive compound	Vehicle maintenance/Inside tool room flam. lockers	—	—	1 to 2 dozen spray cans	No	No, stored inside flam. locker.		X
Spray paint	Vehicle maintenance/Inside tool room flam. lockers	424 spray cans per year	—	1 to 2 dozen cans	No	No, stored inside flam. locker.		X
Brake fluid	Vehicle maintenance/Inside tool room flam. lockers	10 gallons per year	—	Several small containers	No	No, stored inside flam. locker.		X

**Table 4-** [REDACTED]

**Material Inventory**

Material	Purpose/Location	Quantity (units)			Exposed in 2006-2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Multipurpose light tube oil	Vehicle maintenance/inside tool room flam. lockers	15 quarts per year	—	Several small containers	No	No. stored inside flam. locker.		X

**Table 4-** [REDACTED]

**Description of Exposed Significant Material**

Description of Exposed Significant Material	Period of Exposure	Quantity Exposed (units)	Location (As Indicated on the Site Map)	Method of Storage or Disposal (e.g., pile, drum, tank)	Description of Material Management Practice (e.g., pile covered, drum sealed)
Open top scrap metals bin; leaking oil in 2014	2013-2014	1 bin	Outside facility	Bin	

**Table 4-** [REDACTED]

**List of Significant Spills and Leaks**

Date (month/day/year)	Spill	Leak	Location (As Indicated on Site Map)	Description			Response Procedure		Preventive Measures Taken
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered	
7/1/13	X		[REDACTED]	Aerostrip 5182	1 Gal	Equipment			
7/20/15	X		Outside garbage truck	Hydraulic fluid	2 Gal	Line rupture			

Definitions: Significant spills include, but are not limited to, releases of oil or hazardous substances in excess of reportable quantities.

**Table 4- [REDACTED]**  
**Pollutant Sources, Existing BMPs, and Recommended Implementation Plan**

Storm Water Pollutant Sources	Existing BMPs <sup>a</sup>	Recommended BMPs <sup>a</sup>
[REDACTED] Battery Storage	Limit Significant Materials Inventory (017)	
[REDACTED] Drum Storage in Shops	Store Liquids and Significant Materials within a Building or Covered Area (061B)	
[REDACTED] Drum Storage Outdoors	Perform Regular Pavement Cleaning To Remove Oil and Grease (003)	
[REDACTED] Floor Cleaning	Designate Special Areas for Draining or Replacing Fluids (038)	
[REDACTED] General Equipment Maintenance	Recycle or Properly Dispose of All Used Vehicle Fluids (039A) Completely Drain Oil Filters before Disposal (040) Store Drained Filters in a Suitable Container or Drum, and Dispose of Properly (040B) Perform Equipment Maintenance in Designated Areas (045) Designate Areas for Washing Non-Vehicular Air Filters and Other Greasy Equipment (046) Conduct Maintenance within a Building or Covered Area (047) Properly Dispose of Any Significant Materials or Contaminated Wastes (057A) Do Not Pour Liquid Waste Down Floor Drains, Sinks, or Outdoor Storm Drain Inlets (194)	Core BMPs Sector S BMPs
[REDACTED] Hazardous Waste Storage	Label All Drums, Cans, Containers, Tanks, and Valves (001) Store Containers Inside Secondary Containment (115)	
[REDACTED] Lube Room	Label All Drums, Cans, Containers, Tanks, and Valves (001) Keep Absorbent Material on Hand (010) Construct Berm or Dike Around Critical Area (012) Store Liquids and Significant Materials within a Building or Covered Area (061B)	Core BMPs
[REDACTED] Waste Oil Bowser	Use Appropriate Material Transfer Procedures Including Spill Prevention and Containment Activities (209) Provide Secondary Containment for ASTs (075) Provide Valve for Outlet Pipe in Containment Area (014) Provide Roof to Cover Source Area (018) Provide Roof to Cover Source Area (018)	Sector S BMPs
[REDACTED] Drum Storage		
[REDACTED] Floor Drain Next to Paint Booth		
[REDACTED] Steam Cleaning Area		
[REDACTED] Facility Storm Drains		
[REDACTED] ( [REDACTED] Drainage to OAF-7C)		

**Figure 4-** 

**Figure 4-** 

Storm Water Pollutant Sources	Existing BMPs	Recommended BMPs
Air Compressor Maintenance	All maintenance is done inside [REDACTED] (047)	Core BMPs
Material Storage	Drip pans under material spigots.	
Waste Accumulation, Site Accumulation Area	None	Sector BMPs
Building Cleaning Oil Recovery and Power Supply to Air Craft Maintenance	Desiccants are used to pick up liquid spills. All maintenance is done inside [REDACTED] (047) No floor drains in this room.	

**Table 4-** [REDACTED]

**List of Significant Spills and Leaks**

Date (month/day/year)	Spill	Leak	Location (As Indicated on Site Map)	Description			Response Procedure		Preventive Measures Taken	
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered		Material No Longer Exposed to Storm Water (True/False)

**Table 4-** [REDACTED]

**Description of Exposed Significant Material**

Description of Exposed Significant Material	Period of Exposure	Quantity Exposed (units)	Location (As Indicated on the Site Map)	Method of Storage or Disposal (e.g., pile, drum, tank)	Description of Material Management Practice (e.g., pile covered, drum sealed)
Open top scrap metal bin	Current	1 bin	Outside facility	bin	Cover required.

**Table 4-** [Redacted] **Material Inventory**

Material	Purpose/Location	Quantity (units)			Exposed 2006-2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Paint		-	-	-	No			X
Thinner		-	-	-	No			X
Alcohol		-	-	-	No			X
Corrosion Preventative		-	-	-	No			X
Oils		-	-	-	No			X
Alodine		-	-	-	No			X
Scrap Metal	Temporary storage/outside in uncovered bin, in the parking lot to the south of Building [Redacted]	-	-	1 bin	Yes	Yes, stored uncovered		X
Metal Racks	Stored, outside on the west side of Building [Redacted]	-	-	3	Yes	Yes, stored uncovered		X

There are four down spouts, one at each corner of the building. These downspouts go into the ground. The covered used oil AST, directly to the east of the building, is not used by [REDACTED] Facility. It appears to be out of service.

Buildings [REDACTED] are located within Sub-basin AF-4A. Drainage from the catch basin SDCB02-05 flows into Manhole SDMH02-04. Drainage from catch basin SDCB02-04 flows into the storm drainage line that goes north from SDMH-2-04 and then through Outfall OAF-4A, discharging to the Strait of Juan de Fuca.

**Material Inventory:** All materials in 2009 used, stored, or produced at these facilities are listed in Table 4-[REDACTED]. Each material was assessed and evaluated in terms of its potential to contribute pollutants to stormwater runoff.

Significant materials stored exposed to weather over the past three years are presented in Table 4-[REDACTED].

**Significant Spills and Leaks:** No significant spills or leaks are associated with the facilities for the past three years. See Table 4-[REDACTED].

**Site Assessment Inspection:** A site assessment inspection was performed by NAVFAC NW personnel on September 16, 2008. An investigation in 2015 found the facilities to be generally clean, but one scrap metals bin had an open lid.

**Existing BMPs:** Existing BMPs are provided in Table 4-[REDACTED].

**Recommended BMPs and Implementation Plan:** Recommended BMPs for this facility and the associated implementation phase are identified in Table 4-[REDACTED]. Implementation of BMPs is required by the terms of the Multi-Sector Permit as authorized by 40 CFR 122.

#### 4.2.7 [REDACTED] Repair and Storage Facility, ([REDACTED])

**Facility Description:** The [REDACTED] Repair and Storage Facility is located [REDACTED] as shown on Sheet 5 (Grid 2) of the SWPPP base maps.

The facility is made up of Building [REDACTED].

Building [REDACTED] is a metal structure that sits on a concrete slab foundation. It contains three rooms. The largest room is used to store equipment that is either waiting to be repaired in Building [REDACTED] or waiting to be returned to the fleet for use. A smaller room contains office space. The third room is a lavatory. There is a small covered outdoor storage shed on the east side of the building. There are no hazardous material lockers inside the building or in the attached storage shed. The few hazardous materials that are used in this building are obtained from Building [REDACTED] hazardous material lockers. All operations are done inside. There is a Satellite Accumulation Area (SAA) inside the building. There are no floor drains. There are flares and other pyrotechnics stored in a metal box outside the building, [REDACTED].

Building [REDACTED] is a metal structure that sits on a concrete slab foundation. It contains a large paint booth that vents volatile organic compound (VOC) emissions out a roof stack, after the particulate has been removed with a filter, a large blast booth that vents to the interior, and a large bake oven that has a heat/combustion product vent on the roof. There is a Satellite Accumulation Area (SAA) inside the building. There are 3 hazardous material lockers inside the building. All operations are done inside and there are no floor drains.

**Facility Objective:** The facility is [REDACTED].

**Stormwater Drainage Description:** Building [REDACTED] stormwater drainage flows from [REDACTED] towards the northeast across a grassy area, then over the concrete slab that covers the ground along the north side of the building and over the asphalt parking area located to the south of the building it then proceeds toward two storm drains located in the asphalt to the east of the building. One of these storm drains is currently covered by [REDACTED] do not belong to [REDACTED] Facility, and they are currently empty. There are 4 down spouts, one at each corner of the building. These downspouts go into the ground. Currently, there is aircraft maintenance being done outside just to the east of this building near an open storm drain. This maintenance is not part of the [REDACTED] Facility operations. This is a temporary arrangement due to upgrades that are being done on hangars.

Building [REDACTED] stormwater drainage flows [REDACTED] towards the northeast down a steep grassy area. Stormwater that flows directly toward the building from the west is captured in a trench drain that runs the entire distance along the west side of the building and empties into a storm drain located 16 inches off the north west corner of the building. Stormwater that flows along the south edge of the building flows over the concrete slab that covers the ground along the south side of the building, and discharges toward the same storm drains as [REDACTED]. Stormwater that flows along the grassy area to the north of the building goes down a steep slope and into a grassy swale slightly to the north and west of the building.



Figure 4-



SWPPP Map



**Table 4-** [REDACTED]

**Pollutant Sources, Existing BMPs, And Recommended BMPs**

Storm Water Pollutant Sources	Existing BMPs	Recommended BMPs
[REDACTED] Floor Drains and Trench Drain		Core BMPs
[REDACTED] Sanitary Manhole		Sector S BMPs

**Table 4-**

**List of Significant Spills and Leaks**

Date (month/day/year)	Spill Leak	Location (As Indicated on Site Map)	Description			Response Procedure		Preventive Measures Taken
			Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered	

Definitions: Significant spills include, but are not limited to, releases of oil or hazardous substances in excess of reportable quantities.

**Table 4-** [REDACTED]

**Material Inventory**

Material	Purpose/Location	Quantity (units)			Exposed in 2006-2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Hydraulic fluid	Component maintenance/ Outside	—	—	55-gallon drum	Yes	Yes, drum with dispenser located outside.		X
Waste oil	Temporary storage/outside	—	—	250-gallon bowser	Yes	Spills on pavement		X

**Table 4-** [REDACTED]

**Description of Exposed Significant Material**

Description of Exposed Significant Material	Period of Exposure	Quantity Exposed (units)	Location (As Indicated on the Site Map)	Method of Storage or Disposal (e.g., pile, drum, tank)	Description of Material Management Practice (e.g., pile covered, drum sealed)
Open top scrap metals bin	2015	1 bin	Outside Bldg [REDACTED]	Bin	Cover is required.

#### 4.2.6 [REDACTED] Maintenance Shop ([REDACTED])

**Facility Description:** These FRC NW buildings are located [REDACTED], as shown on Sheet 4 (Grid 5) of the SWPPP base maps.

The [REDACTED] Maintenance Shop are new structures. [REDACTED]. Presently neither building is occupied, and no operations are being conducted. A detailed map showing the site layout and surrounding area is provided in Figure 4-[REDACTED].

**Facility Objective:** These facilities will be used for testing and maintaining jet engines.

**Stormwater Drainage Description:** Stormwater runoff in the asphalt parking area of Buildings [REDACTED] is controlled/conveyed through the use of curbing and catch basins. Runoff from paved surfaces, including stormwater from downspouts that drains directly onto asphalt, is directed to several catch basins within the parking area. Drainage within a grassy fringe bounding the test cell portion of Building [REDACTED] is collected within a French drain on either side [REDACTED]. Finally, a portion of the [REDACTED] is exposed to the atmosphere receives stormwater that is conveyed [REDACTED] via floor drains.

Buildings [REDACTED] are located within Sub-basin AF-4B. Drainage from catch basins, French drains, and from floor drains exposed to stormwater converges at Manhole SDMH01-01D. Drainage from Manhole SDMH01-01D flows through Manhole SDMH01-01C and subsequently to the sanitary overflow line at Manhole SSMH01-02. Flow within the sanitary overflow line is routed west to Outfall OAF-4B, discharging to the Strait of Juan de Fuca.

**Material Inventory:** All materials used, stored, or produced at these facilities are listed in Table 4-[REDACTED]. Each material has been assessed and evaluated in terms of its potential to contribute pollutants to stormwater runoff.

Table 4-[REDACTED] presents materials exposed to stormwater over the past three years.

**Significant Spills and Leaks:** Because the facilities are newly constructed, no significant spills or leaks are associated with the facilities. Therefore, Table 4-[REDACTED] is not provided.

**Site Assessment Inspection:** The initial site assessment inspection was performed by E&E field personnel on Tuesday, December 6, 1994. The site has been reassessed regularly by NAVFAC NW personnel. An investigation in 2015 found the facilities generally clean, but a scrap metals bin with the top open was observed at [REDACTED].

**Existing BMPs:** Existing BMPs are provided in Table 4-[REDACTED].

**Recommended BMPs and Implementation Plan:** Recommended BMPs for this facility and the associated implementation phase are identified in Table 4-[REDACTED]. Implementation of BMPs is required by the terms of the Multi-Sector Permit as authorized by 40 CFR 122.

**Figure 4-**

**SWPPP Site Map**

**Table 4- [REDACTED]**

**Pollutant Sources, Existing BMPs, and Recommended BMPs**

Storm Water Pollutant Sources	Existing BMPs	Recommended BMPs
[REDACTED] General Repair	Use Outside Contractor for Handling Used Solvents and Other Significant Materials (052)	Core BMPs  Sector S BMPs
[REDACTED] Bowser	Store Liquids and Significant Materials within a Building or Covered Area (061B)	
Flammable Materials Storage Shed		
Floor Drain [REDACTED]		
Lube Oil and Gas Path Cleaner Drum Storage		
Solvent 140 [REDACTED]		
Waste Solvent 140 and Calibration Fluid ([REDACTED])		

**Table 4-** [REDACTED]

**Description of Exposed Significant Material**

Description of Exposed Significant Material	Period of Exposure	Quantity Exposed (units)	Location (As Indicated on the Site Map)	Method of Storage or Disposal (e.g., pile, drum, tank)	Description of Material Management Practice (e.g., pile covered, drum sealed)
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

**Table 4-** [REDACTED]

**List of Significant Spills and Leaks**

Date (month/day/year)	Spill	Leak	Location (As Indicated on Site Map)	Description			Response Procedure		Preventive Measures Taken
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered	

Definitions: Significant spills include, but are not limited to, releases of oil or hazardous substances in excess of reportable quantities.

Table 4-

Material Inventory

Material	Purpose/Location	Quantity (units)			Exposed in 2006-2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Waste oil (PD680, hydraulic fluid)	Temporary storage/ Inside Building	—	—	3 15-gallon drums	No	No, stored inside.		X
Hydraulic fluid	Component maintenance/ Inside flam. locker	240 gallons per year	—	3 gallons	No	No, stored inside.		X
Spray paint	Component maintenance. Inside flam. locker under walkway	4 spray cans per month	—	6 cans	No	No, stored inside.		X
Lube oil	Component maintenance/ Inside flam. storage shed	8 55-gallon drums per year	—	11 55-gallon drums	No	Yes, no secondary containment.		X
Solvent 140 (PD680)	Parts cleaning/ Inside flam. storage shed	16 gallons per month	—	1 5-gallon drum	No	Yes, no secondary containment.		X
Solvent 140 (PD680)	Parts cleaning/ Outside	—	—	2 55-gallon drums	Yes	Yes, no secondary containment.		X
Hydraulic fluid	Component maintenance/ Outside	—	—	8 55-gallon drums	Yes	Yes, no secondary containment.		X
Turbine engine gas path cleaner	Component maintenance/ outside	—	—	2 5-gallon drums	Yes	Yes, no secondary containment.		X
Waste oil	Temporary storage/outside	—	—	250-gallon bowser	No	No, stored in contained covered area		X
Floor wash water	For cleaning floor/inside Building	—	—	—	No	No floor drain plugged		X

#### 4.2.5 FRC NW [REDACTED] Facility ([REDACTED])

**Facility Description:** The FRC NW [REDACTED] [REDACTED] are located [REDACTED] as shown on Sheet 4 (Grid 1) of the SWPPP base maps.

Both buildings are small, one-story concrete structures joined by a covered walkway. Building [REDACTED] contains offices and workshops, while [REDACTED] is mostly a work area. A detailed map showing the site layout and surrounding area is provided in Figure 4-[REDACTED].

**Facility Objective:** These facilities are used for [REDACTED] [REDACTED].

**Stormwater Drainage Description:** Buildings [REDACTED] are surrounded by dirt/gravel, paved and grassy areas. Stormwater runoff flows generally to the north over a dirt/gravel area onto the paved asphalt lot. Runoff ultimately reaches the grassy area to the north where it infiltrates into soils. Some runoff may reach the Strait of Juan de Fuca approximately 175 feet from the asphalt lot.

These buildings are located in Sub-basin AF-4B. Because runoff infiltrates into soils or flows overland to the strait, there is no outfall associated with these facilities.

**Material Inventory:** All materials used, stored, or produced at this facility in 2009 are listed in Table 4-[REDACTED]. Each material was assessed and evaluated in terms of its potential to contribute pollutants to stormwater runoff.

Because no materials have been found to be exposed to stormwater over the past three years, Table 4-[REDACTED] is not included.

**Significant Spills and Leaks:** Significant spills or leaks associated with the facility in the past three years are shown in Table 4-[REDACTED].

**Site Assessment Inspection:** The initial site assessment inspection was performed by E&E field personnel on Tuesday, December 6, 1994. The site has been reassessed regularly by NAVFAC NW personnel. The inspection in 2015 found the facilities generally clean and no issues were noted.

**Existing BMPs:** Existing BMPs are provided in Table 4-[REDACTED].

**Recommended BMPs and Implementation Plan:** Recommended BMPs for this facility and the associated implementation phase are identified in Table 4-[REDACTED]. Implementation of BMPs is required by the terms of the Multi-Sector Permit as authorized by 40 CFR 122.



**Figure 4- [REDACTED] SWPPP Site Map**

<p><b>Table 4- [REDACTED]</b> <b>Pollutant Sources, Existing BMPs, and Recommended BMPs</b></p>		
Storm Water Pollutant Sources	Existing BMPs	Recommended BMPs
Avionics Shops	Use Good Management Practices to Minimize Pollutants Exposure to Storm Water (135) Store Reactive, Ignitable, or Flammable Liquids in Compliance with the Local Fire Code (199)	Core BMPs
Battery Rooms	Properly Dispose of Any Significant Materials or Contaminated Wastes (057A)	
Brake/Tubing Shop	Keep Absorbent Material on Hand (010) Use Drip Pans Under Leaking Equipment (044) Store Reactive, Ignitable, or Flammable Liquids in Compliance with the Local Fire Code (199)	Sector S BMPs
Cleaning Shop	Properly Dispose of Any Significant Materials or Contaminated Wastes (057A)	
Helicopter and Engine Work Area - General Maintenance	Keep Absorbent Material on Hand (010) Keep Inventory of Significant Materials (017A) Use Good Management Practices to Minimize Pollutants Exposure to Storm Water (135) Store Reactive, Ignitable, or Flammable Liquids in Compliance with the Local Fire Code (199)	Core BMPs
Hydraulic Shop	Properly Dispose of Any Significant Materials or Contaminated Wastes (057A) Use Good Management Practices to Minimize Pollutants Exposure to Storm Water (135) Store Reactive, Ignitable, or Flammable Liquids in Compliance with the Local Fire Code (199)	
Loading Dock	Confine Loading/Unloading Activities to a Designated Area (136) Consider Performing Loading/Unloading Activities Indoors or in a Covered Area (137) Store Reactive, Ignitable, or Flammable Liquids in Compliance with the Local Fire Code (199)	Core BMPs
NDI Emulsifying Penetration and Sonar Fluid	Properly Dispose of Any Significant Materials or Contaminated Wastes (057A) Use Good Management Practices to Minimize Pollutants Exposure to Storm Water (135)	
NDI Shop General Operations	Label All Drums, Cans, Containers, Tanks, and Valves (001) Keep Inventory of Significant Materials (017A) Prepare a Spill Prevention and Response Plan (112) Store Reactive, Ignitable, or Flammable Liquids in Compliance with the Local Fire Code (199)	Sector S BMPs
Northeast Outdoor Storage Area - Hazardous Materials	Provide Absorbent Booms in Unbermed Fueling Areas (065)	
Northeast Outdoor Storage Area Bowser	Conduct Indoor Sanding and Painting in an Enclosed Area (079) Prevent All Blasting and Painting Residuals From Reaching Storm Water (171) Store Reactive, Ignitable, or Flammable Liquids in Compliance with the Local Fire Code (199) Properly Dispose of Any Significant Materials or Contaminated Wastes (057A)	Sector S BMPs
Paint Shop		
Welding Shop		

**Table 4-** [REDACTED]  
**List of Significant Spills and Leaks**

Date (month/day/year)	Spill	Leak	Location (As Indicated on Site Map)	Description				Response Procedure		Preventive Measures Taken
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered	Material No Longer Exposed to Storm Water (True/False)	
10/16/13	X		Aqueous parts washer overfill	Parts washer water	45					
6/10/15	X		Paint booth	Paint booth water	100					
6/15/15	X		Chilled water	Chem- Aqua 777	400					
3/26/15		X	Test bench	Hydraulic fluid	60					

Definitions: Significant spills include, but are not limited to, releases of oil or hazardous substances in excess of reportable quantities.

**Table 4- [REDACTED]**  
**Material Inventory**

Material	Purpose/Location	Quantity (units)			Exposed in 2006-2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
	Outside							
Hazardous waste	Temporary storage/ In hazardous waste shed	—	—	6 to 8 55-gallon drums	No	No, stored inside.		X
Nickel/cadmium batteries	Charge/ Inside Ni/Cd battery room	—	—	1 to 2 dozen	No	No, stored inside.		X
Acid batteries	Refill/ Inside acid battery room	—	—	2 to 3 dozen	No	No, stored inside.		X
Sulfuric acid dilution	Acid battery refill/ Inside acid battery room	450 gallons per year	—	1 15-gallon drum	No	No, stored inside.		X
9.3% sulfuric acid	Acid battery refill/ Inside acid battery room	4 to 5 bottles per year	—	6½-gallon bottle	No	No, stored inside.		X
Distilled water	Acid battery refill/ Inside acid battery room	400 gallons per year	—	7 5-gallon jugs	No	No, stored inside.		X

Table 4-

Material Inventory

Material	Purpose/Location	Quantity (units)			Exposed in 2006-2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Developer	NDI Storage/ Inside NDI Shop	15 gallons per year	—	1 25-gallon drum	No	No, stored inside.		X
Solvent	Parts cleaning/Inside engine work area near garage door	30 gallons every 3 months	—	1 3-gallon Clean Care tank	No	No, stored inside.		X
Isopropyl alcohol	Corrosion control/Inside corrosion control flam. locker.	0.5 gallons per week	—	4 gallons	No	No, stored inside flam. locker.		X
Thinner	Corrosion control/Inside corrosion control flam. locker.	3 pints per week	—	1 gallon	No	No, stored inside flam. locker.		X
Naphtha	Corrosion control/Inside corrosion control flam. locker.	1 quart per week	—	2 gallons	No	No, stored inside flam. locker.		X
Paint	Corrosion control/Inside corrosion control flam. locker.	4 pints per week	—	<5 gallons	No	No, stored inside flam. locker.		X
Lacquer aery lic/aerosol cans	Corrosion control/Inside corrosion control flam. locker.	5 spray cans per week	—	1 to 2 dozen cans	No	No, stored inside flam. locker.		X
Hazardous waste	Temporary storage/Inside corrosion control shop	—	—	3 30-gallon drums	No	No, stored inside flam. locker.		X
Scrap metal	Temporary/outside storage	—	—	1 trash bin	Yes	Yes, stored in open trash bin.		X
Waste fuel	Temporary storage/ Outside	—	—	1 250-gallon bowser	No	No, stored inside contained covered area		X
New tires	Storage/ Outside	—	—	1 to 2 dozen	Yes	Yes, stored uncovered outside.		X
Antifreeze	Temporary storage/Outside on covered loading dock	—	—	2 55-gallon drums	No	Yes, no secondary containment.		X
Metat cuttings	Temporary storage/	—	—	8 55-gallon drums	Yes	Yes, no secondary		X

**Table 4-** Material Inventory

Material	Purpose/Location	Quantity (units)			Exposed in 2006-2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
beads	Inside blasting room	week						
Plastic impact beads	Equipment cleaning/ Inside blasting room	1 55-gallon drum per month	—	5 55-gallon drums	No	No. stored inside.		X
Waste glass oxide impact beads	Temporary storage/ Inside blasting room	—	1 55-gallon drum every 2 weeks	1 55-gallon drum	No	No. stored inside.		X
Waste plastic impact beads	Temporary storage/ Inside blasting room	—	1 55-gallon drum per 2 months	1 55-gallon drum	No	No. stored inside.		X
Met-L-C heck cleaner/remover	NDI/Inside NDI shop	120 gallons per year	—	1 5-gallon drum	No	No. stored inside.		X
Waste Isopar-I	Temporary storage/ Inside NDI Shop	35 gallons per year	—	1 55-gallon drum	No	No. stored inside.		X
Waste emulsifier/penetration fluid	Temporary storage/ Inside NDI Shop	—	190 gallons per year	1 55-gallon drum	No	No. stored inside.		X
Penetrant	NDI/Inside NDI shop flam. locker	2 spray cans per month	—	2 spray cans	No	No. stored inside flam. locker		X
Penetrant Developer	NDI/Inside NDI shop flam. locker	6 spray cans per month	—	2 spray cans	No	No. stored inside flam. locker		X
Emulsifying fluid	NDI Storage/ Outside NDI Shop	150 gallons per year	—	2 55-gallon drums	Yes	Yes. no secondary containment.		X
Penetration fluid	NDI Storage/ Outside NDI Shop	150 gallons per year	—	3 55-gallon drums	Yes	Yes. no secondary containment.		X
Sonar fluid	NDI storage/ Outside NDI shop	200 gallons per year	—	1 55-gallon drum	Yes	Yes. no secondary containment.		X
Fixer	NDI storage/ Inside NDI Shop	15 gallons per year	—	1 25-gallon drum	No	No. stored inside.		X

**Table 4-** [REDACTED]  
**Material Inventory**

Material	Purpose/Location	Quantity (units)			Exposed in 2006-2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Methyl ethyl ketone	Paint operations/ Inside paint shop	10 gallons per year	—	Small amount in flam. locker	No	No. stored inside.		X
Naphtha	Paint operations/ Inside paint shop	2 gallons per year	—	Small amount in flam. locker	No	No. stored inside.		X
Isopropyl alcohol	Paint operations/ Inside paint shop	2 gallons per year	—	Small amount in flam. locker	No	No. stored inside.		X
Formula 340	Flocculate water in wet tanks/inside paint shop	4 gallons per year	—	1 55-gallon drum	No	No. stored inside.		X
Oil	Oil quencher/ Inside welding shop	150 gallons in last 15 years	—	150-gallon tank	No	No. stored inside.		X
Cutting fluid	Machine work/ Inside machine shop	<1 gallon	—	<1 gallon	No	No. stored inside.		X
Grease	Machine work/ Inside machine shop	<1 gallon per day	—	1 gallon	No	No. stored inside.		X
Penetrating oil	Machine work/ Inside machine shop	<1 gallon per day	—	<1 gallon	No	No. stored inside.		X
Aerosol cans	Machine work/ Inside machine shop	<12 cans	—	<12 cans	No	No. stored inside.		X
FO606 stripper	Equipment cleaning/ Inside cleaning shop	935 gallons per year	—	<100 gallons (tank)	No	No. stored inside.		X
Degreaser (Enviro-solve)	Equipment cleaning/ Inside cleaning shop	165 gallons every 6 months	—	<100 gallons (tank)	No	No. stored inside.		X
Alodine	Equipment cleaning/ Inside cleaning shop	76 gallons per year	—	<100 gallons (tank)	No	No. stored inside.		X
Glass oxide impact	Equipment cleaning/	5 50-lb bags per	—	10 50-lb bags	No	No. stored inside.		X

**Table 4-** **Material Inventory**

Material	Purpose/Location	Quantity (units)			Exposed in 2006-2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Waste hydraulic fluid/PD680	Temporary storage/ Inside hydraulic shop	27 gallons per month	—	600-gallon storage tank	No	No, stored inside.		X
Safety Kleen Solvent	Parts cleaning/ Inside hydraulic shop	55-gallons every 3 months	—	1 25-gallon Safety Kleen drum	No	No, stored inside.		X
Hydraulic fluid	Shop operations/ Inside hydraulic shop	22 gallons per month	—	1 25-gallon drum	No	No, stored inside.		X
PD680	Shop operations/ Inside hydraulic shop	5 gallon per month	—	1 25-gallon drum	No	No, stored inside.		X
Hydraulic fluid	Pressure checking/ Inside brake/tubing shop	<20 gallons per month	—	<10 gallons	No	No, stored inside.		X
Solvent	Parts cleaning/ Inside tire shop	—	—	1 50-gallon Safety Kleen drum	No	No, stored inside.		X
Grease	Tire maintenance/ Inside tire shop flam. locker	—	—	2 quarts	No	No, stored inside flam. locker.		X
Aerosol cans	Tire maintenance/ Inside tire shop flam. locker	—	—	2 dozen	No	No, stored inside flam. locker.		X
Used quick-peel/waste paint	Paint operations/ Inside paint shop	—	427 lbs per year	3 55-gallon drums	No	No, stored inside.		X
Paint thinner	Paint operations/ Inside paint shop	2 gallons per month	—	Small amount in flam. locker	No	No, stored inside.		X
Paint	Paint operations/ Inside paint shop	3 gallons per month	—	Small amount in flam. locker	No	No, stored inside.		X
Spray paints	Paint operations/ Inside paint shop	2-4 spray cans per month	—	Small amount in flam. locker	No	No, stored inside.		X

#### 4.2.4 Fleet Readiness Center Northwest (FRC NW) Facility ( [REDACTED] )

**Facility Description:** The FRC NW facility is located [REDACTED] as shown on Sheet 7 (Grid 4) of the SWPPP base maps.

This facility consists of a one-story [REDACTED] concrete building running northwest to southeast, [REDACTED]. The building contains offices and workshops. A detailed map showing the site layout and surrounding area is provided in Figure 4-[REDACTED].

**Facility Objective:** The facility provides [REDACTED]

**Stormwater Drainage Description:** This facility is [REDACTED], respectively. Some small vegetated areas are located along the building to the west and south. Stormwater runoff in the vicinity of the facility is conveyed exclusively via underground storm drains.

The facility is located within Drainage Basin AF-7 and Sub-basin AF-7B. Drainage from several catch basins located around the FRC NW building is routed across [REDACTED] to the east, to Outfall OAF-7B, associated with this sub-basin. This outfall discharges to the open channel network within the flight line. Water within open channels empties to the wetland area near the eastern boundary of the station via Outfall OAF-7F. Ultimate discharge is to Dugualla Bay.

**Material Inventory:** All materials used, stored, or produced at this facility in 2009 are listed in Table 4-[REDACTED]. Each material was assessed and evaluated in terms of its potential to contribute pollutants to stormwater runoff.

Because no materials have been found to be exposed to stormwater over the past three years, Table 4-[REDACTED] is not included.

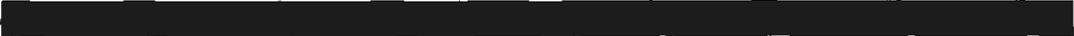
**Significant Spills and Leaks:** Significant spills or leaks associated with the facility in the past three years are shown in Table 4-[REDACTED].

**Site Assessment Inspection:** The initial site assessment inspection was performed by E&E field personnel on Monday, December 5, 1994. The site has been reassessed regularly since by NAVFAC NW personnel. An investigation in 2015 found the site generally clean and no issues were noted.

**Existing BMPs:** Existing BMPs are provided in Table 4-[REDACTED]

**Recommended BMPs and Implementation Plan:** Recommended BMPs for this facility and the associated implementation phase are identified in Table 4-[REDACTED]. Implementation of BMPs is required by the terms of the Multi-Sector Permit as authorized by 40 CFR 122.



**Figure 4-**  **SWPPP Site Map**



**Table 4- [REDACTED]**  
**Pollutant Sources, Existing BMPs, and Recommended Implementation Plan**

Storm Water Pollutant Sources	Existing BMPs <sup>a</sup>	Recommended BMPs <sup>a</sup>
Floor Drain GSE Storage Lube Room	Label All Drums, Cans, Containers, Tanks, and Valves (001) Store Liquids and Significant Materials within a Building or Covered Area (061B)	Core BMPs  Sector S BMPs
Maintenance	Store Drained Filters in a Suitable Container or Drum, and Dispose of Properly (040B) Conduct Maintenance within a Building or Covered Area (047)	
Paint and Blast Booths	Conduct Sanding and Painting in an Enclosed Area (079) Store Containers Inside Secondary Containment (115) Conduct Maintenance within a Building or Covered Area (047)	

<sup>a</sup> Number in parentheses refers to BMP Index Number (see Appendix E).

### 4.3 Air Operations (AO) Facilities

One AO related facility is included in the facility SWPPP as listed below.

[REDACTED]

[REDACTED]

**Facility Description:** The [REDACTED], an AO facility, is located [REDACTED], as shown on Sheet 6 (Grid 3) of the SWPPP base maps.

The [REDACTED] includes the following facilities, which were inspected for the SWPPP:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

**Facility Objective:** This facility [REDACTED]

**Stormwater Drainage Description:** Buildings associated with the [REDACTED] fall within Drainage Basin AF-7 and Sub-basin AF-7E. With the exception of the area within the [REDACTED], there is no designed catchment in this area. Stormwater runoff in areas outside the pad flow generally to the southeast and infiltrate into soils. Runoff within the [REDACTED] flows to a catch basin in its center. This catch basin routes flow to an oil/water holding tank and separator (Building [REDACTED] to the southeast. Separated water and fuel are reused with excess water discharging to the sanitary system.

**Material Inventory:** All materials used, stored, or produced at this facility in 2009 are listed in Table 4-[REDACTED]. Each material was assessed and evaluated in terms of its potential to contribute pollutants to stormwater runoff.

Because no materials have been found to be exposed to stormwater over the past three years, Table 4-[REDACTED] is not included.

**Significant Spills and Leaks:** Significant spills or leaks associated with the facility in the past three years are shown in Table 4-██████.

**Site Assessment Inspection:** The initial site assessment inspection was performed by EFA NW field personnel on November 12, 1997. The site has been reassessed regularly by NAVFAC NW personnel. The inspection in 2015 did not include this facility.

**Existing BMPs:** Existing BMPs are provided in Table 4-██████.

**Recommended BMPs and Implementation Plan:** Recommended BMPs for this facility and the associated implementation phase are identified in Table 4-██████. Implementation of BMPs is required by the terms of the Multi-Sector Permit as authorized by 40 CFR 122.

**Table 4-** [REDACTED]  
**MATERIAL INVENTORY**

Material	Purpose/Location	Quantity (units)			Exposed in 2006-2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
AFFF (aqueous film-forming foam)	Emergency situation/ Outside	—	—	2 55-gallon drums	Yes	Yes, no secondary containment provided.		X
MOGAS	[REDACTED] Outside, in flam. locker	10 gallons per week	—	7 5-gallon containers	No	No. stored in flam. locker		X
Epoxy Paint	[REDACTED] Outside, in flam. locker	1/2 gallon/yr	—	2 1-gallon cans	No	No. stored in flam. locker.		X
Lubricant	Equipment maint./ Outside, in flam. locker	4 pints/yr	—	5 pints	No	No. stored in flam. locker.		X
Lube oil	Equipment maint./ Outside, in flam. locker	1 gallon/yr	—	2 5-gallon drums	No	No. stored in flam. locker.		X
Latex Paint	Equipment maint. Outside, in flam., locker	3 gallons/yr	—	3 gallons	No	No. stored in flam. locker.		X
Spray paint	Equipment maint./ Outside, in flam. locker.	3 pints	—	5 cans	No	No. stored in flam. locker.		X
Acrylic Lacquer	Equipment maint./ Outside, in flam. locker	4 pints	—	3 pints	No	No. stored in flam. locker.		X
Metal Polish	Equipment maint. Outside, in flam., locker	1 pints	—	3 pint cans	No	No. stored in flam. locker.		X
Silicone Compound	Equipment maint. Outside, in flam., locker	8 tubes	—	1 8oz tube	No	No. stored in flam. locker.		X
Anti-Seize Compound	Equipment maint. Outside, in flam., locker	1/2 pint	—	1 pint can	No	No. stored in flam. locker.		X
Rubber Adhesive	Equipment maint.	1/2 pint	—	1 pint can	No	No. stored in flam. locker.		X

**Table 4-**  
**[REDACTED]**  
**MATERIAL INVENTORY**

Material	Purpose/Location	Quantity (units)			Exposed in 2006-2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Varnish	Outside, in flam., locker Equipment maint. Outside, in flam., locker	1 pint	—	2 1-quart cans	No	No. stored in flam. locker.		X
Multi-purpose cleaner	Equipment maint. Outside, in flam., locker	2 gallons	—	1 gallon	No	No. stored in flam. locker.		X
Glass cleaner	Equipment maint. Outside, in flam., locker	2 gallons	—	3 1-gallon cans	No	No. stored in flam. locker.		X
Traffic paint	Equipment maint. Outside, in flam., locker	1/2 gallon	—	1 gallon	No	No. stored in flam. locker.		X
Grease	Equipment maint. Outside, in flam., locker	1/2 gallon	—	2 1-gallon cans	No	No. stored in flam. locker.		X
Detergent	Equipment maint. Outside, in flam., locker	1/2 gallon	—	1 gallon	No	No. stored in flam. locker.		X
Corrosion Prevention Compound	Equipment maint. Outside, in flam., locker	6 pints	—	5 pint cans	No	No. stored in flam. locker.		X
Trichloroethane	Equipment maint. Outside, in flam., locker	5 12oz-cans	—	5 12oz-cans	No	No. stored in flam. locker.		X
Isopropyl Alcohol	Equipment maint. Outside, in flam., locker	2 8oz-cans	—	1 8oz-can	No	No. stored in flam. locker.		X
Oil/water	Temporary storage/In UST	—	gallons per week	gallons	No	No		X

Key:  
 O/W = Oil/water.

U1ST Underground storage

**Table 4- [REDACTED]**

**LIST OF SIGNIFICANT SPILLS AND LEAKS**

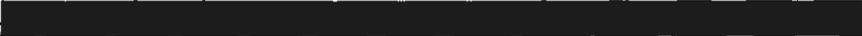
Date (month/day/year)	Spill	Leak	Location (As Indicated on Site Map)	Description			Response Procedure			Preventive Measures Taken
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered	Material No Longer Exposed to Storm Water (True/False)	

Definitions: Significant spills include, but are not limited to, releases of oil or hazardous substances in excess of reportable quantities.

**Table 4-**

**POLLUTANT SOURCES, EXISTING BMPs, AND RECOMMENDED IMPLEMENTATION PLAN**

Storm Water Pollutant Sources	Existing BMPs	Recommended BMPs
[REDACTED]	Divert Drainage to Treatment Facility/Sanitary Sewer (096)	Core BMPs
Oil/Water Separator System	Provide Secondary Containment for ASTs (075)	Sector S BMPs
USTs	Install Leak Detection System (067)	Sector S BMPs
Flammable Material Lockers	Keep Absorbent Material on Hand (010) Keep Inventory of Significant Materials (017A) Store Containers Inside Secondary Containment (115) Store Reactive, Ignitable, or Flammable Liquids in Compliance with the Local Fire Code (199)	Sector S BMPs

**Figure 4-**  **SWPPP Site Map**

#### 4.4 Base Operating Support Contract (BOSC) Facilities

Twelve BOSC related facilities are included in this SWPPP. These facility names and building number are listed below:

[REDACTED]

##### 4.4.1 Transportation Building [REDACTED]

**Facility Description:** The Transportation Building, a BOSC facility, is located [REDACTED] as shown on Sheet 10 (Grid 7) of the SWPPP base maps.

The facility consists of:

- Offices.
- Storage rooms.
- A wash rack.
- 5-bay maintenance garage on its east and west sides, and
- A parking lot approximately 150 feet wide and 400 feet long on the north side of the building.
- A detailed map showing the site layout and surrounding area is provided in Figure 4-18.

**Facility Objective:** This facility is used for [REDACTED]

**Stormwater Drainage Description:** The Transportation Building is bounded by concrete on its north and east sides. A grassy fringe is located outside the building to the south. Stormwater runoff north of the Building (including the parking lot area) flows to Catch Basin SDCB50-17C, located outside the garage bays, and to SDCB50-04. Runoff south, west, and east of the facility flows to Catch Basin SDCB50-05, which is located to the southwest.

[REDACTED] is located in Sub-basin SB-3D. Stormwater runoff entering Catch Basin SDCB50-17C which houses a spill control type oil water separator (OWS50-01) discharges to the sanitary

sewer. Stormwater entering Catch Basins SDCB50-04 and SDCB50-05 is routed to the south and west to Outfall OSB-3D, discharging to Oak Harbor.

**Material Inventory:** All materials used, stored, or produced at this facility in 2009 are listed in Table 4-█. Each material was assessed and evaluated in terms of its potential to contribute pollutants to stormwater runoff.

Table 4-█ lists significant materials (as defined in the glossary found in Appendix B of this report) exposed to stormwater during the past three years and/or currently exposed.

**Significant Spills and Leaks:** Significant spills or leaks associated with the facility will be shown in Table 4-█.

**Site Assessment Inspection:** The initial site assessment inspection was performed by E & E field personnel on Wednesday, November 30, 1994. The site has been reassessed regularly by NAVFAC NW personnel. The most recent inspection was conducted in 2015. The building and surrounds were generally clean. A scrap metal bin without a cover was observed and oily parts were on the ground in the SW parking area.

**Existing BMPs:** Existing BMPs are provided in Table 4-█.

**Recommended BMPs and Implementation Plan:** Recommended BMPs for this facility and the associated implementation phase are identified in Table 4-█. Implementation of BMPs is required by the terms of the Multi-Sector Permit as authorized by 40 CFR 122.

Table 4-

**MATERIAL INVENTORY**

Material	Purpose/Location	Quantity (units)			Quantity Exposed in 2006-2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Waste oil	Temporary storage/ Outside	—	1,500 gallons per year	1 167-gallon AST	Yes	Yes, no secondary containment.		X
Motor oil	Storage/ Outside	2,000 gallons per year	—	2 500-gallon ASTs, 1 1,000-gallon AST	No	No, stored in ASTs with secondary containment.		X
Scrap metal	Disposal/ Outside	—	—	1 trash bin	Yes	Yes, trash bin open.		X
Duralith ultra duty grease	Vehicle maintenance/ Inside	120 gallons per year	—	10 30-gallon drums	No	No, stored inside.		X
Lubricant	Vehicle maintenance/ Inside	150 gallons per year	—	1 70-gallon drum 3 55-gallon drums 1 30-gallon drum	No	No, stored inside.		X
Used gas and Diesel fuel filters	Satellite accumulation/ Inside	—	334 filters per year	1 55-gallon drum	No	No, stored inside.		X
Waste aerosol cans	Satellite accumulation/ Inside	—	—	1 55-gallon drum	No	No, stored inside.		X
Used floor sweep	Satellite accumulation/ Inside	—	2,700 lbs per year	1 70-gallon drum 1 55-gallon drum	No	No, stored inside.		X
Used antifreeze	Satellite accumulation/ Inside	—	18 55-gallon drums per year	1 70-gallon drum 1 55-gallon drum	No	No, stored inside.		X
Diatomite absorbent material	POI cleanup/ Inside	25 bags per year	—	7 33½-lb. bags 1 55-gallon drum	No	No		X
Vehicle batteries	Stock storage/ Inside	—	—	½ to 1 dozen	No	No, stored inside.		X
Aviation hydraulic	Vehicle maintenance/ Inside	250 gallons per year	—	2 55-gallon drums	No	No, stored inside.		X

Table 4-

**MATERIAL INVENTORY**

Material	Purpose/Location	Quantity (units)			Quantity Exposed in 2006-2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
fluids	Inside	year						
Antifreeze	Vehicle maintenance/ Inside	800 gallons per year	—	2 55-gallon drums	No	No. stored inside.		X
Tractor hydraulic fluid	Vehicle maintenance/ Inside	250 gallons per year	—	2 55-gallon drums	No	No. stored inside.		X
Toluene solvent	Parts and tool cleaning/Inside	—	—	1 55-gallon drum	No	No. stored inside.		X
Crushed oil filters	Temporary storage/ Inside	450 filters per year	—	5 55-gallon drums	No	No. stored inside.		X
Safety Kleen solvent	Parts and tool cleaning/Inside	221 lbs per month	—	3 40-gallon drums	No	No. stored inside.		X
Tires	Storage/inside	—	—	1 to 2 dozen	No	No. stored inside.		X
Various small containers of aerosol cans, oil, hydraulic fluid, gas cans	Vehicle maintenance/ Inside	—	—	2 flam. lockers	No	No. stored in flam. lockers.		X
Dirty rags	Temporary storage/ Inside	—	200 lbs per year.	2 trash cans	No	No. stored in containers.		X

Key: ASTs = Aboveground storage tanks. POL = Petroleum, oil, and lubricants.

**Table 4-**



**DESCRIPTION OF EXPOSED SIGNIFICANT MATERIAL**

Description of Exposed Significant Material	Period of Exposure	Quantity Exposed (units)	Location (As Indicated on the Site Map)	Method of Storage or Disposal (e.g., pile, drum, tank)	Description of Material Management Practice (e.g., pile covered, drum sealed)
Oil equipment parts, engine part	2013 + Current		SW parking area	On ground	Remove or cover
Scrap metal bin without cover	2013-Current	1 bin	North side of west garage	Stored in bin	Cover is required

Table 4-  


**LIST OF SIGNIFICANT SPILLS AND LEAKS**

Date (month/day/year)	Spill	Leak	Location (As Indicated on Site Map)	Description				Response Procedure		Preventive Measures Taken
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered	Material No Longer Exposed to Storm Water (True/False)	

Definitions: Significant spills include, but are not limited to, releases of oil or hazardous substances in excess of reportable quantities.

**Table 4-**

<b>POLLUTANT SOURCES, EXISTING BMPs, AND RECOMMENDED BMPs</b>			
<b>Storm Water Pollutant Sources</b>	<b>Existing BMPs</b>	<b>Recommended BMPs</b>	
East Garage Drum Storage	Label All Drums, Cans, Containers, Tanks, and Valves (001)	Core BMPs	
East Garage Hazardous Waste Accumulation Area	Store Liquids and Significant Materials within a Building or Covered Area (061B) Label All Drums, Cans, Containers, Tanks, and Valves (001) Store Liquids and Significant Materials within a Building or Covered Area (061B) Store Waste and Recycling Materials in Proper Containers (016)		
East Garage Maintenance and Repair	Recycle or Properly Dispose of All Used Vehicle Fluids (039A) Store Drained Filters in a Suitable Container or Drum, and Dispose of Properly (040B) Use Drip Pans under Leaking Equipment (044) Conduct Maintenance within a Building or Covered Area (047)	Sector P BMPs	
East Garage Maintenance Bay Flammable Material Locker	Store Liquids and Significant Materials within a Building or Covered Area (061B) Store Containers Inside Secondary Containment (115)		
East Garage Storage Bay	Store Liquids and Significant Materials within a Building or Covered Area (061B) Use Spill Troughs for Drums with Taps (204)	Core BMPs	
East Garage Wash Rack	Discharge Wash Water to a Sanitary Sewer (042) Divert Drainage to Treatment Facility/Sanitary Sewer (096) Perform Pressure Washing in Designated Areas (175)		
Floor Drains in East and West Garages	Permanently Seal Drains Within Critical Areas that Discharge to the Storm Drain (022)		
Motor Oil ASTs	Provide Secondary Containment for ASTs (075)		
Waste Oil AST	Provide Secondary Containment for ASTs (075)		
West Garage Drum Storage	Store Liquids and Significant Materials within a Building or Covered Area (061B)		
			Sector P BMPs

Table 4-

<b>POLLUTANT SOURCES, EXISTING BMPs, AND RECOMMENDED BMPs</b>		
<b>Storm Water Pollutant Sources</b>	<b>Existing BMPs</b>	<b>Recommended BMPs</b>
West Garage Flammable Material Locker	Label All Drums, Cans, Containers, Tanks, and Valves (001) Store Liquids and Significant Materials within a Building or Covered Area (061B) Store Containers Inside Secondary Containment (115) Store Reactive, Ignitable, or Flammable Liquids in Compliance with the Local Fire Code (199)	
West Garage Hazardous Waste Accumulation Area	Store Liquids and Significant Materials within a Building or Covered Area (061B) Label All Drums, Cans, Containers, Tanks, and Valves (001) Store Waste and Recycling Materials in Proper Containers (016)	Core BMPs
West Garage Maintenance and Repair	Keep Absorbent Material on Hand (010) Recycle or Properly Dispose of All Used Vehicle Fluids (039A) Store Drained Filters in a Suitable Container or Drum, and Dispose of Properly (040B) Use Drip Pans under Leaking Equipment (044) Perform Equipment Maintenance in Designated Areas (045)	Sector P BMPs
Western Garage Scrap Metal		
Western Garage Used Batteries		



**Figure 4- [REDACTED] SWPPP Site Map**

#### 4.5 Hazardous Waste Handling Equipment Staging Area (Building [REDACTED])

**Facility Description:** The Hazardous Waste Handling Equipment Staging Building is located [REDACTED] as shown on Sheet 7 (Grid 4) of the SWPPP base maps.

The building consists of offices at the east end, a large garage space used for repair and maintenance in the center, and two separate garage bays at the west end. The grounds surrounding the outside of the building are used for parking of equipment.

A detailed map showing the site layout and surrounding area is provided on the BOSC Storage, SWPPP Site Map (Figure 4-[REDACTED]).

**Facility Objective:** The facility is used for maintenance and staging of hazardous waste handling equipment and materials. Vehicles, empty drums and miscellaneous equipment are stored inside the open bay portions of the building and office spaces are located on the east side. Minor maintenance is performed on the vehicles in the maintenance bays.

**Stormwater Drainage Description:** Stormwater runoff drains from this facility radially over an asphalt lot which surrounds the building. In the northern portion of the lot, runoff flows to two catch basins: SDCB14-12 and SDCB14-13. This runoff is then directed to SDCB14-11 and subsequently to SDCB14-10, located to the north and northeast, respectively. A grease trap is incorporated into Catch Basin SDCB14-11. Other drainage in the northern, eastern, and western sides of the building travels over steep grassy slopes to the north and east, where runoff will infiltrate; some drainage may reach SDCB14-10. Stormwater in front of the building (to the south) is conveyed along [REDACTED] until breaking to the north; this runoff may also infiltrate or enter SDCB14-10. Stormwater from roof drains is directed also to SDCB14-10 via underground piping.

This facility is located within Drainage Basin AF-7 and Sub-basin AF-7A. Stormwater reaching Catch Basin SDCB14-10 is routed to the northeast to Outfall OAF-7A, where it reemerges to the open channel network within the flight line. Drainage from the open channel network discharges at Outfall OAF-7F to wetlands beyond the eastern boundary of the station. Ultimate discharge is to Dugualla Bay.

**Material Inventory:** All materials used, stored, or produced at this facility in 2009 are listed in Table 4-[REDACTED]. Each of these materials was assessed and evaluated in terms of its potential to contribute pollutants to stormwater runoff.

Table 4-[REDACTED] lists significant materials (as defined in the glossary found in Appendix B of this report) exposed to stormwater during the past three years and/or currently exposed.

**Significant Spills and Leaks:** Significant spills or leaks of toxic or hazardous pollutants at this facility in the past three years will be indicated in Table 4-[REDACTED].

**Site Assessment Inspection:** The initial site assessment inspection was conducted by EFA NW field personnel on Wednesday, September 25, 1996. The site has been reassessed regularly by NAVFAC NW personnel. During the 2015 inspection, the site was generally clean, but one open-top scrap metal dumpster was observed.

**Existing BMPs:** Existing BMPs are provided in Table 4-[REDACTED].

**Recommended BMPs and Implementation Plan:** Recommended BMPs for this facility and the associated implementation phase are identified in Table 4-[REDACTED]. Implementation of BMPs is required by the terms of the Multi-Sector Permit as authorized by 40 CFR 122.

Table 4- [REDACTED]

**MATERIAL INVENTORY**

Material	Purpose/ Location	Quantity (units)			Quantity Exposed in 2006- 2009	Likelihood of Contact with a Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Paint thinner	Paint removal/ Outside flam. locker	—	—	1 1-gallon can	No	No. stored inside with containment		X
Lacquer	Painting/Outside flam. locker	—	—	5 16-ounce spray cans	No	No. stored in flam. locker		X
Caulking compound	Sealing/Outside flam. locker	—	—	2 16-ounce tubes	No	No. stored in flam. locker		X
Accelerator	Paint curing/Outside flam. locker	—	—	1 quart	No	No. stored in flam. locker		X
Inron 53 paint	Equipment painting/Inside flam. locker	—	—	10 1-gallon cans	No	No. stored in flam. locker		X
Enamel	Painting/Inside flam. locker	—	—	2 1-gallon cans	No	No. stored in flam. locker		X
Sealing compound	Equip. Maint./outside flam. locker	—	—	2 1-quart cans	No	No. stored in flam. locker		X
Adhesive, rubber	Equip. Maint./outside flam. locker	—	—	2 1-pint bottles	No	No. stored in flam. locker		X
Oil, General purpose	Equip. Maint./outside flam. locker	—	—	1 quart	No	No. stored in flam. locker		X
Corrosion remover	Equip. Maint./outside flam. locker	—	—	1 1-gallon can	No	No. stored in flam. Locker		X

Table 4-  
[REDACTED]  
MATERIAL INVENTORY

Material	Purpose/ Location	Quantity (units)			Likelihood of Contact with a Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored		Quantity Exposed in 2006- 2009	Yes
Corrosion preventative	Equip. Maint./outside flam. locker	-	-	1 1-gallon can	No. No. stored in flam. locker		X
Isopropyl alcohol	Surface cleaning/Outside flam. locker	-	-	1 1-gallon can	No. No. stored in flam. locker		X
Citrus cleaner	Cleaning/Outside flam. locker	-	-	1 5-gallon can	No. No. stored in flam. locker		X
Waste oil	Temporary storage/Inside West Maint. bay	-	-	1 55-gallon drum	No. No. secondary containment used		X
Used Antifreeze	Temporary storage/Inside West Maint. bay	-	-	1 55-gallon drum	No. No. secondary containment used		X

Table 4- [REDACTED]

**DESCRIPTION OF EXPOSED SIGNIFICANT MATERIAL**

Description of Exposed Significant Material	Period of Exposure	Quantity Exposed (units)	Location (As Indicated on the Site Map)	Method of Storage or Disposal (e.g., pile, drum, tank)	Description of Material Management Practice (e.g., pile covered, drum sealed)
Open top scrap metal dumpster	2013-Current	1 dumpster	Outside Facility	Dumpster	

Table 4-  
[REDACTED]  
**LIST OF SIGNIFICANT SPILLS AND LEAKS**

Date (month/day/year)	Spill	Leak	Location (As Indicated on Site Map)	Description			Response Procedure		Preventive Measures Taken
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered	
11/26/12	X		Outside Bldg [REDACTED]	Diesel	15 gal	Truck			
3/17/15		X	Storage area	Diesel	44 gal	Mower leak			

Definitions: Significant spills include, but are not limited to, releases of oil or hazardous substances in excess of reportable quantities.

Table 4



**POLLUTANT SOURCES, EXISTING BMPs, AND RECOMMENDED BMPs**

Storm Water Pollutant Sources	Existing BMPs	Recommended BMPs
Equipment Repair	Perform Regular Pavement Cleaning to Remove Oil and Grease (003) Avoid Hosing Down the Site (004)	
Vehicle Washing	Wash Equipment and Vehicles in Designated Areas (041) Discharge Wash Water to a Sanitary Sewer (042)	Core BMPs
Hazardous Waste Lockers	Label All Drums, Cans, Containers, Tanks, and Valves (001) Store Containers Inside Secondary Containment (115)	Sector P BMPs
Indoor Hazardous Waste Accumulation Areas	Keep Absorbent Material on Hand (010) Store Containers Inside Secondary Containment (115)	
Floor Drain		
Equipment Storage		
Flammable Materials	Keep Absorbent Material on Hand (010) Keep Inventory of Significant Materials (017A) Store Containers Inside Secondary Containment (115) Store Reactive, Ignitable, or Flammable Liquids in Compliance with the Local Fire Code (199)	
Wash Rack	Divert Drainage to Treatment Facility/Sanitary Sewer (096)	Post Revised Wash Rack SOP for Valve Operation

**Figure 4-**



**SWPPP Site Map**

#### 4.5.1 BOSC Maintenance Shops (██████████)

**Facility Description:** The BOSC Maintenance Shops facility is located ██████████  
██████████ as shown on Sheet 7 (Grid 4) of the SWPPP  
base maps.

Building ██████ is a large one-story building housing offices, a boiler room, and several workshops including plumbing/sheet metal, machine/welding, paint, electric, and structural shops. The building has two loading docks, one covered dock at the back (north side) of the building, and an uncovered dock on the east side of the building. Also on the east side of the building are two fenced storage areas. A detailed map showing the site layout is provided on the BOSC Maintenance Shops, SWPPP Site Map (Figure 4-█████).

**Facility Objective:** The BOSC Maintenance Shops facility ██████████  
██████████

**Stormwater Drainage Description:** Building ██████ is surrounded by a concrete-covered lot. Stormwater runoff is directed to Catch Basins SDCB14-17 and SDCB14-18 in the north and south sides of the building. Runoff east of the building flows to Manhole SDMH14-06 which functions also as a catch basin. Similarly, runoff to the west enters Manhole SDMH14-10. Roof drains associated with this facility flow directly to the underground storm drain system via underground piping.

This facility is located in Drainage Basin AF-7 and Sub-basin AF-7A. Drainage entering catch basins described above flows to the northeast, Manhole SDMH14-05. Drainage from the manhole is routed to Outfall OAF-7A of this sub-basin. Flow from Outfall OAF-7A enters the open channel network within the flight line, combining with runoff from other AF-7 sub-basins, and ultimately discharging to wetlands via Outfall OAF-7F. Ultimate discharge is to Dugualla Bay.

**Material Inventory:** All materials used, stored, or produced at this facility in 2009 are listed in Table 4-█████. Each of these materials was assessed and evaluated in terms of its potential to contribute pollutants to stormwater runoff.

Table 4-█████ lists significant materials (as defined in the glossary found in Appendix B of this report) exposed to stormwater during the past three years and/or currently exposed.

**Significant Spills and Leaks:** Significant spills or leaks of toxic or hazardous pollutants at this facility in the past three years will be indicated in Table 4-█████.

**Site Assessment Inspection:** The initial site assessment inspection was performed by E&E field personnel on Monday, December 12, 1994. The site has been reassessed regularly by NAVFAC NW personnel. During the 2015 inspection, the site was generally clean and there were two open top scrap metal dumpsters.

**Existing BMPs:** Existing BMPs are provided in Table 4-█████.

**Recommended BMPs and Implementation Plan:** Recommended BMPs for this facility and the associated implementation phase are identified in Table 4-█████. Implementation of BMPs is required by the terms of the Multi-Sector Permit as authorized by 40 CFR 122.

Table 4-



**MATERIAL INVENTORY**

Material	Purpose/ Location	Quantity (units)			Likelihood of Contact with a Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored		Yes	No
Spent aerosol cans	Temporary storage/inside machine shop, satellite accumulation area	—	—	1 35-gallon drum and 1 50-gallon drum	Yes, no secondary containment, stored near door, floor drain goes to storm sewer		X
Used Oil	Temporary storage/inside machine shop, satellite accumulation area	—	1,300 gallons per year	1 35-gallon drum and 1 55-gallon drum	Yes, no secondary containment, stored near door, floor drain goes to storm sewer		X
Used floor dry	Temporary storage/inside machine shop, satellite accumulation area	—	—	1 35-gallon drum and 1 55-gallon drum	Yes, no secondary containment, stored near door, floor drain goes to storm sewer		X
Used absorbent pads	Temporary storage/inside machine shop, satellite accumulation area	—	—	1 35-gallon drum and 1 55-gallon drum	Yes, no secondary containment, stored near door, floor drain goes to storm sewer		X
Thread cutting oil	Machine maintenance/ inside machine shop	—	—	1 55-gallon drum	No, secondary containment pan used		X
Gear lubricant	Machine maintenance/ inside, in flam. locker	—	—	Several containers	No, stored inside		X

Table 4-



**MATERIAL INVENTORY**

Material	Purpose/ Location	Quantity (units)			Quantity Exposed in 2006-2009	Likelihood of Contact with a Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Oily machine parts	Storage/inside machine shop	—	—	2 trash cans	No	No. stored inside		X
Hydraulic fluid	Machine maintenance/inside, in flam. locker	—	—	Several containers	No	No. stored in flam. locker.		X
Contact cement	Maintenance/inside, in flam. locker	—	—	Several containers	No	No. stored in flam. locker		X
Paint	Maintenance/inside, in flam. locker	—	—	Several containers	No	No. stored in flam. locker		X
Adhesive	Maintenance/inside, in flam. locker	—	—	Several containers	No	No. stored in flam. locker		X
Paint thinner	Maintenance/inside, in flam. locker	—	—	Several containers	No	No. stored in flam. locker		X
Degreaser	Maintenance/inside machine shop, in flam. locker	—	—	Several containers	No	No. stored in flam. locker		X
Motor oil	Machine maintenance/inside machine shop, in flam. locker	160 gallons per year	—	Several containers	No	No. stored in flam. locker		X
Pesticides	Pest control/inside machine shop, in flam. locker	Not available	—	Small quantities	No	No. stored in flam. locker		X
Used oil fillers	Temporary storage/inside machine shop, in satellite	—	—	1 55-gallon drum	No	No. stored inside		X

Table 4- [REDACTED]

**MATERIAL INVENTORY**

Material	Purpose/ Location	Quantity (units)			Quantity Exposed in 2006-2009	Likelihood of Contact with a Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
	accumulation area							
Non-detergent compressor oil	Machine maintenance/inside machine shop	—	—	1 55-gallon drum	No	No, stored inside		X
Hydraulic fluid	Machine maintenance/ outside on covered loading dock	1,200 gallons per year	—	1 55-gallon drum	No	Yes, no secondary containment		X
Metal pipes	Maintenance/outside	Varies	—	Varies	Yes	Yes, stored uncovered		X
Lumber	Maintenance/outside	Varies	—	Varies	Yes	Yes, stored uncovered		X
Paint	Maintenance/inside, in flam. lockers and on floor, in paint shop	6,000 gallons per year		3 dozen gallons	No	No, stored inside		X
Waste paint	Temporary storage/inside paint shop	—	—	1 55-gallon drum	No	No, stored inside		X
Laquer thinner	Maintenance/inside, on floor of paint shop	115 gallons per year	—	Several gallons		No, stored inside		
Electrical ballast/ PCBs, burned out electrical parts	Temporary storage/inside, satellite accumulation area in electric shop	—	—	1 10-gallon drum	No	No, secondary containment provided		X
Hydraulic cement	Storage/inside, structural shop	—	—	15 gallons	No	No, stored inside		X

Table 4- [REDACTED]

[REDACTED]

**MATERIAL INVENTORY**

Material	Purpose/ Location	Quantity (units)			Quantity Exposed in 2006-2009	Likelihood of Contact with a Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Adhesives	Storage/inside structural shop	—	—	5 gallons	No	No, stored inside		X
Grout	Storage/inside structural shop	—	—	20 lbs.	No	No, stored inside		X
Wood scraps	Temporary storage/ outside in trash bins	—	—	2 trash bins	Yes	Yes, no cover		X
Metal parts	Storage/outside	Varies	—	Varies	Yes	Yes, insufficient cover and no secondary containment		X
Drum storage	Storage/outside	—	—	Several drums	Yes	Yes, some have no secondary containment		X

Table 4-



**DESCRIPTION OF EXPOSED SIGNIFICANT MATERIAL**

Description of Exposed Significant Material	Period of Exposure	Quantity Exposed (units)	Location (As Indicated on the Site Map)	Method of Storage or Disposal (e.g., pile, drum, tank)	Description of Material Management Practice (e.g., pile covered, drum sealed)
Several 5-gallon containers stored outside of containment	2014				
2 open top scrap metal dumpsters	2013-Current	Variable	Outside bldg. 	Dumpsters	

Table 4- [REDACTED]

**LIST OF SIGNIFICANT SPILLS AND LEAKS**

Date (month/day/year)	Spill	Leak	Location (As Indicated on Site Map)	Description				Response Procedure			Preventive Measures Taken	
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered	Material No Longer Exposed to Storm Water (True/False)			

Definitions: Significant spills include, but are not limited to, releases of oil or hazardous substances in excess of reportable quantities.

**Table 4-**



**POLLUTANT SOURCES, EXISTING BMPs, AND RECOMMENDED BMPs**

Storm Water Pollutant Sources	Existing BMPs	Recommended BMPs
Boiler Room Floor Drain	Divert Drainage to Treatment Facility/Sanitary Sewer (096)	Core BMPs
Central Heating Plant Boiler Condensate in Boiler Room	Treat and Recycle Water Back to Boilers (130)	
East Side Outdoor Storage	Restrict Access to Area and Equipment (002)	Sector S BMPs
Electric Shop Satellite Accumulation Point	Label All Drums, Cans, Containers, Tanks, and Valves (001) Store Containers Inside Secondary Containment (115)	
Loading Dock (East Side)	Confine Loading/Unloading Activities to a Designated Area (136)	
Loading Dock (North Side)	Confine Loading/Unloading Activities to a Designated Area (136) Consider Performing Loading/Unloading Activities Indoors or in a Covered Area (137)	
North Side Outdoor Storage	Properly Dispose of Any Significant Materials or Contaminated Wastes (057A)	
Paint Shop	Store Liquids and Significant Materials within a Building or Covered Area (061B) Conduct Indoor Sanding and Painting in an Enclosed Area (079) Prevent All Blasting and Painting Residuals From Reaching Storm Water (171)	

**Table 4-**



**POLLUTANT SOURCES, EXISTING BMPs, AND RECOMMENDED BMPs**

Storm Water Pollutant Sources	Existing BMPs	Recommended BMPs
Plumbing/Sheet Metal and Machine/Welding Shop Floor Drain		Core BMPs
Plumbing/Sheet Metal and Machine/Welding Shop General Housekeeping	Perform Regular Pavement Sweeping (005) Keep Absorbent Material on Hand (010) Limit Significant Materials Inventory (017) Use Drip Pans under Leaking Equipment (044) Store Containers Inside Secondary Containment (115)	Sector S BMPs
Plumbing/Sheet Metal and Machine/Welding Shop Hazardous Waste Accumulation Points	Label All Drums, Cans, Containers, Tanks, and Valves (001) Keep Absorbent Material on Hand (010) Store Liquids and Significant Materials within a Building or Covered Area (061B)	

**Figure 4- [REDACTED] SWPPP Site Map**



#### 4.5.2 Central Heating Plant ( [REDACTED] )

**Facility Description:** The Central Heating Plant, a BOSC facility, is located [REDACTED], as shown on Sheet 5 (Grid 2) of the SWPPP base maps.

The facility is a multi-story concrete building with the following major components:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

A detailed map showing the site layout and surrounding area is provided in Figure 4- [REDACTED].

**Facility Objective:** This facility [REDACTED].

**Stormwater Drainage Description:** This facility is surrounded by a combination of grassy and impervious areas. These impervious areas include an asphalt parking area located to the north, outside the loading dock, and a concrete pad outside the facility to the east.

Runoff north of the building within the parking area flows toward [REDACTED], entering Catch Basins SDCB05-24A and SDCB05-24B; other runoff entering these catch basins includes drainage from the grassy area east of the parking area. Drainage from the northern portion of the concrete driveway/pad east of the heating plant flows to the north and west along an asphalt driveway to Catch Basin SDCB05-24 at [REDACTED].

Catch Basin SDCB06-12 receives stormwater runoff from the southern portion of the concrete pad on the east side of the facility, from grassy areas south of the facility, and from runoff flowing onto [REDACTED] west of the building.

This facility is located within both Sub-basins AF-4A and AF-7A. Stormwater north and east of the facility, entering Catch Basins SDCB05-24, SDCB05-24A, and SDCB05-24B, is routed to an oil/water separator (Building [REDACTED]), and discharged via Outfall OAF-4A to the Strait of Juan de Fuca. Stormwater entering this Catch Basin SDCB06-12 is routed to the east to Outfall OAF-7A associated with Sub-basin AF-7A. Effluent from this outfall flows into the open channel system within the flight line and discharging via Outfall OAF-7F to wetlands. Ultimate discharge is to Dugualla Bay.

**Material Inventory:** All materials used, stored, or produced at this facility in 2009 are listed in Table 4- [REDACTED]. Each material was assessed and evaluated in terms of its potential to contribute pollutants to stormwater runoff.

No significant materials (as defined in the glossary found in Appendix B of this report) have been exposed to stormwater during the past three years or are currently exposed. Therefore, Table 4-█ is not provided.

**Significant Spills and Leaks:** Significant spills or leaks associated with the facility in the past three years will be shown in Table 4-█.

**Site Assessment Inspection:** The initial site assessment inspection was performed by E&E field personnel on Monday, December 12, 1994. The site has been reassessed regularly by NAVFAC NW personnel. No observations were made during the 2015 inspection.

**Existing BMPs:** Existing BMPs are provided in Table 4-█.

**Recommended BMPs and Implementation Plan:** Recommended BMPs for this facility and the associated implementation phase are identified in Table 4-█. Implementation of BMPs is required by the terms of the Multi-Sector Permit as authorized by 40 CFR 122.

**Table 4-** [REDACTED]

**MATERIAL INVENTORY**

Material	Purpose/ Location	Quantity (units)			Quantity Exposed in 2006- 2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Salt	Water softening/ Inside	12,000 lbs per year	—	24 50-lb. bags	No	No. stored inside.		X
Disodium phosphate	Water softening/ Inside	500 lbs per year	—	1 35-gallon drum	No	No. stored inside.		X
Sulfite	Water softening/ Inside	300 lbs per year	—	1 30-gallon drum	No	No. stored inside.		X
Caustic soda	Water softening/ Inside	83 gallons per year	—	1 55-gallon drum	No	No. stored inside.		X
Paint	Building maintenance/ Inside in flam. locker	50 gallons per year	—	<5 gallons	No	No. stored in flam. locker.		X
Paint thinner	Building maintenance/ Inside flam. locker	10 gallons per year	—	<5 gallons	No	No. stored in flam. locker.		X
Morpholine	Boiler maintenance/ Outside in Hazmat area	1 gallon every 3 days	—	2 55-gallon drums	No	Yes. no secondary containment.		X
Turbine oil	Equipment maintenance/ Outside in Hazmat area	50 gallons per year	—	1 55-gallon drum	No	Yes. no secondary containment.		X
Paint thinner	Building maintenance/ Outside in Hazmat area	50 gallons per year	—	1 55-gallon drum	No	Yes. no secondary containment.		X
Auto transmission fluid	Equipment maintenance/ Outside in Hazmat area	2 gallons per month	—	1 55-gallon drum	No	Yes. no secondary containment.		X

**Table 4-** [REDACTED]

**MATERIAL INVENTORY**

Material	Purpose/ Location	Quantity (units)			Quantity Exposed in 2006- 2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Waste oil	Temporary storage/ Outside in Hazmat area	—	74 gallons per year	1 55-gallon drum	No	Yes, no secondary containment.		X
Waste Paint	Temporary storage/ Outside in Hazmat area	—	2 55-gallon drums per year	1 55-gallon drum	No	Yes, no secondary containment.		X
Diesel	Emergency generator fuel/ Outside	Varies	—	1 250-gallon AST	No	No. secondary containment provided		X
Diesel	Alternative boiler fuel/ Outside	50,000 gallons per year	—	5 25,000- gallon USTs	No	No. secondary containment provided		X

Key:

AST = Aboveground storage tank.  
USTs = Underground storage tanks.

Table 4-



**LIST OF SIGNIFICANT SPILLS AND LEAKS**

Date (month/day/year)	Spill	Leak	Location (As Indicated on Site Map)	Description				Response Procedure		Preventive Measures Taken
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered	Material No Longer Exposed to Storm Water (True/False)	

Definitions: Significant spills include, but are not limited to, releases of oil or hazardous substances in excess of reportable quantities.

**Table 4-** [REDACTED]  
**POLLUTANT SOURCES, EXISTING BMPs, AND RECOMMENDED BMPs**

Storm Water Pollutant Sources	Existing BMPs <sup>a</sup>	Recommended BMPs <sup>a</sup>
Diesel ASTs	Provide Secondary Containment for ASTs (075)	Core BMPs
Diesel USTs		
Flammable Material Storage	Store Containers Inside Secondary Containment (115)	
Hazardous Material/Hazardous Waste Storage Area	Label All Drums, Cans, Containers, Tanks, and Valves (001) Store Liquids and Significant Materials within a Building or Covered Area (061b) Use Spill Troughs for Drums with Taps (204)	Sector S BMPs
Loading Dock	Confine Loading/Unloading Activities to a Designated Area (136)	
Process Waters (From Turbines and Boilers) and Building Floor Drains	Divert Drainage to Treatment Facility/Sanitary Sewer (096)	
Water Treatment Chemical Storage	Store Liquids and Significant Materials within a Building or Covered Area (061B)	

<sup>a</sup> Number in parentheses refers to BMP Index Number (see Appendix E)

**Figure 4- [REDACTED] SWPPP Site Map**

### 4.5.3 Water Treatment Plant Building ( [REDACTED] )

**Facility Description:** The Water Treatment Plant Building, a BOSC facility, is located [REDACTED] [REDACTED] as shown on Sheet 8 (Grid 5) of the SWPPP base maps.

The facility, a small concrete structure, uses chlorine gas to treat water. Two large pipes carry water to the building from a reservoir uphill from the facility. A map showing the site layout and surrounding area is provided in Figure 4-[REDACTED].

**Facility Objective:** The facility [REDACTED].

**Stormwater Drainage Description:** Stormwater runoff from all areas around the building flows to the south across a paved access driveway onto a heavily vegetated slope. There are no associated structural controls. Runoff along the slope infiltrates into soils. This facility is located within Drainage Basin AF-7 and Sub-basin AF-7E. Because runoff infiltrates, there is no outfall associated with this facility.

**Material Inventory:** All materials used, stored, or produced at this facility in 2009 are listed in Table 4-[REDACTED]. Each material was assessed and evaluated in terms of its potential to contribute pollutants to stormwater runoff.

No significant materials (as defined in the glossary found in Appendix B of this report) have been exposed to stormwater during the past three years or are currently exposed. Therefore, Table 4-[REDACTED] is not provided.

**Significant Spills and Leaks:** Significant spills or leaks associated with the facility in the past three years will be shown in Table 4-[REDACTED].

**Site Assessment Inspection:** The initial site assessment inspection was performed by E&E field personnel on Tuesday, December 13, 1994. The site has been reassessed regularly by NAVFAC NW personnel. No observations were made during the 2015 inspection.

**Existing BMPs:** Existing BMPs are provided in Table 4-[REDACTED].

**Recommended BMPs and Implementation Plan:** There are no recommended BMPs for this facility beyond the Core BMPs.

Table 4-



**MATERIAL INVENTORY**

Material	Purpose/ Location	Quantity (units)			Quantity Exposed in 2006- 2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Chlorine gas	Water treatment/ Inside	—	—	2 cylinders	No	No. stored inside.		X

Table 4- [REDACTED]

**LIST OF SIGNIFICANT SPILLS AND LEAKS**

Date (month/day/year)	Spill	Leak	Location (As Indicated on Site Map)	Description			Response Procedure		Preventive Measures Taken	
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered		Material No Longer Exposed to Storm Water (True/False)

Definitions: Significant spills include, but are not limited to, releases of oil or hazardous substances in excess of reportable quantities.

Table 4- [REDACTED]

**POLLUTANT SOURCES, EXISTING BMPs, AND RECOMMENDED BMPs**

Storm Water Pollutant Sources	Existing BMPs <sup>a</sup>	Recommended BMPs <sup>a</sup>
Chlorine Tanks	Store Liquids and Significant Materials within a Building or Covered Area (061b) Store Liquids and Significant Materials within a Building or Covered Area (061B)	



**Figure 4- [REDACTED] SWPPP Site Map**

#### 4.5.4 Sewage Treatment Plant ( [REDACTED] )

**Facility Description:** This BOSC facility is located [REDACTED], as shown on Sheet 5 (Grid 2) of the SWPPP base maps.

The facility is the former Ault Field sewage treatment plant. It is currently used as a grit removal facility and sewage pump station. The facility contains offices and a water testing lab; a 250-gallon diesel AST is outside. A map showing the site layout and surrounding area is provided in Figure 4- [REDACTED].

**Facility Objective:** The facility [REDACTED].

**Stormwater Drainage Description:** Building [REDACTED] is surrounded by a combination of asphalt, gravel, and grassy areas. Runoff associated with the building flows toward Charles Porter Avenue into a ditch, where it is diverted to the west. There is no designed stormwater catchment in the vicinity of the building.

This facility is located within Sub-basin AF-4C. Drainage is routed within ditches and roadway culverts to Outfall OAF-4C at the Strait of Juan de Fuca.

**Material Inventory:** All materials used, stored, or produced at this facility in 2009 are listed in Table 4- [REDACTED]. Each material was assessed and evaluated in terms of its potential to contribute pollutants to stormwater runoff.

No significant materials (as defined in the glossary found in Appendix B of this report) have been exposed to stormwater during the past three years or are currently exposed. Therefore, Table 4- [REDACTED] is not provided.

**Significant Spills and Leaks:** Significant spills or leaks associated with the facility in the past three years will be shown in Table 4- [REDACTED].

**Site Assessment Inspection:** The initial site assessment inspection was performed by E & E field personnel on Tuesday, December 13, 1994. The site has been reassessed regularly by NAVFAC NW personnel. No observations were made during the 2015 inspection.

**Existing BMPs:** Existing BMPs are provided in Table 4- [REDACTED].

**Recommended BMPs and Implementation Plan:** Recommended BMPs for this facility and the associated implementation phase are identified in Table 4- [REDACTED]. Implementation of BMPs is required by the terms of the Multi-Sector Permit as authorized by 40 CFR 122.

**Table 4-** [REDACTED]

**MATERIAL INVENTORY**

Material	Purpose/ Location	Quantity (units)			Quantity Exposed in 2006-2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Water testing chemicals	Wastewater tests/ Inside	20 gallons per year	—	7 gallons	No	No. stored inside.		X
Paint	Building maintenance/ Inside flam. locker		—	Several gallons	No	No. stored in flam. locker.		X
Paint thinner	Building maintenance/ Inside flam. locker		—	3 to 4 gallons	No	No. stored in flam. locker.		X
Alcohol	Building maintenance/ Inside flam. locker		—	<1 gallon	No	No. stored in flam. locker.		X
Diesel fuel	Emergency generator fuel/Outside	Varies	—	1 200-gallon AST	No	No. in concrete containment.		X

Key:  
AST = Aboveground storage tank.

Table 4- [REDACTED]



**LIST OF SIGNIFICANT SPILLS AND LEAKS**

Date (month/day/year)	Spill	Leak	Location (As Indicated on Site Map)	Description			Response Procedure		Preventive Measures Taken	
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered		Material No Longer Exposed to Storm Water (True/False)

Definitions: Significant spills include, but are not limited to, releases of oil or hazardous substances in excess of reportable quantities.

**Table 4-**



**POLLUTANT SOURCES, EXISTING BMPs, AND RECOMMENDED BMPs**

Storm Water Pollutant Sources	Existing BMPs <sup>a</sup>	Recommended BMPs <sup>a</sup>
Diesel AST	Provide Secondary Containment for ASTs (075)	
Flammable Materials	Store Reactive, Ignitable or Flammable Liquids in Compliance with the Local Fire Code (199)	
Laboratory Chemicals	Properly Store Containers (054)	



**Figure 4-**  **SWPPP Site Map**

#### 4.5.5 Ault Field Sewage Treatment Facility, [REDACTED]

**Facility Description:** This sewage treatment facility, operated by the BOSC Contractor, is located at Ault Field on North Saratoga Extension. The facility is located beyond the area represented on the GDMs and therefore is not included on the SWPPP base maps.

The facility consists of rapid mix tanks, contact chambers, a sequencing batch reactor and a sewage treatment building ([REDACTED]) and a sludge dewatering building. A detailed map showing the site layout and surrounding area is provided in Figure 4-[REDACTED].

**Facility Objective:** The facility [REDACTED]

**Stormwater Drainage Description:** Stormwater runoff associated with the sewage lagoon (Building [REDACTED]) includes only precipitation which falls outside of its surrounding berm. Stormwater within the lagoon is held with sewage sludges. A ditch around the lagoon berm conveys all runoff to the culvert bordering the lagoon at [REDACTED] which discharges to OAF-2B. Similarly, all runoff from the area of the sequencing batch reactor and sewage treatment building (Building [REDACTED]) is collected within a ditch surrounding the building or infiltrates into the surrounding gravel surface. Runoff is directed along the [REDACTED] ditch, crossing beneath the road at the culvert bordering the lagoon.

These facilities are located within Sub-basin AF-2B. Stormwater runoff within this sub-basin is discharged to the Strait of Juan de Fuca via Outfall OAF-2B, a culvert transporting water beneath Saratoga Road immediately west of the sewage lagoon.

**Material Inventory:** All materials used, stored, or produced at this facility in 2009 are listed in Table 4-[REDACTED]. Each material was assessed and evaluated in terms of its potential to contribute pollutants to stormwater runoff.

No significant materials (as defined in the glossary found in Appendix B of this report) have been exposed to stormwater during the past three years or are currently exposed. Therefore, Table 4-[REDACTED] is not provided.

**Significant Spills and Leaks:** Significant spills or leaks associated with the facility will be shown in Table 4-[REDACTED].

**Site Assessment Inspection:** The initial site assessment inspection was performed by E&E field personnel on Wednesday, December 7, 1994. NAVFAC NW have reassessed the site regularly since. No observations were made during the 2015 inspection.

**Existing BMPs:** Existing BMPs are provided in Table 4-[REDACTED].

**Recommended BMPs and Implementation Plan:** Recommended BMPs for this facility and the associated implementation phase are identified in Table 4-[REDACTED]. Implementation of BMPs is required by the terms of the Multi-Sector Permit as authorized by 40 CFR 122.

Table 4-  
 MATERIAL INVENTORY

Material	Purpose/ Location	Quantity (units)			Quantity Exposed in 2006- 2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Sulfur Dioxide Gas	Wastewater treatment/Inside	16 150-lb cylinders per year	—	2 150-lb. cylinders	No	No, stored inside.		X
Silicone Lube Spray	Wastewater treatment/Inside	—	—	1 32-oz. can	No	No, stored inside.		X
K.C. Concentrate Cleaner	Wastewater treatment/Inside	1/2 gallon	—	1/2 gallon	No	No, stored inside.		X
Citratech	Wastewater treatment/Inside	—	—	1 32-oz can	No	No, stored inside.		X
Floor Wax	Wastewater treatment/Inside	1/2 gallon	—	1/2 gallon	No	No, stored inside.		X
Sodium Sulfite	Wastewater treatment/Inside	1/2 lb.	—	1/2 lb.	No	No, stored inside.		X
Potassium Iodide	Wastewater treatment/Inside	1/2 lb.	—	1/2 lb.	No	No, stored inside.		X
Sodium Hydroxide	Wastewater treatment/Inside	1/2 oz.	—	2 oz.	No	No, stored inside.		X
Acetate Buffer	Wastewater treatment/Inside	—	—	1.5 gallons	No	No, stored inside.		X
Alconox	Wastewater treatment/Inside	1 4-lb. box	—	2 4-lb. boxes	No	No, stored inside.		X
Alcojet	Wastewater	1 4-lb. box	—	2 4-lb. boxes	No	No, stored		X

Table 4-  
MATERIAL INVENTORY

Material	Purpose/ Location	Quantity (units)			Quantity Exposed in 2006- 2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
	treatment/inside				inside.			
Magnesium Sulfate	Wastewater treatment/inside	1/2 liter	—	1.5 liters	No	No, stored inside.		X
Ferric Chloride	Wastewater treatment/inside	1/2 liter	—	1/2 liter	No	No, stored inside.		X
Calcium Chloride	Wastewater treatment/inside	1/2 liter	—	1/2 liter	No	No, stored inside.		X
Sodium Thiosulfate	Wastewater treatment/inside	0.1 liter	—	1 liter	No	No, stored inside.		X
Blower Oil	Wastewater treatment/inside	10 gal. per year	—	5 gals.	No	No, stored inside.		X
Chlorine gas	Wastewater treatment/inside	32 150-lb cylinders per year	—	9 150-lb. cylinders	No	No, stored inside.		X

Table 4- [REDACTED]

**LIST OF SIGNIFICANT SPILLS AND LEAKS**

Date (month/day/year)	Spill	Leak	Location (As Indicated on Site Map)	Description				Response Procedure		Preventive Measures Taken
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered	Material No Longer Exposed to Storm Water (True/False)	

Definitions: Significant spills include, but are not limited to, releases of oil or hazardous substances in excess of reportable quantities.

Table 4- [REDACTED]

**POLLUTANT SOURCES, EXISTING BMPs, AND RECOMMENDED BMPs**

Storm Water Pollutant Sources	Existing BMPs	Recommended BMPs
Chlorine Tanks	Store Liquids and Significant Materials within a Building or Covered Area (061B)	Core BMPs  Sector T BMPs
Ferric Sulfate and Polymer	Do Not Store Used Parts or Containers Directly on Ground (057)	
Sewage Lagoon	Construct Berm or Dike Around Critical Area (012) Minimize Storm Water Run-On from Adjacent Facilities and Properties (020)	
Loading Dock	Confine Loading/Unloading Activities to a Designated Area (136)	
Emergency Generator	Provide Secondary Containment for Other POL Containing Structures/Facilities (075A) Provide Valve for Outlet Pipe in Containment Area (014) Inspect Water Accumulated in Containment Area For Oil Sheen Prior to Release (014A)	

**Figure 4-**  **SWPPP Map**



#### 4.5.6 South Aircraft Wash Rack Utility Building ( [REDACTED] )

**Facility Description:** The South Wash Rack, a BOSC-maintained facility, is located [REDACTED] as shown on Sheet 1 (Grid 4) of the SWPPP base maps.

The facility has the following components:

- A utility building containing a boiler and a hot water tank;
- Two concrete pads (one north and one west of the utility building) with pressure washers; and
- An oil/water separator.
- A detailed map showing the site layout and surrounding area is provided in Figure 4 [REDACTED].

**Facility Objective:** The facility is [REDACTED].

**Stormwater Drainage Description:** The South Wash Rack (Building [REDACTED]) is located in Drainage Basin AF-7 and Sub-basin AF-7D. Stormwater runoff within the two bermed washing areas located north and east of Building [REDACTED] is directed to Catch Basins SDCB20-01, -02, and -03, which drain to a dedicated oil/water separator (OWS20-01) immediately south of the building. Discharge from this oil/water separator flows to the sanitary system. Therefore, there is no stormwater outfall associated with this facility.

**Material Inventory:** All materials used, stored, or produced at this facility in 2009 are listed in Table 4 [REDACTED]. Each material was assessed and evaluated in terms of its potential to contribute pollutants to stormwater runoff.

No significant materials (as defined in the glossary provided in Appendix B) have been exposed to stormwater during the past three years or are currently exposed. Therefore, Table 4- [REDACTED] is not provided.

**Significant Spills and Leaks:** Significant spills or leaks associated with the facility in the past three years will be shown in Table 4- [REDACTED].

**Site Assessment Inspection:** The initial site assessment inspection was performed by E&E field personnel on December 7, 1994. The site has been reassessed regularly by NAVFAC NW personnel. No observations were made during the 2015 inspection.

**Existing BMPs:** Existing BMPs are provided in Table 4- [REDACTED].

**Recommended BMPs and Implementation Plan:** Recommended BMPs for this facility and the associated implementation phase are identified in Table 4- [REDACTED]. Implementation of BMPs is required by the terms of the Multi-Sector Permit as authorized by 40 CFR 122.

**Table 4-** [REDACTED]

**MATERIAL INVENTORY**

Material	Purpose/ Location	Quantity (units)			Quantity Exposed in 2006- 2009	Likelihood of Contact with Stormwater	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Aircraft surface cleaning compound	Aircraft cleaning/Outside	—	—	18 55-gallon drums	Yes	No. any spill would flow into catch basins that eventually discharge to the sanitary sewer.		X
Aircraft surface cleaning compound	Aircraft cleaning/Inside	—	—	55-gallon drum	No	No. stored inside building.		X
Petroleum solvent	Aircraft cleaning/Outside	—	—	55-gallon drum	No	No. wash water flows to catch basins that eventually discharge to the sanitary sewer.		X
Aircraft wash water	Aircraft cleaning/Outside	-	—	---	No	No. wash water flows to catch basins that eventually discharge to the sanitary sewer.		X

Table 4-



**LIST OF SIGNIFICANT SPILLS AND LEAKS**

Date (month/day/year)	Spill	Leak	Location (As Indicated on Site Map)	Description				Response Procedure		Preventive Measures Taken
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered	Material No Longer Exposed to Stormwater (True/False)	

Definitions: Significant spills include, but are not limited to, releases of oil or hazardous substances in excess of reportable quantities.

**Table 4-** [REDACTED]

**POLLUTANT SOURCES, EXISTING BMPs, AND RECOMMENDED BMPs**

Stormwater Pollutant Sources	Existing BMPs <sup>a</sup>	Recommended BMPs <sup>a</sup>
Aircraft Surface Cleaning Compound (Outdoor Storage)	Wash Equipment and Vehicles in Designated Areas (041)	Core BMPs
Aircraft Washing	Construct Berm or Dike Around Critical Area (012)	Sector S BMPs
Indoor Solvent Storage	Minimize Stormwater Run-On from Adjacent Facilities and Properties (020)	
Wash Water	Discharge Wash Water to a Sanitary Sewer (042)	
	Divert Drainage to Treatment Facility/Sanitary Sewer (096)	

**Figure 4-**  **SWPPP Site Map**

#### 4.5.7 North Aircraft Wash Rack Utility Building ( [REDACTED] )

**Facility Description:** The North Wash Rack, a BOSC-maintained facility, is located [REDACTED]

The facility is located beyond the area represented on the GDMs and therefore is not included on the SWPP base maps.

The facility has the following components:

- A utility building containing a boiler and a hot water tank;
- A concrete pad (southeast of the utility building) with pressure washers; and
- An oil/water separator.
- A detailed map showing the site layout and surrounding area is provided in Figure 4-[REDACTED].

**Facility Objective:** The facility [REDACTED].

**Stormwater Drainage Description:** The North Wash Rack (Building [REDACTED]) is located within Sub-basin AF-4A. Stormwater runoff within the bermed washing area is directed into two unnamed catch basins. Drainage from the catch basins flows to an oil/water separator east of Building [REDACTED]. This separator pumps oily waste to a holding tank and discharges to a sanitary sewer line at an unknown location. Therefore, there is no outfall associated with this facility.

**Material Inventory:** All materials used, stored, or produced at this facility in 2009 are listed in Table 4-[REDACTED]. Each material was assessed and evaluated in terms of its potential to contribute pollutants to stormwater runoff.

Because no materials have been found to be exposed to stormwater over the past three years, Table 4-[REDACTED] is not included.

**Significant Spills and Leaks:** Significant spills or leaks associated with the facility in the past three years will be shown in Table 4-[REDACTED].

**Site Assessment Inspection:** The initial site assessment inspection was performed by E&E field personnel on Friday, December 9, 1994. The site has been reassessed regularly by NAVFAC NW personnel. No observations were made during the 2015 inspection.

**Existing BMPs:** Existing BMPs are provided in Table 4-[REDACTED].

**Recommended BMPs and Implementation Plan:** Recommended BMPs for this facility and the associated implementation phase are identified in Table 4-[REDACTED]. Implementation of BMPs is required by the terms of the Multi-Sector Permit as authorized by 40 CFR 122.

Table 4-



**MATERIAL INVENTORY**

Material	Purpose/ Location	Quantity (units)			Quantity Exposed in 2006- 2009	Likelihood of Contact with Stormwater	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Aircraft surface cleaning compound	Aircraft cleaning/Outside	—	—	4 55-gallon drums	Yes	Yes, no secondary containment.		X
Aircraft surface cleaning compound	Aircraft cleaning/Inside	—	—	3 55-gallon drums		No, stored inside.		X
Aircraft wash water	Aircraft cleanup/outside	—	—	—		No, wash water discharges to the sanitary.		X

Table 4- [REDACTED]

**LIST OF SIGNIFICANT SPILLS AND LEAKS**

Date (month/day/year)	Spill	Leak	Location (As Indicated on Site Map)	Description			Response Procedure		Preventive Measures Taken	
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered		Material No Longer Exposed to Stormwater (True/False)

Definitions: Significant spills include, but are not limited to, releases of oil or hazardous substances in excess of reportable quantities.

Table 4



**POLLUTANT SOURCES, EXISTING BMPs, AND RECOMMENDED BMPs**

Stormwater Pollutant Sources	Existing BMPs <sup>a</sup>	Recommended BMPs <sup>a</sup>
Aircraft Washing	Wash Equipment and Vehicles in Designated Areas (041)	Core BMPs
Indoor Aircraft Surface Cleaning Compound	Store Liquids and Significant Materials Within a Building or Covered Area (061B)	
Aircraft Surface Cleaning Compound (Outdoor Storage)		
Indoor Solvent Storage		
Wash Water	Construct Berm or Dike Around Critical Area (012) Minimize Storm Water Run-On from Adjacent Facilities and Properties (020) Discharge Wash Water to a Sanitary Sewer (042) Divert Drainage to Treatment Facility/Sanitary Sewer (096)	



**Figure 4-**  **SWPPP Site Map**

#### 4.5.8 Can Washing Building (Building [REDACTED])

**Facility Description:** The Can Washing Building, a BOSC facility, is located [REDACTED] as shown on Sheet 7 (Grid 4) of the SWPPP base maps.

The facility consists of a small two-story building with a covered wash area on the lower level at one end of the building. The upper level of the building is office space and the lower level is used for storage. A detailed map showing the site layout and surrounding area is provided on the Can Washing Building, SWPPP Site Map (Figure 4-[REDACTED]).

**Facility Objective:** The Can Washing Building is [REDACTED]

**Stormwater Drainage Description:** Stormwater runoff associated with Building [REDACTED], which is surrounded by grassy and concrete areas, flows both overland to the northwest, infiltrating into soils beyond an asphalt lot, and into the underground storm drain system via Catch Basin SDCB14-09 immediately outside the building's southern wall. Runoff entering this catch basin flows from grassy areas on the east and south sides of the building and from upgradient sources.

Wash water from the Can Wash facility enters a trench drain which flows to a closed loop water treatment system. There is no sanitary or storm sewer connection at the wash rack which can be used in the event of a closed loop treatment system failure. If washing were to occur when the closed loop system is not operating, water would pond on the wash rack and eventually flow overland to the south.

This facility is located in Drainage Basin AF-7 and Sub-basin AF-7A. Drainage entering Catch Basin SDCB14-09 flows to the northeast to manhole SDMH14-05. Drainage from the manhole is routed to Outfall OAF-7A of this sub-basin. Flow from Outfall OAF-7A enters the open channel network within the flight line, combining with runoff from other AF-7 sub-basins, and ultimately discharging to wetlands via Outfall OAF-7F.

**Material Inventory:** All materials used, stored, or produced at this facility in 2009 are listed in Table 4-[REDACTED]. Each of these materials was assessed and evaluated in terms of its potential to contribute pollutants to stormwater runoff.

Because no materials have been found to be exposed to stormwater over the past three years, Table 4-[REDACTED] is not included.

**Significant Spills and Leaks:** Significant spills or leaks of toxic or hazardous pollutants at this facility in the past three years will be indicated in Table 4-[REDACTED].

**Site Assessment Inspection:** The initial site assessment inspection of the Can Washing facility was made by E&E field personnel on Monday, December 12, 1994. The site has been reassessed regularly by NAVFAC NW personnel. No observations were made during the 2015 inspection.

**Existing BMPs:** Existing BMPs are provided in Table 4-[REDACTED].

**Recommended BMPs and Implementation Plan:** Recommended BMPs for this facility and the associated implementation phase are identified in Table 4-[REDACTED]. Implementation of BMPs is required by the terms of the Multi-Sector Permit as authorized by 40 CFR 122.

**Table 4-** [REDACTED]

**MATERIAL INVENTORY**

Material	Purpose/ Location	Quantity (units)			Quantity Exposed in 2006- 2009	Likelihood of Contact with a Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Disinfectant cleaner	Steam cleaning/outside	—	—	1 55-gallon drum	No	Covered		X
Gasoline	Maintenance/outside flam. locker	—	—	Several containers	No	Yes, insufficient secondary containment		X
Oil	Maintenance/outside flam. locker	—	—	Several containers	No	Yes, insufficient secondary containment		X

Table 4-



**MATERIAL INVENTORY**

Date (month/day/year)	Spill	Leak	Location (As Indicated on Site Map)	Description			Response Procedure		Preventive Measures Taken	
				Type of Material	Quantity	Source, if Known	Reason	Amount of Material Recovered		Material No Longer Exposed to Storm Water (True/False)

Definitions: Significant spills include, but are not limited to, releases of oil or hazardous substances in excess of reportable quantities.

Table 4- [REDACTED]

**POLLUTANT SOURCES, EXISTING BMPs, AND RECOMMENDED IMPLEMENTATION PLAN**

Storm Water Pollutant Sources	Existing BMPs <sup>a</sup>	Recommended BMPs <sup>a</sup>
Disinfectant/Cleaning Fluid		Core BMPs  Sector P BMPs
Gasoline and Oil		
Wash Water	Construct Berm or Dike Around Critical Area (012) Provide Roof to Cover Source Area (018) Minimize Storm Water Run-On from Adjacent Facilities and Properties (020) Discharge Wash Water to a Sanitary Sewer (042) Divert Drainage to Treatment Facility/Sanitary Sewer (096)	

<sup>a</sup>Number in parentheses refers to BMP Index Number (see Appendix E)



**Figure 4-**  **SWPPP Site Map**

#### 4.5.9 Storage Area (Building [REDACTED])

**Facility Description:** The Storage Area, a BOSC occupied facility, is located on Ault Field, on Forrestal Avenue, as shown on Sheet 8 (Grid 5) of the SWPPP base maps. This facility is a former hazardous waste area.

The Storage Area consists of two impervious pads (one concrete, one asphalt) joined together and surrounded by a chain-link fence. It runs northwest to southeast. A detailed map showing the site layout and surrounding area is provided in Figure 4-[REDACTED].

**Facility Objective:** The facility is used as a storage area for empty drums and portable tanks.

**Stormwater Drainage Description:** Two side-by-side bermed areas are used for storage of materials at this facility. Stormwater and potential spills within the two bermed areas flows over a concrete surface into two catch basins. Drainage from each catch basin is prevented by a closed valve which protrudes from each berm. The contents of each catch basin are pumped on demand from each valve opening using a vacuum tank truck.

The Storage Area is located within Drainage Basin AF-7 and Sub-basin AF-7E. Potential spillage from the valved catch basin flows into a ditch which surrounds the facility. Runoff from the ditch is routed beneath Forrestal Avenue to the north to an open channel, and subsequently to Outfall OAF-7E, associated with Sub-basin AF-7E. Flow through this outfall enters the open channel network within the flight line and discharges to wetlands via Outfall OAF-7F. Ultimate discharge is to Dugualla Bay.

**Material Inventory:** All materials used, stored, or produced at this facility in 2009 are listed in Table 4-[REDACTED]. Each material was assessed and evaluated in terms of its potential to contribute pollutants to stormwater runoff.

Because no materials have been found to be exposed to stormwater over the past three years, Table 4-[REDACTED] is not included.

**Significant Spills and Leaks:** Significant spills or leaks associated with the facility in the past three years will be shown in Table 4-[REDACTED].

**Site Assessment Inspection:** The initial site assessment inspection was performed by E&E field personnel on Wednesday, December 14, 1994. The site has been reassessed regularly since then by NAVFAC NW personnel. No observations were made during the 2015 inspection.

**Existing BMPs:** Existing BMPs are provided in Table 4-[REDACTED].

**Recommended BMPs and Implementation Plan:** Recommended BMPs for this facility and the associated implementation phase are identified in Table 4-[REDACTED]. Implementation of BMPs is required by the terms of the Multi-Sector Permit as authorized by 40 CFR 122.

**Table 4- [REDACTED]**

**STORAGE AREA  
(BUILDING 2713)  
MATERIAL INVENTORY**

Material	Purpose/Location	Quantity (units)			Quantity Exposed in 2006-2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Empty Tanks					No	Yes, if catch basin valve is left open		X
Empty Drums					No	Yes, if catch basin valve is left open		X

**Table 4- [REDACTED]**

**STORAGE AREA  
(BUILDING [REDACTED])**

**LIST OF SIGNIFICANT SPILLS AND LEAKS**

Date (month/day/year)	Spill	Leak	Location (As Indicated on Site Map)	Description			Response Procedure		Preventive Measures Taken	
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered		Material No Longer Exposed to Storm Water (True/False)

Definitions: Significant spills include, but are not limited to, releases of oil or hazardous substances in excess of reportable quantities

**Figure 4-█: Storage Area (Building █) SWPPP Site Map**



#### 4.5.10 AirStart/Compressor (Building [REDACTED])

**Facility Description:** The Air Start/Compressor Facility is located at Ault Field along Charles Porter Avenue near the intersection with Wasp Street, as shown on Sheet 5 (Grid 2) of the SWPPP base maps.

Building [REDACTED] is a metal structure that sits on a concrete slab foundation. It contains two rooms. The room on the south end of the building contains two air compressors to start the turbines on aircraft. The room to the north contains equipment for oil recovery and power supply for air craft. Outside along the east side of the building there are two covered tanks with secondary containment. There is also an A/C unit located outside, along the east side of the building. There are three unmarked, grey lockers in the Air Compressor room that contain hazardous materials. There is no evidence of a managed Site Accumulation area inside the building. There are liquid wastes stored inside the building with no secondary containment. There are five open floor drains. There is a transformer outside on the North West corner of the building.

**Facility Objective:** The facility is used to supply compressed air for starting aircraft turbines.

**Storm Water Drainage Description:** Building [REDACTED] storm water drainage flows from Charles Porter Avenue towards the northeast down a steep grassy area. Storm water that flows along the south edge of the building flows over the grass that covers the ground along the south side of the building, and discharges toward a grassy swale to the east of the building. Storm water that flows along the grassy area to the north of the building goes down a steep slope and into a storm drain slightly to the north and west of the building. There are 4 down spouts, one at each corner of the building. These downspouts go into the ground.

Building [REDACTED] is located within Sub-basin AF-4A. Drainage from the storm drain catch basin to the northeast of Building 2581 flows through Outfall OAF-4A, discharging to the Strait of Juan de Fuca.

**Material Inventory:** Materials used, stored, or produced at these facilities in 2009 are listed in Table 4-[REDACTED]. Each material was assessed and evaluated in terms of its potential to contribute pollutants to storm water runoff.

Because no materials have been found to be exposed to stormwater over the past three years, Table 4-[REDACTED] is not included.

**Significant Spills and Leaks:** No significant spills or leaks are associated with the facilities for the past three years. See Table 4-[REDACTED].

**Site Assessment Inspection:** A site assessment inspection was performed by NAVFAC NW personnel on September 16, 2008. No observations were made during the 2015 inspection

**Existing BMPs:** Existing BMPs are provided in Table 4-[REDACTED].

**Recommended BMPs and Implementation Plan:** Recommended BMPs for this facility and the associated implementation phase are identified in Table 4-[REDACTED]. Implementation of BMPs is required by the terms of the Multi-Sector Permit as authorized by 40 CFR.

**Table 4-** **Air Start/Compressor Facility (Buildings [REDACTED])  
MATERIAL INVENTORY**

Material	Purpose/Location	Quantity (units)			Exposed in 2006-2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Cans of Paint	Maintenance	X	-	Many	Possible	Possible exposure because of storage near open storm drains with no secondary containment.		X
Gasket Remover	Maintenance	X	-	1	Possible	"		X
Spray Paint	Maintenance	X	-	Many	Possible	"		X
Rustoleum	Maintenance	X	-	At least 1	Possible	"		X
409 Cleaner	Maintenance	X	-	2	Possible	"		X
Cable Cleaner	Maintenance	X	-	1	Possible	"		X
Loctite	Maintenance	X	-	1	Possible	"		X
Glycerine	Maintenance	X	-	3	Possible	"		X
Coolant	55 gallon drum	X	-	2	Possible	"		X
Waste Oil	55 gallon drum	X	-	2	Possible	"		X
Oil	55 gallon drum	X	-	2	Possible	"		X
Transformer Oil	55 gallon drum	X	-	1	Possible	"		X

**Table 4- [REDACTED]**  
**Air Start/Compressor Facility (Buildings [REDACTED])**  
**LIST OF SIGNIFICANT SPILLS AND LEAKS**

Date (month/day/year)	Spill	Leak	Location (As Indicated on Site Map)	Description				Response Procedure		Preventive Measures Taken
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered	Material No Longer Exposed to Storm Water (True/False)	

Table 4- [REDACTED]

**Air Start/Compressor Facility (Buildings [REDACTED])**

**POLLUTANT SOURCES, EXISTING BMPs, AND RECOMMENDED IMPLEMENTATION PLAN**

Storm Water Pollutant Sources	Existing BMPs	Recommended BMPs	Implementation Phase
Air Compressor Maintenance	All maintenance is done inside building [REDACTED] (047)	Block floor drains from all discharges except for compressor condensate.	
Material Storage	Drip pans under material spigots.	Block floor drains from all discharges except for compressor condensate. AUL should be on site. Obtain proper Flammable Material Lockers. Segregate materials as required.	
Waste Accumulation, Site Accumulation Area	None	Create a SAA in accordance with rules for waste oils, coolants, empty containers, desiccants.	
Building Cleaning	Desiccants are used to pick up liquid spills.	Desiccants should be properly swept and placed in SAA in a properly marked drum to wait for transfer and disposal. Remove/dispose of the mop and wringer. Remove the water hose if it is only used to wash the floor. If it has other purposes, place a label that prohibits washing the floor and flushing to a floor drain.	
Oil Recovery and Power Supply to Air Craft Maintenance	All maintenance is done inside building [REDACTED] (047) No floor drains in this room.	Correct safety issue of electrical chords lying in water. Improve house keeping by using desiccants.	

**Figure 6-** 

**Figure 6-** 

## 4.6 MWR Facilities

Two MWR related facilities were inspected during this SWPPP effort. These facility names and building numbers are listed below.

Boat Repair/Wood Shop, Building [REDACTED]

Boat Office/Machine Shop, Building [REDACTED]

### 4.6.1 Boat Repair/Wood Shop (Building [REDACTED])

**Facility Description:** The Boat Repair/Wood Shop building is located at Seaplane Base, in the MWR Marina, as shown on Sheet 10 (Grid 7) of the SWPPP base maps.

The Boat Repair/Wood Shop building contained the outboard motor repair shop prior to construction of the adjacent Boat Office/Machine Shop (Building [REDACTED]) where outboard motor repairs are now conducted. Its space is now divided between a wood shop; and a storage room.

A detailed map showing the site layout and surrounding area is provided on the SWPPP site map (Figure 4-[REDACTED]).

**Facility Objective:** The facility supports the MWR Marina's boat rental and storage services.

**Stormwater Drainage Description:** The grounds surrounding this facility consist of a combination of impervious and pervious areas. Ponding occurs between Building [REDACTED]. Stormwater drainage from Building [REDACTED] travels northwest over gravel and grass covered areas to a drainage ditch.

This facility is located within Sub-basin SB-2D. Runoff from the north and east sides of Building [REDACTED] discharges via sheet flow into Crescent Harbor.

**Material Inventory:** All materials used, stored, or produced at this facility in 2009 are listed in Table 4-[REDACTED]. Each material was assessed and evaluated in terms of its potential to contribute pollutants to stormwater runoff.

Significant materials exposed to stormwater over the past three years are listed in Table 4-[REDACTED].

**Significant Spills and Leaks:** Significant spills or leaks associated with the facility will be shown in Table 4-[REDACTED].

**Site Assessment Inspection:** The initial site assessment inspection was performed by E&E field personnel on Thursday, December 1, 1994. The site has been reassessed regularly by NAVFAC NW personnel. During the 2015 investigation, it was observed that the building has been vacated.

**Existing BMPs:** Existing BMPs are provided in Table 4-[REDACTED].

**Recommended BMPs and Implementation Plan:** Recommended BMPs for this facility and the associated implementation phase are identified in Table 4-[REDACTED]. Implementation of BMPs is required by the terms of the Multi-Sector Permit as authorized by 40 CFR 122.

**Table 4-** [REDACTED]

**BOAT REPAIR/WOOD SHOP  
(BUILDING [REDACTED])  
MATERIAL INVENTORY**

Material	Purpose/ Location	Quantity (units)			Quantity Exposed in 2006- 2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Old outboard motors/misc. equipment	Storage/Inside	—	—	Several	No	No, stored inside.		X
Lumber	Storage/Inside	—	—	Varies	No	No, stored inside.		X
Paint	Maintenance/Inside flam. locker	—	—	6 gallons	No	No, stored inside flam. locker		X
Paint thinner	Maintenance/Inside flam. locker	—	—	2 5-gallon cans	No	No, stored inside flam. locker.		X
Primer/sealer	Maintenance/Inside flam. locker	—	—	5 gallons	No	No, stored inside flam. locker.		X
Wood scraps	Storage/Outside wood shop	—	1 cu ft per week	1 bin	Yes	Yes, bin not covered		X
Sawdust	From wood shop/Inside	—	8 cu ft per week	—	No	No, sawdust collected		X

**Table 4- [REDACTED]**

**Boat Repair Wood Shop  
(BUILDING [REDACTED])**

**DESCRIPTION OF EXPOSED SIGNIFICANT MATERIAL**

Description of Exposed Significant Material	Period of Exposure	Quantity Exposed (units)	Location (As Indicated on the Site Map)	Method of Storage or Disposal (e.g., pile, drum, tank)	Description of Material Management Practice (e.g., pile covered, drum sealed)

**Table 4- [REDACTED]**

**BOAT REPAIR/WOOD SHOP  
(BUILDING [REDACTED])**

**LIST OF SIGNIFICANT SPILLS AND LEAKS**

Date (month/day/year)	Spill	Leak	Location (As Indicated on Site Map)	Description			Response Procedure		Preventive Measures Taken
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered	

Definitions: Significant spills include, but are not limited to, releases of oil or hazardous substances in excess of reportable quantities.

Table 4- BOAT REPAIR/WOOD SHOP (BUILDING) POLLUTANT SOURCES, EXISTING BMPs, AND RECOMMENDED BMPs		
Storm Water Pollutant Sources	Existing BMPs <sup>a</sup>	Recommended BMPs <sup>b</sup>
Wood Dust and Debris	Vacuum Particulate Wastes from Sanding or Painting Operations (077)	Core BMPs  Sector Q BMPs

**Figure 4-█: Boat Repair/Wood Shop (Building █) SWPPP Site Map**

#### 4.6.2 Boat Office/Machine Shop (Building [REDACTED])

**Facility Description:** The Boat Office/Machine Shop, a MWR building, is located at Seaplane Base, in the MWR Marina, as shown on Sheet 10 (Grid 7) of the SWPPP base maps.

The Boat Office/Machine Shop is a one-story concrete building containing:

- Offices and a retail area; and
- An outboard motor repair shop (machine shop).
- A detailed map showing the site layout and surrounding area is provided on the SWPPP site map (Figure 4-[REDACTED]).

**Facility Objective:** The facility supports the MWR Marina's boat rental and storage services.

**Stormwater Drainage Description:** The grounds surrounding this facility consist of a combination of impervious and pervious areas. Stormwater runoff east of Building [REDACTED] flows within this grassy area to Catch Basins SDCB51-01 through -03. South of the building, runoff flows over a concrete pad to Catch Basin SDCB51-04. A washrack is located between Buildings [REDACTED]. Flows entering the wash rack pass through an API type oil/water separator prior to discharging to the sanitary sewer.

This facility is located within Sub-basin SB-2D. Drainage from Building [REDACTED] reaching Catch Basins SDCB51-01 through -04 is routed to the north, discharging to Oak Harbor via Outfall OSB-2D-01.

**Material Inventory:** All materials used, stored, or produced at this facility in 2009 are listed in Table 4-[REDACTED]. Each material was assessed and evaluated in terms of its potential to contribute pollutants to stormwater runoff.

No significant materials (as defined in the glossary) have been exposed to stormwater during the past three years or are currently exposed. Therefore, Table [REDACTED] is not provided.

**Significant Spills and Leaks:** Significant spills or leaks associated with the facility will be shown in Table 4-[REDACTED].

**Site Assessment Inspection:** The initial site assessment inspection was performed by E&E field personnel on Thursday, December 1, 1994. The site has been reassessed regularly by NAVFAC NW personnel. It was noted during the 2015 inspection that the building has been vacated.

**Existing BMPs:** Existing BMPs are provided in Table 4-[REDACTED].

**Recommended BMPs and Implementation Plan:** Recommended BMPs for this facility and the associated implementation phase are identified in Table 4-[REDACTED]. Implementation of BMPs is required by the terms of the Multi-Sector Permit as authorized by 40 CFR 122.

**Table 4-** [REDACTED]  
**BOAT OFFICE/MACHINE SHOP  
(BUILDING [REDACTED])  
MATERIAL INVENTORY**

Material	Purpose/ Location	Quantity (units)			Likelihood of Contact with Storm Water	Past Significant Spill or Leak			
		Used	Produced	Stored		Quantity Exposed in 2006- 2009	Yes	No	
Solvent	Parts cleaning/Inside machine shop	30 gallons	—	1 30-gallon Safety Kleen unit	No	Yes, no secondary containment	Yes	No	X
Motor oil	Outboard motor maintenance/Inside machine shop	—	—	1 5-gallon can	No	Yes, no secondary containment			X
Paint	Boat maintenance/Inside flam. locker inside machine shop	—	—	5 gallons	No	No, stored inside flam. locker			X
Paint thinner	Boat Maintenance/Inside flam. locker inside machine shop	—	—	1 gallon	No	No, stored inside flam. locker			X
Gasoline	Boat maintenance/Inside machine shop near garage door	Removed	—	4 5-gallon cans	No	Yes, stored near garage door with no secondary containment			X
City water	Temporary storage/ Inside machine shop	—	1,200 gallons per year	≈300 gallons	No				X

**Table 4-** [REDACTED]

**BOAT OFFICE/MACHINE SHOP  
 (BUILDING [REDACTED])  
 LIST OF SIGNIFICANT SPILLS AND LEAKS**

Date (month/day/year)	Spill	Leak	Location (As Indicated on Site Map)	Description			Response Procedure		Preventive Measures Taken	
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered		Material No Longer Exposed to Storm Water (True/False)

Definitions: Significant spills include, but are not limited to, releases of oil or hazardous substances in excess of reportable quantities.

**Table 4- [REDACTED]**  
**BOAT OFFICE/MACHINE SHOP**  
**(BUILDING [REDACTED])**  
**POLLUTANT SOURCES, EXISTING BMPs, AND RECOMMENDED BMPs**

Storm Water Pollutant Sources	Existing BMPs*	Recommended BMPs*
Flammable Materials	Store Containers Inside Secondary Containment Store Reactive, Ignitable, or Flammable Liquids in Compliance with the Local Fire Code (199)	Core BMPs
Oil Spills	Perform Regular Pavement Cleaning To Remove Oil and Grease (003) Perform Regular Pavement Sweeping (005) Divert Drainage to Treatment Facility/Sanitary Sewer (096) Provide Good Housekeeping Practices to Minimize Pollutants Exposure to Storm Water (135)	Sector Q BMPs
Test Tank Water	Properly Dispose of Any Significant Materials or Contaminated Wastes	



**Figure 4-█: Boat Office/Machine Shop (Building █) SWPPP Site Map**

## 4.7 Naval Air Station (NAS) Facilities

Eight NAS related facilities were inspected during the SWPPP effort. The facility names and building numbers are listed below:

- Maintenance Hangar [REDACTED]
- Aircraft Fresh Water Rinse Rack, Building [REDACTED]
- [REDACTED] Maintenance Hangar [REDACTED]

**Facility Description:** Maintenance Hangar [REDACTED], an OMD/SAR facility, is located at Ault Field near the Flight Line, as shown on Sheet 5 (Grid 2) of the SWPPP base maps.

The facility consists of one large hangar housing offices, workshops, and the aircraft maintenance area. A detailed map showing the site layout and surrounding area is provided in Figure 4-[REDACTED].

**Facility Objective:** This facility is used for maintenance of helicopters and small passenger aircraft.

**Stormwater Drainage Description:** Hangar 1 is surrounded entirely by concrete surfaces. Drainage from areas around the hangar travels in all directions prior to entering the following catch basins: SDCB03-08, SDCB03-11, SDCB03-13, SDCB03-14, and SDCB03-15. Some runoff north of the facility enters a trench drain. A roof drain discharges immediately west of the building to an underground storm drain trunk line, which also drains the trench drain.

This facility is located within Drainage Basin AF-7 and Sub-basin AF-7A. Drainage collected in the catch basins and the trench drain is routed to the southeast via the underground storm drain system to Outfall OAF-7A associated with this sub-basin. Drainage ultimately discharges at Outfall OAF-7F (wetlands) which receives runoff from the entire Drainage Basin AF-7. Ultimate discharge is to Dugualla Bay.

**Material Inventory:** All materials used, stored, or produced at this facility in 2009 are listed in Table 4-[REDACTED]. Each material was assessed and evaluated in terms of its potential to contribute pollutants to stormwater runoff.

Because no materials have been found to be exposed to stormwater over the past three years, Table 4-[REDACTED] is not included.

**Significant Spills and Leaks:** Significant spills or leaks associated with the facility in the past three years will be shown in Table 4-[REDACTED].

**Site Assessment Inspection:** The initial site assessment inspection was performed by E&E field personnel on Thursday, December 8, 1994. The site has been reassessed regularly by NAVFAC NW personnel. The 2015 inspection found the building generally clean and no issues were noted.

**Existing BMPs:** Existing BMPs are provided in Table 4- [REDACTED].

**Recommended BMPs and Implementation Plan:** Recommended BMPs for this facility and the associated implementation phase are identified in Table 4- [REDACTED]. Implementation of BMPs is required by the terms of the Multi-Sector General Permit as authorized by 40 CFR 122.

<b>Table 4- [REDACTED]</b>									
<b>MAINTENANCE HANGAR 1 (BUILDING [REDACTED]) MATERIAL INVENTORY</b>									
Material	Purpose/Location	Quantity (units)			Quantity Exposed in 2006-2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak		
		Used	Produced	Stored			Yes	No	
Antifreeze	Aircraft maintenance/ Outside	—	—	1 55-gallon drum	Yes	Yes, no secondary containment		X	
Aircraft surface cleaning compound	Aircraft maintenance/ Outside	35 gallons per year	—	1 55-gallon drum 2 15-gallon drums	Yes	Yes, no secondary containment		X	
Turbine engine gas path cleaner	Aircraft maintenance/ Outside, flam. locker	—	—	6 5-gallon drums	No	No, stored inside flam. locker		X	
Lube oil	Aircraft maintenance, Outside, flam. locker	—	—	4 5-gallon drums	No	No, stored inside flam. locker		X	
Aircraft surface cleaning compound	Aircraft maintenance/ Outside flam. locker	40 gallons per year	—	6 5-gallon drums	No	No, stored inside flam. locker		X	
Aircraft grease	Aircraft maintenance/ Outside from locker	40 gallons per year	—	5 gallon	No	No, stored inside flam. locker		X	
Contaminated pads/booms	Temporary storage/ Outside, hazardous waste locker	—	—	2 55-gallon drums	No	No, stored inside flam. locker		X	
Waste hydraulic fluid	Temporary storage/ Outside haz. waste locker	—	605 lbs. per year	1 55-gallon drum	No	No, stored inside flam. locker		X	
Waste JP5 fuel	Temporary storage/ Outside hazardous waste locker	—	1,460 gallons per year	1 55-gallon drum	No	No, stored inside flam. locker		X	
Airline	Aircraft maintenance/ Inside, flam. locker	64 oz. per year	—	Several containers	No	No, stored inside flam. locker		X	

Table 4- [REDACTED]

**MAINTENANCE HANGAR 1  
 (BUILDING [REDACTED])  
 MATERIAL INVENTORY**

Material	Purpose/Location	Quantity (units)			Quantity Exposed in 2006-2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Epoxy	Aircraft maintenance/ Inside, flam. locker	24 quarts per year	—	Several quarts	No	No, stored inside flam. locker		X
Primer coating	Aircraft maintenance/ Inside, flam. locker	24 quarts per year	—	Several quarts	No	No, stored inside flam. locker		X
Methyl ethyl ketone	Aircraft maintenance/ Inside, flam. locker	1 gallon per year	—	2 gallons	No	No, stored inside flam. locker		X
Spray paint	Aircraft maintenance/ Inside, flam. locker	11 spray cans per year	—	Several spray cans	No	No, stored inside flam. locker		X
Ammonium hydroxide	Aircraft maintenance/ Inside, flam. locker	—	—	4 quarts	No	No, stored inside flam. locker		X
Sodium phosphate	Aircraft maintenance/ Inside, flam. locker	—	—	30 pounds	No	No, stored inside flam. locker		X
Corrosion removing compound	Aircraft maintenance/ Inside, flam. locker	—	—	1 gallon	No	No, stored inside flam. locker		X
Potassium dichromate	Aircraft maintenance/ Inside, flam. locker	—	—	2 quarts	No	No, stored inside flam. locker		X
Lube oil	Aircraft maintenance/ Inside, flam. locker	—	—	Several gallons	No	No, stored inside flam. locker		X
Hydraulic fluid	Aircraft maintenance/ Inside, flam. locker	18 4 oz cans per week	—	Several dozen 4 oz cans	No	No, stored inside flam. locker		X
Canopy polish	Aircraft maintenance/ Inside, flam. locker	—	—	Several containers	No	No, stored inside flam. locker		X

Table 4- [REDACTED]

**MAINTENANCE HANGAR 1  
(BUILDING [REDACTED])  
MATERIAL INVENTORY**

Material	Purpose/Location	Quantity (units)			Quantity Exposed in 2006-2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Paint waste	Aircraft maintenance/ Inside, flam. locker	—	5 1/2 gallons per year	1 gallon	No	No, stored inside flam. locker		X
Cleaning solvent (PD680)	Aircraft maintenance/ Inside, flam. locker	10 16 oz. cans per week	—	Several 16 oz. cans	No	No, stored inside flam. locker		X
Deicing fluid	Aircraft maintenance/ Inside, flam. locker	5 gallons per year	—	Several containers	No	No, stored inside flam. locker		X
Turbine engine gas path cleaner	Aircraft maintenance/ Inside	—	—	2 5-gallon drums	No	No, stored inside		X

**Table 4- [REDACTED]**

**MAINTENANCE HANGAR 1  
 (BUILDING [REDACTED])  
 LIST OF SIGNIFICANT SPILLS AND LEAKS**

Date (month/day/year)	Spill	Leak	Location (As Indicated on Site Map)	Description			Response Procedure		Preventive Measures Taken	
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered		Material No Longer Exposed to Storm Water (True/False)

Definitions: Significant spills include, but are not limited to, releases of oil or hazardous substances in excess of reportable quantities.

<b>Table 4- [REDACTED]</b> <b>HANGAR 1</b> <b>(BUILDING [REDACTED])</b> <b>POLLUTANT SOURCES, EXISTING BMPs, AND RECOMMENDED BMPs</b>		
Storm Water Pollutant Sources	Existing BMPs	Recommended BMPs
Aircraft Repair	Perform Regular Pavement Cleaning To Remove Oil and Grease (003) Avoid Hosing Down the Site (004) Use Drip Pans under Leaking Equipment (044) Provide Good Housekeeping Practices to Minimize Pollutants Exposure to Storm Water (135)	Core BMPs
Aircraft Washing	Wash Equipment and Vehicles in Designated Areas (041) Discharge Wash Water to a Sanitary Sewer (042)	Sector S BMPs
Antifreeze and Cleaning Compound	Do Not Store Used Parts or Containers Directly on Ground (057)	
Flammable Materials	Keep Absorbent Material On Hand (010) Store Containers Inside Secondary Containment (115) Store Reactive, Ignitable, or Flammable Liquids in Compliance with the Local Fire Code (199)	

**Figure 4-█: Maintenance Hangar 1 (Building █) SWPPP Site Map**



#### 4.7.2 Maintenance Hangar [REDACTED])

**Facility Description:** Maintenance Hangar [REDACTED], is located at Ault Field near the north end of Charles Porter Avenue, as shown on Sheet 5 (Grid 2) of the SWPPP base maps. At the time of the 2009 SWPPP update, the hangar was under construction in preparation for supporting a new EA-18 squadron. Hangar [REDACTED] will be reevaluated and the SWPPP updated when construction is completed and occupancy begins.

The facility consists of:

- Two aircraft hangars (east and west) flanking a two-story concrete structure housing offices and classrooms;
- Three corrugated metal buildings (Shack, and AO Shop) containing offices for aircraft line maintenance personnel; and
- A trailer used by VAQ- for material storage.
- A detailed map showing the site layout and surrounding area is provided in Figure 4-[REDACTED].

**Facility Objective:** This facility is used for maintenance of aircraft.

**Stormwater Drainage Description:** Hangar [REDACTED] is surrounded by impervious surfaces in all directions, including the concrete taxiway surface on its north, east, and south sides, and an asphalt parking lot to the west along Charles Porter Avenue. Stormwater runoff outside the northern bay doors flows north to Catch Basins SDCB02-04 through SDCB02-09. Stormwater runoff outside the southern bay doors flows south to Catch Basins SDCB03-01, SDCB03-02, SDCB02-10, and SDCB02-11. Within the hangar parking lot west of the building, runoff is routed to SDCB02-03A and SDCB02-03B. Roof drains also discharge on the north, west, and south sides of the building directly to the underground storm drain system. Drainage from the east side of the hangar flows over the concrete taxiway surface to a trench drain.

This building is located in two sub-basins (AF-7A and AF-4A). Runoff entering catch basins on the north, south, and west sides of the facility falls within Sub-basin AF-4A. Drainage from these catch basins flows to the north to an oil/water separator (Building [REDACTED]) prior to discharge to the Strait of Juan de Fuca via Outfall OAF-4A.

Stormwater runoff entering the trench along the east side of the hangar is routed to Outfall OAF-7A. Effluent from this outfall discharges to the open channel network within the flight line, and is subsequently routed to wetlands at the eastern station boundary through Outfall OAF-7F, which drains the entire Drainage Basin AF-7. Ultimate discharge is to Dugualla Bay.

**Material Inventory:** All materials used, stored, or produced at this facility in 2009 are listed in Table 4-[REDACTED]. Each material was assessed and evaluated in terms of its potential to contribute pollutants to stormwater runoff.

Because no materials have been found to be exposed to stormwater over the past three years, Table 4-[REDACTED] is not included.

**Significant Spills and Leaks:** Significant spills or leaks associated with the facility in the past three years will be shown in Table 4-[REDACTED].

**Site Assessment Inspection:** The original site assessment inspection was performed by E&E field personnel on Wednesday, December 14, 1994. The site has been reassessed regularly by

NAVFAC NW personnel. During the 2015 inspection, the building was generally clean and no issues were noted.

**Existing BMPs:** Existing BMPs are provided in Table 4-[REDACTED].

**Recommended BMPs and Implementation Plan:** Recommended BMPs for this facility and the associated implementation phase are identified in Table 4-[REDACTED]. Implementation of BMPs is required by the terms of the Multi-Sector Permit as authorized by 40 CFR 122.

**Table 4- [REDACTED]**

**MAINTENANCE HANGAR  
(BUILDING [REDACTED])  
MATERIAL INVENTORY**

Material	Purpose/ Location	Quantity (units)			Quantity Exposed in 2006- 2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Inspection penetrant	Aircraft maintenance/ Inside, in flam. locker	2 spray cans per week	—	5 spray cans and 15 gallons	No	No. stored inside in flam. locker.		X
Corrosion preventive compound	Aircraft maintenance/ Inside, in flam. locker	1 spray can per week	—	10 spray cans	No	No. stored inside in flam. locker.		X
Epoxy resin	Aircraft maintenance/ Inside, in flam. locker	5 gallons per week	—	25 gallons	No	No. stored inside in flam. locker.		X
Paint thinner	Aircraft maintenance/ Inside, in flam. locker	13 gallons per month	—	30 gallons	No	No. stored inside in flam. locker.		X
Spray paint	Aircraft maintenance/ Inside, in flam. locker	4 cans per week	—	40 cans	No	No. stored inside in flam. locker.		X
Alodine	Aircraft maintenance/ Inside, in flam. locker	12 oz. per month	—	4 bottles	No	No. stored inside in flam. locker.		X
Used hydraulic fluid	Temporary storage/ Outside, in hazwaste locker	0.5 gallons per week	—	2 55-gallon drums	No	No. stored inside locker.		X
Petroleum- contaminated pads and booms	Temporary storage/ Outside, in hazwaste locker	—	—	2 55-gallon drums	No	No. stored inside locker.		X
JP5-contaminated pads and booms	Temporary storage Outside, in haz. waste locker	—	—	2 55-gallon drums	No	No. stored inside locker.		X

Table 4- [REDACTED]									
MAINTENANCE HANGAR (BUILDING [REDACTED]) MATERIAL INVENTORY									
Material	Purpose/ Location	Quantity (units)			Quantity Exposed in 2006- 2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak		
		Used	Produced	Stored			Yes	No	
Empty aerosol cans	Temporary storage Outside, in haz. waste locker	212 pounds per year	—	1 55-gallon drum	No	No. stored inside locker.		X	
Isopropyl alcohol	Aircraft maintenance Outside, in flam. locker	8 gallons per week	—	Several containers	No	No. stored inside locker.		X	
Sealant	Aircraft maintenance Outside, in flam. locker	—	—	Several containers	No	No. stored inside locker.		X	
Petrolatum	Aircraft maintenance Outside, in flam. locker	—	—	Several containers	No	No. stored inside locker.		X	
Aircraft cleaning compound	Aircraft maintenance/ Inside, in flam. locker	1 spray can per week	—	10 spray cans	No	No. stored inside locker.		X	
Naphtha	Aircraft maintenance/ Inside, in flam. locker	0.5 gallons per week	—	2 gallons	No	No. stored inside locker.		X	
Lube oil	Aircraft maintenance/ Outside, in flam. locker	4 spray cans per week	—	10 spray cans	No	No. stored inside locker.		X	
Paint	Aircraft maintenance/ Outside, in flam. locker	—	—	1 gallon	No	No. stored inside locker.		X	
Grease	Aircraft maintenance/ Outside, in flam. locker	—	—	1 gallon	No	No. stored inside locker.		X	
Paint Stripper	Aircraft maintenance/ Inside in flam. locker	12 oz. per month	—	2 gallons	No	No. stored inside locker		X	

Table 4-

**MAINTENANCE HANGAR  
(BUILDING )  
MATERIAL INVENTORY**

Material	Purpose/ Location	Quantity (units)			Quantity Exposed in 2006- 2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Deicing fluid	Aircraft maintenance/ Inside VAQ129 storage trailer	—	—	120 14-ounce spray cans	No	No, stored inside trailer.		X
Lube oil	Aircraft maintenance/ Inside VAQ129 storage trailer	—	—	48 spray cans	No	No, stored inside trailer.		X
Corrosion preventive compound	Aircraft maintenance/ Inside VAQ129 storage trailer	—	—	12 spray cans	No	No, stored inside trailer.		X
Deicing fluid	Aircraft maintenance/ Outside	4,769 pounds per year	—	4 55-gallon drums	Yes	Yes, no secondary containment.		X
Aircraft surface cleaning compound	Aircraft maintenance/ Outside	—	—	30 5-gallon drums	Yes	Yes, no secondary containment.		X
Methanol	Aircraft maintenance/ Outside	—	—	2 55-gallon drums	Yes	Yes, no secondary containment.		X
Aircraft lube oil	Aircraft maintenance/ Outside	—	—	3 55-gallon drums	Yes	Yes, no secondary containment.		X
Aircraft cleaner Type II	Aircraft maintenance/ Outside	30 gallons per week	—	20 55-gallon drums	Yes	Yes, no secondary containment.		X
140 Solvent	Aircraft maintenance Outside, in flam. locker	0.5 gallons per week	—	5 gallons	No	No, stored inside locker.		X
Naphtha	Aircraft maintenance/ Outside	—	—	15 gallons	No	No, stored inside		X

Table 4-

**MAINTENANCE HANGAR  
 (BUILDING )  
 MATERIAL INVENTORY**

Material	Purpose/ Location	Quantity (units)			Quantity Exposed in 2006- 2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
	Outside					locker.		
Aircraft grease	Aircraft maintenance/ Outside	—	—	10 gallons	No	No. stored inside locker.		X
Methanol	Aircraft maintenance/ Outside, in flam. locker	—	—	10 gallons	No	No. stored inside locker.		X
Aircraft surface cleaning compound	Aircraft maintenance/ Outside, in flam. locker	—	—	10 gallons	No	No. stored inside locker.		X
Lube oil	Aircraft maintenance/ Outside, in flam. locker	4 spray cans per week	—	10 spray cans	No	No. stored inside locker.		X
Waste oil	Temporary storage/ Outside	—	—	500-gallon bowser	No	No. stored in contained covered area		X

**Table 4- [REDACTED]**

**MAINTENANCE HANGAR [REDACTED]  
 (BUILDING [REDACTED])**

**LIST OF SIGNIFICANT SPILLS AND LEAKS**

Date (month/day/year)	Spill	Leak	Location (As Indicated on Site Map)	Description			Response Procedure		Preventive Measures Taken	
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered		Material No Longer Exposed to Storm Water (True/False)

Definitions: Significant spills include, but are not limited to, releases of oil or hazardous substances in excess of reportable quantities.

**Table 4- [REDACTED]**  
**MAINTENANCE HANGAR [REDACTED]**  
**(BUILDING [REDACTED])**  
**POLLUTANT SOURCES, EXISTING BMPs, AND RECOMMENDED BMPs**

Storm Water Pollutant Sources	Existing BMPs	Recommended BMPs
Aircraft Repair	Perform Regular Pavement Cleaning to Remove Oil and Grease (003) Avoid Hosing Down the Site (004) Use Drip Pans Under Leaking Equipment (044) Use Good Management Practices to Minimize Pollutants Exposure to Storm Water (135)	Core BMPs
Aircraft Washing	Wash Equipment and Vehicles in Designated Areas (041) Discharge Wash Water to a Sanitary Sewer (042)	Sector S BMPs
Deicing Fluid, Cleaning Compounds, Methanol, Lube Oil (Outdoor Storage)	Keep Absorbent Material on Hand (010) Do Not Store Used Parts or Containers Directly on Ground (057)	
Flammable Materials	Keep Absorbent Material on Hand (010) Keep Inventory of Significant Materials (017A) Store Containers Inside Secondary Containment (115) Store Reactive, Ignitable, or Flammable Liquids in Compliance with the Local Fire Code (199)	
Floor Drains		
Hazardous Waste Lockers	Label All Drums, Cans, Containers, Tanks, and Valves (001) Prepare a Spill Prevention and Response Plan (112) Store Containers Inside Secondary Containment (115)	
French Drain	Permanently Seal Drains Within Critical Areas that Discharge to the Storm Drain (022) Divert Drainage to Treatment Facility/Sanitary Sewer (096)	
Indoor Hazardous Waste Accumulation Area		
Sprinkler System	Maintain Equipment in Good Condition (029)	
VAQ-129 Storage Trailer	Store Containers Inside Secondary Containment (115)	

Table 4- MAINTENANCE HANGAR (BUILDING) POLLUTANT SOURCES, EXISTING BMPs, AND RECOMMENDED BMPs		
Storm Water Pollutant Sources	Existing BMPs	Recommended BMPs
Waste Oil	Provide Secondary Containment for ASTs (075)	



**Figure 4-█: Maintenance Hangar █) SWPPP Site Map**



### 4.7.3 Maintenance Hangar [REDACTED])

**Facility Description:** Maintenance Hangar [REDACTED] is located at Ault Field along Charles Porter Avenue, as shown on Sheet 7 (Grid 4) of the SWPPP base maps.

The facility consists of:

- Two aircraft hangars (east and west) flanking a two-story concrete structure housing offices and classrooms;
- Three corrugated metal buildings along the east side of the building containing offices and storage for VP-1 aircraft line maintenance personnel; and four metal buildings along the fence south of the building used by VP-40 and Lockheed personnel.
- A detailed map showing the site layout and surrounding area is provided in Figure 4-[REDACTED].

**Facility Objective:** This facility is used for maintenance of P-3 aircraft operated by VQ-1, VP-40 and VP-1.

**Stormwater Drainage Description:** Hangar [REDACTED] is surrounded by impervious surfaces in all directions, including the concrete taxiway surface on its north, east, and south sides, and an asphalt parking lot to the west along Charles Porter Avenue. Stormwater runoff outside the northern bay doors flows north to Catch Basins SDCB16-01 through SDCB16-03 and SDCB15-27. Stormwater runoff outside the southern bay doors flows south to Catch Basins SDCB16-08, and SDCB16-11 through SDCB16-18. Within the hangar parking lot west of the building, runoff is routed to SDCB16-04 through SDCB16-06 and SDCB15-28 through SDCB15-30. Roof drains also discharge on the north, west, and south sides of the building directly to the underground storm drain system.

This building is located in sub-basin AF-7C. Runoff entering catch basins surrounding the facility falls within Sub-basin AF-7C. Drainage from these catch basins flows to the northeast prior to discharge via Outfall OAF-7C. Effluent from this outfall discharges to the open channel network within the flight line, and is subsequently routed to wetlands at the eastern station boundary through Outfall OAF-7F, which drains the entire Drainage Basin AF-7. Ultimate discharge is to Dugalla Bay.

Stormwater runoff entering the trench drains along the south side of the hangar is routed to a 40,000 gallon containment tank which was installed to collect discharges from the AFFF fire-fighting system. Outlets from the north side trench drain were plugged at the same time the tank was installed on the south side.

**Material Inventory:** All materials used, stored, or produced at this facility in 2009 are listed in Table 4-[REDACTED]. Each material was assessed and evaluated in terms of its potential to contribute pollutants to stormwater runoff.

There were no significant materials noted exposed to stormwater during the inspection, therefore Table 4-[REDACTED] is not provided.

**Significant Spills and Leaks:** Significant spills or leaks associated with the facility in the past three years will be shown in Table 4-[REDACTED].

**Site Assessment Inspection:** The initial site assessment inspection was performed by NAVFAC NW field personnel on Wednesday, October 2, 1996. The site has been reassessed regularly since that time. The building was generally clean during the 2015 inspection and no issues were noted.

**Existing BMPs:** Existing BMPs are provided in Table 4-██████.

**Recommended BMPs and Implementation Plan:** Recommended BMPs for this facility and the associated implementation phase are identified in Table 4-██████. Implementation of BMPs is required by the terms of the Multi-Sector General Permit as authorized by 40 CFR 122.

Table 4- [REDACTED]

**MAINTENANCE HANGAR  
(BUILDING [REDACTED])  
MATERIAL INVENTORY**

Material	Purpose/ Location	Quantity (units)			Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored		Yes	No
Inspection penetrant	Aircraft maintenance/ Outside, in flam. locker	2 spray cans per week	—	5 spray cans	No. stored inside in flam. locker.		X
Corrosion preventive compound	Aircraft maintenance/ Outside, in flam. locker	1 spray can per week	—	10 spray cans	No. stored inside in flam. locker.		X
Epoxy resin	Aircraft maintenance/ Outside, in flam. locker	1 gallons per week	—	2 gallons	No. stored inside in flam. locker.		X
Spray paint	Aircraft maintenance/ Outside, in flam. locker	4 cans per week	—	30 cans	No. stored inside in flam. locker.		X
Alodine	Aircraft maintenance/ Outside, in flam. locker	12 oz. per month	—	4 bottles	No. stored inside in flam. locker.		X
Used hydraulic fluid	Temporary storage/ Outside, in hazwaste locker	0.5 gallons per week	—	1 55-gallon drums	No. stored inside locker.		X
Petroleum- contaminated pads booms and speedy dry	Temporary storage/ Outside, in hazwaste locker	—	—	1 55-gallon drums	No. stored inside locker.		X
Empty aerosol cans	Temporary storage Outside, in haz. waste locker	212 pounds per year	—	1 55-gallon drum	No. stored inside locker.		X
Isopropyl alcohol	Aircraft maintenance Outside, in flam. locker	4 gallons per week	—	Several containers	No. stored inside locker.		X
Sealant	Aircraft maintenance Outside, in flam. locker	—	—	Several containers	No. stored inside locker.		X

Table 4- [REDACTED]

**MAINTENANCE HANGAR  
(BUILDING [REDACTED])  
MATERIAL INVENTORY**

Material	Purpose/ Location	Quantity (units)			Quantity Exposed in 2006- 2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Petrolatum	Aircraft maintenance Outside, in flam. locker	—	—	Several containers	No	No. stored inside locker.		X
Aircraft cleaning compound	Aircraft maintenance/ Inside, in flam. locker	1 spray can per week	—	10 spray cans	No	No. stored inside locker.		X
Naphtha	Aircraft maintenance/ Inside, in flam. locker	0.5 gallons per week	—	2 gallons	No	No. stored inside locker.		X
Lube oil	Aircraft maintenance/ Outside, in flam. locker	4 spray cans per week	—	10 spray cans	No	No. stored inside locker.		X
Paint	Aircraft maintenance/ Outside, in flam. locker	—	—	1 gallon	No	No. stored inside locker.		X
Grease	Aircraft maintenance/ Outside, in flam. locker	—	—	1 gallon	No	No. stored inside locker.		X
Paint Stripper	Aircraft maintenance/ Outside in flam. locker	12 oz. per month	—	2 gallons	No	No. stored inside locker		X
Aircraft lube oil	Aircraft maintenance/ Outside in flam. locker	—	—	1 5-gallon drum	Yes	No. stored inside locker		X
140 Solvent	Aircraft maintenance Outside, in flam. locker	0.5 gallons per week	—	5 gallons	No	No. stored inside locker.		X
Naphtha	Aircraft maintenance/ Outside in flam. locker	—	—	1 gallon	No	No. stored inside locker.		X
Hydraulic Oil	Aircraft Maintenance/ Outside in flam. locker	—	—	5 gallons	No	No. stored inside locker.		

**Table 4- [REDACTED]**  
**MAINTENANCE HANGAR [REDACTED]**  
**(BUILDING [REDACTED])**  
**MATERIAL INVENTORY**

Material	Purpose/ Location	Quantity (units)			Quantity Exposed in 2006- 2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Aircraft grease	Aircraft maintenance/ Outside in flam. locker	—	—	5 gallons	No	No. stored inside locker.		X
Methanol	Aircraft maintenance/ Outside, in flam. locker	—	—	2 gallons	No	No. stored inside locker.		X
Aircraft surface cleaning compound	Aircraft maintenance/ Outside, in flam. locker	—	—	10 gallons	No	No. stored inside locker.		X
Lube oil	Aircraft maintenance/ Outside, in flam. locker	4 spray cans per week	—	10 spray cans	No	No. stored inside locker.		X

**Table 4- [REDACTED]**  
**MAINTENANCE HANGAR [REDACTED]**  
**(BUILDING [REDACTED])**  
**LIST OF SIGNIFICANT SPILLS AND LEAKS**

Date (month/day/year)	Spill	Leak	Location (As Indicated on Site Map)	Description			Response Procedure		Preventive Measures Taken	
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered		Material No Longer Exposed to Storm Water (True/False)
11/2/13	X		Bldg [REDACTED]	Fuel	1.75 Gal	Drip pan transfer				
11/7/13	X		Bldg [REDACTED]	Fuel	1.5 Gal	Drip pan transfer				

Definitions: Significant spills include, but are not limited to, releases of oil or hazardous substances in excess of reportable quantities.

<b>Table 4- [REDACTED]</b> <b>MAINTENANCE HANGAR 6</b> <b>(BUILDING [REDACTED])</b> <b>POLLUTANT SOURCES, EXISTING BMPs, AND RECOMMENDED BMPs</b>		
Storm Water Pollutant Sources	Existing BMPs	Recommended BMPs
Aircraft Repair	Perform Regular Pavement Cleaning to Remove Oil and Grease (003) Avoid Hosing Down the Site (004) Use Drip Pans Under Leaking Equipment (044) Use Good Management Practices to Minimize Pollutants Exposure to Storm Water (115)	Core BMPs
Aircraft Washing	Wash Equipment and Vehicles in Designated Areas (041) Discharge Wash Water to a Sanitary Sewer (042)	Sector S BMPs
Hazardous Waste Lockers	Label All Drums, Cans, Containers, Tanks, and Valves (001) Prepare a Spill Prevention and Response Plan (112) Store Containers Inside Secondary Containment (115)	
Trench Drain	Permanently Seal Drains Within Critical Areas that Discharge to the Storm Drain (022)	
Sprinkler System	Maintain Equipment in Good Condition (029)	
Flammable Materials	Keep Absorbent Material on Hand (010) Keep Inventory of Significant Materials (017A) Store Containers Inside Secondary Containment (115) Store Reactive, Ignitable, or Flammable Liquids in Compliance with the Local Fire Code (199)	



**Figure 4-█: Maintenance Hangar █) SWPPP Site Map**



#### 4.7.4 Maintenance Hangar [REDACTED])

**Facility Description:** Maintenance Hangar [REDACTED] is located at Ault Field near the north end of Charles Porter Avenue, as shown on Sheet 7 (Grid 4) of the SWPPP base maps.

The facility consists of:

- On large hangar housing offices, workshops, and the aircraft maintenance area
- Three corrugated metal buildings (VAQ-138 QA Shack, VAQ-129 Line Shack, and AO Shop) containing offices for aircraft line maintenance personnel
- A detailed map showing the site layout and surrounding area is provided in Figure 4-[REDACTED].

**Facility Objective:** This facility is used for maintenance of aircraft operated by VAQ Squadrons 135, 140, 141 and VA Squadron 95.

**Stormwater Drainage Description:** Hangar [REDACTED] is surrounded by impervious surfaces on three sides including the concrete taxiway surface to the east, and parking/ storage areas on the north and south sides. On the west side along Charles Porter Avenue a thin grass strip separates the hangar from a parking area. Stormwater runoff outside the hangar bay doors which face east flows east to Catch Basins SDCB10-56 and SDCB11-06 through SDCB11-12. Stormwater runoff on the south side of the hangar flows south to Catch Basins SDCB11-01 through SDCB11-03. Within the hangar parking lot west of the building, runoff is routed to SDCB10-52 and SDCB10-53. Drainage from the north side of the hangar is routed to SDCB10-51, SDCB10-50 and SDCB10-55. Roof drains also discharge on the north, west, and south sides of the building directly to the underground storm drain system.

This building is located within Drainage basin AF-7 sub-basin AF-7B. Drainage from these catch basins flows is routed across Taxiways "A" and "E" to the east, to outfall OAF-7B associated with this sub-basin. Effluent from this outfall discharges to the open channel network within the flight line, and is subsequently routed to wetlands at the eastern station boundary through Outfall OAF-7F, which drains the entire Drainage Basin AF-7. Ultimate discharge is to Dugualla Bay.

**Material Inventory:** All materials used, stored, or produced at this facility in 2009 are listed in Table 4-[REDACTED]. Each material was assessed and evaluated in terms of its potential to contribute pollutants to stormwater runoff.

No significant materials (as defined in the glossary found in Appendix B of this report) were noted during the inspection as being exposed to stormwater. Therefore, Table 4-[REDACTED] is not provided.

**Significant Spills and Leaks:** Significant spills or leaks associated with the facility in the past three years will be shown in Table 4-[REDACTED].

**Site Assessment Inspection:** The initial site assessment inspection was performed by NAVFAC NW field personnel on Tuesday, October 1, 1996. The site has been reassessed regularly since that time. No observations were made during the 2015 inspection.

**Existing BMPs:** Existing BMPs are provided in Table 4-[REDACTED].

**Recommended BMPs and Implementation Plan:** Recommended BMPs for this facility and the associated implementation phase are identified in Table 4-[REDACTED]. Implementation of BMPs is required by the terms of the Multi-Sector General Permit as authorized by 40 CFR 122.

Table 4-

**MAINTENANCE HANGAR  
(BUILDING )  
MATERIAL INVENTORY**

Material	Purpose/ Location	Quantity (units)			Quantity Exposed in 2006- 2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Inspection penetrant	Aircraft maintenance/ Outside, in flam. locker	6 spray cans per week	—	10 spray cans	No	No. stored inside in flam. locker.		X
Corrosion preventive compound	Aircraft maintenance/ Outside, in flam. locker	2 spray can2 per week	—	20 spray cans	No	No. stored inside in flam. locker.		X
Epoxy resin	Aircraft maintenance/ Outside, in flam. locker	1 gallons per week	—	2 gallons	No	No. stored inside in flam. locker.		X
Spray paint	Aircraft maintenance/ Outside, in flam. locker	4 cans per week	—	40 cans	No	No. stored inside in flam. locker.		X
Used Oil	Outside, in bowser	50 gallons per week	—	300-gallon bowser	No	No. covered area with secondary containment		X
Petroleum- contaminated pads booms and speedy dry	Temporary storage/ Outside, in hazwaste locker	—	—	1 55-gallon drums	No	No. stored inside locker.		X
Empty aerosol cans	Temporary storage Outside, in haz. waste locker	300 pounds per year	—	1 55-gallon drum	No	No. stored inside locker.		X
Isopropyl alcohol	Aircraft maintenance Outside, in flam. locker	6 gallons per week	—	Several containers	No	No. stored inside locker.		X
Sealant	Aircraft maintenance Outside, in flam. locker	—	—	Several containers	No	No. stored inside locker.		X
JP-5, clean	Outside in bowser	—	—	500 gallons	No	No. covered area with secondary		X

**Table 4-** **MAINTENANCE HANGAR**  
**(BUILDING )**  
**MATERIAL INVENTORY**

Material	Purpose/ Location	Quantity (units)			Quantity Exposed in 2006-2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Aircraft cleaning compound	Aircraft maintenance/ Inside, in flam. locker	1 spray can per week	—	10 spray cans	No	No, stored inside locker.		X
Naphtha	Aircraft maintenance/ Inside, in flam. locker	1 gallon per week	—	2 gallons	No	No, stored inside locker.		X
Lube oil	Aircraft maintenance/ Outside, in flam. locker	4 spray cans per week	—	10 spray cans	No	No, stored inside locker.		X
Paint	Aircraft maintenance/ Outside, in flam. locker	—	—	1 gallon	No	No, stored inside locker.		X
Grease	Aircraft maintenance/ Outside, in flam. locker	—	—	1 gallon	No	No, stored inside locker.		X
Paint Stripper	Aircraft maintenance/ Outside in flam. locker	12 oz. per month	—	2 gallons	No	No, stored inside locker		X
Aircraft lube oil	Aircraft maintenance/ Outside in flam. locker	—	—	1 5-gallon drum	Yes	No, stored inside locker		X
140 Solvent	Aircraft maintenance Outside, in flam. locker	0.5 gallons per week	—	5 gallons	No	No, stored inside locker.		X
Naphtha	Aircraft maintenance/ Outside in flam. locker	—	—	1 gallon	No	No, stored inside locker.		X
Hydraulic Oil	Aircraft Maintenance/ Outside in flam. locker	—	—	5 gallons	No	No, stored inside locker.		
Aircraft grease	Aircraft maintenance/ Outside in flam. locker	—	—	5 gallons	No	No, stored inside locker.		X

Table 4- [REDACTED]

**MAINTENANCE HANGAR [REDACTED]  
(BUILDING [REDACTED])  
MATERIAL INVENTORY**

Material	Purpose/ Location	Quantity (units)			Quantity Exposed in 2006- 2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Waste Oil	Outside in flam. locker Temporary Storage/ Outside in bowser	—	—	500 gallons	Yes	No. covered area with secondary containment		X
Methanol	Aircraft maintenance/ Outside. in flam. locker	—	—	2 gallons	No	No. stored inside locker.		X
Aircraft surface cleaning compound	Aircraft maintenance/ Outside. in flam. locker	—	—	10 gallons	No	No. stored inside locker.		X
Lube oil	Aircraft maintenance/ Outside. in flam. locker	4 spray cans per week	—	10 spray cans	No	No. stored inside locker.		X

Table 4- [REDACTED]

**MAINTENANCE HANGAR [REDACTED]  
(BUILDING [REDACTED])  
LIST OF SIGNIFICANT SPILLS AND LEAKS**

Date (month/day/year)	Spill	Leak	Location (As Indicated on Site Map)	Description			Response Procedure		Preventive Measures Taken	
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered		Material No Longer Exposed to Storm Water (True/False)

Definitions: Significant spills include, but are not limited to, releases of oil or hazardous substances in excess of reportable quantities.

**Table 4- [REDACTED]**  
**MAINTENANCE HANGAR [REDACTED]**  
**(BUILDING [REDACTED])**  
**POLLUTANT SOURCES, EXISTING BMPs, AND RECOMMENDED BMPs**

Storm Water Pollutant Sources	Existing BMPs	Recommended BMPs
Aircraft Repair	Perform Regular Pavement Cleaning to Remove Oil and Grease (003) Avoid Hosing Down the Site (004) Use Drip Pans Under Leaking Equipment (044) Use Good Management Practices to Minimize Pollutants Exposure to Storm Water (135)	Core BMPs
Aircraft Washing	Wash Equipment and Vehicles in Designated Areas (041) Discharge Wash Water to a Sanitary Sewer (042)	Sector S BMPs
Hazardous Waste Lockers	Label All Drums, Cans, Containers, Tanks, and Valves (001) Store Containers Inside Secondary Containment (115)	
Indoor Hazardous Waste Accumulation Areas	Keep Absorbent Material on Hand (010)	
Trench Drain	Label Storm Drains	
Waste Oil	Provide Secondary Containment for ASTs (075)	
Sprinkler System		
Flammable Materials	Keep Absorbent Material on Hand (010) Keep Inventory of Significant Materials (017A) Store Containers Inside Secondary Containment (115) Store Reactive, Ignitable, or Flammable Liquids in Compliance with the Local Fire Code (199)	



**Figure 4-2642: Maintenance Hangar [REDACTED] SWPPP Site Map**



#### 4.7.5 Maintenance Hangar ( )

**Facility Description:** Maintenance Hangar , a NAVAIRES facility, is located at Ault Field on Charles Porter Avenue, as shown on Sheet 7 (Grid 4) of the SWPPP base maps.

The facility consists of one large hangar that houses offices, workshops, and the aircraft maintenance area. A detailed map showing the site layout and surrounding area is provided in Figure 4- .

**Facility Objective:** This facility is used for maintenance of aircraft operated by VAQ Squadron .

**Stormwater Drainage Description:** Hangar is surrounded by concrete surfaces to the north and east and an asphalt lot to the west and south. Stormwater runoff, travels over impervious surfaces into several catch basins located around the facility and is routed to the open channel approximately 175 feet to the south. This open channel flows approximately 600 feet to the east to Outfall OAF-7E, associated with Sub-basin AF-7E. Runoff then flows within the open channel network through the flight line to Outfall OAF-7F. Ultimate discharge is to Dugualla Bay.

**Material Inventory:** All materials used, stored, or produced at this facility in 2009 are listed in Table 4- . Each material was assessed and evaluated in terms of its potential to contribute pollutants to stormwater runoff.

Table 4- lists significant materials (as defined in the glossary found in Appendix B of this report) exposed to stormwater during the past three years and/or currently exposed.

**Significant Spills and Leaks:** Significant spills or leaks associated with the facility will be shown in Table 4- .

**Site Assessment Inspection:** The initial site assessment inspection was performed by E&E field personnel on Wednesday, December 7, 1994. The investigation in 2015 found the facility generally clean and noted no other issues.

**Existing BMPs:** Existing BMPs are provided in Table 4- .

**Recommended BMPs and Implementation Plan:** Recommended BMPs for this facility and the associated implementation phase are identified in Table 4- . Implementation of BMPs is required by the terms of the Multi-Sector Permit as authorized by 40 CFR 122.

**Table 4-** [REDACTED]

**MAINTENANCE HANGAR  
(BUILDING [REDACTED])  
MATERIAL INVENTORY**

Material	Purpose/ Location	Quantity (units)			Exposed in 2006- 2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Waste oil/fuel	Temporary storage/ Outside	—	40 quarts per day	500-gal. bowser	No	secondary containment.		X
Used hydraulic fluid	Temporary storage/ hazardous waste area outside	—	200 gallons per year	1 55-gal. drum	Yes	Yes, no secondary containment		X
Empty aerosol and paint cans	Temporary storage/ hazardous waste area outside	—	931 pounds per year	1 55-gal. drum	Yes	Yes, no secondary containment		X
IP5-contaminated absorbent pads and booms	Temporary storage/ hazardous waste area outside	—	742 pounds per year	1 55-gal. drum	Yes	Yes, no secondary containment		X
Contaminated Speedy Dry	Temporary storage/ hazardous waste area outside	—	8,644 pounds per year	1 55-gal. drum	Yes	Yes, no secondary containment		X
Waste paint and related material	Temporary storage/ Inside, flam. locker	—	80 pounds per year	10-gallon drum	No	No, stored inside flam. locker		X
Lacquer, acrylic	Aircraft maintenance/ Inside, flam. locker	143 spray cans per year	—	1-2 dozen spray cans	No	No, stored inside flam. locker.		X
Methyl ethyl ketone	Aircraft maintenance/ Inside, flam. locker	21 gallons per year	—	6 gallons	No	No, stored inside flam. locker		X
Isopropyl alcohol	Aircraft maintenance/ Inside, flam. locker	250 gallons per year	—	8 gallons	No	No, stored inside flam. locker.		X

**Table 4-**  
**MAINTENANCE HANGAR**  
**(BUILDING )**  
**MATERIAL INVENTORY**

Material	Purpose/ Location	Quantity (units)			Exposed in 2006- 2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Epoxy coating	Inside, flam. locker	year	—	—	No	locker		
Toluene	Aircraft maintenance/ Inside, flam. locker	112 quarts per year	—	Several dozen quarts	No	No, stored inside flam. locker		X
Naphtha	Aircraft maintenance/ Inside, flam. locker	—	—	12 gallons	No	No, stored inside flam. locker		X
Corrosion preventive compound	Aircraft maintenance/ Inside, flam. locker	59 gallons per year	—	15 gallons	No	No, stored inside flam. locker		X
Alodine	Aircraft maintenance/ Inside, flam. locker	316 spray cans per year	—	Several dozen spray cans	No	No, stored inside flam. locker		X
Paint stripper	Aircraft maintenance/ Inside, flam. locker	—	—	9 quarts	No	No, stored inside flam. locker		X
Aircraft surface cleaning compound	Aircraft maintenance/ Inside, flam. locker	—	—	8 gallons	No	No, stored inside flam. locker		X
Aircraft surface cleaning compound	Aircraft maintenance/ Inside, flam. locker	1,500 spray cans per year	—	6 dozen spray cans	No	No, stored inside flam. locker		X
Engine oil	Aircraft maintenance/ Inside, flam. locker	320 gallons per month	—	15 gallons	No	No, stored inside flam. locker		X
Spill kit	Spill cleanup/ Inside hangar	1,200 quarts per year	—	3 quarts	No	No, stored inside flam. locker		X
		8 55-gallon drums per year	—	1 55-gal. drum	No	No, stored inside hangar		X

Table 4-

**MAINTENANCE HANGAR  
 (BUILDING )  
 MATERIAL INVENTORY**

Material	Purpose/ Location	Quantity (units)			Exposed in 2006- 2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Absorbent booms	Spill cleanup/ Inside hangar	280 pounds per year	—	1 55-gal. drum	No	No. stored inside hangar		X
Solvent 140	Aircraft maintenance/ Inside, flam. locker	4 gallons per year	—	2 5-gal. drums	No	No. stored inside flam. locker		X
Aircraft grease	Aircraft maintenance/ Inside, flam. locker	150 pounds per year	—	1 to 2 dozen gallons	No	No. stored inside flam. locker		X
Inspection Penetrant	Aircraft maintenance/ Inside, flam. locker	24 spray cans per year	—	3 to 4 dozen spray cans	No	No. stored inside flam. locker		X
Lube Oil	Aircraft maintenance/ Inside, flam. locker	500 spray cans per year	—	1 to 2 dozen spray cans	No	No. stored inside flam. locker		X

Table 4- [REDACTED]

**MAINTENANCE HANGAR [REDACTED]  
 (BUILDING [REDACTED])  
 DESCRIPTION OF EXPOSED SIGNIFICANT MATERIAL**

Description of Exposed Significant Material	Period of Exposure	Quantity Exposed (units)	Location (As Indicated on the Site Map)	Method of Storage or Disposal (e.g., pile, drum, tank)	Description of Material Management Practice (e.g., pile covered, drum sealed)
Large cardboard box filled with trash	2013	Large box	North side of building		

**Table 4- [REDACTED]**

**MAINTENANCE HANGAR [REDACTED]  
 (BUILDING [REDACTED])**

**LIST OF SIGNIFICANT SPILLS AND LEAKS**

Date (month/day/year)	Spill	Leak	Location (As Indicated on Site Map)	Description			Response Procedure		Preventive Measures Taken	
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered		Material No Longer Exposed to Storm Water (True/False)

Definitions: Significant spills include, but are not limited to, releases of oil or hazardous substances in excess of reportable quantities.

**Table 4- [REDACTED]**  
**MAINTENANCE HANGAR [REDACTED]**  
**(BUILDING [REDACTED])**  
**POLLUTANT SOURCES, EXISTING BMPs, AND RECOMMENDED BMPs**

Storm Water Pollutant Sources	Existing BMPs	Recommended BMPs
Aircraft Maintenance	Use Drip Pans Under Leaking Equipment (044) Conduct Maintenance within a Building or Covered Area (047)	Core BMPs
Aircraft Washing	Wash Equipment and Vehicles in Designated Areas (041) Discharge Wash Water to a Sanitary Sewer (042)	
Flammable Materials	Store Reactive, Ignitable, or Flammable Liquids in Compliance with the Local Fire Code (199)	Sector S BMPs
Floor Debris and Residue	Perform Regular Pavement Cleaning To Remove Oil and Grease (003) Avoid Hosing Down the Site (004) Perform Regular Pavement Sweeping (005) Use Good Management Practices to Minimize Pollutants Exposure to Storm Water (135)	
Hazardous Waste Lockers	Store Containers Inside Secondary Containment (115)	
Oil Bowser	Provide Secondary Containment for AST's (075)	
Trench Drain	Label Storm Drains	

#### 4.7.6 Maintenance Hangar [REDACTED]

**Facility Description:** Maintenance Hangar [REDACTED] an NAS Whidbey Island facility, is located at Ault Field on Charles Porter Avenue, as shown on Sheet 7 (Grid 4) of the SWPPP base maps.

The facility consists of:

- One large hangar housing offices, workshops, and the aircraft maintenance area; and
- Two corrugated metal buildings (R-55 and R-56) containing offices for aircraft line maintenance personnel.
- A detailed map showing the site layout and surrounding area is provided in Figure 4-[REDACTED].

**Facility Objective:** This facility is used for maintenance of aircraft operated by VA Squadron 196 and VAQ Squadron 139.

**Stormwater Drainage Description:** Stormwater runoff around this facility travels over impervious surfaces into several catch basins surrounding the facility. Drainage from these catch basins converges at Manhole SDMH10-23 south of the building.

Hangar 10 is located within Drainage Basin AF-7 and Sub-basin AF-7B. Flow from Manhole SDMH10-23 is routed to Outfall OAF-7B. Flow from this outfall enters the open channel network within the flight line, where it combines with runoff from other AF-7 sub-basins, discharging at Outfall OAF-7F to wetlands. Ultimate discharge is to Duguala Bay.

**Material Inventory:** All materials used, stored, or produced at this facility for 2009 are listed in Table 4-[REDACTED]. Each material was assessed and evaluated in terms of its potential to contribute pollutants to stormwater runoff.

Because no materials have been found to be exposed to stormwater over the past three years, Table 4-[REDACTED] is not included.

**Significant Spills and Leaks:** Significant spills or leaks associated with the facility in the past three years will be shown in Table 4-[REDACTED].

**Site Assessment Inspection:** The initial site assessment inspection was performed by E&E field personnel on Thursday, December 8, 1994. The site has been reassessed regularly since that time by NAVFAC NW personnel. The 2015 investigation found the facility generally clean and noted no other issues. Onsite trench drains have been marked to satisfy a corrective action (#19).

**Existing BMPs:** Existing BMPs are provided in Table 4-[REDACTED].

**Recommended BMPs and Implementation Plan:** Recommended BMPs for this facility and the associated implementation phase are identified in Table 4-[REDACTED]. Implementation of BMPs is required by the terms of the Multi-Sector Permit as authorized by 40 CFR 122.

Table 4-

**MAINTENANCE HANGAR  
(BUILDING )  
MATERIAL INVENTORY**

Material	Purpose/ Location	Quantity (units)			Quantity Exposed in 2006- 2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Waste paint	Temporary storage/ Inside, in flam. locker	—	38 gallons per year	10-gallon drum	No	No. stored inside flam. locker.		X
Lacquer (aerosol)	Aircraft maintenance/ Inside, in flam. locker	38 spray cans per month	—	Several dozen spray cans	No	No. stored inside flam. locker.		X
Thinner	Aircraft maintenance/ Inside, flam. locker	8 gallons per month	—	10 gallons	No	No. stored inside flam. locker.		X
Napbtha	Maintenance/ Inside, in flam. locker	20 gallons per month	—	10 gallons	No	No. stored inside flam. locker.		X
Paint	Aircraft maintenance/ Inside, in flam. locker	40 pints per month	—	Several dozen pints	No	No. stored inside flam. locker.		X
Contaminated Speedy Dry	Temporary storage/ Outside, in haz. waste locker	—	461 pounds per year	2 55-gallon drums	No	No. stored inside locker.		X
Contaminated Absorbent Pads/Booms	Temporary storage/ Outside, in haz. waste locker	—	2,400 pounds per year	2 55-gallon drums	No	No. stored inside locker		X
Waste oil	Temporary storage/ Outside	—	200 gallons every 3 months	1 500-gallon bowser	Yes	No stored in secondary containment.		X
Used aerosol cans	Temporary storage/ Outside	—	127 pounds per year	2 55-gallon drums	Yes	Yes, no secondary containment.		X
Used hydraulic fluid/PD680	Temporary storage/ Outside	—	30 gallons every 3 months	2 55-gallon drums	Yes	Yes, no secondary containment.		X

Table 4-

**MAINTENANCE HANGAR  
 (BUILDING )  
 MATERIAL INVENTORY**

Material	Purpose/ Location	Quantity (units)			Quantity Exposed in 2006- 2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Used hydraulic fluid	Aircraft maintenance/ Outside, in flam. locker	—	—	5-gallon drum	No	Yes, inadequate secondary containment.		X
Aircraft grease	Aircraft maintenance/ Outside, in flam. locker	—	—	6 gallons	No	Yes, inadequate secondary containment		X
Paint remover	Aircraft maintenance/ Outside, in flam. locker	—	—	Several containers	No	Yes, inadequate secondary containment		X
Hand cleaner	Aircraft maintenance/ Outside, in flam. locker	—	—	Several containers	No	Yes, inadequate secondary containment		X
Adhesive	Aircraft maintenance/ Outside, in flam. locker	—	—	Several containers	No	Yes, inadequate secondary containment		X
Lube oil	Aircraft maintenance/ Outside, in flam. locker	30 spray cans per month	—	Several dozen spray cans	No	Yes, inadequate secondary containment		X
Turbine engine gas path cleaner	Aircraft maintenance/ Outside, in flam. locker	1,433 pounds per year	—	—	No	Yes, inadequate secondary containment		X
Corrosion preventive compound	Aircraft maintenance/ Outside, in flam. locker	—	—	Several dozen spray cans	No	Yes, inadequate secondary containment		X
Aircraft cleaning compound	Aircraft maintenance/ Outside, in flam. locker	40 spray cans per month	—	Several dozen spray cans	No	Yes, inadequate secondary containment		X
Isopropyl Alcohol	Aircraft maintenance/ Outside, in flam. locker	—	—	3 gallons	No	Yes, inadequate secondary containment		X

Table 4-

**MAINTENANCE HANGAR  
 (BUILDING )  
 MATERIAL INVENTORY**

Material	Purpose/ Location	Quantity (units)			Quantity Exposed in 2006- 2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Lacquer (aerosol)	Aircraft maintenance/ Outside, in flam. locker	—	—	Several spray cans	No	Yes, inadequate secondary containment		X
JP5 fuel	Aircraft maintenance/ Outside	—	—	5 gallons	Yes	Yes, inadequate secondary containment		X
Lube oil	Aircraft maintenance/ Outside	—	—	5 gallons	Yes	Yes, no secondary containment		X
Hydraulic fluid	Aircraft maintenance/ Outside	13 gallons per month	—	5 gallons	Yes	Yes, no secondary containment		X
Aircraft cleaner	Aircraft maintenance/ outside, in flam. locker	—	—	Several containers	No	No, adequate secondary containment		X
Engine oil	Aircraft maintenance/ outside, in flam. locker	—	—	Several containers	No	No, adequate secondary containment		X
Hydraulic fluid	Aircraft maintenance/ outside, in flam. locker	—	—	20 gallons	No	No, adequate secondary containment		X

**Table 4- [REDACTED]**

**MAINTENANCE HANGAR [REDACTED]  
(BUILDING [REDACTED])**

**LIST OF SIGNIFICANT SPILLS AND LEAKS**

Date (month/day/year)	Spill	Leak	Location (As Indicated on Site Map)	Description				Response Procedure		Preventive Measures Taken
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered	Material No Longer Exposed to Storm Water (True/False)	

Definitions: Significant spills include, but are not limited to, releases of oil or hazardous substances in excess of reportable quantities.

**Table 4- [REDACTED]**

**MAINT. HANGAR [REDACTED]**

**POLLUTANT SOURCES, EXISTING BMPs, AND RECOMMENDED BMPs**

Storm Water Pollutant Sources	Existing BMPs <sup>a</sup>	Recommended BMPs <sup>a</sup>
Aircraft Washing	Use Drip Pans Under Leaking Equipment (044)	Core BMPs
Drummed Aerosol Cans and PD680	Conduct Maintenance within a Building or Covered Area (047) Keep Absorbent Material on Hand (010) Store Liquids and Significant Materials within a Building or Covered Area (061B) Construct Berm or Dike Around Critical Area (012)	
Flammable Materials	Do Not Store Used Parts or Containers Directly on Ground (057) Store Containers Inside Secondary Containment (115) Store Reactive, Ignitable, or Flammable Liquids in Compliance with the Local Fire Code (199)	Sector S BMPs
Floor Residue and Debris	Perform Regular Pavement Cleaning To Remove Oil and Grease (003)  Avoid Hosing Down the Site (004) Perform Regular Pavement Sweeping (005)	
Hazardous Waste	Provide Good Housekeeping Practices to Minimize Pollutants Exposure to Storm Water (135) Store Containers Inside Secondary Containment (115)	
POJ, Storage Trench Drains (and Sanitary Lift Stations Serving the Drains)	Keep Absorbent Material on Hand (010) Regularly Inspect and Maintain Storm Water Conveyance Systems (110)	
Waste Oil Hopper	Keep Absorbent Material on Hand (010) Provide Secondary Containment for ASTs (075)	

<sup>a</sup> Number in parentheses refers to BMP Index Number (see Appendix E).

#### 4.7.7 Maintenance Hangar [REDACTED])

**Facility Description:** Maintenance Hangar [REDACTED], an NAS facility, is located at Ault Field on Charles Porter Avenue, as shown on Sheet 5 (Grid 2) of the SWPPP base maps.

The facility consists of:

- One large hangar housing offices, workshops, and the aircraft maintenance area; and
- Two corrugated metal buildings (R-57 and one on the east side of Maintenance Hangar 1) containing offices for aircraft line maintenance personnel.
- A detailed map showing the site layout and surrounding area is provided in Figure 4-[REDACTED].

**Facility Objective:** This facility is used for the maintenance of aircraft.

**Stormwater Drainage Description:** Hangar 12 is located within both Sub-basin AF-4A and Sub-basin AF-7A. Stormwater runoff from this facility flows over impervious areas, which surround the building, into several catch basins. Roof drains are routed directly to the storm drain system via underground piping.

The north and west portions of the hangar facility fall within Sub-basin AF-4A. Runoff collected in catch basins in these areas converges at Manhole SDMH02-10. Drainage is then routed to an oil/water separator (Building [REDACTED]) prior to discharge to the Strait of Juan de Fuca at Outfall OAF-4A.

The south and east portions of the facility are located within Drainage Basin AF-7/Sub-basin AF-7A. runoff collected in catch basins in these areas converges at Manhole SDMH03-06. Drainage is then routed to Outfall OAF-7A where it discharges to the open channel network within the flight line. Stormwater runoff within these open channels is directed to Outfall OAF-7F, discharging to a wetland area near the eastern boundary of the station. Ultimate discharge is to Dugualla Bay.

**Material Inventory:** All materials used, stored, or produced at this facility in 2009 are listed in Table 4-[REDACTED]. Each material was assessed and evaluated in terms of its potential to contribute pollutants to stormwater runoff.

Table 4-[REDACTED] lists significant materials (as defined in the glossary found in Appendix B of this report) exposed to stormwater during the past three years and/or currently exposed.

**Significant Spills and Leaks:** Significant spills or leaks associated with the facility in the past three years will be shown in Table 4-[REDACTED].

**Site Assessment Inspection:** The initial site assessment inspection was performed by E&E field personnel on Thursday, December 8, 1994. The site has been reassessed regularly by NAVFAC NW personnel. During the 2015 inspection, the facility was noted as generally clean, but a scrap metals bin had an open lid.

**Existing BMPs:** Existing BMPs are provided in Table 4-[REDACTED].

**Recommended BMPs and Implementation Plan:** Recommended BMPs for this facility and the associated implementation phase are identified in Table 4-[REDACTED]. Implementation of BMPs is required by the terms of the Multi-Sector Permit as authorized by 40 CFR 122.

Table 4-

**MAINTENANCE HANGAR  
(BUILDING )  
MATERIAL INVENTORY**

Material	Purpose/Location	Quantity (units)			Quantity Exposed in 2006-2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Hydraulic fluid	Aircraft maintenance/ Inside, flam. locker	7,726 gallons per year	—	60 gallons	No	No, stored inside flam. locker		X
NDI penetrant	Aircraft maintenance/ Inside, flam. locker	148 spray cans per year	—	30 spray cans	No	No, stored inside flam. locker		X
Aircraft grease	Aircraft maintenance/ Inside, flam. locker	549 pounds per year	—	2 gallons	No	No, stored inside flam. locker		X
Lube oil	Aircraft maintenance/ Inside, flam. locker	75 gallons per year	—	4 gallons	No	No, stored inside flam. locker		X
Glass cleaner	Aircraft maintenance/ Inside, flam. locker	22 gallons per year	—	Several gallons	No	No, stored inside flam. locker		X
Isopropyl alcohol	Aircraft maintenance/ Inside, flam. locker	127 gallons per year	—	8 gallons	No	No, stored inside flam. locker		X
Sealant	Aircraft maintenance/ Inside, flam. locker	236 gallons per year	—	Several dozen tubes	No	No, stored inside flam. locker		X
Corrosion preventative compound	Aircraft maintenance/ Inside, flam. locker	365 spray cans per year	—	Several dozen spray cans	No	No, stored inside flam. locker		X
Naphtha	Aircraft maintenance/ Inside, flam locker	166 gallons per year	—	5 gallons	No	No, stored inside flam. locker		X
Methyl ethyl ketone (MEK)	Aircraft maintenance/ Inside, flam. locker	496 gallons per year	—	20 gallons	No	No, stored inside flam. locker		X
Lacquer (aerosol)	Aircraft maintenance/ Inside, flam. locker	611 spray cans per year	—	Several dozen spray cans	No	No, stored inside flam. locker		X

Table 4-

**MAINTENANCE HANGAR  
(BUILDING )  
MATERIAL INVENTORY**

Material	Purpose/Location	Quantity (units)			Quantity Exposed in 2006-2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Epoxy coating	Aircraft maintenance/ Inside, flam. locker	361 gallons per year	—	20 gallons	No	No, stored inside flam. locker		X
Alodine	Aircraft maintenance/ Inside, flam. locker	12 gallons per year	—	1 gallon	No	No, stored inside flam. locker		X
Alodine waste (empty alodine containers)	Aircraft maintenance/ Inside, flam. locker	—	—	5-gallon drum	No	No, stored inside flam. locker		X
Plastic polish	Aircraft maintenance/ Inside, flam. locker	492 pints per year	—	Several dozen pints	No	No, stored inside flam. locker		X
Waste paint	Temporary storage/ Inside	—	10 gallons per week	10-gallon drum	No	Yes, no secondary containment		X
Inspection penetrant remover	Aircraft maintenance/ Outside flam. locker	—	—	5 gallons	No	Yes, no secondary containment		X
Liquid dye	Aircraft maintenance/ Outside, flam. locker	—	—	1 gallon	No	Yes, no secondary containment		X
Met-L-check	Aircraft maintenance/ Outside, flam. locker	—	—	12 cans	No	Yes, no secondary containment		X
Aircraft cleaning compound	Aircraft maintenance/ Outside, flam. locker	3,005 spray cans per year	—	Several dozen spray cans	No	Yes, no secondary containment		X
Clear lube oil	Aircraft maintenance/ Outside, flam. locker	248 5-gallon drums per year	—	5-gallon drum	No	Yes, no secondary containment		X
Aircraft cleaning compound/detergent	Aircraft maintenance/ Outside, flam. locker	9,920 gallons per year	—	5 gallons	No	Yes, no secondary containment		X

Table 4-

**MAINTENANCE HANGAR  
(BUILDING )  
MATERIAL INVENTORY**

Material	Purpose/Location	Quantity (units)			Quantity Exposed in 2006-2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Waste oil	Temporary storage/ Outside	—	3 gallons per day	500-gallon bowser	No	secondary containment		X
Cleaning compound/ Turbine engine gas path cleaner	Aircraft maintenance/ Outside	48 5-gallon drums per year	—	19 5-gallon drums	Yes	Yes, no secondary containment		X
Lube oil	Aircraft maintenance/ Outside	5,730 gallons per year	—	12 55-gallon drums	Yes	Yes, no secondary containment		X
Cleaning Solvent (PD680)	Aircraft maintenance/ Outside	5 gallons per year	—	2 5-gallon drums	Yes	Yes, no secondary containment		X
JP5 fuel samples	Temporary storage/ Outside flam. locker	—	—	2 gallons	No	yes, no secondary containment		X
Corrosion preventative compound	Aircraft maintenance/ Outside flam. locker	120 gallons per year	—	Several gallons	No	Yes, no secondary containment		X
Methanol	Aircraft maintenance/ Outside flam. locker	2,420 gallons per year	—	20 5-gallon drums	No	Yes, no secondary containment		X
Deicing fluid	Aircraft maintenance/ Outside	974 gallons per year	—	6 55-gallon drums	Yes	Yes, no secondary containment.		X
Used hydraulic fluid/ (PD680)	Aircraft maintenance/ Outside	—	205 gallons per year	1 55-gallon drum	Yes	Yes, no secondary containment		X
Empty aerosol cans	Temporary storage/ Outside	—	1 55-gallon drum every 3 months	1 55-gallon drum	Yes	Yes, no secondary containment		X

Table 4-

**MAINTENANCE HANGAR  
 (BUILDING )  
 MATERIAL INVENTORY**

Material	Purpose/Location	Quantity (units)			Quantity Exposed in 2006-2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
JP5 fuel	From NDI Inspection Outside	80 gallons per month	—	500-gallon bowser	No	secondary containment		X
Contaminated Speedy Dry	Temporary storage/ Hazardous waste locker	—	1 gallon per day	55-gallon drum	No	No. stored inside locker		X
Contaminated Absorbent Pads/Booms	Temporary storage/ Hazardous waste locker	—	55 gallons per week	1 55-gallon drum	No	No. stored inside locker		X
Hydraulic fluid	Aircraft maintenance/ Outside flam. locker	200 gallons per year	—	10 gallons	No	Yes, no secondary containment.		X

**Table 4- [REDACTED]**

**MAINTENANCE HANGER [REDACTED]  
(BUILDING [REDACTED])**

**DESCRIPTION OF EXPOSED SIGNIFICANT MATERIAL**

Description of Exposed Significant Material	Period of Exposure	Quantity Exposed (units)	Location (As Indicated on the Site Map)	Method of Storage or Disposal (e.g., pile, drum, tank)	Description of Material Management Practice (e.g., pile covered, drum sealed)
Scrap metal bin	Current	1 bin	Outside of hangar	bin	
Scrap metal bin	2014	1 bin	Outside of hangar	bin	

Table 4

**MAINTENANCE HANGAR  
 (BUILDING )  
 LIST OF SIGNIFICANT SPILLS AND LEAKS**

Date (month/day/year)	Spill	Leak	Location (As Indicated on Site Map)	Description				Response Procedure		Preventive Measures Taken
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered	Material No Longer Exposed to Storm Water (True/False)	

Definitions: Significant spills include, but are not limited to, releases of oil or hazardous substances in excess of reportable quantities.

**Table 4- [REDACTED]**  
**MAINT. HANGAR [REDACTED]**  
**POLLUTANT SOURCES, EXISTING BMPs, AND RECOMMENDED BMPs**

Storm Water Pollutant Sources	Existing BMPs <sup>a</sup>	Recommended BMPs <sup>a</sup>
Aircraft Washing	Wash Equipment and Vehicles in Designated Areas (041) Discharge Wash Water to a Sanitary Sewer (042) Keep Absorbent Material on Hand (010)	Core BMPs
Cleaning Compounds, Solvents, Oil	Do Not Store Used Parts or Containers Directly on Ground (057)	
Deicing Fluid	Keep Absorbent Material on Hand (010) Do Not Store Used Parts or Containers Directly on the Ground (057) Store Liquids and Significant Materials within a Building or Covered Area (061B)	Sector S BMPs
Floor Residue and Debris	Perform Regular Pavement Cleaning To Remove Oil and Grease (003) Avoid Hosing Down the Site (004) Perform Regular Pavement Sweeping (005)	
JP5 and Waste Oil Bowzers	Provide Secondary Containment for AST's (075) Use Oil Containment Booms (087) Construct Oil/Water Separator (098)	
Miscellaneous Flightline Spills Trench Drains	Regularly Inspect and Maintain Storm Water Conveyance Systems (110)	

<sup>a</sup> Number in parentheses refers to BMP Index Number (see Appendix E).



**Figure 4- [REDACTED]: Maintenance Hangar [REDACTED] SWPPP Site Map**



#### 4.7.8 Aircraft Fresh Water Rinse Rack (Building [REDACTED])

**Facility Description:** Aircraft Fresh Water Rinse Rack, an NAS facility, is located at Ault Field at the southwest end of taxiway D, as shown on Sheet 7 (Grid 4) of the SWPPP base maps.

The facility consists of:

- A pump house (building [REDACTED]) containing pumps, valves and electrical controls for operation of the rinse rack.
- The rinse rack which consists of a paved area adjacent to taxiway D equipped with automatically controlled underground and overhead fresh water spray nozzles.
- A detailed map showing the site layout and surrounding area is provided in Figure 4-[REDACTED].

**Facility Objective:** This facility is used to remove salts which may have accumulated on aircraft in an effort to reduce corrosion. Aircraft returning from low level flight operations over salt water taxi through the rinse rack. Underground and overhead spray nozzles are automatically activated when the aircraft pass over a sensor located in the pavement.

**Stormwater Drainage Description:** The aircraft fresh water rinse rack is located in sub-basin AF-7D. Stormwater and spray nozzle discharge is collected in three trench drains at the rinse rack and routed to a concrete vault which discharges directly to the 36" storm sewer leading to outfall OAF-7D

**Material Inventory:** There were no materials being stored at the site therefore, Table 4-[REDACTED] is not provided.

No significant materials were noted as being exposed to stormwater during the inspection, therefore, Table 4-[REDACTED] is not provided.

**Significant Spills and Leaks:** Significant spills or leaks associated with the facility in the past three years will be shown in Table 4-[REDACTED].

**Site Assessment Inspection:** The initial site assessment inspection was performed by EFA NW field personnel on Tuesday, October 1, 1996. The site has been reassessed regularly by NAVFAC NW personnel. No observations were made during the 2015 inspection.

**Existing BMPs:** Existing BMPs are provided in Table 4-[REDACTED].

**Recommended BMPs and Implementation Plan:** Recommended BMPs for this facility and the associated implementation phase are identified in Table 4-[REDACTED]. Implementation of BMPs is required by the terms of the Multi-Sector Permit as authorized by 40 CFR 122.

Table 4- [REDACTED]

**AIRCRAFT FRESH WATER RINSE RACK  
(BUILDING [REDACTED])  
LIST OF SIGNIFICANT SPILLS AND LEAKS**

Date (month/day/year)	Spill	Leak	Location (As Indicated on Site Map)	Description			Response Procedure		Preventive Measures Taken	
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered		Material No Longer Exposed to Storm Water (True/False)

Definitions: Significant spills include, but are not limited to, releases of oil or hazardous substances in excess of reportable quantities.

Table 4- AIRCRAFT FRESH WATER RINSE RACK (BUILDING ) POLLUTANT SOURCES, EXISTING BMPs, AND RECOMMENDED BMPs		
Storm Water Pollutant Sources	Existing BMPs	Recommended BMPs
General Aircraft Operations	Maintain Equipment in Good Condition (029) Check Vehicles and Equipment for Leaks (033) Obtain Individual NPDES Permit for the Site (Application submitted)	Core BMPs Sector S BMPs



**Figure 4-█: Aircraft Fresh Water Rinse Rack (Building █) SWPPP Site Map**



#### 4.8 Naval Air Reserve (NAVAIRES) Facilities

Two NAVAIRES related facilities were inspected during this SWPPP effort. These facility names, building number, and page number are listed below:

Maintenance Hangar [REDACTED]

Maintenance Hangar [REDACTED]

[REDACTED] Maintenance Hangar [REDACTED]  
[REDACTED]

**Facility Description:** Maintenance Hangar [REDACTED], a NAVAIRES facility, is located at Ault Field on Charles Porter Avenue, as shown on Sheet [REDACTED] (Grid 4) of the SWPPP base maps.

The facility consists of:

- One large hangar that houses offices, workshops, and the aircraft maintenance area;
- Two corrugated metal buildings (R-26 and R-27) housing offices for aircraft line maintenance personnel; and
- One small concrete building for storing paint (Building [REDACTED]).
- A detailed map showing the site layout and surrounding area is provided in Figure 4-[REDACTED].

**Facility Objective:** This facility is used for maintenance of aircraft operated by Patrol Squadron [REDACTED]

**Stormwater Drainage Description:** Hangar [REDACTED] (Building [REDACTED]) is surrounded by asphalt parking areas to the west and south, and by concrete surfaces associated with Taxiway "A" to the north and east. Runoff south of the building travels to the southwest where it reaches a grassy depression and infiltrates to soils. In the parking area to the west, stormwater is directed to Catch Basin SDCB20-06. North and east of the hangar, runoff enters several catch basins, including SDCB20-04, SDCB20-05, SDCB20-07, SDCB20-08, SDCB16-19, SDCB16-20, and SDCB16-21.

Building [REDACTED] is located in a grassy area across the parking lot and west of Hangar 7. Runoff from this facility flows south over a grassy area into a culvert and discharges beyond [REDACTED] to the south where it infiltrates a marshy area.

These facilities are located within Drainage Basin AF-7 and Sub-basin AF-7D. Stormwater entering catch basins is routed across the taxiway to Outfall OAF-7D which drains this sub-basin. Effluent from this outfall enters the open channel network within the flight line, where it combines with runoff from other AF-7 sub-basins, and ultimately discharges to Outfall OAF-7F and wetlands near the eastern boundary of Ault Field. Ultimate discharge from wetlands is to Dugualla Bay.

**Material Inventory:** All materials used, stored, or produced at this facility in 2009 are listed in Table 4-[REDACTED]. Each material was assessed and evaluated in terms of its potential to contribute pollutants to stormwater runoff.

Significant materials exposed to stormwater over the past three years are listed on Table 4-[REDACTED].

**Significant Spills and Leaks:** Significant spills or leaks associated with the facility in the past three years will be shown in Table 4-[REDACTED].

**Site Assessment Inspection:** The initial site assessment inspection was performed by E & E field personnel on Wednesday, December 7, 1994. The site has been reassessed regularly by NAVFAC NW personnel. No observations were made during the 2015 inspection except that the facility was generally clean.

**Existing BMPs:** Existing BMPs are provided in Table 4-[REDACTED].

**Recommended BMPs and Implementation Plan:** Recommended BMPs for this facility and the associated implementation phase are identified in Table 4-[REDACTED]. Implementation of BMPs is required by the terms of the Multi-Sector General Permit as authorized by 40 CFR 122.

Table 4-

**MAINTENANCE HANGAR**

**MATERIAL INVENTORY**

Material	Purpose/Location	Quantity (units)			Exposed in 2006-2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Aircraft cleaning compound	Aircraft cleaning/ Outside	165 gal/month	—	11 55-gal. drums	Yes	Yes, no secondary containment		X
Engine gas path cleaning compound	Maintenance/Outside	50 gallons per year	—	3 5-gallon drums	No	Yes, no secondary containment		X
Clean JP5	Excess fuel sample storage/ Outside	—	2,000 gallons per year	500-gal. bowser	No	secondary containment		X
Waste JP5/oil	Temporary storage/ Outside	—	1,000 gallons per year	500-gal. bowser	No	Secondary containment		X
Cleaning solvent (PD680)	Patch testing/ Outside	30 gallons per year	—	1 55-gal. drum	Yes	Yes, no secondary containment		X
JP5	Fuel samples/outside, in flam. locker	—	12 quarts per day	12 quarts	No	No, stored inside flam. locker		X
Contaminated absorbent booms/pads	Temporary storage/ Hazardous waste locker	—	586 pounds per year	2 55-gal. drums	No	No, stored inside flam. locker		X
Used hydraulic fluid/PD680	Temporary storage/ Hazardous waste locker	—	160 gallons per year	2 55-gallon drums	No	No, stored inside flam. locker		X
Turbine oil, tube fluid	Maintenance/Inside, flam. locker	120 gallons per year	—	10 dozen quarts	No	No, stored inside flam. locker		X
Hydraulic fluid	Maintenance/Inside flam. locker	200 gallons per year	—	4 - 5 dozen gallons	No	No, stored inside flam. locker		X
Polish	Maintenance/Inside flam. locker	—	—	3 pints	No	No, stored inside flam. locker		X
Cleaning solvent	Maintenance/	50 gallons per	—	1 5-gal. drum	No	No, stored inside flam.		X

Table 4-

**MAINTENANCE HANGAR**  
**MATERIAL INVENTORY**

Material	Purpose/Location	Quantity (units)			Exposed in 2006-2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
(PD680)	Inside, flam. locker	year				locker		
Glue/adhesive	Maintenance/ Inside, flam. locker	—	—	4 pints	No	No. stored inside flam. locker		X
Corrosion preventive compound	Maintenance/ Inside, flam. locker	—	—	2 doz. pints	No	No. stored inside flam. locker		X
Fire wall sealant	Maintenance/ Inside, flam. locker	—	—	2 doz. pints	No	No. stored inside flam. locker		X
Preservative fuel oil	Maintenance/ Inside flam. locker	—	—	3 to 4 doz. cans	No	No. stored inside flam. locker		X
Turbine oil	Maintenance/ Inside, flam. locker	480 quarts per year	—	12 quarts	No	No. stored inside flam. locker		X
Sealing compound	Maintenance/ Inside, flam. locker	—	—	Several dozen tubes	No	No. stored inside flam. locker		X
Landing gear grease	Maintenance/ Inside, flam. locker	—	—	5 5-gal. drums	No	No. stored inside flam. locker		X
Corrosion preventive compound	Maintenance/ Inside, flam. locker	—	—	1 to 2 doz. cans	No	No. stored inside flam. locker		X
Lube oil	Maintenance/ Inside, flam. locker	—	—	1 to 2 doz. spray cans	No	No. stored inside flam. locker		X
Lift oil	Maintenance/ Inside hangar	—	—	4 5-gal cans	No	No. secondary containment pans used		X
Thinner	Aircraft maintenance/ Inside Building	3 gallons per month	—	Several quart cans	No	Yes, paint locker has no secondary		X

Table 4-

**MAINTENANCE HANGAR**

**MATERIAL INVENTORY**

Material	Purpose/Location	Quantity (units)			Exposed in 2006-2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Isopropyl alcohol	Aircraft maintenance/ Inside Building	3 gallons per month	—	Several gallons	No	Yes, paint locker has no secondary containment.		X
Acetone	Aircraft maintenance/ Inside Building	3 gallons per year	—	2 5-gal. drums	No	No, stored inside building.		X
Epoxy paint	Aircraft maintenance/ Inside Building	48 quarts per year	—	Several dozen quarts	No	No, stored inside building.		X
Aerosol paint (Lacquer acrylic)	Aircraft maintenance/ Inside Building	10 spray cans per month	—	Several dozen cans	No	No, stored inside building.		X
Lube oil	Aircraft maintenance/ Inside Building	—	—	Several dozen spray cans	No	No, stored inside building.		X
Diesel fuel	Emergency generator fuel/ Outside Building	Varies	—	200-gal. AST	No	No, secondary containment provided.		X

Table 4-

**MAINTENANCE HANGAR  
 (BUILDING )  
 DESCRIPTION OF EXPOSED SIGNIFICANT MATERIAL**

Description of Exposed Significant Material	Period of Exposure	Quantity Exposed (units)	Location (As Indicated on the Site Map)	Method of Storage or Disposal (e.g., pile, drum, tank)	Description of Material Management Practice (e.g., pile covered, drum sealed)
Leakage from 55-gallon hydraulic oiler	2013	1 drum		Drum	

**Table 4- [REDACTED]**

**MAINTENANCE HANGAR [REDACTED]**

**LIST OF SIGNIFICANT SPILLS AND LEAKS**

Date (month/day/year)	Spill	Leak	Location (As Indicated on Site Map)	Description			Response Procedure		Preventive Measures Taken	
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered		Material No Longer Exposed to Storm Water (True/False)

Definitions: Significant spills include, but are not limited to, releases of oil or hazardous substances in excess of reportable quantities.

**Table 4- [REDACTED]**  
**MAINT. HANGAR [REDACTED]**  
**POLLUTANT SOURCES, EXISTING BMPs, AND RECOMMENDED BMPs**

Storm Water Pollutant Sources	Existing BMPs <sup>a</sup>	Recommended BMPs <sup>a</sup>
Aircraft Cleaning Compound ([REDACTED]) Aircraft Painting ([REDACTED])	Do Not Store Used Parts or Containers Directly on Ground (057) Conduct Indoor Sanding and Painting in an Enclosed Area (079)	Core BMPs
Aircraft Washing ([REDACTED])	Wash Equipment and Vehicles in Designated Areas (041) Discharge Wash Water to a Sanitary Sewer (042)	Sector S BMPs
Diesel AST ([REDACTED]) Floor Debris and Residue ([REDACTED])	Provide Secondary Containment for ASTs (075) Perform Regular Pavement Cleaning To Remove Oil and Grease (003) Avoid Hosing Down the Site (004) Perform Regular Pavement Sweeping (005) Provide Good Housekeeping Practices to Minimize Pollutants Exposure to Storm Water (135)	
Hazardous Waste ([REDACTED])	Label All Drums, Cans, Containers, Tanks, and Valves (001) Prepare a Spill Prevention and Response Plan (112) Store Containers Inside Secondary Containment (115) Store Reactive, Ignitable, or Flammable Liquids in Compliance with the Local Fire Code (199)	
Hydraulic Fluid and Glass Cleaner ([REDACTED])		
JP5 and Waste Fuel/Oil Bowser	Provide Secondary Containment for ASTs (075) Use Oil Containment Booms (087)	
JP5 Fuel Samples ([REDACTED])	Provide Roof to Cover Source Area (018) Store Containers Inside Secondary Containment (115) Store Reactive, Ignitable, or Flammable Liquids in Compliance with the Local	

**Table 4-** [REDACTED]

**MAINT. HANGAR [REDACTED]  
 POLLUTANT SOURCES, EXISTING BMPs, AND RECOMMENDED BMPs**

Storm Water Pollutant Sources	Existing BMPs <sup>a</sup>	Recommended BMPs <sup>a</sup>
Paint Mixing Area Storage Lockers ( [REDACTED] )	Fire Code (199)	Core BMPs  Sector S BMPs
Paints, Thinners, Cleaning Agents, Oil ( [REDACTED] )	Keep Absorbent Material On Hand	
PD 680 ( [REDACTED] ) Trench Drains ( [REDACTED] )	Use Oil Containment Booms Label Storm Drains (027)	



Figure 4- [REDACTED] : Maintenance Hangar [REDACTED]  
[REDACTED] ) **SWPPP Site Map**



#### 4.8.2 Maintenance Hangar [REDACTED])

**Facility Description:** Maintenance Hangar [REDACTED], a NAVAIRES facility, is located at Ault Field on Charles Porter Avenue, as shown on Sheet 5 (Grid 2) of the SWPPP base maps.

The facility consists of one large hangar that houses offices, workshops, and the aircraft maintenance area. A detailed map showing the site layout and surrounding area is provided in Figure 4-[REDACTED].

**Facility Objective:** This facility is used for maintenance of aircraft operated by Fleet Logistics Support Squadron [REDACTED].

**Stormwater Drainage Description:** Stormwater drainage from Hangar [REDACTED] flows over impervious surfaces that surround the facility into several catch basins. Roof drains are routed directly into the storm drain system via underground piping.

This facility is located within Drainage Basin AF-7 and Sub-basin AF-7A. Runoff entering the underground system via roof drains and catch basins converges at Manhole SDMH06-10 before flowing across Taxiways "A" and "E" to Outfall OAF-7A associated with this sub-basin. Runoff through this outfall flows into the open channel network within the flight line, where it is directed to Outfall OAF-7F and discharges to wetlands near the eastern boundary of Ault Field. Ultimate discharge is to Dugualla Bay.

**Material Inventory:** All materials used, stored, or produced at this facility in 2009 are listed in Table 4-[REDACTED]. Each material was assessed and evaluated in terms of its potential to contribute pollutants to stormwater runoff.

Because no materials have been found to be exposed to stormwater over the past three years, Table 4-[REDACTED] is not included.

**Significant Spills and Leaks:** Significant spills or leaks associated with the facility in the past three years will be shown in Table 4-[REDACTED].

**Site Assessment Inspection:** The initial site assessment inspection was performed by E&E field personnel on Wednesday, December 7, 1994. The site has been reassessed regularly by NAVFAC NW personnel. The facility was generally clean during the 2015 inspection and no issues were noted.

**Existing BMPs:** Existing BMPs are provided in Table 4-[REDACTED].

**Recommended BMPs and Implementation Plan:** Recommended BMPs for this facility and the associated implementation phase are identified in Table 4-[REDACTED]. Implementation of BMPs is required by the terms of the Multi-Sector General Permit as authorized by 40 CFR 122.

Table 4-

**MAINTENANCE HANGAR  
 (BUILDING)  
 MATERIAL INVENTORY**

Material	Purpose/Location	Quantity (units)			Quantity Exposed in 2006-2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Lube oil	Aircraft maintenance/ Inside, flam. locker	—	—	5 1-gallon cans	No	No, stored inside flam. locker		X
Corrosion preventive compound	Aircraft maintenance/ Inside, flam. locker	—	—	1 to 2 dozen cans	No	No, stored inside flam. locker		X
Isopropyl alcohol	Aircraft maintenance/ Inside, flam. locker	15 gallons per year	—	10 to 12 gallons	No	No, stored inside flam. locker		X
Naphtha	Aircraft maintenance/ Inside, flam. locker	12 gallons per year	—	3 gallons	No	No, stored inside flam. locker		X
Lacquer (aerosol)	Aircraft maintenance/ Inside, flam. locker	150 spray cans per year	—	1 to 2 dozen cans	No	No, stored inside flam. locker		X
Epoxy coating	Aircraft maintenance/ Inside, flam. locker	9 quarts per year	—	3 to 4 dozen cans	No	No, stored inside flam. locker		X
Paint remover	Aircraft maintenance/ Inside, flam. locker	4 gallons per year	—	6 gallons	No	No, stored inside flam. locker		X
Adhesives	Aircraft maintenance/ Inside, flam. locker	12 pints per year	—	Several pints and tubes	No	No, stored inside flam. locker		X
Speedy Dry	Spill cleanup/ Inside	800 gallons per year	—	50-gallon drum	No	No, stored inside flam. locker		X
Spill kits	Spill cleanup/ Inside hangar	—	—	2 55-gallon drum overpacks	No	No, stored inside building		X
PD680	Aircraft maintenance/ Inside hangar	15 5-gallon drums per year	—	1 5-gallon drum	No	No, stored inside building		X

**Table 4- [REDACTED]**  
**MAINTENANCE HANGAR [REDACTED]**  
**(BUILDING [REDACTED])**  
**MATERIAL INVENTORY**

Material	Purpose/Location	Quantity (units)			Quantity Exposed in 2006-2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Turbine engine gas path cleaner	Aircraft maintenance/ Inside hangar	10 5-gallon drums per year	—	1 5-gallon drum	No	No, stored inside building		X
Turbine engine gas path cleaner	Aircraft maintenance/ inside flam. locker	—	—	4 5-gal. drums	No	No, stored inside flam. locker		X
PD680	Aircraft maintenance/ Inside, flam. locker	—	—	5-gallon drum	No	No, stored inside flam. locker		X
Lube oil	Aircraft maintenance/ Inside, flam. locker	900 quarts per year	—	5 to 6 dozen quarts	No	No, stored inside flam. locker		X
Hydraulic fluid	Aircraft maintenance/ Inside	75 gallons per year	—	6 5-gallon drums	No	No, stored inside building		X
Waste oil	Temporary storage/ Outside	—	490 gallons per year	500-gallon bowser	No	secondary containment		X
Aircraft cleaning compound/detergent	Aircraft maintenance/ Outside	4 55-gallon drums per year	—	4 55-gallon drums	Yes	Yes, no secondary containment		X
Deicing fluid	Aircraft maintenance/ Outside	5 55-gallon drums per year	—	2 55-gallon drums	Yes	Yes, no secondary containment		X
Foam liquid concentrate	Fire extinguishing/ Outside	—	—	1 5-gallon drum	Yes	Yes, no secondary containment		X
Empty aerosol cans	Temporary storage/hazardous waste locker	—	38 pounds per year	1 55-gallon drum	No	No, stored inside locker		X
Used Speedy Dry	Temporary	—	800 gallons per	1 55-gallon drum	No	No, stored inside		X

Table 4-

**MAINTENANCE HANGAR  
 (BUILDING )  
 MATERIAL INVENTORY**

Material	Purpose/Location	Quantity (units)			Quantity Exposed in 2006-2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced year	Stored			Yes	No
	storage/hazardous waste locker		year			locker		
Used Absorbent Booms	Temporary storage/hazardous waste locker	—	—	1 55-gallon drum	No	No, stored inside locker		X
Waste paint solids	Temporary storage/hazardous waste locker	—	—	1 30-gallon drum	No	No, stored inside locker		X
Waste hydraulic fluid	Temporary storage/hazardous waste locker	—	20 gallons per year	1 30-gallon drum	No	No, stored inside locker		X

**Table 4- [REDACTED]**

**MAINTENANCE HANGAR [REDACTED]  
 (BUILDING [REDACTED])**

**LIST OF SIGNIFICANT SPILLS AND LEAKS**

Date (month/day/year)	Spill	Leak	Location (As Indicated on Site Map)	Description			Response Procedure		Preventive Measures Taken	
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered		Material No Longer Exposed to Storm Water (True/False)

Definitions: Significant spills include, but are not limited to, releases of oil or hazardous substances in excess of reportable quantities.

Table 4-

**MAINT. HANGAR BUILDING ( )**  
**POLLUTANT SOURCES, EXISTING BMPs, AND RECOMMENDED BMPs**

Storm Water Pollutant Sources	Existing BMPs <sup>a</sup>	Recommended BMPs <sup>a</sup>
Aircraft Cleaning Compound ( ) Flammable Materials	Do Not Store Used Parts or Containers Directly on Ground (057) Store Containers Inside Secondary Containment (115) Store Reactive, Ignitable, or Flammable Liquids in Compliance with the Local Fire Code (199)	Core BMPs
Floor Debris and Residue	Perform Regular Pavement Cleaning To Remove Oil and Grease (003) Avoid Hosing Down the Site (004) Perform Regular Pavement Sweeping (005) Provide Good Housekeeping Practices to Minimize Pollutants Exposure to Storm Water (135)	Sector S BMPs
Hazardous Waste	Keep Inventory of Significant Materials (017A) Store Containers Inside Secondary Containment (115)	
Site Runoff	Stencil Signs on Storm Drain Inlets (027)	
Waste Oil Bowser	Provide Secondary Containment for ASTs (075)	

**Figure 4- [REDACTED]: Maintenance Hangar [REDACTED] SWPPP Site Map**



## 4.9 Public Works Department (PW) Facilities

Seven PW related facilities were inspected during the SWPPP effort. The four facilities that were considered for coverage under the Multi-Sector General Permit are listed below:

Ault Field Recycling Center, Buildings [REDACTED]

Runoff Oil/Water Separator, Building [REDACTED]

Solid Waste Transfer Station, Building [REDACTED]

Grounds Maintenance Facility, Building [REDACTED]

### 4.9.1 Ault Field Recycling Center (Buildings [REDACTED])

**Facility Description:** The Ault Field Recycling Center, a PW facility, is located on Langley Boulevard, just south of the Navy Exchange Service Station, as shown on Sheet 7 (Grid 4) of the SWPPP base maps. A second area used by the recycling center for wood chipping operations, also shown on Sheet 7 (Grid 4), is located at the end of Boomer Road adjacent to building [REDACTED].

The facility consists of the following:

- A one-story structure housing an aluminum can condenser, paper and cardboard balers, and an oil filter press;
  - A loading dock;
  - Outdoor storage at the west end of the building; and
  - A scrap metal yard.
- Detailed maps showing the site layout and surrounding area is provided in Figure 4-[REDACTED] and 6-[REDACTED].

**Facility Objective:** The facility is a newspaper, cardboard, aluminum can, glass, and oil filter recycling center.

**Stormwater Drainage Description:** The majority of runoff associated with building [REDACTED], which is surrounded by an asphalt lot, flows to the south to an open field. Stormwater reaching the open field likely infiltrates into soils.

Runoff from the eastern edge of the parking lot, which constitutes a small portion of the total runoff associated with this facility, flows to an open ditch along Langley Boulevard. Flow within this ditch travels south, entering a culvert which conveys runoff beneath the road to the east into a larger open channel.

The recycling center is located within Drainage Basin AF-7 and Sub-basin AF-7E. Drainage reaching the open channel flows to the east to Outfall OAF-7E to the open channel network within the flight line, where it is subsequently routed to Outfall OAF-7F associated with the entire Drainage Basin AF-7. Ultimate discharge is to Dugualla Bay.

**Material Inventory:** All materials used, stored, or produced at this facility in 2009 are listed in Table 4-[REDACTED]. Each material was assessed and evaluated in terms of its potential to contribute pollutants to stormwater runoff.

Table 4-[REDACTED] lists significant materials (as defined in the glossary found in Appendix B of this report) exposed to stormwater during the past three years and/or currently exposed.

**Significant Spills and Leaks:** Significant spills or leaks associated with the facility in the past three years will be shown in Table 4-[REDACTED].

**Site Assessment Inspection:** The initial site assessment inspection was performed by E&E field personnel on Tuesday, November 29, 1994. The site has been reassessed regularly by NAVFAC NW personnel. The 2015 inspection found the facility to be generally clean. Some obsolete equipment and uncovered recyclables were outside, but some was scheduled for removal. Short-term storage (~ two weeks) for some items until they can be arranged to be moved is acceptable.

**Existing BMPs:** Existing BMPs are provided in Table 4-[REDACTED].

**Recommended BMPs and Implementation Plan:** Recommended BMPs for this facility and the associated implementation phase are identified in Table 4-[REDACTED]. Implementation of BMPs is required by the terms of the Multi-Sector General Permit as authorized by 40 CFR 122.

Table 4-

**AULT FIELD RECYCLING CENTER  
 (BUILDING [REDACTED])  
 MATERIAL INVENTORY**

Material	Purpose/ Location	Quantity (units)			Quantity Exposed in 2006- 2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Newspaper	Temporary storage/ Inside	—	—	Several cardboard boxes	No	No, stored inside		X
Cardboard	Temporary storage/ Inside	—	—	Several bales	No	No, stored inside		X
Aluminum cans	Temporary storage/ Inside and outside	—	—	Several bales	Yes	Yes, bales stored outside		X
Glass	Temporary storage/ Inside and outside	—	—	36 55-gallon drums	Yes	Yes, open drums stored outside		X
Used oil filters	Temporary storage/ Inside near oil filter press	—	—	3 55-gallon drums	No	Yes, no secondary containment		X
Waste oil	Temporary storage/ Inside near oil filter press	—	—	3 30-gallon drums	No	Yes, no secondary containment.		X
Scrap metal	Storage/outside in scrap yard	—	—	1/4 acre	Yes	Yes, stored outside.		X
Waste oil	Temporary storage/ Outside in scrap yard	—	—	600 gallon AST	No	No, has secondary containment		X
Aircraft engine tube oil	Outside in scrap yard	—	—	2 55-gallon drums	Yes	Yes, no secondary containment		X

**Table 4-** [REDACTED]

**AULT FIELD RECYCLING CENTER  
 (BUILDING [REDACTED])  
 DESCRIPTION OF EXPOSED SIGNIFICANT MATERIAL**

Description of Exposed Significant Material	Period of Exposure	Quantity Exposed (units)	Location (As Indicated on the Site Map)	Method of Storage or Disposal (e.g., pile, drum, tank)	Description of Material Management Practice (e.g., pile covered, drum sealed)
Exposed recyclables	Current		Outside at Recycle		Remove or cover
Exposed scrap metal	2014		Outside at Recycle	Pile	Remove or cover
Exposed scrap metal	2013		Outside at Recycle	Pile	Remove or cover

Table 4-

**AULT FIELD RECYCLING CENTER  
 (BUILDING [REDACTED])  
 LIST OF SIGNIFICANT SPILLS AND LEAKS**

Date (month/day/year)	Spill	Leak	Location (As Indicated on Site Map)	Description			Response Procedure		Preventive Measures Taken
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered	

**Table 4- [REDACTED]**

**AULT FIELD RECYCLING CENTER ( [REDACTED] )  
POLLUTANT SOURCES, EXISTING BMPs, AND RECOMMENDED BMPs**

Storm Water Pollutant Sources	Existing BMPs <sup>a</sup>	Recommended BMPs <sup>a</sup>
Broken Glass and Aluminum		Core BMPs  Sector N BMPs
Can Condenser	Use Drip Pans Under Leaking Equipment (044)	
Floor Drain	All Floor Drains Must Be Properly Identified as Storm or Sanitary Drains (009B)	
Interior Storage	Provide Good Housekeeping Practices to Minimize Pollutants Exposure to Storm Water (135)	
Loading/Unloading	Confine Loading/Unloading Activities to a Designated Area (136) Consider Covering Loading/Unloading Area with Permanent Cover (e.g. Roofs) or Temporary Cover (e.g. Tarps) (138)	
Scrap Yard Runoff		
Recycling Container Washing	Wash Equipment and Vehicles in Designated Areas (041)	
Wood Chipping Yard	Wash Equipment and Vehicles in Designated Areas (041)	

<sup>a</sup> Number in parentheses refers to BMP Index Number (see Appendix E).

**Figure 4-█: Ault Field Recycling Center (Building █) SWPPP Site Map**

#### 4.9.2 Runoff Oil/Water Separator (Building [REDACTED])

**Facility Description:** This runoff oil/water separator, a PW facility, is located at Seaplane Base on Tulagi Avenue as shown on Sheet 4 (Grid 7) of the SWPPP base maps.

The facility consists of a coalescing plate oil/water separator with a waste oil holding tank and two pumps for emptying a sump. A map showing the site layout and surrounding area is provided in Figure 4-[REDACTED].

**Facility Objective:** The facility treats drainage from the tank underdrain system surrounding Fuel Farm 1.

**Stormwater Drainage Description:** This oil water separator is surrounded by a concrete berm. Therefore, all stormwater associated with this facility is contained. Stormwater within the bermed area is routed through the separator, which discharges to the sanitary sewer. There is no outfall associated with this facility.

**Material Inventory:** All materials used, stored, or produced at this facility in 2009 are listed in Table 4-[REDACTED]. Each material was assessed and evaluated in terms of its potential to contribute pollutants to stormwater runoff.

No significant materials (as defined in the glossary found in Appendix B of this report) have been exposed to stormwater during the past three years or are currently exposed. Therefore, Table 4-[REDACTED] is not provided.

**Significant Spills and Leaks:** Significant spills or leaks associated with the facility will be shown in Table 4-[REDACTED].

**Site Assessment Inspection:** The initial site assessment inspection was performed by E&E field personnel on Tuesday, November 30, 1994. The site has been reassessed regularly by NAVFAC NW personnel. No observations were made during the 2015 inspection.

**Existing BMPs:** Existing BMPs are provided in Table 4-[REDACTED].

**Recommended BMPs and Implementation Plan:** There are no recommended BMPs for this facility.

Table 4- [REDACTED]

**RUNOFF OIL/WATER SEPARATOR SITE 1  
 (BUILDING [REDACTED])  
 MATERIAL INVENTORY**

Material	Purpose/ Location	Quantity (units)			Quantity Exposed in 2006- 2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Waste oil	Temporary storage/part of oil/water separator	—	—	700-gallon AST	No	No, secondary containment provided	Yes	No
								X

Table 4- [REDACTED]

**RUNOFF OIL/WATER SEPARATOR SITE 1  
 (BUILDING [REDACTED])  
 LIST OF SIGNIFICANT SPILLS AND LEAKS**

Date (month/day/year)	Spill	Leak	Location (As Indicated on Site Map)	Description			Response Procedure		Preventive Measures Taken	
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered		Material No Longer Exposed to Storm Water (True/False)

Definitions: Significant spills include, but are not limited to, releases of oil or hazardous substances in excess of reportable quantities.

**Table 4-** [REDACTED]

**RUNOFF OIL/WATER SEPARATOR SITE 1  
 (BUILDING [REDACTED])**

**POLLUTANT SOURCES, EXISTING BMPs, AND RECOMMENDED BMPs**

Storm Water Pollutant Sources	Existing BMPs <sup>a</sup>	Recommended BMPs <sup>a</sup>
General Operations	Inspect and Maintain Stormwater Conveyance Systems (110)	Core BMPs Sector S BMPs



**Figure 4-2671: Runoff Oil/Water Separator (Building [REDACTED]) SWPPP Site Map**



### 4.9.3 Solid Waste Transfer Station (Building [REDACTED])

**Facility Description:** The Solid Waste Transfer Station, a FW facility, is located at Ault Field, on Fifth Street as shown on Sheet 7 (Grid 4) of the SWPPP base maps.

The following activities are conducted at this facility:

- Loading/unloading of solid waste; and
- Pressure washing of runway sweepers and garbage trucks.
- The Solid Waste Transfer Station consists of two impervious pads at different elevations. From the upper pad, garbage trucks dump their loads into the trailer of a large hauling truck parked on the lower pad. A small building next to the upper pad is used as an office. A detailed map showing the site layout and surrounding area is provided in Figure 4-[REDACTED].

**Facility Objective:** The facility is used to transfer refuse from standard garbage trucks to a large hauling truck, which transports the waste to a landfill.

**Stormwater Drainage Description:** Stormwater runoff within the paved loading area, including the upper dumping pad and lower receiving pad, is collected within three catch basins. Leachate entering catch basins is conveyed to a 3,000-gallon holding tank which is pumped/emptied on demand (approximately three times/month). The tank can be accessed through two manholes.

This facility is located within Drainage Basin AF-7 and Sub-basin AF-7E. Runoff from the upper and lower gravel-covered areas flows overland to the southeast and into a ditch along Forestall Avenue. Drainage within the ditch is directed through a culvert beneath Forestall Avenue into an open channel. This open channel eventually drains through Outfall OAF-7E of this sub-basin. Flow from this outfall enters the open channel network within the flight line, to wetlands via Outfall OAF-7F. Ultimate discharge is to Dugualla Bay.

**Material Inventory:** All materials used, stored, or produced at this facility in 2009 are listed in Table 4-[REDACTED]. Each material was assessed and evaluated in terms of its potential to contribute pollutants to stormwater runoff.

Because no materials have been found to be exposed to stormwater over the past three years, Table 4-[REDACTED] is not included.

**Significant Spills and Leaks:** Significant spills or leaks associated with the facility in the past three years will be shown in Table 4-[REDACTED].

**Site Assessment Inspection:** The initial site assessment inspection was performed by E&E field personnel on Tuesday, December 13, 1994. The site has been reassessed regularly by NAVFAC NW personnel. No observations were made during the 2015 inspection

**Existing BMPs:** Existing BMPs are provided in Table 4-[REDACTED].

**Recommended BMPs and Implementation Plan:** Recommended BMPs for this facility and the associated implementation phase are identified in Table 4-[REDACTED]. Implementation of BMPs is required by the terms of the Multi-Sector General Permit as authorized by 40 CFR 122.



Table 4-

**SOLID WASTE TRANSFER STATION  
 (BUILDING [REDACTED])  
 MATERIAL INVENTORY**

Material	Purpose/ Location	Quantity (units)			Quantity Exposed in 2006- 2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Solid waste	Temporary storage/in truck trailer	—	—	1 20 cu yd trailer	Yes	No, leachate drains to holding tank. Containment not adequate to prevent wind blown waste.		X
Vehicle wash water and leachate	From washing vehicles and trailer leachate/ impervious pad	—	8,400 gallons per month	3,000 gallons	Yes	No, wash water drains to holding tank		X

Table 4-

**SOLID WASTE TRANSFER STATION**

<b>(BUILDING [REDACTED])</b>									
<b>LIST OF SIGNIFICANT SPILLS AND LEAKS</b>									
Date (month/day/year)	Spill	Leak	Location (As Indicated on Site Map)	Description			Response Procedure		
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered	Material No Longer Exposed to Storm Water (True/False)

**Table 4- [REDACTED]**

**SOLID WASTE TRANSFER STATION  
 (BUILDING [REDACTED])**

**POLLUTANT SOURCES, EXISTING BMPs, AND RECOMMENDED BMPs**

Storm Water Pollutant Sources	Existing BMPs	Recommended BMPs
General	Provide Good Housekeeping Practices to Minimize Pollutants Exposure to Storm Water (135)	Core BMPs  Sector P BMPs
Loading/Unloading	Confine Loading/Unloading Activities to a Designated Area (136)	
Vehicle Washing	Wash Equipment and Vehicles in Designated Areas (041) Discharge Wash Water to a Sanitary Sewer (042)	

**Figure 4-█: Solid Waste Transfer Station (Building █) SWPPP Site Map**

#### 4.9.4 Grounds Maintenance Facility (Building [REDACTED])

**Facility Description:** The New Leaf Grounds Maintenance provider occupied facility is located on Ault Field at the intersection of First Street and Charles Porter Avenue, as shown on Sheet 12 of the SWPPP base maps.

Building [REDACTED] is a wood framed structure on a concrete slab. It contains, equipment parking material storage and maintenance areas.

A detailed map showing the site layout and surrounding area is provided in Figure 4-[REDACTED].

**Facility Objective:** This facility is used for storage and repair of grounds maintenance equipment and materials.

**Storm Water Drainage Description:** This facility is surrounded by gravel parking and grassed areas with no designed storm water catchment/control. Runoff from the vicinity of building [REDACTED] flows to the northwest down a grassy slope towards a drainage ditch running along Charles Porter Avenue.

Building [REDACTED] is located within Drainage Basin AF-7 and Sub-basin AF-7E. Storm water runoff reaching the ditch along Charles Porter Avenue flows through a culvert under First St, prior to entering a small wetland which discharges through open ditches leading to OAF-7E. Discharges from OAF-7E flow through the ditch complex to OAF-7F ultimately discharging to Dugualla Bay.

**Material Inventory:** All materials used, stored, or produced at this facility in 2009 are listed in Table 4-[REDACTED]. Each material was assessed and evaluated in terms of its potential to contribute pollutants to storm water runoff.

Because no materials have been found to be exposed to stormwater over the past three years, Table 4-[REDACTED] is not included.

**Significant Spills and Leaks:** Significant spills or leaks associated with the facility in the past three years are shown in Table 4-[REDACTED].

**Site Assessment Inspection:** The initial site assessment inspection was performed by NAVFAC NW field personnel on 11 June 2003. The site has been reassessed regularly. No observations were made during the 2015 inspection with the exception that the facility was noted to be generally clean.

**Existing BMPs:** Existing BMPs are provided in Table 4-[REDACTED].

**Recommended BMPs and Implementation Plan:** Recommended BMPs for this facility and the associated implementation phase are identified in Table 4-[REDACTED]. Implementation of BMPs is required by the terms of the Multi-Sector Permit as authorized by 40 CFR 122.

<p align="center"><b>Table 4- [REDACTED]</b>  <b>GROUNDS MAINTENANCE FACILITY</b>  <b>(BUILDING [REDACTED])</b>  <b>MATERIAL INVENTORY</b></p>									
Material	Purpose/Location	Quantity (units)			Exposed in 2006-2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak		
		Used/year	Produced	Stored			Yes	No	
2-Stroke motor oil	Hazmat Lockers south of bldg. [REDACTED]	—	—	8 gallons	No	No, stored in flam. locker.		X	
Wood Stain	Hazmat Lockers south of bldg. [REDACTED]	—	—	1 gallon	No	No, stored in flam. locker.		X	
Chainsaw Bar oil	Hazmat Lockers south of bldg. [REDACTED]	—	—	2 gallons	No	No, stored in flam. locker.		X	
Sea Foam Decarbonizer	Hazmat Lockers south of bldg. [REDACTED]	—	—	4-32 oz bottles	No	No, stored in flam. locker.		X	
Ethylene Glycol	Hazmat Lockers south of bldg. [REDACTED]	—	—	3 gallons	No	No, stored in flam. locker		X	
Brake Fluid	Hazmat Lockers south of bldg. [REDACTED]	—	—	2- 32 oz bottles	No	No, stored in flam. locker.		X	
Oil	Hazmat Lockers south of bldg. [REDACTED]	—	—	5-32 oz bottles	No	No, stored in flam. locker.		X	
Gasoline	Refueling mowers/in trailer	—	—	120 gallons	No	Yes		X	
Diesel	Refueling mowers/in trailer	—	—	120 gallons	No	Yes		X	
WD-40	Hazmat Lockers south of bldg. [REDACTED]	—	—	3-12 oz. cans	No	No, stored in flam. locker.		X	
Multi-purpose Grease	Hazmat Lockers south of bldg. [REDACTED]	—	—	8- 14 oz. tubes	No	No, stored in flam. locker.		X	
Granular fertilizer	Inside bldg. [REDACTED]	—	—	10-60 lb. sacks	No	No, stored inside bldg.		X	
Casaron herbicide	Inside bldg. [REDACTED]	—	—	4-40 lb. sacks	No	No, stored inside bldg.		X	
Used Oil	Inside bldg. [REDACTED]	—	—	55-gal. drum	No	No, stored inside bldg.		X	
Used Antifreeze	Inside bldg. [REDACTED]	—	—	55-gal. drum	No	No, stored inside bldg.		X	
Used Hyd. fluid	Inside bldg. [REDACTED]	—	—	55-gal. drum	No	No, stored inside bldg.		X	

Key: OW=Oil/water. UST=Underground storage tank.

Table 4- [REDACTED]

**GROUNDS MAINTENANCE FACILITY  
 (BUILDING [REDACTED])  
 LIST OF SIGNIFICANT SPILLS AND LEAKS**

Date (month/day/year)	Spill	Leak	Location (As Indicated on Site Map)	Description			Response Procedure		Preventive Measures Taken	
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered		Material No Longer Exposed to Storm Water (True/False)

Definitions: Significant spills include, but are not limited to, releases of oil or hazardous substances in excess of reportable quantities.

**Table 4- [REDACTED]**  
**GROUPS MAINTENANCE FACILITY**  
**(BUILDING [REDACTED])**  
**POLLUTANT SOURCES, EXISTING BMPs, AND RECOMMENDED BMPs**

Storm Water Pollutant Sources	Existing BMPs	Recommended BMPs
Mower Rinsing/washing		Divert Drainage to Treatment Facility/Sanitary Sewer (096)
Fuel storage	Provide Valve for Outlet Pipe in Containment Area (014) Provide Secondary Containment for ASTs (075)	Core BMPs
Equipment Maintenance	Conduct Maintenance within a Building or Covered Area (047)	Sector P BMPs
Flammable Material Lockers	Store Containers Inside Secondary Containment (115) Store Reactive, Ignitable, or Flammable Liquids in Compliance with the Local Fire Code (199)	

**Figure 4-█: Grounds Maintenance (Building █) SWPPP Site Map**



#### 4.10 Supply Department (SU) Facilities

Twelve SU related facilities were inspected during this SWPPP effort. The nine facilities listed below were considered for coverage under the Multi-Sector General Permit:

Consolidated Fuels Facility, Building [REDACTED]

Official Vehicles Filling Station, Building [REDACTED]

Jet Fuel Pump Station, Building [REDACTED]

Main Supply Warehouse, Building [REDACTED]

Booster Pumping Station, Building [REDACTED]

Fuel Pier, Building [REDACTED]

Vehicle Fuel Facility, Building [REDACTED] and Filling Station Building, Building [REDACTED]

Aircraft Direct Refueling Facility, Building [REDACTED]

##### 4.10.1 Consolidated Fuels Facility (Buildings [REDACTED])

**Facility Description:** The Consolidated Fuels Facility is located at Ault Field off Kitty Hawk Road just to the east of Grid 4 as can be seen on Sheet 2 of the SWPPP base maps.

The facility consists of [REDACTED], a four-lane fuel truck-loading stand, two truck off-load stands, a 160,000-square-foot (400 by 400 feet) asphalt parking lot for fuel truck parking, a pump house, a 3,400 SF operations building (Building [REDACTED]), and a truck wash. The operations building houses the Manager's Office, Dispatch Office, Driver Ready Room, Fuel Laboratory, and is also used for repair maintenance of small equipment such as fuel pumps and valves. A detailed map showing the site layout and surrounding area is provided on the Consolidated Fuels Facility, SWPPP Site Map (Figure 4- [REDACTED]).

**Facility Objective:** The Consolidated Fuel Facility is a dual Fuel Facility which receives, stores, and issues both JP-5 and JP-8 to serve the NAS Whidbey Island mission requirements. Minor maintenance of fueling equipment is also performed at the site.

##### **Stormwater Drainage Description:**

All runoff from the new east side storage tank containment areas and truck loading/offload racks is directed through a coalescing type oil water separator prior to discharge to the ditch running along the west side of Kitty Hawk. Upstream of the separator a flow splitter was installed which directs flows in excess of the 91st percentile storm around the separator. All tank containment areas and the truck loading racks are equipped with post indicator valves which will be kept in the normally closed position.

The tanker truck parking lot drainage system is designed to collect stormwater runoff and spills. The parking lot is sloped so that liquids flow toward the center of the lot into four catch basins or an open-topped channel drain, approximately 400 feet long. All liquids flow to a concrete settling tank (grit chamber) and then to an oil/water separator located on the north end of the facility. According to the manufacturer's specifications, the oil/water separator can contain up to 10,000 gallons of spilled oil assuming that it was pumped down prior to the spill. The total capacity of the separator is 15,000 gallons (oil and water). The separator has a liquid level alarm

system with a remote annunciator in the operations building. The separator discharges to a ditch running along the west side of Kitty Hawk road.

Trucks are washed on a pad equipped with a three-way valve, which allows wash water to be diverted to a closed loop wash water recycling system. When the wash rack is not being used, the valve is rotated to allow stormwater to discharge through an oil/water separator and into a drainage ditch on the west side of Kitty Hawk Road. Concrete curbing surrounds the wash water recycling equipment and the pad. Any spills or leaks from the recycling equipment flow to the wash water collection sump and are recycled through the system.

The facility is located within Sub-basin AF-7F. Drainage from the area ultimately discharges through outfall OAF-7F.

**Material Inventory:** All materials used, stored, or produced at this facility IN 2009 are listed in Table 4-██████. Each of these materials was assessed and evaluated in terms of its potential to contribute pollutants to stormwater runoff.

Table 4-██████ lists significant materials (as defined in the glossary found in Appendix B of this report) exposed to stormwater during the past three years and/or currently exposed.

**Significant Spills and Leaks:** Significant spills or leaks of toxic or hazardous pollutants at this facility in the past three years will be indicated in Table 4-██████.

**Site Assessment Inspection:** A site assessment inspection of the western portion of the facility was first made by NAVFAC NW personnel on Wednesday, April 18, 2001. The site has been reassessed regularly by NAVFAC NW personnel. In May 2009 the remainder of the facility (east side) including the fuel storage tanks began operation. In 2015, Facility 2911 was inspected and found to be generally clean. No other issues were noted.

**Existing BMPs:** Existing BMPs are provided in Table 4-██████.

**Recommended BMPs and Implementation Plan:** Recommended BMPs for this facility and the associated implementation phase are identified in Table 4-██████. Implementation of BMPs is required by the terms of the Multi-Sector Permit as authorized by 40 CFR 122.

**Table 4- [REDACTED]**  
**CONSOLIDATED FUEL FACILITY**  
**(BUILDINGS [REDACTED])**  
**MATERIAL INVENTORY**

Material	Purpose/ Location	Quantity (units)			Quantity Exposed in 2006- 2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
JP-5	Fueling	--	--	[REDACTED]	No	No, contained		X
JP-8	Fueling	--	--	[REDACTED]	No	No, contained		X

**Table 4- [REDACTED]**  
**CONSOLIDATED FUEL FACILITY**  
**(BUILDINGS [REDACTED])**  
**MATERIAL INVENTORY**

Date (month/day/year)	Spill	Leak	Location (As Indicated on Site Map)	Description			Response Procedure		Preventive Measures Taken	
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered		Material No Longer Exposed to Storm Water (True/False)

<b>Table 4- [REDACTED]</b> <b>CONSOLIDATED FUEL FACILITY</b> <b>(BUILDINGS [REDACTED])</b> <b>MATERIAL INVENTORY</b>		
Storm Water Pollutant Sources	Existing BMPs	Recommended BMPs
Fuel Storage	Prepare a Spill Prevention and Response Plan (112) Provide Overfill Protection (062) Monitor Major Fueling Operations (064) Construct Berm or Dike Around Critical Area (012) Provide Secondary Containment for ASTs (075)	Core BMPs
Tanker Truck Parking	Inspect Connecting Hoses for Leaks (207) Maintain Oil Water Separator in Good Operating Condition (098B)	Sector S BMPs
Equipment Washing	Wash Equipment and Vehicles in Designated Areas (041)	



**Figure 4-█: Consolidated Fuels Facility (Building █) SWPPP Site Map**

#### 4.10.2 Government Vehicle Filling Station (Building [REDACTED])

**Facility Description:** The Government Vehicle Filling Station, an SU-operated facility, is located at Seaplane Base on Coral Sea Avenue, next to the Transportation Building (Building [REDACTED]), as shown on Sheet 10 (Grid 7) of the SWPPP base maps.

The facility consists of one gasoline pump, a booth used as an office, and a 2,000-gallon unleaded gasoline (UST). A detailed map showing the site layout and surrounding area is provided in Figure 4-[REDACTED].

**Facility Objective:** The facility is used for fueling base vehicles.

**Stormwater Drainage Description:** Filling station is located at the edge of a concrete parking area, bordering also the grassy area associated with Building [REDACTED], the Fire Station. The fueling area is covered. Runoff from the building flows generally to the west over the concrete surface. Due to the flatness of the parking area and a lack of properly designed drainage (e.g., sloped surfaces, catchment), excessive ponding occurs. Nevertheless, Catch Basin SDCB50-17C receives drainage from this facility. Some runoff may travel further west to Catch Basin SDCB50-04.

Building [REDACTED] is located within Sub-basin SB-3D. Stormwater runoff entering SDCB50-17C, which houses an unmaintained spill control oil/water separator (OWS50-01) is directed to the sanitary sewer. Runoff entering Catch Basin SDCB50-04 is routed to the southwest to Outfall OSB-3D, discharging to Oak Harbor.

**Material Inventory:** All materials used, stored, or produced at this facility in 2009 are listed in Table 4-[REDACTED]. Each material was assessed and evaluated in terms of its potential to contribute pollutants to stormwater runoff.

Because no materials have been found to be exposed to stormwater over the past three years, Table 4-[REDACTED] is not included.

**Significant Spills and Leaks:** Significant spills or leaks associated with the facility in the past three years will be shown in Table 4-[REDACTED].

**Site Assessment Inspection:** The initial site assessment inspection was performed by E&E field personnel on Tuesday, November 29, 1994. The site has been reassessed regularly by NAVFAC NW personnel. The 2015 inspection found the facility to be generally clean. No other issues were noted.

**Existing BMPs:** Existing BMPs are provided in Table 4-[REDACTED].

**Recommended BMPs and Implementation Plan:** Recommended BMPs for this facility and the associated implementation phase are identified in Table 4-[REDACTED]. Implementation of BMPs is required by the terms of the Multi-Sector General Permit as authorized by 40 CFR 122.

Table 4- [REDACTED]

**FILLING STATION (OFFICIAL VEHICLES)  
 (BUILDING [REDACTED])  
 MATERIAL INVENTORY**

Material	Purpose/ Location	Quantity (units)			Quantity Exposed in 2006- 2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Motor oil	Vehicle maintenance/ Outside	—	—	One 55-gallon drum	Yes	Yes, no secondary containment		X
Antifreeze	Vehicle maintenance/ Outside	—	—	One 55-gallon drum	Yes	Yes, no secondary containment.		X
Gasoline	Vehicle fuel/ In UST	—	—	2,000-gallon UST	Yes	Yes, no containment for fueling area		X

Table 4- [REDACTED]

**FILLING STATION (OFFICIAL VEHICLES)  
 (BUILDING [REDACTED])  
 LIST OF SIGNIFICANT SPILLS AND LEAKS**

Date (month/day/year)	Spill	Leak	Location (As Indicated on Site Map)	Description			Response Procedure		Preventive Measures Taken	
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered		Material No Longer Exposed to Storm Water (True/False)

Definitions: Significant spills include, but are not limited to, releases of oil or hazardous substances in excess of reportable quantities.

**Table 4-** [REDACTED]

**FILLING STATION (OFFICIAL VEHICLES)  
(BUILDING [REDACTED])**

**POLLUTANT SOURCES, EXISTING BMPs, AND RECOMMENDED BMPs**

Storm Water Pollutant Sources	Existing BMPs	Recommended BMPs
General Fueling	<ul style="list-style-type: none"> <li>Provide Overfill Protection (062)</li> <li>Monitor Major Fueling Operations (064)</li> <li>Restrict Access to Tanks (069)</li> <li>Keep Tanks, Piping, and Valves in Good Condition (071)</li> <li>Prepare a Spill Prevention and Response Plan (112)</li> <li>Use Appropriate Material Transfer Procedures, Including Spill Prevention and Containment Activities (209)</li> </ul>	<ul style="list-style-type: none"> <li>Core BMPs</li> <li>Sector P BMPs</li> </ul>



**Figure 4-█: Filling Station (Official Vehicles) (Building █) SWPPP Site Map**

### 4.10.3 Jet Fuel Pump Station (Building [REDACTED])

**Facility Description:** The Jet Fuel Pump Station, an SU facility, is located at Seaplane Base on Torpedo Road approximately one-half mile north of the main industrial area of the base. The facility is located beyond the area represented on the GDMs and therefore is not included on the SWPPP base maps.

The facility consists of a "pig" receiving/launching structure, a fenced area with corrugated metal roof containing two fuel pumps, and a small control building. A detailed map showing the site layout and the surrounding area is provided on the Jet Fuel Pump Station SWPPP Site Map (Figure 4-[REDACTED]).

**Facility Objective:** This facility provides intermediate pumping power for the pumping of fuel oil between the storage facilities on Seaplane Base and Ault Field.

**Stormwater Drainage Description:** Building [REDACTED] is surrounded by gravel areas. Drainage associated with this facility flows to the east into a heavily wooded area.

Building [REDACTED] is located within Sub-basin SB-7. Runoff from the facility which enters the heavily wooded area behind (east of) the lift station drains to a large wetland. The wetland discharges to Crescent Harbor via Outfall OSB-7.

**Material Inventory:** All materials used, stored, or produced at this facility in 2009 are listed in Table 4-[REDACTED]. Each of these materials was assessed and evaluated in terms of its potential to contribute pollutants to stormwater runoff.

No significant materials (as defined in the glossary found in Appendix B of this report) have been exposed to stormwater during the past three years or are currently exposed. Therefore, Table 4-[REDACTED] is not provided.

**Significant Spills and Leaks:** Significant spills or leaks of toxic or hazardous pollutants at this facility in the past three years will be indicated in Table 4-[REDACTED].

**Site Assessment Inspection:** The initial site assessment inspection was performed by E&E field personnel on Wednesday, November 30, 1994. The site has been reassessed regularly by NAVFAC NW personnel. No observations were made during the 2015 inspection.

**Existing BMPs:** Existing BMPs are provided in Table 4-[REDACTED].

**Recommended BMPs and Implementation Plan:** Recommended BMPs for this facility and the associated implementation phase are identified in Table 4-[REDACTED]. Implementation of BMPs is required by the terms of the Multi-Sector General Permit as authorized by 40 CFR 122.

Table 4- [REDACTED]

**JET FUEL PUMP STATION  
 (BUILDING [REDACTED])  
 MATERIAL INVENTORY**

Material	Purpose/ Location	Quantity (units)			Quantity Exposed in 2006- 2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
JP-5 fuel	Transfer/pipeline		—	—	No	Yes, no berm or secondary containment around pump valves		X

Table 4-

**JET FUEL PUMP STATION  
 (BUILDING )  
 LIST OF SIGNIFICANT SPILLS AND LEAKS**

Date (month/day/year)	Spill	Leak	Location (As Indicated on Site Map)	Description			Response Procedure		Preventive Measures Taken	
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered		Material No Longer Exposed to Storm Water (True/False)

Definitions: Significant spills include, but are not limited to, releases of oil or hazardous substances in excess of reportable quantities.

**Table 4- [REDACTED]**

**JET FUEL PUMP STATION  
 (BUILDING [REDACTED])**

**POLLUTANT SOURCES, EXISTING BMPs, AND RECOMMENDED BMPs**

Storm Water Pollutant Sources	Existing BMPs	Recommended BMPs
General Fueling	Provide Overfill Protection (062) Monitor Major Fueling Operations (064) Restrict Access to Tanks (069) Keep Tanks, Piping, and Valves in Good Condition (071) Prepare a Spill Prevention and Response Plan (112) Use Appropriate Material Transfer Procedures, Including Spill Prevention and Containment Activities (209)	Core BMPs Sector S BMPs



**Figure 4-█: Jet Fuel Pump Station (Building █) SWPPP Site Map**

#### 4.10.4 Main Supply Warehouse (Building [REDACTED])

**Facility Description:** The Main Supply Warehouse, an SU occupied facility, is located at Ault Field near the junction of Langley Boulevard and Third Street, as shown on Sheet 7 (Grid 4) of the SWPPP base maps.

The facility is a large concrete structure containing the following:

- Aircraft component storage area;
- Packaging and shipping area;
- Loading dock; and
- Outdoor storage area.

A detailed map showing the site layout and surrounding area is provided in Figure 4-[REDACTED].

**Facility Objective:** The facility is a warehouse for aircraft components.

**Stormwater Drainage Description:** This facility is surrounded by an asphalt lot with some grassy areas located immediately south of the building. Structural stormwater controls include a localized underground storm drain system. Catch basins, including SDCB19-03, SDCB19-04, and SDCB19-06, receive majority of runoff from the paved lot which surrounds this building. Runoff entering these catch basins is routed to two outfalls (SDOF19-01 and SDOF19-02) located approximately 200 feet east of the facility, which discharge to an open channel. Some stormwater on the east and west sides of the building reaches open channels via overland flow and grassy ditches.

This facility is located in Drainage Basin AF-7 and Sub-basin AF-7E. All runoff reaching open channels is routed to Outfall OAF-7E, associated with this sub-basin. It is subsequently directed to Outfall OAF-7F via the open channel network within the flight line. Ultimate discharge is to Dugualla Bay.

**Material Inventory:** All materials used, stored, or produced at this facility in 2009 are listed in Table 4-[REDACTED]. Each material was assessed and evaluated in terms of its potential to contribute pollutants to stormwater runoff.

Because no materials have been found to be exposed to stormwater over the past three years, Table 4-[REDACTED] is not included.

**Significant Spills and Leaks:** Significant spills or leaks associated with the facility in the past three years will be shown in Table 4-[REDACTED].

**Site Assessment Inspection:** The initial site assessment inspection was performed by E&E field personnel on Tuesday, December 13, 1994. The site has been reassessed regularly by NAVFAC NW personnel. No observations were made during the 2015 inspection

**Existing BMPs:** Existing BMPs are provided in Table 4-[REDACTED].

**Recommended BMPs and Implementation Plan:** Recommended BMPs for this facility and the associated implementation phase are identified in Table 4-[REDACTED]. Implementation of BMPs is required by the terms of the Multi-Sector General Permit as authorized by 40 CFR 122.

Table 4- [REDACTED]

**MAIN SUPPLY WAREHOUSE  
 (BUILDING [REDACTED])  
 MATERIAL INVENTORY**

Material	Purpose/ Location	Quantity (units)			Quantity Exposed in 2006- 2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Urethane foam resin	Packaging foam production/ Inside	—	—	Two 15-gallon containers	No	No, stored inside building		X
Polymeric isocyanate	Packaging foam production/ Inside	—	—	Two 15-gallon containers	No	No, stored inside building		X
Wood crates	Used as shipping containers Inside	—	—	Several dozen	Yes	Yes, no cover provided		X

Table 4- [REDACTED]

**MAIN SUPPLY WAREHOUSE  
 (BUILDING [REDACTED])  
 LIST OF SIGNIFICANT SPILLS AND LEAKS**

Date (month/day/year)	Spill	Leak	Location (As Indicated on Site Map)	Description			Response Procedure		Preventive Measures Taken	
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered		Material No Longer Exposed to Storm Water (True/False)

Definitions: Significant spills include, but are not limited to, releases of oil or hazardous substances in excess of reportable quantities.

**Table 4**

**MAIN SUPPLY WAREHOUSE  
 (BUILDING )**

**POLLUTANT SOURCES, EXISTING BMPs, AND RECOMMENDED BMPs**

Storm Water Pollutant Sources	Existing BMPs	Recommended BMPs
General	Provide Good Housekeeping Practices to Minimize Pollutants Exposure to Storm Water (135) Keep Inventory of Significant Materials (017A)	Core BMPs  Sector P BMPs
Indoor Storage	Do Not Store Used Parts or Containers Directly on Ground (057) Store Liquids and Significant Materials within a Building or Covered Area (061B)	
Loading/Unloading	Confine Loading/Unloading Activities to a Designated Area (136) Consider Covering Loading/Unloading Area with Permanent Cover (e.g., Roofs) or Temporary Cover (e.g., Tarps) (138)	
Outdoor Storage	Restrict Access to Area and Equipment (002)	
	Do Not Store Used Parts or Containers Directly on Ground (057)	



**Figure 4-█: Main Supply Warehouse (Building █) SWPPP Site Map**

#### 4.10.5 Booster Pumping Station (Building [REDACTED])

**Facility Description:** The Booster Pumping Station, or the Loop, an SU occupied facility, is located at Seaplane Base on Tulagi road just west of the Fuel Pier as shown on Sheet 11 (Grid 8) of the SWPPP base maps.

The facility consists of a pig receiving/launching structure, a fenced area with corrugated metal roof containing the [REDACTED] and a small control building. A detailed map showing the site layout and the surrounding area is provided on the Booster Pumping Station SWPPP Site Map (Figure 4-[REDACTED]).

**Facility Objective:** The booster station supports the Fuel Pump Station (Building [REDACTED]) in pumping JP5 from the fuel barges up to the Consolidated Fuels Facility or to Ault Field via pipeline.

**Stormwater Drainage Description:** The booster pumping station is bound by paved areas including a driveway to the south and Tulagi Road (paved) to the north. Stormwater entering a bermed area located in front of the building is contained. Other stormwater associated with this facility flows to the northwest to Catch Basin SDCB51-05.

Building [REDACTED] is located within Sub-basin SB-2D. Stormwater runoff entering Catch Basin SDCB51-05 is routed northwest to Outfall OSB-2D-03.

**Material Inventory:** All materials used, stored, or produced at this facility in 2009 are listed in Table 4-[REDACTED]. Each of these materials was assessed and evaluated in terms of its potential to contribute pollutants to stormwater runoff.

No significant materials (as defined in the glossary found in Appendix B of this report) have been exposed to stormwater during the past three years or are currently exposed. Therefore, Table 4-[REDACTED] is not provided.

**Significant Spills and Leaks:** No significant spills or leaks of toxic or hazardous pollutants have occurred at this facility in the past three years as indicated in Table 4-[REDACTED].

**Site Assessment Inspection:** The initial site assessment inspection was performed by E&E field personnel on Wednesday, November 30, 1994. The site has been reassessed regularly by NAVFAC NW personnel. No observations were made during the 2015 inspection.

**Existing BMPs:** Existing BMPs are provided in Table 4-[REDACTED].

**Recommended BMPs and Implementation Plan:** Recommended BMPs for this facility and the associated implementation phase are identified in Table 4-[REDACTED]. Implementation of BMPs is required by the terms of the Multi-Sector Permit as authorized by 40 CFR 122.

**Table 4- [REDACTED]**

**BOOSTER PUMPING STATION  
 (BUILDING [REDACTED])**

**MATERIAL INVENTORY**

Material	Purpose/ Location	Quantity (units)			Quantity Exposed in 2006- 2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
JP-5 fuel	Transfer/pipeline	—	—	—	No	Yes, no berm or secondary containment around pump valves		X

**Table 4- [REDACTED]**

**BOOSTER PUMPING STATION  
 (BUILDING [REDACTED])**

**LIST OF SIGNIFICANT SPILLS AND LEAKS**

Date (month/day/year)	Spill	Leak	Location (As Indicated on Site Map)	Description			Response Procedure		Preventive Measures Taken	
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered		Material No Longer Exposed to Storm Water (True/False)

Definitions: Significant spills include, but are not limited to, releases of oil or hazardous substances in excess of reportable quantities.

<b>Table 4- [REDACTED]</b> <b>BOOSTER PUMPING STATION</b> <b>(BUILDING [REDACTED])</b> <b>POLLUTANT SOURCES, EXISTING BMPs, AND RECOMMENDED BMPs</b>		
Storm Water Pollutant Sources	Existing BMPs	Recommended BMPs
General Fueling	Construct Berm or Dike Around Critical Area (012) Monitor Major Fueling Operations (064) Restrict Access to Tanks (069) Keep Tanks, Piping, and Valves in Good Condition (071) Protect Tanks from Being Damaged by Vehicles (072) Prepare a Spill Prevention and Response Plan (112) Inspect Connecting Hoses For Leaks (207) Use Appropriate Material Transfer Procedures, Including Spill Prevention and Containment Activities (209)	Core BMPs Sector S BMPs



**Figure 4-█: Booster Pumping Station (Building █) SWPPP Site Map**

#### 4.10.6 Fuel Pier (Building [REDACTED])

**Facility Description:** The Fuel Pier, an SU occupied facility, is located on Seaplane Base at the east end of Tulagi Avenue at Crescent Harbor as shown on Sheet 11 (Grid 8) of the SWPPP base maps.

A detailed map showing the site layout and surrounding area is provided on the Fuel Pier SWPPP Site Map (Figure 4-[REDACTED]).

**Facility Objective:** Fuel barges unload all JP-5 used at Ault Field and Sea Plane Base at the Fuel Pier.

**Stormwater Drainage Description:** The Fuel Pier is located within Sub-basin SB-2D. Stormwater runoff from the pier, which is of wooden construction, flows between timbers and over the edge of the pier. Because runoff over the entire pier occurs in sheet flow conditions, there is no associated outfall.

**Material Inventory:** All materials used, stored, or produced at this facility in 2009 are listed in Table 4-[REDACTED]. Each of these materials was assessed and evaluated in terms of its potential to contribute pollutants to stormwater runoff.

No significant materials (as defined in the glossary found in Appendix B of this report) have been exposed to stormwater during the past three years or are currently exposed. Therefore, Table 4-[REDACTED] is not provided.

**Significant Spills and Leaks:** Significant spills or leaks of toxic or hazardous pollutants at this facility in the past three years will be indicated in Table 4-[REDACTED].

**Site Assessment Inspection:** The initial site assessment inspection was performed by E&E field personnel on Wednesday, November 30, 1994. The site has been reassessed regularly by NAVFAC NW personnel. No observations were made during the 2015 inspection.

**Existing BMPs:** Existing BMPs are provided in Table 4-[REDACTED].

**Recommended BMPs and Implementation Plan:** Recommended BMPs for this facility and the associated implementation phase are identified in Table 4-[REDACTED]. Implementation of BMPs is required by the terms of the Multi-Sector Permit as authorized by 40 CFR 122.

**Table 4- [REDACTED]**

**FUEL PIER  
(BUILDING [REDACTED])  
MATERIAL INVENTORY**

Material	Purpose/ Location	Quantity (units)			Quantity Exposed in 2006- 2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
JP-5 fuel	Unloading/pipeline	—	—	—	No	Yes, no secondary containment for pipes and valves	Yes	No
								X

**Table 4- [REDACTED]**

**FUEL PIER  
 (BUILDING [REDACTED])**

**LIST OF SIGNIFICANT SPILLS AND LEAKS**

Date (month/day/year)	Spill	Leak	Location (As Indicated on Site Map)	Description			Response Procedure		Preventive Measures Taken
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered	

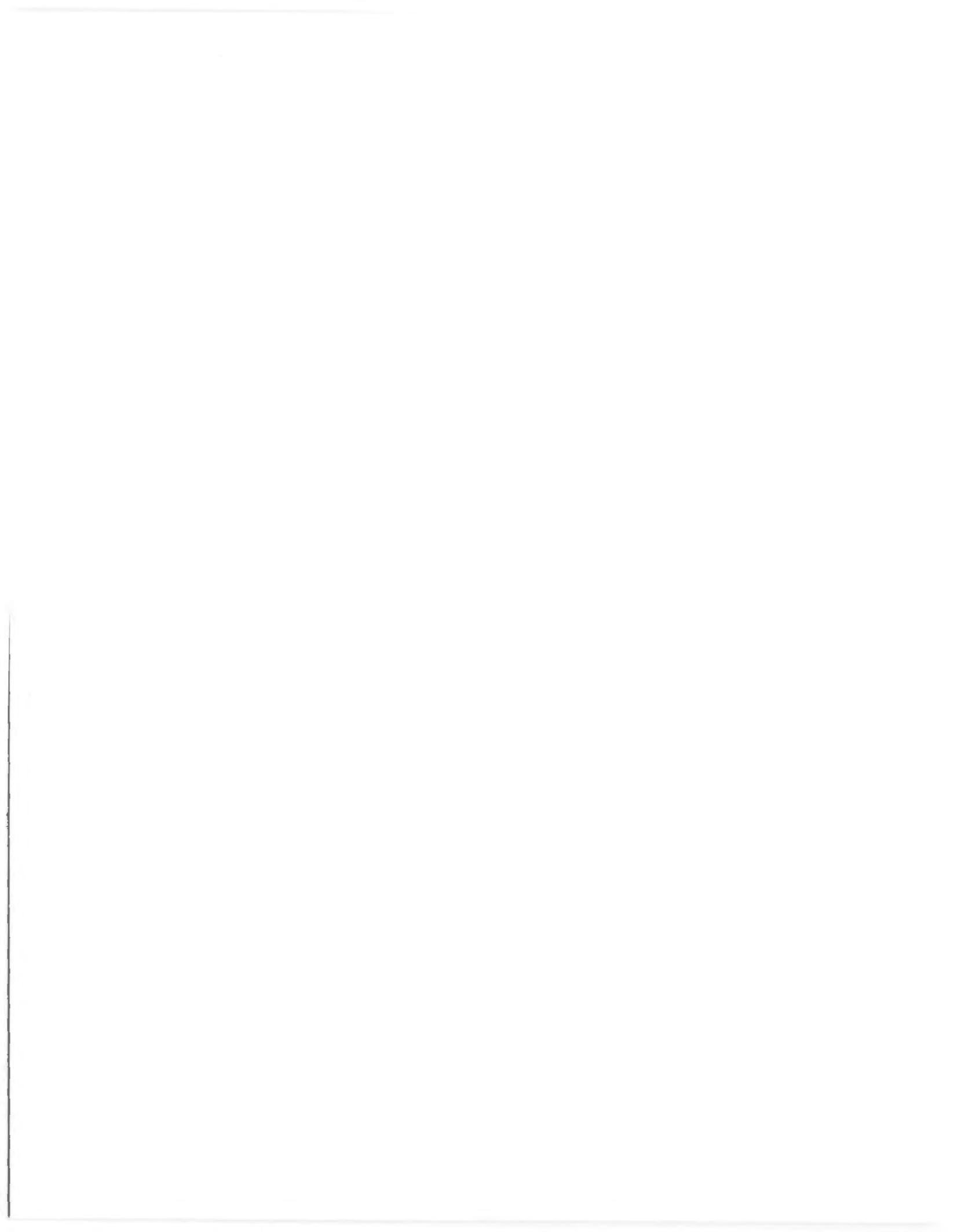
Definitions: Significant spills include, but are not limited to, releases of oil or hazardous substances in excess of reportable quantities.

**Table 4- [REDACTED]**

**FUEL PIER ( [REDACTED] )**

**POLLUTANT SOURCES, EXISTING BMPs, AND RECOMMENDED BMPs**

Storm Water Pollutant Sources	Existing BMPs	Recommended BMPs
General Fueling	Keep Absorbent Material On Hand (010) Monitor Major Fueling Operations (064) Provide Absorbent Booms in Unbermed Fueling Areas (065) Keep Tanks, Piping, and Valves in Good Condition (071) Provide Secondary Containment for Other POL Containing Structures/Facilities (075A) Use Oil Containment Booms (087)	Core BMPs Sector S BMPs



**Figure 4-█: Fuel Pier (Building █) SWPPP Site Map**

#### 4.10.7 Vehicle Fuel Facility (Building [REDACTED]) and Filling Station Building (Building [REDACTED])

**Facility Description:** The Vehicle Fuel Facility, an SU building, is located at Ault Field on First Street, as shown on Sheet 8 (Grid 5) of the SWPPP base maps.

The facility consists of a covered concrete island with two gasoline pumps, a small concrete building used as an office, and USTs. A detailed map showing the site layout and surrounding area is provided in Figure 4-[REDACTED].

**Facility Objective:** The facility is used for fueling base vehicles.

**Stormwater Drainage Description:** The filling station is located within Drainage Basin AF-7 and Sub-basin AF-7E. Stormwater runoff from paved areas outside the covered portion of the filling station flows over the impervious surface to a ditch which travels along First Street. Drainage from the ditch flows east and north into and through open channels, reaching Outfall OAF-7E, associated with this sub-basin. Flow from this outfall enters the open channel network within the flight line, and discharges to wetlands via Outfall OAF-7F. Ultimate discharge is to Dugualla Bay.

Runoff beneath the covered filling area is collected in two catch basins. Drainage from the filling station cover is also routed directly into these catch basins via roof drains and underground piping (no overland portion). Drainage from the area flows through oil/water separator [REDACTED] before discharging to the open ditch located along the north side of First Street which flows to OAF-7E.

**Material Inventory:** All materials used, stored, or produced at this facility in 2009 are listed in Table 4-[REDACTED]. Each material was assessed and evaluated in terms of its potential to contribute pollutants to stormwater runoff.

No significant materials (as defined in the glossary found in Appendix B of this report) have been exposed to stormwater during the past three years or are currently exposed. Therefore, Table 4-[REDACTED] is not provided.

**Significant Spills and Leaks:** Significant spills or leaks associated with the facility in the past three years will be shown in Table 4-[REDACTED].

**Site Assessment Inspection:** The initial site assessment inspection was performed by E&E field personnel on Friday, December 9, 1994. The site has been reassessed regularly by NAVFAC NW personnel. The facility was inspected in 2015 and found to be generally clean with no issues noted.

**Existing BMPs:** Existing BMPs are provided in Table 4-[REDACTED].

**Recommended BMPs and Implementation Plan:** Recommended BMPs for this facility and the associated implementation phase are identified in Table 4-[REDACTED]. Implementation of BMPs is required by the terms of the Multi-Sector Permit as authorized by 40 CFR 122.

Table 4-

**FILLING STATION  
 (BUILDINGS ██████████)  
 MATERIAL INVENTORY**

Material	Purpose/ Location	Quantity (units)			Quantity Exposed in 2006- 2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Antifreeze	Vehicle maintenance/ Outside, on station island	—	—	One 55-gallon drum	No	No, secondary containment provided		X
Motor oil	Vehicle maintenance/ Outside, on station island	—	—	One 55-gallon drum	No	No, secondary containment provided		X
Gasoline	Vehicle fueling/ UST	—	—	2 25,000- gallon USTs	No	No, catch basins in fueling area are connected to the sanitary sewer system		X

**Table 4- [REDACTED]**  
**FILLING STATION**  
**(BUILDINGS [REDACTED])**  
**LIST OF SIGNIFICANT SPILLS AND LEAKS**

Date (month/day/year)	Spill	Leak	Location (As Indicated on Site Map)	Description			Response Procedure		Preventive Measures Taken	
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered		Material No Longer Exposed to Storm Water (True/False)

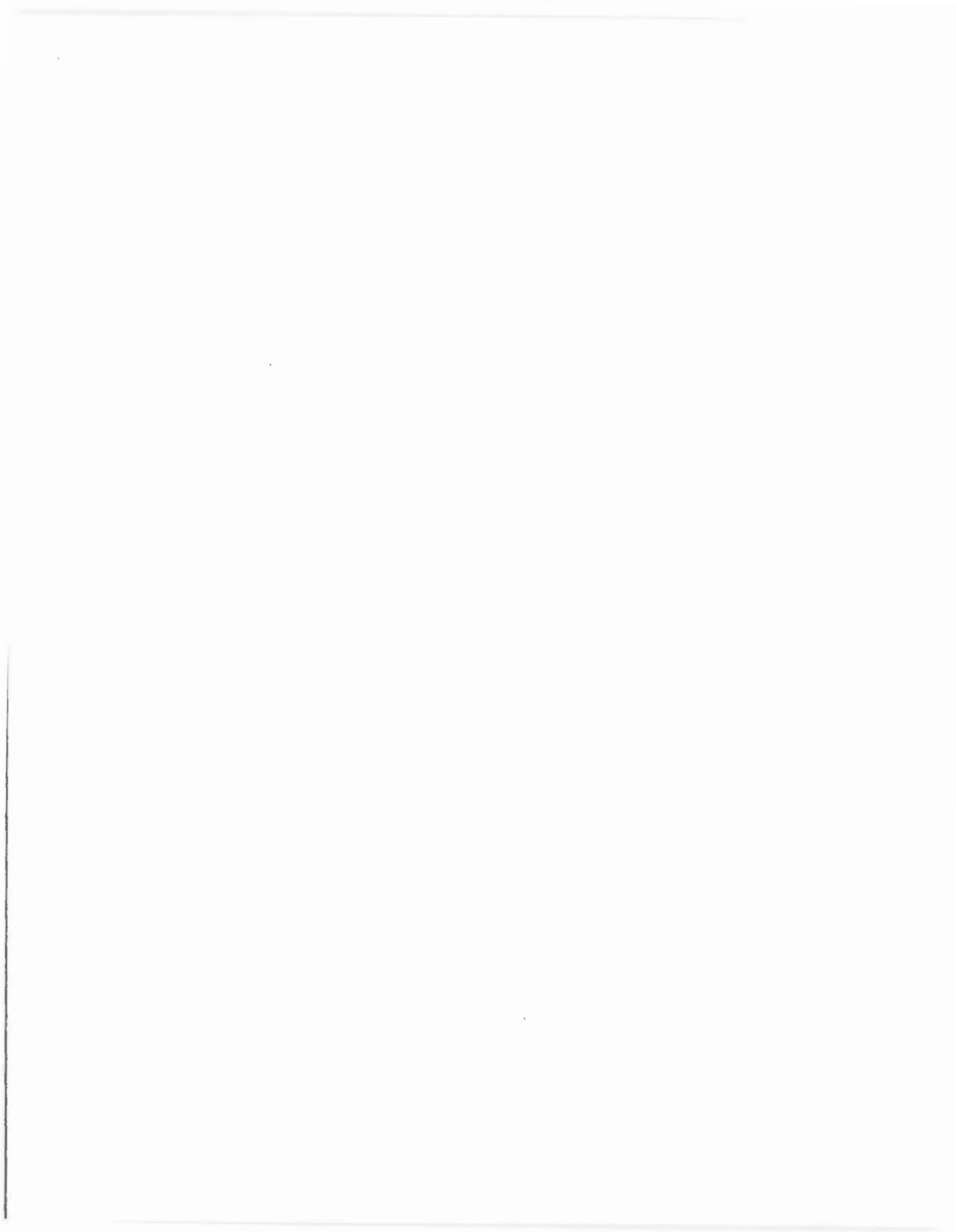
Definitions: Significant spills include, but are not limited to, releases of oil or hazardous substances in excess of reportable quantities.

**Table 4-** [REDACTED]

**FILLING STATION  
(BUILDINGS [REDACTED])**

**POLLUTANT SOURCES, EXISTING BMPs, AND RECOMMENDED BMPs**

Storm Water Pollutant Sources	Existing BMPs	Recommended BMPs
Fuel Storage	Install Leak Detection System (067) Restrict Access to Tanks (069) Keep Tanks, Piping, and Valves in Good Condition (071) Protect Tanks from Being Damaged by Vehicles (072) Protect Fill Pipe from Being Damaged by Vehicles (073) Prepare a Spill Prevention and Response Plan (112)	Core BMPs Sector P BMPs
General Fueling	Provide Roof to Cover Source Area (018) Monitor Major Fueling Operations (064)	
POU/ Antifreeze Storage	Use Overpack Containers or Containment Pallets to Store 55-Gallon Drums Outside of Storage Areas (055) Store Containers Inside Secondary Containment (115)	



**Figure 4-█: Filling Station (Building █) SWPPP Site Map**



#### 4.10.8 Aircraft Direct Refueling Facility (Building [REDACTED])

**Facility Description:** The Aircraft Direct Refueling Facility is located between taxiway C and taxiway I on Ault Field, as shown on Sheet 2 of the SWPPP base maps.

The facility is used for refueling of jet aircraft. Refueling is accomplished at three islands located between the taxiways. An adjacent metal clad building houses fuel pumping and control equipment. Two 30,000 gallon tanks north of the building are used to store JP-8.

A detailed map showing the site layout and surrounding area is provided in Figure 4-[REDACTED].

**Facility Objective:** This facility is used for refueling of aircraft.

**Stormwater Drainage Description:** This facility is surrounded by taxiways and grassed areas. Runoff from the paved areas surrounding the refueling islands flows southerly into catch basins located along each island. The catch basins flow through a 4,000 gallon oil/water separator before discharging to a storm drain manhole at the southwest corner of the facility. In the event of a major spill, a motorized valve can be closed to direct spilled fuel into a containment vault. The storm drain manhole discharges into a ditch south of taxiway C just downstream of outfalls OAF-7A and OAF-7B.

The Aircraft Refueling Facility is located within Drainage Basin AF-7 and Sub-basin AF-7F. Discharges from the Aircraft Refueling Facility flow through the ditch complex to OAF-7F ultimately discharging to Dugualla Bay.

**Material Inventory:** All materials used, stored, or produced at this facility in 2009 are listed in Table 4-[REDACTED]. Each material was assessed and evaluated in terms of its potential to contribute pollutants to stormwater runoff.

No significant materials (as defined in the glossary found in Appendix B of this report) have been exposed to stormwater during the past three years and/or are currently exposed. Therefore, Table 4-[REDACTED] is not provided.

**Significant Spills and Leaks:** Significant spills or leaks associated with the facility will be shown in Table 4-[REDACTED] if/when they occur.

**Site Assessment Inspection:** The initial site assessment inspection was performed by NAVFAC NW field personnel on 11 June 2005. The site has been reassessed regularly since then. In 2015, the assessment found the facility to be generally clean and no issues were noted.

**Existing BMPs:** Existing BMPs are provided in Table 4-[REDACTED].

**Recommended BMPs and Implementation Plan:** Recommended BMPs for this facility and the associated implementation phase are identified in Table 4-[REDACTED]. Implementation of BMPs is required by the terms of the Multi-Sector Permit as authorized by 40 CFR 122.

**Table 4- [REDACTED]**

**AIRCRAFT DIRECT REFUELING FACILITY  
(BUILDING [REDACTED])  
MATERIAL INVENTORY**

Material	Purpose/Location	Quantity (units)			Exposed in 2006-2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used/year	Produced	Stored			Yes	No
JP-8	ASTs	-	-	[REDACTED]	No	No		X

Key:

O/W=Oil/water. UST=Underground storage tank.

**Table 4- [REDACTED]**

**AIRCRAFT DIRECT REFUELING FACILITY  
(BUILDING [REDACTED])  
LIST OF SIGNIFICANT SPILLS AND LEAKS**

Date (month/day/year)	Spill	Leak	Location (As Indicated on Site Map)	Description			Response Procedure		Preventive Measures Taken	
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered		Material No Longer Exposed to Storm Water (True/False)

**Definitions:** Significant spills include, but are not limited to, releases of oil or hazardous substances in excess of reportable quantities.

**Table 4- [REDACTED]**

**AIRCRAFT DIRECT REFUELING FACILITY  
(BUILDING [REDACTED])**

**POLLUTANT SOURCES, EXISTING BMPs, AND RECOMMENDED IMPLEMENTATION PLAN**

Storm Water Pollutant Sources	Existing BMPs	Recommended BMPs
Fuel storage	Provide Valve for Outlet Pipe in Containment Area (014) Provide Secondary Containment for ASTs (075) Inspect Water Accumulated in Containment Area For Oil Sheen Prior to Release (014A) Keep Absorbent Material on Hand (010)	Core BMPs Sector S BMPs
Refueling Operations	Clean Oil Water Separator Regularly (098A) Monitor Major Fueling Operations (064)	

**Figure 4-█: Aircraft Direct Refueling Facility (Building █) SWPPP Site Map**

#### 4.11 Hazardous Materials Warehouse (Building [REDACTED])

**Facility Description:** The Hazardous Materials Warehouse is located at Ault Field near the junction of Langley Boulevard and Third Street, just east of the Main Supply Warehouse (Building [REDACTED]) as shown on Sheet 7 (Grid 4) of the SWPPP base maps.

The facility was investigated as part of the SWPPP because it is responsible for storage and issuance of hazardous materials for NAS Whidbey Island. Building 2884 is a 5,400 sf concrete masonry unit structure that contains offices, a loading dock and interior storage spaces for hazardous materials. A separate steel canopy approximately 60' x 60' located just northeast of the warehouse is also used for material storage. A detailed map showing the site layout and surrounding area is provided in Figure 4-[REDACTED].

**Facility Objective:** The facility receives, stores, and issues chemicals to and from tenant activities.

**Stormwater Drainage Description:** Drainage from the paved areas surrounding the building is collected in a series of catch basins and is directed to a ditch running along the east side of the building. Some runoff to the north is expected to infiltrate into soils associated with the grassy area behind the building.

This building is located within Drainage Basin AF-7 and Sub-basin AF-7E. Stormwater runoff reaching the ditch east of the facility travels south into open channels. Drainage within this open channel system eventually passes through Outfall OAF-7E. Flow through this outfall enters the open channel system within the flight line and discharges to wetlands via Outfall OAF-7F. Ultimate discharge is to Dugualla Bay.

**Material Inventory:** All materials used, stored, or produced at this facility in 2009 are listed in Table 4-[REDACTED]. Each material was assessed and evaluated in terms of its potential to contribute pollutants to stormwater runoff.

No significant materials (as defined in the glossary found in Appendix B of this report) have been exposed to stormwater during the past three years or are currently exposed. Therefore, Table 4-[REDACTED] is not provided.

**Significant Spills and Leaks:** Significant spills or leaks associated with the facility in the past three years will be shown in Table 4-[REDACTED].

**Site Assessment Inspection:** The initial site assessment inspection was performed by E&E field personnel on Tuesday, December 13, 1994. The site has been reassessed regularly by NAVFAC NW personnel. An investigation performed in 2015 found the facility to be generally clean and no issues were noted.

**Existing BMPs:** Existing BMPs are provided in Table 4-[REDACTED].

**Recommended BMPs and Implementation Plan:** Recommended BMPs for this facility and the associated implementation phase are identified in Table 4-[REDACTED]. Implementation of BMPs is required by the terms of the Multi-Sector Permit as authorized by 40 CFR 122.

**Table 4- [REDACTED]**

**HAZMAT WAREHOUSE  
(BUILDING )  
MATERIAL INVENTORY**

Material	Purpose/ Location	Quantity (units)			Quantity Exposed in 2006- 2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Grease	Storage/Outside, in flam. locker	—	—	20 gals.	No	No. stored in flam. locker		X
Lube oil	Storage/Outside, in flam. locker	—	—	50 gals.	No	No. stored in flam. locker		X
Paint	Storage/Outside, in flam. locker	—	—	50 gals.	No	No. stored in flam. locker		X
Corrosion preventive compound	Storage/Outside, in flam. locker	—	—	20 gals.	No	No. stored in flam. locker		X
Paint remover	Storage/Outside, in flam. locker	—	—	10 gals.	No	No. stored in flam. locker		X
Engine cleaning compound	Storage/Outside, in flam. locker	—	—	30 gals.	No	No. stored in flam. locker		X
Hydraulic fluid	Storage/Outside, in flam. locker	—	—	20 gals.	No	No. stored in flam. locker		X
Sealing compound	Storage/Outside, in flam. locker	—	—	10 boxes of 24 tubes	No	No. stored in flam. locker		X
Adhesives	Storage/Outside, in flam. locker	—	—	10 gals.	No	No. stored in flam. locker		X
Acetone	Storage/Outside, in flam. locker	—	—	15 gals.	No	No. stored in flam. locker		X

Table 4-

**HAZMAT WAREHOUSE  
(BUILDING)  
MATERIAL INVENTORY**

Material	Purpose/ Location	Quantity (units)			Quantity Exposed in 2006- 2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
	locker					flam. locker		
Thinner	Storage/Outside, in flam. locker	—	—	3 gals.	No	No. stored in flam. locker		X
Insecticide	Storage/Outside, in flam. locker	—	—	10 spray cans	No	No. stored in flam. locker		X
Penetrant	Storage/Outside, in flam. locker	—	—	20 spray cans	No	No. stored in flam. locker		X
Ethylene glycol	Storage/Outside, in flam. locker	—	—	10 gals.	No	No. stored in flam. locker		X
Naphtha	Storage/Outside, in flam. locker	—	—	30 gals.	No	No. stored in flam. locker		X

Table 4- [REDACTED]

**HAZMAT WAREHOUSE  
 (BUILDING [REDACTED])  
 LIST OF SIGNIFICANT SPILLS AND LEAKS**

Date (month/day/year)	Spill	Leak	Location (As Indicated on Site Map)	Description			Response Procedure		Preventive Measures Taken	
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered		Material No Longer Exposed to Storm Water (True/False)

Definitions: Significant spills include, but are not limited to, releases of oil or hazardous substances in excess of reportable quantities.

**Table 4- [REDACTED]**  
**POLLUTANT SOURCES, EXISTING BMPs, AND RECOMMENDED BMPs**

Storm Water Pollutant Sources	Existing BMPs	Recommended BMPs
General Storage	Store Containers Inside Secondary Containment (115) Store Reactive, Ignitable, or Flammable Liquids in Compliance with the Local Fire Code (199) Keep Inventory of Significant Materials (017A)	Core BMPs Sector S BMPs

**Figure 4-█: Hazardous Materials Warehouse SWPPP Site Map**

## 4.12 Explosive Ordinance Facilities

Two EOD related facilities are included in the SWPPP. The facility names and building numbers are listed below.

Maritime Expeditionary Security Squadrons [REDACTED]

Spill Response and Grounds Maintenance Contractor, Building [REDACTED]

### 4.12.1 Maritime Expeditionary Security Squadron (MSRON) [REDACTED]

**Facility Description:** The MSRON facility is located on Seaplane Base northeast of the intersection of Tulagi and Catalina Roads. This facility is shown on Sheet 10 (Grid 7) of the SWPPP base maps.

The facility consists of a 40' x 100' steel building which is used for small boat maintenance. A small office is located on the north side of the building with the remainder of the structure being used for vessel maintenance. The south end of the building consists of a covered wash rack which is used for boat cleaning and fresh water flushing of engines. Effluent from the wash rack flows through an oil/water separator and into the sanitary sewer. South of the building is a fenced asphalt parking area used for small (12'-24') boat storage. The parking area is served by an oil/water separator with a restricted inlet which allows high stormwater flows to be bypassed preventing hydraulic overload of the separator. A detailed map showing the site layout and surrounding area is provided on the SWPPP map (Figure 4-[REDACTED]).

This facility qualifies for coverage under Section Q (Water Transportation Facilities) of the multi-sector general permit.

**Facility Objective:** The facility provides space for maintenance and storage of small boats.

**Stormwater Drainage Description:** The facility is contained within sub-basin SB-3D. Stormwater runoff from the area around building [REDACTED] and the adjacent boat storage yard flows into a set of five catch basins. The catch basins flow through the oil/water separator described above and ultimately discharge through outfall OSB-3D into Oak Harbor.

**Material Inventory:** All materials used, stored or produced at this facility are listed in Table 4-[REDACTED]. Each of these pollutants has been evaluated in terms of its potential to contribute pollutants to stormwater runoff.

Table [REDACTED] lists significant materials (as defined in the glossary found in Appendix B of this report) that are or have been exposed to stormwater within the past three years.

**Significant Spills and Leaks:** Significant spills or leaks of toxic or hazardous pollutants at this facility in the past three years will be indicated in Table [REDACTED].

**Site Assessment Inspection:** The initial site assessment inspection of the EOD facility was conducted by EFA NW personnel on Wednesday, March 17, 1999. The site has been reassessed regularly by NAVFAC NW personnel. The inspection in 2015 found the facility to be vacated. No issues were observed.

**Existing BMPs:** Existing BMPs are provided in Table 4-[REDACTED].

**Recommended BMPs and Implementation Plan:** Recommended BMPs for this facility and the associated implementation phase are identified in Table 4-██████. Implementation of BMPs is required by the terms of the Multi-Sector General Permit as authorized by 40 CFR 122

Table 4- [REDACTED]

**Maritime Expeditionary Security Squadron 9  
(BUILDING [REDACTED])  
MATERIAL INVENTORY**

Material	Purpose/Location	Quantity (units)			Exposed in 2006-2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used/year	Produced	Stored			Yes	No
Dow Corning #4 Compound	Dive Locker	3 cans per year	—	10-16 oz cans	No	No		X
Povidone-Iodine	Dive Locker	1-4 oz bottle per year	—	4-4 oz bottles	No	No		X
Simple Green	Dive & Cleaning Lockers	8 gallon/ year	—	6 gallons	No	No		X
Leak Test	Dive Locker	90-6 oz bottles/ year	—	90-6 oz bottles	No	No		X
G624 Silicone	Dive Locker	1-8 oz tube	—	—	No	No. stored in flam. locker		X
Dimethylsilicone	Dive Locker	4-8 oz tubes	—	1-8 oz tube	No	No. stored in flam. locker.		X
Sulfonide Anti-Stat	Cleaning Gear Locker	—	—	1-32 oz bottle	No	No. stored in flam. locker.		X
Sealing Compound	Cleaning Gear Locker	—	—	1-16 oz bottle	No	No. stored in flam. locker.		X
Cleaning Compound Windshield	Cleaning Gear Locker	1-16 oz bottle	—	1-16 oz bottle	No	No. stored in flam. locker.		X
Hand Cleaner	Cleaning Gear Locker	5-1 lb. cans	—	1 1 lb. can	No	No. stored in flam. locker.		X
Rug Cleaning Compound	Cleaning Gear Locker	4-64 oz. bottles	—	4-64 oz. bottles	No	No. stored in flam. locker.		X
Furniture Polish	Cleaning Gear Locker	2 gallons	—	10-1 quart bottles	No	No. stored in flam. locker.		X
Multipurpose Cleaner	Cleaning Gear Locker	1 gallon	—	1 gallon	No	No. stored in flam. locker.		X

Table 4- [REDACTED]

**Maritime Expeditionary Security Squadron 9  
(BUILDING [REDACTED])  
MATERIAL INVENTORY**

Material	Purpose/Location	Quantity (units)			Exposed in 2006-2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used/year	Produced	Stored			Yes	No
Bleach	Cleaning Gear Locker	1 gallon	---	1 gallon	No	No. stored in flam. locker.		X
Detergent	Cleaning Gear Locker	8 gallons	---	2-1 gallon cans	No	No. stored in flam. locker.		X
Cleaning Solution (Acid)	Cleaning Gear Locker	---	---	6 1-quart bottles	No	No. stored in flam. locker.		X
Floor Finish	Cleaning Gear Locker	1 gallon	---	1 gallon	No	No. stored in flam. locker.		X
Floor Polish Remover	Cleaning Gear Locker	1 gallon	---	1 5-gallon can	No	No. stored in flam. locker.		X
Grease	Locker #2	16 lbs.	---	100 lbs.	No	No. stored in flam. locker.		X
Sodium Bicarbonate	Locker #2	---	---	1 lb. box	No	No. stored in flam. locker.		X
Outboard Gear Oil	Locker #2	8-16 oz. cans	---	12-16 oz. cans	No	No. stored in flam. locker.		X
Lube Oil	Locker #2	50 gallons	---	110 gallons	No	No. stored in flam. locker.		X
Gearcase Lube	Locker #2	---	---	1 - 55 gal. can	No	No. stored in flam. locker.		X
Hydraulic Fluid	Locker #2	1 gallon	---	6 gallons	No	No. stored in flam. locker.		X
Break Free	Locker #2	32 oz.	---	3 - 16 oz. bott.	No	No. stored in flam. locker.		X
Wax	Locker #2	---	---	3 gallons	No	No. stored in flam. locker.		X
Propylene Glycol	Locker #2	---	---	1 gallon	No	No. stored in flam. locker.		X
Desiccants	Locker #2	---	---	5 gallon can	No	No. stored in flam. locker.		X

Table 4- [REDACTED]

Maritime Expeditionary Security Squadron 9  
(BUILDING [REDACTED])  
MATERIAL INVENTORY

Material	Purpose/Location	Quantity (units)			Exposed in 2006-2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used/year	Produced	Stored			Yes	No
Motor Oil 10-30	Locker #2	6 qts.	—	10 qts.	No	No. stored in flam. locker.		X
Silicone	Locker #2	60 oz.	—	32 oz.	No	No. stored in flam. locker.		X
Antiseize Compound	Locker #2	1 lb.	—	3 lbs.	No	No. stored in flam. locker.		X
Petrolatum, Technical	Locker #2	3 oz.	—	1 - 1 lb. can	No	No. stored in flam. locker.		X
2 Cycle Oil TCW-3	Locker #2	52 gallons	—	60 gallons	No	No. stored in flam. locker.		X
Hydraulic Fluid	Locker #2	2 8oz-cans	—	1 - 8oz-can	No	No. stored in flam. locker.		X
Soldering Fluid	Locker #3	2 1/2 gallons	—	2 1/2 gallons	No	No. stored in flam. locker.		X
Spray Adhesive	Locker #3	—	—	2 - 12 oz. can	No	No. stored in flam. locker.		X
Striping Enamel	Locker #3	—	—	1 Gallon	No	No. stored in flam. locker.		X
Paint Base	Locker #3	85 Gallons	—	95 Gallons	No	No. stored in flam. locker.		X
Primer Sealer	Locker #3	6 Gallons	—	3 Gallons	No	No. stored in flam. locker.		X
Gloss Floor Paint	Locker #3	10 Gallons	—	2 Gallons	No	No. stored in flam. locker.		X
Enamel Silicone	Locker #3	—	—	3 - 5 Gal. Cans	No	No. stored in flam. locker.		X
Laquer Acrylic	Locker #3	—	—	3 - 1 Gal. Cans	No	No. stored in flam. locker.		X
Spar Varnish	Locker #3	—	—	1 Qt. Can	No	No. stored in flam. locker.		X
Polyamide Aircraft Com.	Locker #3	—	—	1 Qt. Can	No	No. stored in flam. locker.		X

Table 4- [REDACTED]

Maritime Expeditionary Security Squadron 9  
 (BUILDING [REDACTED])  
 MATERIAL INVENTORY

Material	Purpose/Location	Quantity (units)			Exposed in 2006-2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used/year	Produced	Stored			Yes	No
Adhesive	Locker #3	—	—	3 - 8 oz. bott.	No	No. stored in flam. locker.		X
Brazing Flux	Locker #3	—	—	9 lbs.	No	No. stored in flam. locker.		X
Acrylic Resin	Locker #3	—	—	2 oz.	No	No. stored in flam. locker.		X
Adhesive Rubber Base	Locker #3	—	—	7 - pt. cans	No	No. stored in flam. locker.		X
Sealing Compound	Locker #3	—	—	3 - 1/4 oz. tube	No	No. stored in flam. locker.		X
Nut Lock	Locker #3	—	—	2 oz.	No	No. stored in flam. locker.		X
Electrical Coating	Locker #3	—	—	32 oz.	No	No. stored in flam. locker.		X
ABS Thread Sealant	Locker #3	—	—	1 - 4 oz. can	No	No. stored in flam. locker.		X
Wood Glue	Locker #3	—	—	1 gallon	No	No. stored in flam. locker.		X
Gasket Sealing Compound	Locker #3	—	—	4 - 11 oz. tubes	No	No. stored in flam. locker.		X
Paint Gun Cleaner	Locker #3	—	—	1 Qt.	No	No. stored in flam. locker.		X

Key:  
 MOGAS =  
 O/W = Oil/water.  
 UST = Underground storage tank.

Table 4- [REDACTED]

**Maritime Expeditionary Security Squadron 9  
(BUILDING [REDACTED])  
LIST OF SIGNIFICANT SPILLS AND LEAKS**

Date (month/day/year)	Spill	Leak	Location (As Indicated on Site Map)	Description			Response Procedure		Preventive Measures Taken	
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered		Material No Longer Exposed to Storm Water (True/False)

Definitions: Significant spills include, but are not limited to, releases of oil or hazardous substances in excess of reportable quantities.

**Table 4- [REDACTED]**  
**Maritime Expeditionary Security Squadron 9**  
**(BUILDING [REDACTED])**  
**POLLUTANT SOURCES, EXISTING BMPs, AND RECOMMENDED BMPs**

Storm Water Pollutant Sources	Existing BMPs	Recommended BMPs
Boat Wash Rack	Divert Drainage to Treatment Facility/Sanitary Sewer (096) Wash Equipment and Vehicles in Designated Areas (041)	Core BMPs  Sector Q BMPs
Oil/ Water Separator Separators	Maintain Oil/Water Separator in Good Working Condition (098B)	
Boat Maintenance	Conduct Maintenance within a Building or Covered Area (047)	
Flammable Material Lockers	Keep Absorbent Material on Hand (010) Keep Inventory of Significant Materials (017A) Store Containers Inside Secondary Containment (115) Store Reactive, Ignitable, or Flammable Liquids in Compliance with the Local Fire Code (199)	



**Figure 4-█: SWPPP Site Map**

#### 4.12.2 Spill Response/Greenleaf (Building ■)

**Facility Description:** Previously occupied by EOD, the Spill Response and Grounds Maintenance Contractor now occupies Building ■. These facilities are located at Seaplane Base on Tulagi Avenue as shown on Sheet 10 (Grid 7) of the SWPPP base maps.

The building is a split-level concrete structure that contains the following:

- Administrative offices;
- Warehouse;
- Loading dock;
- Vehicle maintenance shop; and
- Vehicle parking area (fenced area on west side of building).

A detailed map showing the site layout and surrounding area is provided in Figure 4-■.

**Facility Objective:** The facility is used for materials storage and maintenance by the grounds maintenance contractor (Greenleaf).

**Stormwater Drainage Description:** Building ■ is surrounded by concrete surfaces. Building ■, located approximately 100 feet south of Building ■, is surrounded by concrete except to the south where a large grassy area exists. Stormwater runoff from Building ■ travels north to Catch Basin SDCB50-02B, to the west to Catch Basins SDCB50-06 and -08, and to the south and east to three catch basins: SDCB50-10, -11, and -12. Drainage from areas associated with Building ■ flows south over concrete surfaces to the grassy area.

Stormwater associated with Building ■ falls within two sub-basins: SB-3D and SB-3G. All stormwater associated with these sub-basins is directed to Oak Harbor. Stormwater entering Catch Basins SDCB50-50-02B, -06, and -08 is routed to the west to Outfall OSB-3D. Runoff entering Catch Basins SDCB50-10, -11, and -12 is routed to the west to Outfall OSB-3G.

A wash rack west of the building ■ equipment lot is connected to the sanitary sewer.

**Material Inventory:** All materials used, stored, or produced at this facility in 2009 are listed in Table 4-■. Each material was assessed and evaluated in terms of its potential to contribute pollutants to stormwater runoff.

Table 4-■ lists significant materials (as defined in the glossary found in Appendix B of this report) exposed to stormwater during the past three years and/or currently exposed.

**Significant Spills and Leaks:** Significant spills or leaks associated with the facility in the past three years will be shown in Table 4-■.

**Site Assessment Inspection:** The initial site assessment inspection was performed by E&E field personnel on Wednesday, November 30, 1994. The site has been reassessed regularly since the initial assessment by NAVFAC NW personnel. The following observations were made.

**Existing BMPs:** Existing BMPs are provided in Table 4-■.

**Recommended BMPs and Implementation Plan:** Recommended BMPs for this facility and the associated implementation phase are identified in Table 4-■. Implementation of BMPs is required by the terms of the Multi-Sector Permit as authorized by 40 CFR 122.

Table 4-

**Spill Response/Greenleaf  
(BUILDING )  
MATERIAL INVENTORY**

Material	Purpose/Location	Quantity (units)			Quantity Exposed in 2006-2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
Used oil (from draining engine parts)	Vehicle maintenance/ Inside Building 22	—	—	1 55-gallon drum	No	No. secondary containment provided		X
Lube oil	Vehicle maintenance/ Inside Building 22	55-gallons per year	—	1 55-gallon drum	No	No. secondary containment provided		X
Lumber	Storage/Outside Building 22	Varies	—	Varies	Yes	Yes, no cover.		X
Batteries	Storage/Inside Building 22	4 per year	—	4	No	Yes, stored on floor near garage door with no secondary containment.		X
Used oil (from filter press)	Vehicle maintenance/ Inside Building 22	—	—	1 55-gallon drum	No	No. stored inside.		X
Petroleum, oil, and lubricants (POL) rack	Vehicle Maintenance/ Inside Building 22	275 gallons per year	—	8 55-gallon drums	No	Yes, POL on floor is not cleaned up immediately.		X
Fuel- and oil-contaminated absorbent	Hazardous waste storage/Inside Building 22A	—	500 lbs per year	1 55-gallon drum	No	No. stored inside.		X
Used gas and diesel filters	Hazardous waste storage/Inside Building 22A	—	—	1 25-gallon drum	No	No. stored inside.		X
Used oil filters	Hazardous waste	—	60 lbs per year	1 55-gallon drum	No	No. stored inside.		X

Table 4- [REDACTED]

**Spill Response/Greenleaf  
(BUILDING [REDACTED])  
MATERIAL INVENTORY**

Material	Purpose/Location	Quantity (units)		Quantity Exposed in 2006-2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak		
		Used	Produced			Stored	Yes	No
	storage/Inside Building [REDACTED]							
Waste paint and related material	Hazardous waste storage/Inside Building [REDACTED]	—	30 gallons per year	No	No, stored inside.			X
Used antifreeze	Hazardous waste storage/Inside Building [REDACTED]	—	20 gallons per year	No	No, stored inside.			X
Used batteries	Hazardous waste storage/Inside Building [REDACTED]	—	< 12 per year	No	No, stored inside.			X
Used aerosol cans	Hazardous waste storage/Inside Building [REDACTED]	—	3 lbs per year	No	No, stored inside.			X
Lubricating oil	Storage/Inside Building [REDACTED]	—	—	No	No, stored inside.			X
Motor oil	Storage/Inside Building [REDACTED]	—	—	No	No, stored inside.			X
Hydraulic fluid	Storage/Inside Building [REDACTED]	—	—	No	No, stored inside.			X
Transmission fluid	Storage/Inside Building [REDACTED]	6 quarts per year	—	No	No, stored inside.			X
Antifreeze	Storage/Inside Building [REDACTED]	20 gallons per year	—	No	No, stored inside.			X

Table 4- [REDACTED]

**Spill Response/Greenleaf  
 (BUILDING [REDACTED])  
 MATERIAL INVENTORY**

Material	Purpose/Location	Quantity (units)			Quantity Exposed in 2006-2009	Likelihood of Contact with Storm Water	Past Significant Spill or Leak	
		Used	Produced	Stored			Yes	No
	[REDACTED]	year						
Paint	Storage/Inside Building [REDACTED]	10 gallons per year	—	<12 gallons	No	No, stored inside.		X
Gasoline cans	Storage/Inside Building [REDACTED]	—	—	<24 gallons	No	No, stored inside.		X
Lumber	Storage/Outside Building [REDACTED]	Varies	—	Varies	Yes	Yes, outside storage area with no berm.		X
Metal parts/materials	Storage/Outside Building [REDACTED]	Varies	—	Varies	Yes	Yes, outside storage area with no berm.		X

Table 4- [REDACTED]

Spill Response/Greenleaf  
(BUILDING [REDACTED])

DESCRIPTION OF EXPOSED SIGNIFICANT MATERIAL

Description of Exposed Significant Material	Period of Exposure	Quantity Exposed (units)	Location (As Indicated on the Site Map)	Method of Storage or Disposal (e.g., pile, drum, tank)	Description of Material Management Practice (e.g., pile covered, drum sealed)
Treated lumber	2014	Variable	Outside Buildings [REDACTED] and [REDACTED]	Stored in piles	Cover



**Table 4- [REDACTED]**  
**Spill Response/Greenleaf (BUILDING [REDACTED])**  
**POLLUTANT SOURCES, EXISTING BMPs, AND RECOMMENDED BMPs**

Storm Water Pollutant Sources	Existing BMPs <sup>a</sup>	Recommended BMPs <sup>a</sup>
Battery Storage ( [REDACTED])	Store Liquids and Significant Materials within a Building or Covered Area (061b) Store Batteries Inside Secondary Containment (058)	Core BMPs
Hazardous Waste Storage	Label All Drums, Cans, Containers, Tanks, and Valves (001) Store Liquids and Significant Materials within a Building or Covered Area (061b) Store Containers Inside Secondary Containment (115)	
Loading and Unloading	Confine Loading/Unloading Activities to a Designated Area (136) Consider Covering Loading/Unloading Area with Permanent Cover (e.g., Roofs) or Temporary Cover (e.g., Tarps) (138)	Sector P BMPs
Motor Oil, Paint, and Miscellaneous Liquids	Do Not Store Used Parts or Containers Directly on Ground (057) Use Drip pans on Leaking Equipment (044)	
Oil Filter Press	Do Not Store Used Parts or Containers Directly on Ground (057)	Sector P BMPs
Outdoor Material Storage	Store Drained Filters in a Suitable Container or Drum, and Dispose of Properly (040B) Use Spill Troughs for Drums with Taps (204)	
Vehicle Repair/Maintenance	Plug Floor Drains Connected to the Storm or Sanitary Sewer (195) Do Not Store Used Parts or Containers Directly on Ground (057)	Sector P BMPs
Warehouse Storage	Divert Drainage to Treatment Facility/Sanitary Sewer (096)	
Wash Rack		

**Figure 4-█: Spill Response/Greenleaf (Building █) SWPPP Site Map**

## 5 Stormwater Analytical Monitoring

Section 5 provides the basis for characterizing stormwater discharges at NAS Whidbey Island. The objective of the stormwater monitoring program is to collect stormwater discharge samples that are representative of the conditions at outfalls that drain industrial areas at NAS Whidbey Island in order to identify types and amounts of pollutants present. A stormwater monitoring program has been developed for NAS Whidbey Island based on the sampling requirements outlined in the applicable EPA stormwater permits. Existing stormwater sampling data are also provided. Evaluation of the existing data and the results of the monitoring program will allow for the characterization of the stormwater discharges and pollution prevention targeting at NAS Whidbey Island.

The stormwater permitting strategy for NAS Whidbey Island is to obtain coverage under EPA's multi-sector general permit for federal facilities in the state of Washington. The stormwater permit and the permitting strategy for NAS Whidbey Island are also discussed in detail in Section 1.

The multi-sector permit was reviewed in order to develop the monitoring requirements for stormwater discharges at NAS Whidbey Island. Monitoring requirements are dependent upon the types of industrial activities found in the drainage basin for each stormwater outfall. The sampling requirements for each outfall have been determined by the nature of the industry in the drainage basin.

### 5.1 Previous Stormwater Data

Previous monitoring conducted under the Multi-Sector General Permit is summarized in Appendix I.

### 5.2 Multi-Sector General Permit Requirements

The multi-sector permit regulates 29 industrial sectors (29 types of industries) with stormwater monitoring requirements. Only the types of industries addressed in the permit are eligible for coverage under that permit. The multi-sector permit provides monitoring requirements for the outfalls related to the 29 industrial sectors.

The Multi-Sector general permit contains several different types of analytical monitoring provisions:

- Visual examination,
- Benchmark analytical monitoring,
- Effluent limitations monitoring,
- Discharges to impaired receiving waters monitoring

Overviews of these monitoring provisions are presented in this section. Specific sampling, collection and reporting requirements associated with these provisions are provided in Sections 5.4-5.6.

**Benchmark monitoring:** For the next permit cycle, which will begin when NAS Whidbey Island receives permit coverage under the 2015 MSGP, quarterly Benchmark monitoring will start during the first year. Following the first year, quarterly data may be evaluated in an effort to waive further sampling. If the average concentration of a pollutant at an outfall is less than the

Benchmark values shown in Table 5.x, monitoring the outfall for that pollutant is not required during the following years.

If the average concentration of a pollutant at an outfall exceeds the Benchmark value, the permittee must review the selection, design, installation, and implementation of control measures to determine if modifications are necessary, and either:

Make the necessary modifications and continue quarterly monitoring until you have completed four additional quarters of monitoring for which the average does not exceed the benchmark; or

Make a determination that no further pollutant reductions are technologically available and economically practicable and achievable in light of best industry practice to meet the technology-based effluent limits or are necessary to meet the water-quality-based effluent limitations in Parts 2.1 and 2.2 of this permit. In that case, you must continue monitoring once per year. You must also document your rationale for concluding that no further pollutant reductions are achievable, and retain all records related to this documentation with your SWPPP.

Analytical monitoring is designed to provide some feedback for facility operators to assess the effectiveness of their SWPPP. The benchmark values listed in Table 5-2 are pollutant concentrations that, when exceeded, could impair water quality or affect human health. Facilities with average pollutant concentrations that exceed the benchmark must review and revise their SWPPP and continue monitoring their discharges on a quarterly basis. Analytical monitoring results must be submitted electronically via EPA's NetDMR.

An additional type of monitoring required is for those discharges subject to numeric stormwater effluent limits under stormwater effluent limitation guidelines. Compliance monitoring is required to ensure that a facility's pollutant discharge concentration is less than or equal to the numeric limits established for that pollutant. Results of the annual compliance monitoring must be submitted to the appropriate EPA regional office. Impaired waterways are not an issue at NAS Whidbey Island.

### 5.2.1 Facility Specific Monitoring Requirements

NAS Whidbey Island has facilities that fall into five of the 29 industrial sectors outlined in the multi-sector permit. Facility specific stormwater monitoring requirements were therefore developed based on the proposed sectors as discussed below. The discussion includes a description of the industrial activities included in each sector, followed by a list of the facilities covered at NAS Whidbey Island and a summary of the sector monitoring requirements.

#### **Sector N - Scrap and Waste Material Processing and Recycling Facilities**

**Description of Facilities Covered:** The requirements listed under this section are applicable to stormwater discharges from the following activities: facilities that are engaged in the processing, reclaiming and wholesale distribution of scrap and waste materials such as ferrous and nonferrous metals, paper, plastic, cardboard, glass, animal hides (these types of activities are typically identified as SIC code 5093). Facilities that are engaged in reclaiming and recycling liquid wastes such as used oil, antifreeze, mineral spirits, and industrial solvents (also identified as SIC code 5093) are also covered under this section. Separate permit requirements have been established for recycling facilities that only receive source-separated recyclable materials primarily from non-industrial and residential sources (also identified as SIC 5093) (e.g., common consumer products including paper, newspaper, glass, cardboard, plastic containers, aluminum

and tin cans). This includes recycling facilities commonly referred to as material recovery facilities (MRF).

**Navy Facilities Covered:**

- Ault Field Recycling Center (Building [REDACTED]).

**Monitoring Requirements:** Quarterly sampling is required during the first year of the permit term. The requirement for subsequent monitoring is contingent on analysis results as discussed above in section 5.3.2. Grab samples only are required. Parameters include:

- Total recoverable aluminum;
- Total copper;
- Total recoverable iron;
- Total lead;
- Total zinc;
- Hardness;
- Chemical Oxygen Demand (COD); and
- Total Suspended Solids (TSS).

## **Sector P – Land Transportation and Warehousing Facilities**

**Description of Facilities Covered:** Stormwater discharges from vehicle and equipment maintenance shops or cleaning operations (exterior wash down, interior washout, tank washouts, etc.) for ground transportation vehicles. This includes public works or contractor types of vehicles at Navy installations such as those involved in garbage collecting and transporting, carting, debris removal, dump truck hauling, local trucking, local transfer and collecting of refuse.

### **Navy Facilities Covered:**

Transportation Building (Building ■■■),  
Vehicle Body Shop/Housing Self-Storage (Building ■■■),  
Can Washing Building (Building ■■■), and  
Grounds Maintenance (Building ■■■)  
Vehicle Filling Station (Building ■■■)  
Vehicle Fuel Facility (Building ■■■)

**Proposed Monitoring Requirements:** No analytical benchmark monitoring is required.

## **Sector Q - Water Transportation Facilities**

**Description of Facilities Covered:** Sector Q requirements apply to facilities engaged in freight and passenger transportation on water. This group includes marinas, which perform cleaning and incidental boat repair.

### **Navy Facilities Covered:**

MSRON 9 (Building ■■■)  
Boat Repair/ Wood Shop (Building ■■■),  
Boat Oil/ Fuel Storage (Building ■■■), and  
Boat Office/Machine Shop (Building ■■■).

**Monitoring Requirements:** Quarterly sampling is required during the first and year of the permit term. The requirement for subsequent monitoring is contingent on analysis results as discussed in section 5.3.2. Grab samples only are required. Parameters include:

- Total aluminum;
- Total iron;
- Total lead;
- Total zinc

## **Sector S - Vehicle Maintenance Areas, Equipment Cleaning Areas, or Deicing Areas Located at Air Transportation Facilities**

**Description of Facilities Covered:** The requirements listed under this section apply to stormwater discharges from establishments and/or facilities including airports, air terminals, air carriers, flying fields, and establishments engaged in servicing or maintaining airports and/or aircraft (generally classified under Standard Industrial Classifications (SIC) code 45) which have vehicle maintenance shops, material handling facilities, equipment cleaning operations or airport and/or

aircraft deicing/anti-icing operations. For the purpose of the permit, the term "deicing" is defined as the process to remove frost, snow, or ice and "anti-icing" is the process, which prevents the accumulation of frost, snow, or ice. Only those portions of the facility or establishment that are either involved in vehicle maintenance (including vehicle rehabilitation, mechanical repairs, painting, fueling, and lubrication), equipment cleaning operations, or deicing/anti-icing operations are addressed under this section.

**Navy Facilities Covered:**

- Armament Equipment Shop (Building [REDACTED]),
- Jet Engine Test Cell (Buildings [REDACTED]),
- Ground Support Equipment (Buildings [REDACTED]),
- Aircraft Intermediate Maintenance Department (AIMD) (Building [REDACTED]),
- AIMD Component Repair and Fuel Nozzle Repair Facility (Buildings [REDACTED]),
- Engine Test Cell II and Engine Maintenance Shop (Buildings [REDACTED]),
- South Aircraft Wash Rack (Building [REDACTED]),
- North Aircraft Wash Rack (Building [REDACTED]),
- Hazardous Waste Operations Equipment Staging (Building [REDACTED]),
- Maintenance Hangar [REDACTED] (Building [REDACTED]),
- P3 Trainer (Building [REDACTED]),
- Maintenance Hangar [REDACTED] (Building [REDACTED]),
- Maintenance Hangar [REDACTED] (Building [REDACTED]),
- Maintenance Hangar [REDACTED] (Building [REDACTED]),
- Jet Fuel Pumping Station (Building [REDACTED]),
- Aircraft Fresh Water Rinse Rack (Building [REDACTED]),
- Consolidated Fuels Facility (Building [REDACTED])
- Grounds Maintenance Facility (Building [REDACTED]),
- Aircraft Direct Refueling Facility (Building [REDACTED]),
- BOSC Maintenance Facility (Building [REDACTED]),
- Hazardous Material Storage (Building [REDACTED])

**Monitoring Requirements:** Airport facilities that use less than 100,000 gallons of glycol based deicing chemicals and less than 100 tons of urea on an average annual basis are not required to conduct analytical monitoring under the multi-sector permit. NAS Whidbey Island has

historically used approximately 2,400 gallons of ethylene glycol annually for deicing and therefore falls well below the quantity requiring analytical monitoring.

#### **Sector T - Treatment Works**

**Description of Facilities Covered:** Domestic sewage treatment works or any other sewage sludge or wastewater treatment device or system, used in the storage, treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated to the disposal of sewage sludge that is located within the confines of a facility with a design flow of 1.0 mgd or more, or required to have an approved pretreatment program under 40 CFR Part 403.

#### **Navy Facilities Covered:**

Sewage Lift Station (Building [REDACTED]),

Ault Field Sewage Treatment Facility (Building [REDACTED]),

**Proposed Monitoring Requirements:** No analytical benchmark monitoring is required.

### 5.3 Stormwater Monitoring Requirements

Outfall sampling is based on the presence of industrial facilities located within the outfall's drainage basin. Outfalls selected for monitoring along with sampling frequency and analytical requirements are identified below. In addition, a visual inspection program is described.

#### 5.3.1 Outfall Selection

As identified above, NAS Whidbey Island has industrial facilities that fall into 6 of the 29 sectors included in the multi-sector permit. Outfalls requiring monitoring at Ault Field and Seaplane Base were identified in Tables 5-4 and 5-5 by summarizing industrial facilities and associated facility specific sectors by outfall.

All of the outfalls must be sampled unless it can be shown that effluent from one outfall is likely to be substantially identical to the effluent from another outfall. Outfalls at NAS Whidbey Island were evaluated under the following criteria in an effort to identify substantially identical outfalls:

- The size and runoff coefficient of the drainage basin;
- The types of industrial facilities within the drainage basin;
- Presence of unauthorized non-storm discharges; and
- Types of management practices and pollution control devices.

Two pairs of outfalls were determined to be substantially identical as shown in Table 5-6. Outfalls OAF-2A and OAF-4C both drain areas surrounding sewage treatment works. OAF-2A serves the majority of the sewage treatment facility on station and will be inspected. Sub-basins discharging to OSB-3F and OSB-3G drain the same industrial facilities and contain comparable percentages of impervious surfaces. Sub-basin SB-3F contains an equal amount of industrial activity within a smaller basin and will be sampled. Although facilities in drainage basin AF-7 are served by six individual sub-basins, they collectively drain to OAF-7F. Therefore OAF-7F will be sampled to cover those facilities in sub-basins AF-7A, AF-7B, AF-7C and AF-7D. Outfall OAF-7E will also be sampled in order to provide a sampling point closer to the sector N facility located in sub-basin AF-7E. The remainder of the drainage basins varied enough in size and industrial activity to preclude the possibility of identifying additional substantially identical outfalls.

#### 5.3.2 Sampling Frequency and Analytical Requirements

Analytical requirements for those outfalls required to be sampled are summarized in Table 5-7.

Four outfalls require quarterly analytical testing of their stormwater discharge during the first year of permit coverage. At the end of the four quarters of monitoring the average concentrations of the parameters monitored should be compared to the EPA cut-off concentrations and the Washington State water quality standards. For averaging purposes, a value of zero should be used for an individual sample parameter if results are less than the method detection limit. For sample results that fall between the method detection limit and the quantitation limit a value equal to one-half the quantitation limit should be used.

In the event that the average concentration during the first year is equal to or below the EPA benchmark values then no sampling is required for the remainder of the permit term. This sampling exclusion applies on both a parameter by parameter and outfall by outfall basis. The

exclusion from monitoring would be conditional on NAS Whidbey Island maintaining industrial operations and BMPs that will ensure a quality of stormwater discharge consistent with the concentrations recorded in the first year.

If the average concentration during the first year exceeds the EPA cut-off concentrations, then monitoring of that parameter is required quarterly during the second year of permit coverage. Attempts must be made to identify the source of the contaminant, improve the pollution prevention plan and reduce the pollutant concentration of the parameter exceeding the cut-off concentration as described in part 3 of the permit. If average concentrations in the second year still exceed benchmarks then the process repeats for another year until the annual average of four quarters falls below benchmarks. A Benchmark monitoring flowchart is included as Figure 5-1

## 5.4 Sample Collection Procedures

### 5.4.1 Determination of Representative Storm Event

Stormwater sampling guidelines require that the storm event sampled produce measurable runoff from the site and where feasible, the depth and duration of the storm event should not vary by more than 50% from the average monthly or seasonal depth and duration (EPA 1992b). The storm event that is sampled should be the first measurable storm in the past 72 hours.

Rainfall data tabulated from the National Oceanic and Atmospheric Administration (NOAA) indicate that the average storm event in the Pacific Northwest lasts approximately 16 hours with an average intensity of 0.035 inches per hour (0.56 inches total) as reported in EPA 1992b.

Precipitation data for the sampling period should be documented using a rain gauge and should be supplemented with data obtained from the local weather station at NAS Whidbey Island.

### 5.4.2 Sample Location

Outfalls identified in Tables 5-6 and 5-7 will be sampled. The actual stormwater sampling points should be located as close as possible to the outfall location. When the outfall is not accessible, the nearest accessible point upstream of the outfall should be sampled. Considerations in choosing sampling locations should include:

- Proximity to conveyance outfall;
- Ease of accessibility to potential sampling location; and
- Suitability of location for flow measurement.

The actual sample location should be documented and marked for future sampling efforts. The outfall locations are shown on the SWPPP base maps provided in the Appendix A. Sampling points will be selected in the field at the time of the first sampling event.

### 5.4.3 Sample Collection Procedure

Grab samples should be collected within the first 30 minutes of the elevated discharge or as soon as practical. In the event that the sample cannot be collected in the first 30 minutes, a written explanation should be submitted with the monitoring report explaining why it was not possible to sample in the first 30 minutes. Where stormwater is mixed with non-stormwater, the outfall should be sampled upstream where the flow is purely stormwater, if possible. The samples

should be manually collected by submerging the sample container underwater in the middle of the flow. The samples should be collected in a manner which minimizes agitation of the water. The sample location, the date, the time of collection, storm duration (in hours), total storm rainfall (inches) and interval since last measurable storm event should be recorded. All samples should be collected and handled as outlined in the NPDES Stormwater Sampling Guidance Document (EPA 1992). Sampling standard operating procedures are provided as Appendix F.

#### 5.4.4 Quality Assurance/Quality Control

QA/QC samples should be collected to detect potential errors introduced during sampling, handling, shipping, and analysis. The QA/QC samples should be collected and handled in the same manner as actual samples and in accordance with the procedures outlined in the NPDES Guidance Document (EPA 1992). Sample chain of custody also should be maintained as prescribed in the Guidance.

All laboratory analyses should be performed in accordance with EPA Methods for Chemical Analysis of Water and Wastewater, EPA Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater, and Standard Methods for the Examination of Water and Wastewater. The analytical data should be reviewed to assess data quality and usability based on the EPA Functional Guidelines for Data Validation. The data should be evaluated for use in stormwater characterization and regulatory decision making.

### 5.5 Reporting Requirements

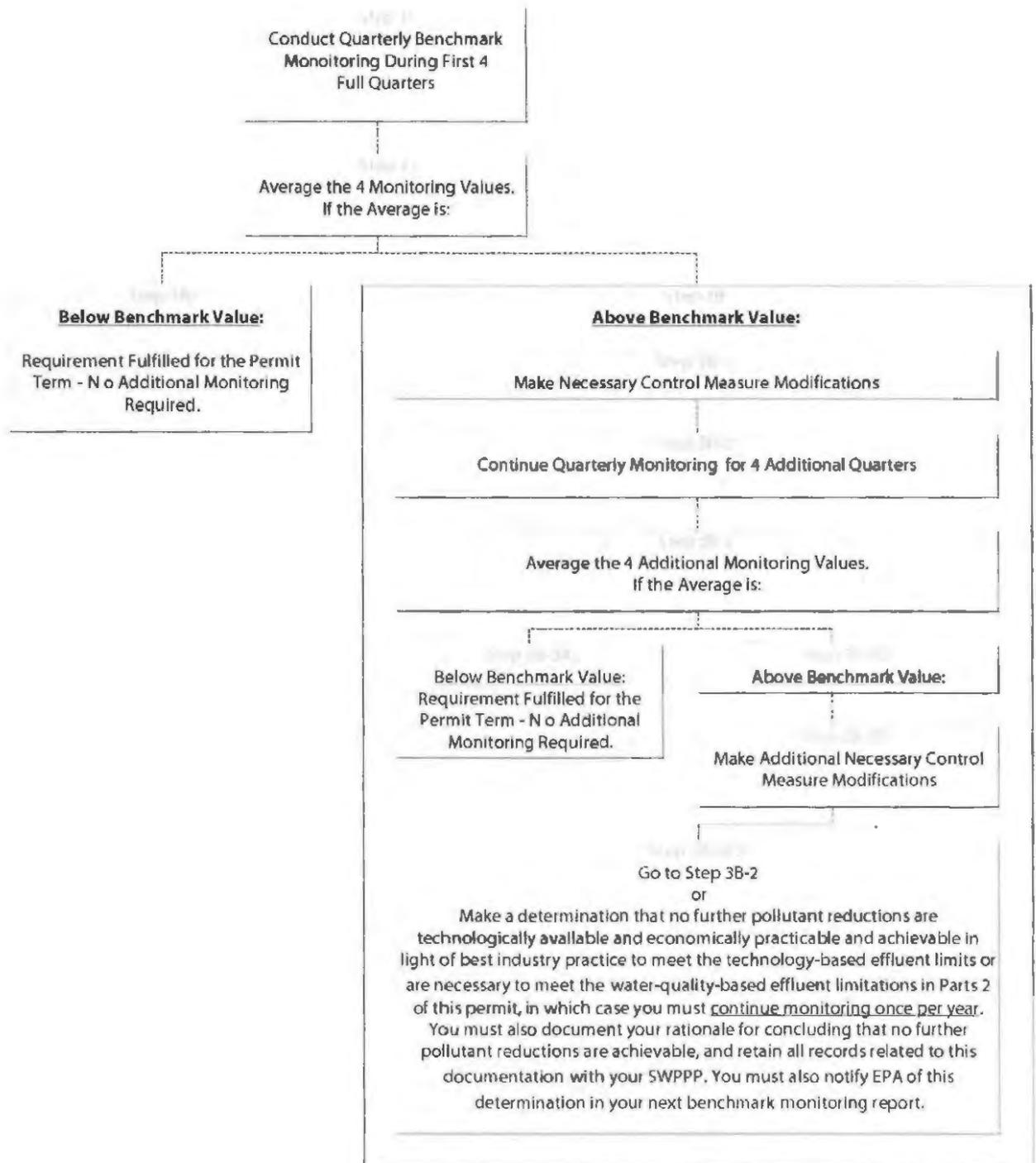
Reporting requirements include such reports as sampling waivers, alternative certifications and monitoring reports. A description of these reporting requirements as well as requirements for retention of records is provided below. These requirements correspond to those specified in the EPA Multi-Sector General Permit contained in Appendix C.

#### 5.5.1 Quarterly Annual Monitoring Reports

NAS Whidbey Island is required to submit all monitoring results obtained within 30 days of receiving the complete laboratory results. EPA is encouraging permittees to submit results using the online NetDMR system. Monitoring results may still be submitted on paper Discharge Monitoring Reports (DMRs) to the Director indicated in the permit if necessary. The date and duration in hours of the rainfall event, measurement or estimate of the total rainfall and time interval since previous storm event must be recorded for each sampling event. A copy of the DMR is provided in Appendix J along with instructions for its completion.

#### 5.5.2 Retention of Records

The permit requires the retention of all monitoring information, copies of all reports required by the permit, and records of all data used to complete the application of the permit for a period of 3 years from the date of sample, measurement, evaluation, or inspection, report or application. The SWPPP must be retained at least 3 years after coverage under the permit expires.



**Table 5-2  
 WASHINGTON DEPARTMENT OF ECOLOGY  
 SURFACE WATER QUALITY STANDARDS  
 AND EPA BENCHMARK VALUES**

Analyte	WDOE Surface Water Quality Standards <sup>1</sup>	EPA Multi-Sector Benchmarks
Aluminum, Total (mg/L)	0.75 (fresh)	0.75
Ammoniac ( <u>un</u> -ionized) (mg/L)	0.233 (marine as NH <sub>3</sub> )	2.14 (as N)
Arsenic, Total <sup>c</sup> (mg/L)	0.36 (fresh), 0.069 (marine) <sup>c</sup>	0.15 (fresh), 0.069 (marine)
Cadmium, Total <sup>b, c</sup> (mg/L)	0.001 (fresh), 0.042 (marine)	(fresh) <sup>c</sup> , 0.04 (marine)
Copper, Total <sup>b, c</sup> (mg/L)	0.00547 (fresh), 0.0048 (marine)	(fresh) <sup>d</sup> , 0.0048 (marine)
Cyanide (mg/L)	0.022 (fresh), 0.001 (marine)	0.022(fresh), 0.001 (marine)
Iron, Total (µg/L)	No Standard	1.0
Lead, Total <sup>b, c</sup> (µg/L)	0.01704 (fresh), 0.21 (marine)	(fresh) <sup>d</sup> , 0.21 (marine)
Magnesium, Total (mg/L)	No Standard	0.064
Mercury Total <sup>c</sup> (mg/L)	0.0021 (fresh), 0.0018 (marine)	0.0014 (fresh), 0.0018 (marine)
Silver, Total (mg/L)	0.00043 (fresh) <sup>a</sup> , 0.0019 (marine) <sup>a</sup>	(fresh) <sup>d</sup> , 0.0019 (marine)
Zinc, Total <sup>b, c</sup> (mg/L)	0.04126 (fresh), 0.090 (marine)	(fresh) <sup>d</sup> , 0.09 (marine)
BOD5 (mg/L)	No Standard	30
COD (mg/L)	No Standard	120
Dissolved Oxygen (DO) (mg/L)	Class AA: > 7.0 mg/L Class A: > 6.0 mg/L (When natural conditions, such as upwelling, occur, causing the DO to be depressed near or below value stated above for particular class, natural DO levels may be degraded by up to 0.2 mg/L by human caused activities.)	No Value
Nitrate + Nitrite as N (mg/L)	No Standard	0.68
Oil & Grease (mg/L)	No Standard	No Value
Total Phosphorus (mg/L)	No Standard	2.0
Total Suspended Solids (mg/L)	No Standard	100
pH	7.0 to 8.5 with a human caused variation of less than 0.2 units (Class AA) or 0.5 units (Class A)	6.0 - 9.0
Fecal Coliform	< 100 colonies/100ml geometric mean. Standard is for "Primary Contact Recreation" and applies to fresh water outfalls on east side of base	

1. WDOE standards for Cadmium, Copper, Lead, Silver and Zinc are hardness dependent. State shown in this table assume a hardness of 30 mg/L. Benchmark values as defined in EPA's Multi-Sector General Permit, 2015.

a. An instantaneous concentration not to be exceeded at any time.

b. A 1-hour average concentration not to be exceeded more than once every three hours.

c. The WDOE criteria are based on the dissolved fraction of the metal. The criteria will be applied as total recoverable values to calculate effluent limits unless data is made available regarding seasonal partitioning of the dissolved metal. See 173-201A Washington Administrative Code (WAC).EPA concentrations are total recoverable fraction.

d. Hardness dependent Benchmarks shown below. Hardness of receiving water must be calculated in accordance with Appendix J of the permit.

Water Hardness Range	Cadmium (mg/L)	Copper (mg/L)	Lead (mg/L)	Silver (mg/L)	Zinc (mg/L)
0-24.99 mg/L	0.0005	0.0038	0.014	0.0007	0.04
25-49.99 mg/L	0.0008	0.0056	0.023	0.0007	0.05

**Table 5-2**

**WASHINGTON DEPARTMENT OF ECOLOGY**

**SURFACE WATER QUALITY STANDARDS**

**AND EPA BENCHMARK VALUES**

50-74.99 mg/L	0.0013	0.0090	0.045	0.0017	0.08
75-99.99 mg/L	0.0018	0.0123	0.069	0.003	0.11
100-124.99 mg/L	0.0023	0.0156	0.095	0.0046	0.13
125-149.99 mg/L	0.0029	0.0189	0.122	0.0065	0.16
150-174.99 mg/L	0.0034	0.0221	0.151	0.0087	0.18
175-199.99 mg/L	0.0039	0.0253	0.182	0.0112	0.20
200-224.99 mg/L	0.0045	0.0285	0.213	0.0138	0.23
225-249.99 mg/L	0.0050	0.0316	0.246	0.0168	0.25
250+ mg/L	0.0053	0.0332	0.262	0.0183	0.26

**Table 5-4**

**INDUSTRIAL FACILITY AND PERMIT SECTOR REQUIREMENT**

**AULT FIELD, NAS WHIDBEY ISLAND**

Outfall Associated with Industrial Activity	Grid No. <sup>1</sup>	Industrial Facilities	Permit Sector(s) for Monitoring Requirements <sup>2</sup>
OAF-2A	NG	Sewage Treatment Building (2614/15)	T-Treatment Works
OAF-4A	2	Central Heating Plant (384) Hangar 5 (386) Hangar 12 (2737) VAQ POD Repair and Storage Facility. (2584 and 2818)	S-Air Transportation Facilities
OAF-4B	1	Jet Engine Test (426) Jet Engine Test Cell (2525) Fleet Readiness Center NW Component Repair Facility (2609) Fuel Nozzle Repair Facility (2610) Jet Engine Test Cell II (2765) Engine Maintenance Shop (2766)	S-Air Transportation Facilities
OAF-4C	1	Sewage Pumping Station (420)	T-Treatment Works
OAF-7A <sup>3</sup>	2, 4	Hangar ( ) Armament Equipment Storage ( ) Haz Waste Operations Staging ( ) BOSC Maintenance Shop ( ) Central Heating Plant ( ) Hangar ( ) Can Washing Building ( )	S-Air Transportation Facilities  P-Vehicle Maintenance or Equipment Cleaning Areas at Motor Freight Transportation Facilities etc.

<b>Table 5-4</b>			
<b>INDUSTRIAL FACILITY AND PERMIT SECTOR REQUIREMENT AULT FIELD, NAS WHIDBEY ISLAND</b>			
Outfall Associated with Industrial Activity	Grid No. <sup>1</sup>	Industrial Facilities	Permit Sector(s) for Monitoring Requirements <sup>2</sup>
		Hangar ( ) Hangar ( )	
OAF-7B <sup>3</sup>	2, 4	Fleet Readiness Center NW Facility ( ) Hangar ( ) Hangar ( )	S-Air Transportation Facilities
OAF-7C <sup>4</sup>	4	Ground Support Equipment Building and Bays ( ) Hangar ( )	S-Air Transportation Facilities
OAF-7D <sup>3</sup>	4	P3 Trainer Facility ( ) Hangar ( ) Aircraft Fresh Water Rinse Rack	S-Air Transportation Facilities
OAF-7E <sup>3</sup>	4, 5, NG	Filling Station ( ) Main Supply Warehouse ( ) Ault Field Recycling Center ( ) Hangar 9 ( ) Filling Station ( ) Hazardous Waste Storage Area ( ) Solid Waste Transfer Station ( ) HAZMIN Center (R-71) Consolidated Fuels Facility ( ) Grounds Maintenance Facility ( )	S-Air Transportation Facilities N-Recycling Facilities P-Vehicle Maintenance or Equipment Cleaning Areas at Motor Freight Transportation Facilities etc.
OAF-7F	NG	Aircraft Direct Refueling Facility ( )  All facilities in OAF 7A, 7B, 7C, 7D, 7E	S-Air Transportation Facilities

1 All outfall locations are shown on the SWPPP Base Maps provided in Appendix A.

2 Multi-Sector General Permit, Federal Register, August 2015

3 Sub-basins collectively drain to OAF-7F

NG Facilities shown only on base map (Sheet 2).

<b>Table 5-5</b>			
<b>INDUSTRIAL FACILITIES AND SECTOR PERMIT REQUIREMENTS SEAPLANE BASE, NAS WHIDBEY ISLAND</b>			
Outfall Associated with Industrial Activity	Grid No. <sup>1</sup>	Industrial Facilities	Permit Sector(s) for Monitoring Requirements <sup>2</sup>
OSB-2A	7	None	None
OSB-2B-01	6	None	NA
OSB-2B-11	7	None	NA
OSB-2C	7	None	None
OSB-2D-01	7	Boat Office/Machine Shop ( )	Q-Water Transportation Facilities
OSB-2D-02	7	Boat Repair/Wood Shop (81) Boat Oil & Fuel Storage ( )	Q-Water Transportation Facilities
OSB-2D-03	7	Booster Pumping Station ( )	NA
OSB-3A	6	None	NA
OSB-3D	7	Transportation Building ( ) Spill Response/Greenleaf ( ) Official Vehicle Filling Station ( ) ( )	P-Vehicle Maintenance or Equipment Cleaning Areas at Motor Freight Trans. Facilities Q- Water Transportation Facilities
OSB-3E-01	7	None	NA
OSB-3E-02	7	None	NA
OSB-3F	7	Vehicle Body Shop, etc. ( )	P-Vehicle Maintenance or Equipment Cleaning at Motor Freight Trans. Facilities
OSB-3G	7	Spill Response/Greenleaf ( ) Vehicle Body Shop, etc. ( )	P-Vehicle Maintenance or Equipment Cleaning at Motor Freight Trans. Facilities
OSB-5A	8	None	NA
OSB-7	NG	Jet Fuel Pumping Station ( )	S-Air Transportation Facilities

1 All outfall locations are shown on the SWPPP Base Maps provided in Appendix A.

2 Multi-Sector General Permit, Federal Register, August 21, 2015.

NA No sector applicable to facilities served by outfall.

NG Facilities shown only on base map (Sheet 3).

**Table 5-6**

**REPRESENTATIVE DISCHARGES**

Group	Drainage Basin	Outfall	Industrial Activity/Sector	Significant Materials	Management Practices	Basin Size (acres)	Relative Runoff Coefficient
1		<b>OAF-2A</b>	Treatment Works - T	Sewage, POLs	Secondary containment	75	Low
		OAF-4C	Treatment Works - T	Sewage, POLs	Secondary containment	45	Low
2		OSB-3F	Land Transportation - P	POLs	Conduct Maint. work indoors	6	Low
		<b>OSB-3G</b>	Land Transportation - P	POLs	Conduct Maint. work indoors	38	Low

**Bolded outfalls selected as representative of group**

<b>Table 5-7</b>				
<b>ANALYTICAL SAMPLING REQUIREMENTS FOR AULT FIELD AND SEAPLANE BASE STORMWATER OUTFALLS</b>				
	QUARTERLY REQUIREMENTS			
	Ault Field Outfalls (OAF-)		Seaplane Base Outfalls (OSB-)	
	7E	OSB-2D-01	OSB-3D	
Sector	S, N, P	Q	S, P, Q	
Aluminum <sup>1</sup>	X	X	X	
Copper <sup>1</sup>	X		X <sup>3</sup>	
Iron <sup>1</sup>	X	X	X	
Lead <sup>1</sup>	X	X	X	
Zinc <sup>1</sup>	X	X	X	
COD	X		X <sup>3</sup>	
Total Suspended Solids	X		X <sup>3</sup>	
Hardness	X <sup>4</sup>	X <sup>4</sup>	X <sup>4</sup>	

- 1 Total metal analyses by EPA Method 200.8.
- 2 Additional analyses included in response to PI26 sampling results.
- 3 Additional analyses included based on previous rounds of sampling under the Multi-Sector General Permit.
- 4 Collect hardness sample from receiving water during the first sampling event.

## **6 Facility Inspections**

### **6.1 Routine Facility Inspections**

Periodic routine facility visual inspections are required by part 4.1 of the permit. Inspections must be conducted at least quarterly. Certain industrial sectors or activities may require more frequent inspection. The facilities requiring inspection, applicable sector, inspection frequency are listed in Table 6-1.

At least one member of the stormwater pollution prevention team must participate in the facility visual inspections. Inspections must be conducted when the facility is operating and at least one of the inspections during the year must be accomplished while stormwater is discharging. The results of the inspection will be tracked and follow-up actions shall be conducted. The focus of the inspection shall be on facility-specific pollutant sources. The measures implemented as a result of this plan, as well as measures previously in place to reduce pollutant loadings shall be evaluated to determine whether they are adequate and properly implemented in accordance with the terms of the Multi-Sector general permit. The need for additional measures will be identified. Structural stormwater and pollution prevention measures will be observed to ensure that they are operating as intended. Visual inspection of equipment needed to implement the plan, such as spill kits, shall be made.

Forms used to document routine facility inspections are included in Appendix L.

ROUTINE FACILITY INSPECTION REQUIREMENTS				
Sector	Inspection Schedule	Facility Number	Facility Name	Inspection Requirements
N - Scrap Recycling	Quarterly	█	Disposal Facility/Covered Material Structure/ Truck Loading Platform	Inspect all areas of the facility and equipment identified in the plan monthly. Check for liquids stored without secondary containment or significant materials exposed to stormwater. Inspect for application of Core and Sector N BMPs contained in Table.
			Transportation Building	
P- Land Transportation	Quarterly	█	Spill Response/Greenleaf Vehicle Body Shop, etc.	Inspect all the following areas/activities: storage areas for vehicles/equipment awaiting maintenance, fueling areas, indoor and outdoor vehicle/equipment maintenance areas, material storage areas, vehicle/equipment cleaning areas and loading/unloading areas. Inspect for application of Core, Sector P and site specific BMPs contained in Tables.
			Official Vehicle Filling Station	
			Main Supply Warehouse Filling Station	
			Can Washing Building	
			Solid Waste Transfer Station	
Q- Water Transportation	Quarterly	█	Boat Office/Machine Shop	Inspect pressure washing area; blasting, sanding, and painting areas; material storage areas; engine maintenance and repair areas; material handling areas; drydock area; and general yard area. Inspect for application of Core, Sector Q and site specific BMPs contained in Tables.
			Boat Repair/Wood Shop	
			Boat Oil & Fuel Storage	
S - Air Transportation	Quarterly	█	MSRON █	Inspect all fueling, maintenance, material storage areas, vehicle/equipment cleaning areas and loading/unloading areas.
			Hangar █	
			Armament Equipment Storage ( )	
			Fire Station ( )	
			Haz Waste Equipment Staging ( )	
			Grounds Maintenance Facility ( )	
			BOSC Maint Shop	
			Central Heating Plant	
			Hangar █	
			Hangar █	
Jet Engine Test				
S - Air Transportation	Additional Monthly Visual Inspection by Qualified Facility Personnel During Deicing Operations	█	Hangar █	Inspect Flightline Deicing Areas, deicing equipment storage area, and application of BMPs to minimize deicing usage. Inspections performed monthly during deicing season (Nov.-March)
			Jet Engine Test	

ROUTINE FACILITY INSPECTION REQUIREMENTS				
Sector	Inspection Schedule	Facility Number	Facility Name	Inspection Requirements
S - Air Transportation			Fuel Pier	
			Ground Support Equipment Building and Bays	
			Jet Engine Test Cell	
			Hangar ( )	
			FRC Facility	
			South Aircraft Wash Rack	
			North Aircraft Wash Rack	
			VAQ POD Repair and Storage Facility, Buildings	
			AIMD Component Repair Facility	
			Fuel Nozzle Repair Facility	
			Aircraft Fresh Water Rinse Rack	
			Hangar ( )	
			Hangar ( )	
			Hangar ( )	
			Hangar ( )	
T-Treatment Works	Quarterly		Jet Engine Test Cell II ( )	
			Engine Maintenance Shop ( )	
			Aircraft Direct Refueling Facility	
			Hazardous Materials Warehouse	
			Consolidated Fuels Facility	
			Sewage Lift Station	
			Sewage Treatment Facility	
			Sewage Treatment Facility	

## 6.2 Quarterly Visual Assessment of Stormwater Quality

The MSGP requires quarterly visual assessment of stormwater discharges at outfalls associated with industrial activity. The permit allows for grouping of substantially identical outfalls and monitoring of a single representative of that group. However, visual examination of each outfall within a substantially identical group must be conducted on a rotating basis throughout the permit period. An analysis of substantially identical outfalls at NAS Whidbey Island was conducted in SWPPP section 4.3.1 for analytical monitoring. The same groupings will be used for visual monitoring. Table 6-2 presents the Stormwater Visual Assessment program for NAS Whidbey Island.

Quarterly periods for the visual examination of stormwater quality are as follows:

- January through March
- April through June
- July through September
- October through December

Observations should be made of grab samples collected within the first 30 minutes (or as soon as practical thereafter) of when runoff begins to discharge. The storm event sampled should be large enough to produce measurable flow and occur at a minimum of 72 hours from the previously measurable storm event. Assessment should be conducted in a well-lit area using a clean clear container. Observations of color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, or other obvious indicators of stormwater pollution should be made in well-lit areas.

### 6.2.1 Visual Examination Reports

Documentation of the examination date and time, examining personnel, visual quality of the stormwater, and suspected sources of any observed pollution should be completed and maintained on site with the pollution prevention plan. The documentation should also include an explanation of why a sample could not be collected within the first 30 minutes of discharge, if applicable. Reports of the visual examinations should include: the examination date and time, examination personnel, visual quality of the stormwater discharge, and probable sources of any observed stormwater contamination. Reports must be maintained on site with the SWPPP. A blank copy of a Stormwater Quality Examination Report form is provided in Appendix J.

### 6.2.2 Adverse Weather Conditions

When adverse weather conditions as described in Part 4.2.3 prevent the collection of samples according to the relevant monitoring schedule, a substitute sample must be taken during the next qualifying storm event even if the quarter has passed.

The condition or events that precluded the sampling should be documented. Adverse weather conditions that preclude the collection of samples are those that create dangerous working conditions for field personnel (i.e. local flooding, high winds, hurricane, tornado, electrical storms, etc.) or otherwise make the collection of a sample impracticable (i.e. drought, freezing conditions, etc.). Documentation of the reason for not performing the sampling should be maintained with this plan.

<b>Table 6-2</b>	
<b>QUARTERLY VISUAL MONITORING PROGRAM NAS WHIDBEY ISLAND</b>	
<b>Ault Field Outfalls (OAF-)</b>	<b>Seaplane Base Outfalls (OSB-)</b>
OAF-2A	OSB-2C
OAF-4A	OSB-2D-01
OAF-4B	OSB-2D-03
OAF-7E	OSB-3D
OAF-7F	OSB-3G
	OSB-7

### 6.3 Comprehensive Site Inspections

As required by the terms of the permit, qualified personnel will conduct a Comprehensive Site Inspections (CSIs) at NAS Whidbey Island at least once per calendar year. The requirements of these CSIs are summarized below. For a full description of CSI requirements, refer to the Multi-Sector general permit part 4.3.

#### Visual Inspection

A facility visual inspection of all the areas contributing to stormwater discharges associated with any of the industrial facilities covered in this SWPPP will be made to assess the potential for pollutants associated with that activity to enter the storm drain system. The annual visual inspection may be conducted in lieu of a facility quarterly visual inspection. The same procedure will be used for annual as is used for monthly and quarterly. The measures implemented as a result of this plan, as well as measures previously in place to reduce pollutant loadings, shall be evaluated to determine whether they are adequate and properly implemented in accordance with the terms of the Multi-Sector general permit. The need for additional measures will be identified.

Structural stormwater and pollution prevention measures shall be observed to ensure that they are operating as intended. Visual inspection of equipment needed to implement the plan, such as spill kits, shall be made. All outfalls draining areas with industrial activity will be inspected for evidence of stormwater contamination.

In conducting the annual visual examination, the facility specific description provided in Section 6 will be reviewed. In particular the pollutant sources and control measures (BMPs) identified will be used to inspect the facility. The adequacy of those BMPs will be assessed and recorded on the Facility Visual Inspection Report. All outfalls serving industrial areas must be inspected as part of the Comprehensive Site Compliance Evaluation visual inspections.

#### Revised Description of Potential Pollutant Sources

Based upon the results of the annual visual inspection, revisions to the list of identified potential pollutant sources and new BMPs identified in this SWPPP shall be made within two weeks of the inspection, as appropriate. Implementation of any required changes to the SWPPP will be provided in a timely manner, but in no case more than 12 weeks after the inspection.

### **Inventory of Reporting and Recordkeeping Requirements**

Reporting and recordkeeping requirements outlined in Table 2-6 shall be reviewed annually. Records shall be inspected to ensure that all requirements of this SWPPP and the Multi-Sector general permit are being satisfied.

### **Review of Monitoring Data**

The results of the previous year's visual and analytical monitoring data must be evaluated and considered when planning and conducting the CSI.

### **Evaluation of BMP Effectiveness**

Due to the large variability in stormwater runoff quality, it is not practical to evaluate BMP effectiveness by changes in water quality. In addition, the pollution prevention plan approach required by the EPA through the implementation of a BMP plan is designed to meet BAT/BCT standards rather than numerical discharge limitations. Therefore, BMP effectiveness can only be measured by indirect methods such as visual observations of water quality and regular inspections and evaluations of the status of new BMP implementation.

A narrative summary of the visual inspections, revised potential pollutant sources, and adequacy of reporting and recordkeeping requirements will be included in the CSI summary report. In addition, a judgment as to overall BMP effectiveness in reducing the amounts of pollutants or potential pollutants entering stormwater will be made.

### **Annual CSI Summary Report**

A summary report shall be prepared for the annual CSI, describing details of the inspection such as scope, CSI personnel, major observations and any actions taken as a result of the inspection. At a minimum, the documentation of the comprehensive site inspection must include:

- The date of the inspection;
- The name(s) and title(s) of the personnel making the inspection;
- Findings from the examination of areas of your facility identified in Part 4.3.1;
- All observations relating to the implementation of your control measures including:
  - o previously unidentified discharges from the site,
  - o previously unidentified pollutants in existing discharges,
  - o evidence of, or the potential for, pollutants entering the drainage system;
  - o evidence of pollutants discharging to receiving waters at all facility outfall(s), and the condition of and around the outfall, including flow dissipation measures to prevent scouring, and
  - o additional control measures needed to address any conditions requiring corrective action identified during the inspection.
- Any required revisions to the SWPPP resulting from the inspection;

- Any incidents of noncompliance observed or a certification stating the facility is in compliance with this permit (if there is no noncompliance); and
- A statement signed and certified in accordance with Appendix B, Subsection 11 of the permit.

The report shall be retained as part of this SWPPP for at least three years after coverage under the Multi-Sector general permit terminates. Documentation required in the CSI is explained in part 4.3 of the permit. A copy of the report must be submitted to EPA within 45 days of conducting the compliance site inspections. EPA recommends use of the reporting form contained in Appendix P of the permit. Completed CSI reports should be inserted into Appendix P.

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## 7 Corrective Action and Recordkeeping

### 7.1 Corrective Action

Part 3 of the MSGP requires implementation and documentation of corrective actions in response to certain deficiencies in the stormwater pollution prevention program. This section describes conditions which may trigger corrective action and the general responses required by the Navy.

If the event triggering the review is a permit violation (e.g., non-compliance with an effluent limit), correcting it does not remove the original violation. However, failing to take corrective action in accordance with this section is an additional permit violation. EPA will consider the appropriateness and promptness of corrective action in determining enforcement responses to permit violations.

#### 7.1.1 Conditions Requiring Review and Revision to Eliminate Problem

When any of the following conditions occur or are detected during an inspection, monitoring or other means, or EPA informs you that any of the following conditions have occurred, you must review and revise the SWPPP so that this permit's effluent limits are met and pollutant discharges are minimized:

- An unauthorized release or discharge (e.g., spill, leak, or discharge of non-stormwater not authorized by this or another NPDES permit to a water of the U.S.) occurs at your facility.
- A discharge violates a numeric effluent listed in Table 2-1 of the permit and the Part B sector-specific requirements.
- Your control measures are not stringent enough for the discharge to meet applicable water quality standards or the non-numeric effluent limits in this permit.
- A required control measure was never installed, was installed incorrectly, or not in accordance with MSGP Parts 2 and/or 8, or is not being properly operated or maintained.
- Whenever a visual assessment shows evidence of stormwater pollution (e.g., color, odor, floating solids, settled solids, suspended solids, foam).

### 7.1.2 Conditions Requiring Review to Determine if Modifications Are Necessary

If any of the following conditions occur, you must review your SWPPP (e.g., sources of pollution, spill and leak procedures, non-stormwater discharges, selection, design, installation and implementation of your control measures) to determine if modifications are necessary to meet the effluent limits in this permit:

Construction or a change in design, operation, or maintenance that significantly changes the nature of pollutants discharged in stormwater from your facility, or significantly increases the quantity of pollutants discharged.

The average of four quarterly sampling results exceeds an applicable benchmark (see MSGP Part 6.2.1.2). If less than four benchmark samples have been taken, but the results are such that an exceedance of the four quarter average is mathematically certain (i.e., if the sum of quarterly sample results to date is more than four times the benchmark level) this is considered a benchmark exceedance, triggering this review. A benchmark exceedance does not trigger a corrective action if it is determined that the exceedance is solely attributable to natural background sources, or if you make a finding that no further pollutant reductions are technologically available and economically practicable and achievable in light of best industry practice (see MSGP Part 6.2.1.2).

Review and comparison of analytical monitoring data against benchmarks is discussed in Section 5 of the SWPPP.

### 7.1.3 Substantially Identical Outfalls

If the event triggering corrective action is linked to an outfall that represents other substantially identical outfalls, the review must assess the need for corrective action at each outfall represented by the outfall that triggered the review. Any necessary changes to control measures that affect these other outfalls must also be made before the next storm event if possible, or as soon as practicable following that storm event.

## 7.2 Corrective Action Deadlines

The MSGP requires that permittees immediately take all reasonable steps necessary to minimize or prevent the discharge of pollutants until a permanent solution is installed and made operational, including cleaning up any contaminated surfaces so that the material will not discharge in subsequent storm events. Immediately is defined as the same work day.

If additional changes are necessary beyond those discussed above, the new or modified controls must be installed and made operational, or repairs completed, before the next storm event if possible, and within 14 calendar days from the time of discovery. If it is infeasible to complete the installation or repair within 14 calendar days, you must document why it is infeasible to complete the installation or repair within the 14-day timeframe. You must also identify your schedule for completing the work, which must be done as soon as practicable after the 14-day timeframe but no longer than 45 days after discovery. If the completion of corrective action will exceed the 45 day timeframe, you must notify the EPA Regional Office of your intention to exceed 45 days, provide the rationale for an extension, and a completion date, which you must also include in your corrective action documentation (see Part 4.4 of the permit). When corrective actions result in changes to any of the controls or procedures documented in the

SWPPP, you must modify your SWPPP accordingly within 14 calendar days of completing corrective action work.

These time intervals are not grace periods, but are schedules considered reasonable by the EPA for documenting findings and for making repairs and improvements.

### 7.3 Corrective Action Documentation

Within 24 hours of discovery of any condition listed in SWPPP section 7.1.1 and 7.1.2, the following information must be documented.

- Description of the condition triggering the need for corrective action review. For any spills or leaks, include the following information: a description of the incident including material, date/time, location, and reason for spill, and any leaks, spills, or other releases that resulted in discharges of pollutants to waters of the U.S., through stormwater or otherwise;
- Date the problem was identified;
- Description of immediate actions taken to minimize or prevent the discharge of pollutants. For any spills or leaks, include response actions, the date/time clean-up completed, notifications made, and staff involved. Also include any measures taken to prevent the reoccurrence of such releases (see MSGP Part 2.1.2.4); and
- A statement signed and certified in accordance with Appendix B, Subsection 11.
- Within 14 days of discovery of any condition listed in SWPPP Sections 7.1.1 and 7.1.2, the following additional information must be documented. This information is the same as questions 7-11 of the Corrective Actions section in the EPA CSI Annual Reporting Form, provided in Appendix P.
- Summary of corrective action taken or to be taken (or, for triggering events identified in Part 4 where you determine that corrective action is not necessary, the basis for this determination);
- Notice of whether SWPPP modifications are required as a result of this discovery or corrective action;
- Date corrective action initiated; and
- Date corrective action completed or expected to be completed.
- If applicable, document why it was infeasible to complete necessary installations or repairs within the 14-day timeframe.
- If you notified EPA regarding an extension of the 45 day timeframe, you must document your rationale for an extension.

All Corrective action documentation must be submitted as part of the annual Comprehensive Site Inspection and a copy must also be retained onsite with the SWPPP. Corrective Actions may be documented using form N-1 in Appendix N.

## 7.4 Recordkeeping

Copies of these records noted below in Table 7-1 shall be inserted into the Appendices of this SWPPP.

<b>Table 7-1                      SUMMARY OF SWPPP REPORTING AND                      RECORDKEEPING REQUIREMENTS</b>		
<b>Reporting/ Recording Requirement</b>	<b>Requirement Description</b>	<b>SWPPP Record Location</b>
Stormwater Monitoring Reports: Visual Examination Report Discharge Monitoring Report	Full description. SWPPP Section 5	Appendix L
Spill Reports	SWPPP Section	Appendix K
Facility Visual Inspection Reports	SWPPP Sections and 7	Appendix I
Maintenance Records: Stormwater conveyance system Oil/water separators	SWPPP Section 4	Maximo
Employee Training Records	SWPPP Section 4	Appendix O
Corrective Action Reports	SWPPP Section 7	Appendix N
Annual Comprehensive Site Inspection Reports	SWPPP Section 6	Appendix P

All records required by the permit must be maintained for at least three years after coverage under the permit expires.

## 8 References

- Montoya, B., 1987, *Urban Runoff Discharges from Sacramento, California*, prepared for the California Regional Water Quality Board, Central Valley Region, CVRWQCB Report Number 87-1SPSS.
- Pitt, R. and J. McLean. 1986. *Toronto Area Watershed Management Strategy Study; Humber River Watershed Project, Final Report*, The Ontario Ministry of the Environment, Toronto, Ontario.
- United States Department of the Navy, 1994, *Environmental and Natural Resources Program Manual*, OPNAVINST 5090.1B, Change 3, 17 October 2002
- NAS Whidbey Island. Hazardous Waste Management Plan, 2009
- NAS Whidbey Island, Spill Prevention Control and Countermeasure Plan, August 2014
- Navy Region NW, Oil/Hazardous Substance Integrated Contingency Plan, March 2006
- United States Environmental Protection Agency (EPA).
- \_\_\_\_\_, 1992a, Stormwater Management for Industrial Activities, Developing Pollution Prevention Plans and Best Management Practices, EPA 832-R-92-006, September 1992.
- \_\_\_\_\_, 1992, NPDES Stormwater Sampling Guidance Document, EPA 833-B-92-001, July 1992.
- \_\_\_\_\_, 1993, Investigation of Inappropriate Pollutant Entries into Storm Drainage Systems - A Users Guide, EPA 600-R-92-238, January 1993.
- \_\_\_\_\_, 2015, Final National Pollutant Discharge Elimination System Stormwater Multi-Sector General Permit for Industrial Activity Notice. Published in Federal Register. August 21, 2015.
- Washington Department of Ecology, February 2005. Stormwater Management Manual for Western Washington (The Technical Manual).

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## **APPENDIX A: SWPPP DRAWINGS**

Adobe Acrobat versions of the drawing are available on the CD provided with this plan.

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## **APPENDIX B: GLOSSARY OF TERMS**

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## APPENDIX B: GLOSSARY OF TERMS

**Aeration:** A process that promotes biological degradation of organic matter. The process may be passive (as when waste is exposed to air) or active (as when a mixing or bubbling device introduces the air).

**Berm:** An earthen mound to direct the flow of runoff around or through a structure.

**Best Management Practice (BMP):** Schedule of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMPs also include treatment requirements, operating procedures, and practices to control facility site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

**Biochemical Oxygen Demand (BOD):** The amount of oxygen in water required by bacteria while stabilizing decomposable organic matter under aerobic conditions.

**Biodegradable:** The ability to break down or decompose under natural conditions and processes.

**Biofilter:** Vegetative matter such, as grasses, used to entrain and assimilate pollutants.

**Boiler Blow-Down:** Waste water condensate from boiler operations.

**Catch Basin:** A stormwater inlet installed.

**Chemical Oxygen Demand (COD):** Measurement of the total quantity of oxygen required in water for the chemical oxidation of organic matter to carbon dioxide.

**Conduit:** Any channel or pipe for transporting the flow of water.

**Conveyance:** Any natural or manmade channel or pipe in which concentrated water flows.

**Culvert:** A covered channel or a large-diameter pipe that directs water flow below the ground level.

**CWA:** Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendment of 1972).

**Detention Basin:** A holding pond or reservoir used to store polluted runoff for a limited time and then release it.

**Director:** Regional administrator or an authorized representative of the EPA.

**Discharge:** A release of flow of stormwater or other substance from a conveyance or storage container.

**Erosion:** The wearing away of land surface by wind or water. Erosion occurs naturally from weather or runoff but can be intensified by land-cleaning practices related to farming, residential or industrial development, road building, or timber-cutting.

**Flocculator:** A wastewater treatment unit where normally suspended particles are chemically and physically entrained into a larger settleable mass.

**GDMs:** General Development Maps. Electronic maps covering the base at a scale of 1"=200'.

**Hazardous Substance:** 1) Any material that poses a threat to human health and/or the environment. Hazardous substances can be toxic, corrosive, ignitable, explosive, or chemically

reactive. 2) Any substance named required by EPA to be reported if a designated quantity of the substance is spilled in the waters of the United States or if otherwise emitted into the environment.

**Hazardous Waste:** By-products of human activities that can pose a substantial or potential hazard to human health or the environment when improperly managed. Possesses at least one of four characteristics (ignitability, corrosivity, reactivity, or toxicity), or appears on special EPA lists.

**Illicit Connection:** Any connection to the stormwater system that would allow an illicit discharge.

**Illicit Discharge:** Any discharge to a municipal separate storm sewer system that is not composed entirely of stormwater except discharges authorized by an NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer) and discharges resulting from fire fighting activities.

**Impervious surface:** A surface such as pavement or rooftops that prevents the infiltration of water into the soil.

**Infiltration:** 1) The penetration of water through the ground surface into sub-surface soil or the penetration of water from the soil into sewer or other pipes through defective joints, connections, or manhole walls. 2) A land application technique where large volumes of wastewater are applied to land, allowed to penetrate the surface and percolate through the underlying soil.

**Inlet:** An entrance into a ditch, storm sewer, or other waterway.

**Landfill:** An area of land or an excavation in which wastes are placed for permanent disposal, and which is not a land application unit, surface impoundment, injection well, or waste pile.

**Leaching:** The process by which soluble constituents are dissolved in a solvent such as water and carried down through the soil.

**Noncontact Cooling Water:** Water used to cool machinery or other materials without directly contacting process chemicals or materials.

**Non-Point Source:** Any flow that flows across a surface and is not discernable, confined, and discrete conveyance.

**Notice of Intent (NOI):** An application to notify the permitting authority of a facility's intention to be covered by a general permit; exempts a facility from having to submit an individual or group application.

**NPDES:** EPA's program to control the discharge of pollutants to waters of the United States. See the definition of "National Pollutant Discharge Elimination System" in 40 CFR 122.2 for further guidance.

**NPDES Permit:** An authorization, license, or equivalent control document issued by EPA or an approved State agency to implement the requirements of the NPDES program.

**Oil and Grease Traps:** Devices that collect oil and grease, removing them from water flows.

**Oil Sheen:** A thin, glistening layer of oil on water.

**Oil/Water Separator:** A device installed, usually at the entrance of a drain, which removes oil and grease from water flows entering the drain.

**Outfall:** The point, location, or structure where wastewater or drainage discharges from a sewer pipe, ditch, or other conveyance to a receiving body of water.

**Point Source:** Any discernible, confined, and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged. The term does not include return flows from irrigated agriculture or agricultural stormwater runoff.

**Pollutant:** Any dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. 2011 et seq.)), agricultural waste discharged into water.

**POLs:** Petroleum, oils, lubricants.

**Precipitation:** Any form of rain or snow.

**RCRA:** Resource Conservation and Recovery Act.

**Recycle:** The process of minimizing the generation of waste by recovering usable products that might otherwise become waste. Examples are the recycling of aluminum cans, wastepaper, and bottles.

**Retention Basin:** A pond or reservoir that hold runoff without release except by means of evaporation, infiltration, or emergency bypass.

**Run-on:** Stormwater surface flow or other surface flow that enters property other than that where it originated.

**Runoff:** The part of precipitation, snowmelt, or irrigation water that runs off the land into streams or other surface water. It can carry pollutants from air and land into the receiving waters.

**Sanitary Sewer:** A system of underground pipes that carries sanitary waste or process wastewater to a treatment plant.

**Sanitary Waste:** Domestic sewage.

**Secondary Containment:** Structures, usually dikes or berms, surrounding tanks or other storage containers and designed to catch spilled material from the storage containers.

**Sheet flow:** Runoff which flows over the ground surface as a thin, even layer, not concentrated in a channel. For purposes of this SWPPP, sheet-flow areas are areas of industrial concern that do not drain to a point discharge, but drain by sheet-flow directly to a receiving water body.

**Significant Materials:** Include, but are not limited to: raw materials; fuels; materials such as solvents, detergents and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under section 101(14) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); any chemical the facility is required to report pursuant to section 313 of Title III of the Superfund Amendments and Reauthorization Act (SARA); fertilizers; pesticides; and waste products such as ashes, slag, and sludge that have a potential to be released with stormwater discharges [122.26(b)(12)].

**Significant Spills:** Includes, but is not limited to: releases of oil or hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (CWA) (see 40 CFR 110.10 and CFR 117.21) or Section 102 of CERCLA (see 40 CFR 302.4).

**Source Control:** A practice of structural measure to prevent pollutants from entering stormwater runoff or other environmental media.

**Storm Drain:** A slotted opening leading to an underground pipe or an open ditch for carrying surface runoff.

**Stormwater:** Runoff from a storm event, snowmelt runoff, and surface runoff and drainage.

**Stormwater Discharge Associated with Industrial Activity:** The discharge from any conveyance which is used for collecting and conveying stormwater and which is directly related to manufacturing, processing or raw materials storage areas at an industrial plant.

**Sump:** A pit or tank that catches liquid runoff for drainage or disposal.

**Surface Water:** All water naturally open to the atmosphere (rivers, lakes, reservoirs, streams, wetlands impoundments, seas, estuaries, etc.); also refers to springs, wells, or other collectors that are directly influenced by surface water.

**Swale:** An elongated depression in the land surface that is at least seasonally wet, is usually heavily vegetated, and is normally without flowing water. Swales direct stormwater flows into primary drainage channels and allow some of the stormwater to infiltrate into the ground surface.

**Topography:** The physical features of a surface area including relative elevations and the position of natural and human-made features.

**Trench Drain:** An elongated catch basin, typically in front of a bay door or across a roadway.

**Waters of the United States:** (a) All waters, which are currently used, were used in the past, or may susceptible to use in interstate or foreign commerce, including all water which are subject to the ebb and flow of the tide; (b) All interstate waters, including interstate wetlands; (c) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation, or destruction of that would affect or could affect interstate or foreign commerce including any such waters: 1) Which are or could be used by interstate or foreign travelers for recreational or other purposes; 2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or 3) That are used or could be used for industrial purposes by industries in interstate commerce; (d) All impoundments of waters otherwise defined as waters of the United States under this definition; (e) Tributaries of waters identified in paragraphs (a) through (d) of this definition; (f) The territorial sea; and (g) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the CWA (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet the criteria of this definition) are not waters of the United States. This exclusion applies only to manmade bodies of water that neither were originally created in waters of the United States (such as disposal in wetlands) nor resulted from the impoundment of waters of the United States.

**Wetlands:** An area that is regularly saturated by surface or groundwater and subsequently is characterized by a prevalence of vegetation that is adapted for life in saturated soil conditions. Examples include: swamps, bogs, fens, marshes, and estuaries.

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## **APPENDIX C: MULTI-SECTOR GENERAL PERMIT**

An electronic copy of the 2015 Multi-Sector Permit is available on the CD provided with this plan.

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## **APPENDIX D: NOTICE OF INTENT (NOI)**

An electronic copy of the NOI is available on the CD provided with this plan.

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## **APPENDIX E: PERMIT ELIGIBILITY DETERMINATION ENDANGERED SPECIES AND HISTORIC PLACES PROTECTION**

An electronic copy of the Criterion C Eligibility Form is available on the CD provided with this plan.

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## **APPENDIX F: ANALYTICAL MONITORING STANDARD OPERATING PROCEDURES**

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## **Analytical Monitoring Plan**

### **Background:**

This Naval Air Station Whidbey Island Analytical Monitoring Plan is a component of the Stormwater Pollution Prevention Plan.

The purpose of the SWPPP is to identify and minimize potential sources of stormwater pollution. Stormwater monitoring can help evaluate the effectiveness of implemented stormwater pollution control measures/best management practices (BMPs) and also help recognize otherwise unidentified pollution sources.

This analytical monitoring plan is written to assist personnel who will monitor stormwater at Naval Air Station Whidbey Island, under the requirements of the SWPPP.

Read this plan to its entirety before proceeding with monitoring.

### **Introduction and Purpose:**

The MSGP 2015 requires the following analytical monitoring be performed at Naval Air Station Whidbey Island:

- **Benchmark monitoring** is the collection of stormwater samples for laboratory analysis. The samples will be analyzed for the constituents indicated in SWPPP 2015 Table F-1. Results of the sampling will be compared to MSGP 2015 specified “benchmark” values discussed in section 5 of the SWPPP. Results with levels above the benchmark values may require further evaluation. Each monitoring will take place during a distinct storm event, which is defined to occur by 72-hour separation from the previous storm event. This 72-hour rule can be waived if the local climate calls for a different interval, and the newly proposed interval can be supported in writing. A storm event is defined as a measurable rainfall. Samples should be collected within the first 30 minutes of the beginning of discharge from the outfall. If no measurable storm occurs within a monitoring quarter, monitoring can be excused upon documentation that no runoff occurred. Such documentation should be signed and certified.
- **Receiving water hardness** must be measured during the first quarter of sampling.
- **Impaired waters monitoring:** None of the industrial outfalls at NAS Whidbey are adjacent to impaired waters listed on the EPA approved 303(d) list.

### **Benchmark Monitoring**

MSGP 2015 Part 6.2.1 gives the detailed requirements for benchmark monitoring. Additional benchmark monitoring requirements are given in the Sector-Specific section, MSGP 2015 Part 8.

### Sampling Frequency and Recordkeeping:

Benchmark monitoring shall be conducted every quarter during the monitoring years. **When and Where to Collect Samples:**

- Collect a grab sample at each outfall location listed in SWPPP 2015 Table F-1.
- Collect a sample of the receiving water to analyze for hardness.
- Collect samples during daylight hours.
- Collect samples from storm events, on discharges that occur at least 72 hours (3 days) from the previous discharge. The 72-hour (3-day) storm interval does not apply if you document that less than a 72-hour (3-day) interval is representative for local storm events during the sampling period. Document this on form F-1 and if conducting visual monitoring at the same time the form provided in Appendix J.
- Collect samples within the first 30 minutes of an actual discharge from a storm event. If it is not possible to collect the sample within the first 30 minutes of discharge, the sample must be collected as soon as practicable after the first 30 minutes and you must document why it was not possible to take samples within the first 30 minutes. In the case of snowmelt, samples must be taken during a period with a measurable discharge from your site.

<b>Table F-1</b>				
<b>ANALYTICAL SAMPLING REQUIREMENTS FOR AULT FIELD AND SEAPLANE BASE STORMWATER OUTFALLS</b>				
	QUARTERLY REQUIREMENTS			
	Ault Field Outfalls (OAF-)	Seaplane Base Outfalls (OSB-)		
	7E	OSB-2D-01	OSB-3D	OSB-3E-01
Sector	S, N, P	Q	S, P, Q	NA
Aluminum <sup>1</sup>	X	X	X	X <sup>2</sup>
Copper <sup>1</sup>	X		X <sup>2</sup>	X <sup>2</sup>
Iron <sup>1</sup>	X	X	X	X <sup>2</sup>
Lead <sup>1</sup>	X	X	X	X <sup>2</sup>
Zinc <sup>1</sup>	X	X	X	X <sup>2</sup>
COD	X		X <sup>2</sup>	X <sup>2</sup>
TSS	X		X <sup>2</sup>	X <sup>2</sup>
Hardness	X <sup>3</sup>	X <sup>3</sup>	X <sup>3</sup>	X <sup>3</sup>

1 Total metal analyses by EPA Method 200.8.  
 2 Additional analyses included based on previous rounds of sampling under the Multi-Sector General Permit.  
 3 Collect hardness sample from receiving water during the first sampling event.

**What Analytical Analyses are Required:**

- 1) Analysis of outfall samples:

Sample collection, preservation and holding times for stormwater sampling required at Naval Air Station Whidbey Island are shown in Table F-2.

<b>Table F-2 BENCHMARK MONITORING SAMPLE COLLECTION AND PRESERVATION REQUIREMENTS</b>					
<b>Parameter</b>	<b>Analytical Group</b>	<b>40 CFR 136 EPA Method</b>	<b>Containers (size and type)</b>	<b>Preservation</b>	<b>Max Holding Time</b>
<b>Metals (total recoverable):</b>					
Aluminum	Metals	200.8	500-ml HDPE	HNO <sub>3</sub> to pH <2 Cool to ≤6°C	6 months
Copper	Metals	200.8			
Zinc	Metals	200.8			
Iron	Metals	200.8			
Lead	Metals	200.8			
Magnesium	Metals	200.8			
Arsenic	Metals	200.8			
Cadmium	Metals	200.8			
Selenium	Metals	200.8			
Silver	Metals	200.8			
Cyanide	Metals	335.2, 335.3, <b>SM20</b> <b>4500-CN C,E</b>	1-liter polyethylene or glass bottle	NaOH to pH >12; 0.6 g ascorbic acid; Cool to ≤6°C	14 days
Mercury	Metals	<b>245.7</b> , 245.2, 1631.E	300-ml polyethylene	HNO <sub>3</sub> to pH <2 Cool ≤6°C	6 months
COD	Conventional	410.4	500-ml HDPE	HNO <sub>3</sub> to pH <2 Cool ≤6°C	28 days
Nitrate plus Nitrite Nitrogen	Conventional	353.1, 353.2, 353.3, <b>300.0</b>	100-ml polyethylene or glass	H <sub>2</sub> SO <sub>4</sub> to pH <2 Cool to ≤6°C	28 days
Total Ammonia as N	Conventional	350.1, 350.2, 350.3	1-liter plastic or glass	H <sub>2</sub> SO <sub>4</sub> to pH <2 Cool to ≤6°C	28 days
TSS (total suspended solids)	Conventional	160.2	100-ml polyethylene or glass bottle	Cool to ≤6°C	7 days
Hardness (as CaCO <sub>3</sub> )	Conventional	130.1, 130.2, <b>SM20</b> <b>2340B</b>	250-ml polyethylene or glass bottle	HNO <sub>3</sub> to pH <2	6 months

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### **Analysis of receiving water sample:**

The receiving water is sampled during the first quarter of Benchmark sampling. This is the only time this sample is collected for the entire permit term. This sample is analyzed for hardness in order to determine hardness dependent benchmarks.

### **Records and Reporting:**

All monitoring data collected pursuant to MSGP 2015 Part 6.2 must be submitted to EPA using EPA's NetDMR system (available at [www.epa.gov/netdmr](http://www.epa.gov/netdmr)) (unless a waiver from electronic reporting has been granted, in which case you may submit a paper DMR form) no later than 30 days (email date or postmark date) after you have received your complete laboratory results for all monitored outfalls for the reporting period. If you wish to obtain a waiver from submitting a report electronically, you must submit a request to your EPA Regional Office, at the contact information found in MSGP 2015 Part 7.9.1.

For benchmark monitoring, note that you are required to submit sampling results to EPA no later than 30 days after receiving laboratory results for each quarter that you are required to collect benchmark samples, in accordance with MSGP 2015 Part 6.2.1.2. If you collect multiple samples in a single quarter (e.g., due to adverse weather conditions, climates with irregular stormwater runoff, or areas subject to snow), you are required to submit all sampling results to EPA within 30 days of receiving the laboratory results.

Corrective actions that arise from the analytical monitoring will be reported to EPA in the Annual Report. Any corrective action required must be performed consistent with SWPPP 2015 Section 7 and MSGP 2015 Part 4.

Use the Form F-1 included in this Appendix F to record benchmark sampling events. Keep this record along with the analysis results in SWPPP 2015 Appendix J.

### **Safety:**

- Personal Protective Equipment: Raincoat, rain pants, hat/hood, gloves, colored safety vest, hard hat, and sturdy shoes or steel toe boots (if you will be lifting storm drain covers),
- Traffic cones,
- All monitoring must be done during daylight hours and monitoring must not be done during severe/extreme storm events,
- Consider taking along a partner for sampling in some locations,
- For emergency communication purposes, a cell phone and/or radio
- Wear safety/lab goggles if acids are used to preserve samples.
- In addition monitoring personnel should be aware of the cautionary measures appropriate for handling nitric acid (a preservative) that is typically placed in the sample container by the contract lab. When opening each of the sample bottles, be sure to have your face positioned away from the opening, as the moisture in the air will cause the nitric acid to fume.

### **Preparation:**

- Good to go? 72-hour dry period
- Check safety gear (see list above)
- Check gear
- Sample bottles
- Dipper type sampler
- Notebook
- Manhole puller
- Pen/sharpie
- Chain-of-custody
- Bottle labels
- CoC seals
- Dipper (inspect and clean if necessary)
- Cooler (s)
- Sampling plan
- Ice/blue ice
- Plastic sheeting
- Paper towels or lab towels
- Analytical monitoring Form F-1
- Extra clean sample container – transfer container
- Zip-lock bags

### **Paperwork:**

- Fill out labels and chain-of-custody, as much as you can, prior to leaving the office.
- Fill out Form F-1, as much as you can, prior to leaving the office.

### **Sampling:**

- Note when the rainfall started.
- Put on gloves and safety goggles.
- Place traffic cones if applicable.

- Take care when removing manhole cover/catch basin grates. Don't fully remove catch basin grates. Just move to the side but leave some in groove. Take care not to allow the grate to fall in catch basin.
- Note details of discharge. Estimate flow rate or depth of flow and other details.
- Use dipper. Rinse in effluent three times. Don't touch dipper to sides or bottom of pipe, manhole, or catch basin.
- Insert dipper into effluent flow to collect sample. Be careful not disturb sediment/debris in the outfall pipe. Stay safely back from any ledges, bluffs, or drops.
- Fill and rinse the sampler with stormwater first, and then fill again with the stormwater sample.
- Fill bottles to about the neck. Don't overfill as you will lose the preservative. Most bottles will be pre-preserved by the lab (contain a few ml of acid). Take care when removing cap as moisture in the air can react with the acid. This is especially true with nitric acid, which is used to preserve metals samples. Hold the bottle away from you when opening. Keep cap oriented down to prevent pollutants from settling in the cap.
- If necessary add nitric acid until the pH of the sample falls below 2. A pH indicator is useful but not required (and typically not used). It would be used to ensure the pH of the sample is at or below required levels for adequate preservation.
- For Oil & Grease sample pour directly into sample container from dipper. Do not use an interim container. For metals, an interim container is ok provided it is clean.
- Note down the time when sample was collected in notebook.
- Note down weather conditions in your notebook.
- Note: Multiple bottles can still be one sample.
- Fill out sample container label and apply to the container. Apply custody seal if provided by the laboratory.
- Store the container in the prepared cooler.
- Fill out chain-of-custody form provided by lab. Line out and initial any mistake. Make sure to note the required analytical method (200.7, Table F-1, or 200.8) and the digestion method (total metals). Sign and date form when sampling is complete.
- Seal the completed chain-of-custody form in a zip lock bag, and store in the cooler with the sample bottles.
- Transport the cooler to contractor's laboratory within required holding time.
- Complete Form F-1.
- Proceed to next outfall.

### **Decontamination Procedures:**

- Dipper-type sampler:
- Examine for discoloration or residue prior to use.
- If there are signs of contamination, clean using detergent and water. Make sure the last rinse is with deionized water.

### **Post Sampling:**

- Complete paper work – chain-of-custody and bottle labels. Fill out chain-of-custody form provided by lab. Line out and initial any mistake. Make sure to note the required analytical method (200.7, Table F-1, or 200.8) and the digestion method (total metals). Sign and date form when sampling is complete.
- Make sure you ask for the analysis you want on the chain-of-custody.
- Pack samples in cooler. Use cube ice if available but blue ice is ok. If using cube ice place it inside zip lock bags. May want to place each bottle inside a zip-lock bag. Place chain-of-custody in zip lock bag and place inside cooler.
- Transport the cooler to contractor's laboratory within the required holding time. For the majority of metals it is six months so not a problem but some parameters are shorter so need to be careful not to exceed a holding time
- Sign off on chain-of-custody and make sure the lab "takes" custody.

### **Outfall Locations**

Perform benchmark monitoring on the samples collected at the outfalls listed in Table F-1. Form O-1 is a log that can be used to record monitoring events.

**Form F-1: Monitoring Log for Quarterly Benchmark Monitoring**

Facility Name: \_\_\_\_\_ Date: \_\_\_\_\_ Quarter: \_\_\_\_\_

Days Since Last Discharge: \_\_\_\_\_ Estimated Time Runoff Discharge Began: \_\_\_\_\_

Name: \_\_\_\_\_ Weather Information and discharges at the time of sample collection: \_\_\_\_\_

Signature: \_\_\_\_\_

Outfall Location	Sector(S)	Sampling Requirements	Time	Notes and Observations
OAF 7E	S,N,P	Required. Submit the results to EPA.		
OSB-2D-01	Q	Required. Submit the results to EPA.		
OSB-3D	S,P,Q	Required. Submit the results to EPA.		
OSB-3D	P,Q	Required. Submit the results to EPA.		

### **Impaired Waters Monitoring**

MSGP 2015 Part 6.2.4 gives the detailed requirements for impaired waters monitoring. At the time this plan was prepared no waters adjacent to NAS Whidbey industrial outfalls were listed as impaired on the EPA approved 303(d) list. No impaired waters monitoring is required at this time.

### **Sampling Frequency and Constraints:**

Beginning in the first full quarter following your date of discharge authorization, whichever date comes later, you must monitor once per year at each outfall (except substantially identical outfalls) discharging stormwater to impaired waters without an EPA approved or established TMDL. This monitoring requirement does not apply after one year if the pollutant for which the waterbody is impaired is not detected above natural background levels in your stormwater discharge, and you document, as required in Part 5.4 (Additional Documentation Requirements), that this pollutant is not expected to be present above natural background levels in your discharge.

If the pollutant for which the water is impaired is not present and not expected to be present in your discharge, or it is present but you have determined that its presence is caused solely by natural background sources, you should include a notification to this effect in your first monitoring report, after which you may discontinue annual monitoring. To support a determination that the pollutant's presence is caused solely by natural background sources, you must keep the following documentation with your SWPPP records:

An explanation of why you believe that the presence of the pollutant causing the impairment in your discharge is not related to the activities at your facility; and  
Data and/or studies that tie the presence of the pollutant causing the impairment in your discharge to natural background sources in the watershed.

Natural background pollutants include those substances that are naturally occurring in soils or groundwater. Natural background pollutants do not include legacy pollutants from earlier activity on your site, or pollutants in run-on from neighboring sources which are not naturally occurring.

## **APPENDIX G: BMP INDEX**

Appendix G presents general descriptions of existing, alternative, and recommended Best Management Practices (BMPs) for. Site-specific BMPs for other Navy activities in the Northwest (i.e. NAS Whidbey Island, Manchester Fuel Depot) are also included.

BMPs are measures or procedures that are used to prevent or reduce the potential for pollution of stormwater. There are numerous BMPs to choose from in order to achieve this purpose; however, some are more appropriate for an individual site than others, based on the site's characteristics and other factors. Some BMPs are readily implemented at all sites.

The United States Environmental Protection Agency (USEPA 1992) identifies baseline BMPs (good housekeeping and preventive maintenance practices; inspections, employee training and testing; spill prevention and response; sediment and erosion control; management of runoff; and recordkeeping and reporting) that are required of all facilities and advanced BMPs that address particular pollutant sources on a site-specific or activity-specific basis.

BMPs identified in USEPA 1992 and additional industry-specific BMPs identified in EPA's Draft Multi-Sector General Permit for Stormwater Associated with Industrial Activity (Federal Register, November 19, 1993) were added to an index of BMPs developed for Southwest Division, Naval Facilities Engineering Command (Woodward-Clyde Federal Services, 1993). Each BMP in this expanded BMP Index of 202 BMPs has been assigned an identifying number or letter and grouped into one of 14 categories expanded from the BMP classifications cited above.

All BMPs in the current index are summarized in the following three tables:

Table G-1, BMP Categories

Table G-2, BMP List (alphanumeric order)

Table G-3, BMP List (by category)

An individual description for each BMP is then provided. Each description includes the following information:

- Description of potential pollutants and the sources addressed by the BMP
- Description of the BMP
- Frequency of BMP application
- Training needs
- Effectiveness and cost evaluations
- Limitations

**Table G-1**  
**BMP Categories**

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BMP Category No.	BMP Description
1	Good Housekeeping/Preventive Maintenance
2	Inspections
3	Training
4	Spill Prevention and Response
5	Structural Runoff and Sediment Controls
6	Non-structural Runoff and Sediment Controls
7	General Structural Source Controls
8	Loading/Unloading Practices
9	Reduce/Reuse/Recycle and Disposal
10	Procedures and Practices for Significant Materials Storage and Handling
11	Non-structural Storage Containment
12	Vehicle/Equipment Maintenance and Storage
13	illicit Discharges/Connections
14	Activity-Specific/Site-Specific:
14.1	Pesticide/Herbicide/Fertilizer Application
14.2	Deicing
14.3	Painting/Sanding/Sandblasting/Pressure Washing
14.4	Coal Handling Activities
14.5	Ship/Boat Building, Maintenance and Repair
14.6	Railroad
14.7	Treatment Works

**Table G-2**  
**BMP List (Alphanumeric)**

<b>BMP Category</b>	<b>BMP Number</b>	<b>BMP Description</b>
10	001	Label All Drums, Cans, Containers, Tanks, and Valves
10	002	Restrict Access to Area and Equipment
1	003	Perform Regular Pavement Cleaning to Remove Oil and Grease
1	004	Avoid Hosing Down the Site
1	005	Perform Regular Pavement Sweeping
4	006	Control Spills
4	006A	Keep Records of All Spills or Leaks of Toxic or Hazardous Pollutants
1	007	Place Trash Receptacles at Appropriate Locations
13	009	Do Not Pour Liquid Wastes into Storm Drain
6	009B	All Floor Drains Must Be Properly Identified as Storm or Sanitary Drains
4	010	Keep Absorbent Material On Hand
7	012	Construct Berm or Dike Around Critical Area
5	012A	Regrade Source Area
7	013	Pave Bermed Areas
7	014	Provide Valve for Outlet Pipe in Containment Area
4	014A	Inspect Water Accumulated in Containment Area for Oil Sheen Prior to Release
9	015	Recycle
10	016	Store Waste and Recycling Materials in Proper Containers
2	016C	Regularly Inspect Storage Areas for Leaking Materials
10	017	Limit Significant Materials Inventory
10	017A	Keep Inventory of Significant Materials
10	017B	Post Inventory List on Flam Locker or Other Storage Locker Door
7	018	Provide Roof to Cover Source Area
5	019	Control Roof Downspout Discharge
5	020	Minimize Stormwater Run-On from Adjacent Facilities and Properties
9	021	Reduce Waste
7	021A	Repair Leaky Roofs
5	022	Permanently Seal Drains Within Critical Areas that Discharge to the Storm Drain
4	023	Place Portable Rubber Mats over Storm Drain Inlets
5	024	Insert Filter in Catch Basin
5	025	Place Absorbent Blankets in Catch Basin
5	026	Routinely Clean Catch Basins
6	027	Stencil Signs on Storm Drain Inlets
12	028	Keep Equipment and Vehicles Clean
12	029	Maintain Equipment in Good Condition

<b>BMP Category</b>	<b>BMP Number</b>	<b>BMP Description</b>
3	030	Implement Qualifying Tests for Equipment and Vehicle Operators
3	031	Conduct Refresher Courses in Operating and Safety Procedures
9	032	Dispose of Obsolete Equipment, Inoperable Vehicles, and Surplus Materials
12	033	Check Vehicles and Equipment for Leaks
12	036	Park Vehicles Indoors or Under a Roof
12	037	Park Vehicles on an Impervious Surface
12	037A	Park Vehicles Away from Stormwater Conveyance Systems
12	038	Designate Special Areas for Draining or Replacing Fluids
12	039	Drain All Fluids from Stored or Salvaged Vehicles or Equipment
9	039A	Recycle or Properly Dispose of All Used Vehicle Fluids
12	040	Completely Drain Oil Filters Before Disposal
12	040A	Drain Oil Filters While the Oil Is Warm
12	040B	Store Drained Filters in a Suitable Container or Drum, and Dispose of Properly
12	041	Wash Equipment and Vehicles in Designated Areas
5	041B	Construct Wash Facility Plumbed to Sanitary
13	042	Discharge Wash Water to a Sanitary Sewer
13	042A	Do Not Discharge Accumulated Laundry Wash Water to Storm or Ground Water
9	043	Recycle Pressure Wash Solvents
12	044	Use Drip Pans Under Leaking Equipment
12	045	Perform Equipment Maintenance in Designated Areas
12	046	Designate Areas for Washing Non-Vehicular Air Filters and Other Greasy Equipment
12	046A	Confine Vehicles Awaiting Maintenance to Designated Staging Areas Delineated on a Site Map
12	047	Conduct Maintenance Within a Building or Covered Area
9	048	Reduce the Amount of Liquid Cleaning Agents Used
10	049	Centralize Liquid Solvent Cleaning to One Location
10	050	Substitute Non-Toxic or Less-Toxic Cleaning Solvents
9	051	Use Solvents Efficiently
10	052	Use Outside Contractor for Handling Used Solvents and Other Significant Materials
7	053	Protect Storage Containers from Being Damaged by Vehicles
10	054	Properly Store Containers
11	055	Use Overpack Containers or Containment Pallets to Store 55-Gallon Drums Outside of Storage Areas
7	056	Use Doghouse Design for Outdoor Storage of Small Liquid Containers
10	057	Do Not Store Use Parts or Containers Directly on Ground
9	057A	Properly Dispose of Any Significant Materials or Contaminated Wastes
11	058	Store Batteries in Secondary Containment
10	059	Do Not Allow Open Flames Near Flammable Material
7	060	Use Door Skirt or Seal
10	061	Employ Proper Handling Procedures to Transport Materials and Waste

<b>BMP Category</b>	<b>BMP Number</b>	<b>BMP Description</b>
10	061B	Store Liquids and Significant Materials Within a Building or Covered Area
4	062	Provide Overfill Protection
4	064	Monitor Major Fueling Operations
4	065	Provide Absorbent Booms in Unbermed Fueling Areas
4	066	Eliminate Topping Off Tanks
4	066A	Doubled-Walled Tanks Must Be UL Approved
4	066B	Take Tank Out of Service
4	066C	Remove Tank
4	067	Install Leak Detection System
4	068	Designate Areas for Fueling from Mobile Fuel Tankers
4	069	Restrict Access to Tanks
4	070	Lock Fuel Tanks when Not in Use or on Standby
4	071	Keep Tanks, Piping, and Valves in Good Condition
4	072	Protect Tanks from Being Damaged by Vehicles
4	073	Protect Fill Pipe from Being Damaged by Vehicles
4	074	Provide Protection for Permanent Aboveground Tanks from Discharge from Firearms
4	075	Provide Secondary Containment for ASTs
4	075A	Provide Secondary Containment for Other POL Containing Structures/Facilities
4	075B	Use Absorbent Material or Containment Boom for Secondary Containment
4	075C	Provide Impervious Liner for AST Containment Berm
14.3	076	Enclose Outdoor Sanding and Painting Operations and Use Tarps to Contain and Collect Solid Wastes
14.3	077	Vacuum Particulate Wastes from Sanding or Painting Operations
14.3	079	Conduct Indoor Sanding and Painting in an Enclosed Area
14.3	081	Avoid Sanding or Painting in Windy Conditions
14.3	082	Use Efficient Painting Equipment
4	087	Use Oil Containment Booms
9	092	Properly Dispose of Sediment Generated by Cleaning Sanitary Sewer Lines
10	093	Eliminate Treated Wood Products or Use Wood Treated with Less-Toxic Chemicals
14.1	094	Establish Integrated Pest Control
14.1	095	Conduct Pesticide Operations under the Supervision of Licensed Applicator
13	096	Divert Drainage to Treatment Facility/Sanitary Sewer
13	096A	Install Overflow Alarm at Cross Connection
13	096B	Install Auxiliary Pump at Existing Sanitary Sewer Pump Station
5	097	Divert Drainage to a Low-Flow Sump
4	097A	Construct Dead-End Sump to Collect Small Spills
5	098	Construct Oil/Water Separator
5	098A	Clean Oil/Water Separator Regularly
5	098B	Maintain Oil/Water Separator in Good Operating Condition

<b>BMP Category</b>	<b>BMP Number</b>	<b>BMP Description</b>
5	098D	Upgrade Existing Oil/Water Separator
5	099	Construct Water Quality Inlet-Catch Basin
5	099A	Construct Catch Basins with Sedimentation Chambers
5	099B	Maintain Special Catch Basin Inlets
5	100	Use Grassed Swales
5	101	Provide Vegetative Filter Strips
5	102	Construct Extended-Detention Dry Ponds
5	103	Construct Wet Detention Ponds
5	104	Provide Constructed Wetlands
5	105	Construct Infiltration Basins
5	106	Construct Infiltration Trenches
5	107	Construct Filtration Basins
5	108	Construct Porous Pavement
5	109	Construct Concrete Grid Pavement
5	110	Regularly Inspect and Maintain Stormwater Conveyance Systems
5	110A	Upgrade Stormwater Conveyance System
2	111	Regularly Inspect and Test Equipment
4	112	Prepare a Spill Prevention and Response Plan
3	113	Conduct Personnel Training Regarding the SWPPP
11	115	Store Containers Inside Secondary Containment
6	116	Control Dust and Particulates
9	117	Use Excess Parts in Future Construction/Public Works Projects
14.2	118	Minimize Amount of Deicing Chemicals Used on Roads and Sidewalks
14.2	119	Evaluate Deicing Application Rates for Runways and Aircraft
14.2	120	Develop Anti-icing Procedures for Runways
14.2	121	Install Runway Ice Detection System (Pavement Sensors)
14.2	122	Use Alternative Deicing Chemicals on Runway
14.2	122A	Pre-treat Aircraft with Hot Water or Forced Air Prior to Deicing Chemical Application
14.2	123	Provide Covered or Heated Parking for Aircraft
14.2	124	Establish a Centralized Aircraft Deicing Station
14.2	125	Collect Spent Aircraft Deicing Fluid and Discharge to Sanitary
14.2	126	Collect Spent Aircraft Deicing Fluid and Recycle or Dispose of Properly
14.2	127	Collect Spent Aircraft Deicing Fluid in Detention Pond Prior to Discharge to Surface Water
14.2	128	Collect Spent Aircraft Deicing Fluid in Detention Pond Prior to Discharge to Sanitary Sewer
14.2	129	Construct Computer Controlled Gantry Deicing Facility
13	130	Treat and Recycle Water Back to Boilers
14.8	131	Provide Remedial Investigation and Remove Source

<b>BMP Category</b>	<b>BMP Number</b>	<b>BMP Description</b>
13	132	Recycle Water to Vehicle Wash Rack and Other Non-potable Water Users Nearby
1	135	Provide Good Housekeeping Practices to Minimize Pollutants Exposure to Stormwater
8	136	Confine Loading/Unloading Activities to a Designated Area
8	137	Consider Performing Loading/Unloading Activities Indoors or in a Covered Area
8	138	Consider Covering Loading/Unloading Area with Permanent Cover (e.g., Roofs) or Temporary Cover (e.g., Tarps)
8	139	Close Storm Drains During Loading/Unloading Activities in Surrounding Areas
2	141	Inspect the Unloading/Loading Areas to Detect Problems Before They Occur
8	142	Inspect All Containers Prior to Loading/Unloading of any Raw or Spent Materials
7	143	Consider Berming, Curbing, or Diking Loading/Unloading Areas
14.4	145	Prevent or Minimize Fugitive Dust Emissions from Coal Handling Areas
14.4	146	Prevent Off-site Tracking With Specially Designed Tires
14.4	147	Prevent Off-site Tracking by Washing Vehicles in Designated Areas Before Leaving Site
14.4	148	Inspect Coal Delivery Vehicles Arriving at Plant to Ensure Integrity of Body or Container
1	151	Keep Dumpster Lids Closed at All Times
10	153	Residue Hauling Vehicles Should Have Proper Coverings and Overall Integrity of Body or Container
14.3	171	Prevent All Blasting and Painting Residuals from Reaching Stormwater
14.3	175	Perform Pressure Washing in Designated Areas
14.3	176	Use No Detergents or Additives in Pressure Wash Water
5	179	Where Feasible, Cover Drains, Trenches, and Drainage Channels to Prevent Entry of Blasting Debris
14.5	180	Sweep Up Drydock of Debris and Abrasives Before Flooding
10	182	Mix Paints and Solvents in Designated Areas Away from Stormwater Inlets
10	184	Keep Paint and Paint Thinner Away from Traffic Areas to Avoid Spills
9	185	Recycle Paint, Paint Thinner, and Solvents
13	194	Do Not Pour Liquid Waste Down Floor Drains, Sinks, or Outdoor Storm Drain Inlets
13	195	Plug Floor Drains Connected to the Storm or Sanitary Sewer
10	199	Store Reactive, Ignitable, or Flammable Liquids in Compliance with the Local Fire Code
4	204	Use Spill Troughs for Drums with Taps
4	207	Inspect Connecting Hoses for Leaks
4	209	Use Appropriate Material Transfer Procedures, Including Spill Prevention and Containment Activities
1	216	Keep Records of Required Inspections, Maintenance Activities, Employee Training Sessions, Chemical Application Rates for Deicing and Herbicide/Pesticide Application Amounts and Locations
14.8	217A	Perform Additional Tests to Determine Source of Connection
14.8	217B	Close Facility

<b>BMP Category</b>	<b>BMP Number</b>	<b>BMP Description</b>
14.8	217C	Construct Sloped Berms at Entrance and Exit to Wash Bay
14.8	217D	Construct Overflow Weir in Existing Strip Drain for Improved Grit Collection
14.8	217E	Remove Dual De-emulsification System
14.8	217F	Clean Oil/Water Separation System, Restore Operation, and Maintain in Good Working Order
14.8	217G	Train Employees on Proper Operation of System
5	A	Revegetate Barren Areas
5	B	Mulch Exposed Areas
5	C	Use Soil Binders
5	D	Use Check Dams to Reduce Runoff Velocity
5	E	Reduce Flow Velocity at Outlet
5	F	Use Erosion Control Blankets

**Table G-3**  
**BMP List (By Category)**

<b>BMP Category</b>	<b>BMP Number</b>	<b>BMP Description</b>
1	003	Perform Regular Pavement Cleaning to Remove Oil and Grease
1	004	Avoid Hosing Down the Site
1	005	Perform Regular Pavement Sweeping
1	007	Place Trash Receptacles at Appropriate Locations
1	135	Provide Good Housekeeping Practices to Minimize Pollutants Exposure to Stormwater
1	151	Keep Dumpster Lids Closed at All Times
1	216	Keep Records of Required Inspections, Maintenance Activities, Employee Training Sessions, Chemical Application Rates for Deicing and Herbicide/Pesticide Application Amounts and Locations
2	016C	Regularly Inspect Storage Areas for Leaking Materials
2	111	Regularly Inspect and Test Equipment
2	141	Inspect the Unloading/Loading Areas to Detect Problems Before They Occur
3	030	Implement Qualifying Tests for Equipment and Vehicle Operators
3	031	Conduct Refresher Courses in Operating and Safety Procedures
3	113	Conduct Personnel Training Regarding the SWPPP
4	006	Control Spills
4	006A	Keep Records of All Spills or Leaks of Toxic or Hazardous Pollutants
4	010	Keep Absorbent Material On Hand
4	014A	Inspect Water Accumulated in Containment Area for Oil Sheen Prior to Release
4	023	Place Portable Rubber Mats over Storm Drain Inlets
4	062	Provide Overfill Protection
4	064	Monitor Major Fueling Operations
4	065	Provide Absorbent Booms in Unbermed Fueling Areas
4	066	Eliminate Topping Off Tanks
4	066A	Doubled-Walled Tanks Must Be UL Approved
4	066B	Take Tank Out of Service
4	066C	Remove Tank
4	067	Install Leak Detection System
4	068	Designate Areas for Fueling from Mobile Fuel Tankers
4	069	Restrict Access to Tanks
4	070	Lock Fuel Tanks when Not in Use or on Standby
4	071	Keep Tanks, Piping, and Valves in Good Condition
4	072	Protect Tanks from Being Damaged by Vehicles
4	073	Protect Fill Pipe from Being Damaged by Vehicles

<b>BMP Category</b>	<b>BMP Number</b>	<b>BMP Description</b>
4	074	Provide Protection for Permanent Aboveground Tanks from Discharge from Firearms
4	075	Provide Secondary Containment for ASTs
4	075A	Provide Secondary Containment for Other POL Containing Structures/Facilities
4	075B	Use Absorbent Material or Containment Boom for Secondary Containment
4	075C	Provide Impervious Liner for AST Containment Berm
4	087	Use Oil Containment Booms
4	097A	Construct Dead-End Sump to Collect Small Spills
4	112	Prepare a Spill Prevention and Response Plan
4	204	Use Spill Troughs for Drums with Taps
4	207	Inspect Connecting Hoses for Leaks
4	209	Use Appropriate Material Transfer Procedures, Including Spill Prevention and Containment Activities
5	012A	Regrade Source Area
5	019	Control Roof Downspout Discharge
5	020	Minimize Stormwater Run-On from Adjacent Facilities and Properties
5	022	Permanently Seal Drains Within Critical Areas that Discharge to the Storm Drain
5	024	Insert Filter in Catch Basin
5	025	Place Absorbent Blankets in Catch Basin
5	026	Routinely Clean Catch Basins
5	041B	Construct Wash Facility Plumbed to Sanitary
5	097	Divert Drainage to a Low-Flow Sump
5	098	Construct Oil/Water Separator
5	098A	Clean Oil/Water Separator Regularly
5	098B	Maintain Oil/Water Separator in Good Operating Condition
5	098D	Upgrade Existing Oil/Water Separator
5	099	Construct Water Quality Inlet-Catch Basin
5	099A	Construct Catch Basins with Sedimentation Chambers
5	099B	Maintain Special Catch Basin Inlets
5	100	Use Grassed Swales
5	101	Provide Vegetative Filter Strips
5	102	Construct Extended-Detention Dry Ponds
5	103	Construct Wet Detention Ponds
5	104	Provide Constructed Wetlands
5	105	Construct Infiltration Basins
5	106	Construct Infiltration Trenches
5	107	Construct Filtration Basins
5	108	Construct Porous Pavement
5	109	Construct Concrete Grid Pavement
5	110	Regularly Inspect and Maintain Stormwater Conveyance Systems
5	110A	Upgrade Stormwater Conveyance System

<b>BMP Category</b>	<b>BMP Number</b>	<b>BMP Description</b>
5	179	Where Feasible, Cover Drains, Trenches, and Drainage Channels to Prevent Entry of Blasting Debris
5	187	If Hosing Must Be Used as a Removal Method, Collect Wash Water to Remove Solids and Potential Metals
5	A	Revegetate Barren Areas
5	B	Mulch Exposed Areas
5	C	Use Soil Binders
5	D	Use Check Dams to Reduce Runoff Velocity
5	E	Reduce Flow Velocity at Outlet
5	F	Use Erosion Control Blankets
6	009B	All Floor Drains Must Be Properly Identified as Storm or Sanitary Drains
6	027	Stencil Signs on Storm Drain Inlets
6	116	Control Dust and Particulates
7	012	Construct Berm or Dike Around Critical Area
7	013	Pave Bermed Areas
7	014	Provide Valve for Outlet Pipe in Containment Area
7	018	Provide Roof to Cover Source Area
7	021A	Repair Leaky Roofs
7	053	Protect Storage Containers from Being Damaged by Vehicles
7	056	Use Doghouse Design for Outdoor Storage of Small Liquid Containers
7	060	Use Door Skirt or Seal
7	143	Consider Berming, Curbing, or Diking Loading/Unloading Areas
8	136	Confine Loading/Unloading Activities to a Designated Area
8	137	Consider Performing Loading/Unloading Activities Indoors or in a Covered Area
8	138	Consider Covering Loading/Unloading Area with Permanent Cover (e.g., Roofs) or Temporary Cover (e.g., Tarps)
8	139	Close Storm Drains During Loading/Unloading Activities in Surrounding Areas
8	142	Inspect All Containers Prior to Loading/Unloading of any Raw or Spent Materials
9	015	Recycle
9	021	Reduce Waste
9	032	Dispose of Obsolete Equipment, Inoperable Vehicles, and Surplus Materials
9	039A	Recycle or Properly Dispose of All Used Vehicle Fluids
9	043	Recycle Pressure Wash Solvents
9	048	Reduce the Amount of Liquid Cleaning Agents Used
9	051	Use Solvents Efficiently
9	057A	Properly Dispose of Any Significant Materials or Contaminated Wastes
9	092	Properly Dispose of Sediment Generated by Cleaning Sanitary Sewer Lines
9	117	Use Excess Parts in Future Construction/Public Works Projects
9	185	Recycle Paint, Paint Thinner, and Solvents

<b>BMP Category</b>	<b>BMP Number</b>	<b>BMP Description</b>
9	192	Label and Track the Recycling of Waste Material (i.e., Used Oil, Spent Solvents, Batteries)
10	001	Label All Drums, Cans, Containers, Tanks, and Valves
10	002	Restrict Access to Area and Equipment
10	016	Store Waste and Recycling Materials in Proper Containers
10	017	Limit Significant Materials Inventory
10	017A	Keep Inventory of Significant Materials
10	017B	Post Inventory List on Flam Locker or Other Storage Locker Door
10	049	Centralize Liquid Solvent Cleaning to One Location
10	050	Substitute Non-Toxic or Less-Toxic Cleaning Solvents
10	052	Use Outside Contractor for Handling Used Solvents and Other Significant Materials
10	054	Properly Store Containers
10	057	Do Not Store Use Parts or Containers Directly on Ground
10	059	Do Not Allow Open Flames Near Flammable Material
10	061	Employ Proper Handling Procedures to Transport Materials and Waste
10	061B	Store Liquids and Significant Materials Within a Building or Covered Area
10	093	Eliminate Treated Wood Products or Use Wood Treated with Less-Toxic Chemicals
10	153	Residue Hauling Vehicles Should Have Proper Coverings and Overall Integrity of Body or Container
10	182	Mix Paints and Solvents in Designated Areas Away from Stormwater Inlets
10	184	Keep Paint and Paint Thinner Away from Traffic Areas to Avoid Spills
10	199	Store Reactive, Ignitable, or Flammable Liquids in Compliance with the Local Fire Code
11	055	Use Overpack Containers or Containment Pallets to Store 55-Gallon Drums Outside of Storage Areas
11	058	Store Batteries in Secondary Containment
11	115	Store Containers Inside Secondary Containment
12	028	Keep Equipment and Vehicles Clean
12	029	Maintain Equipment in Good Condition
12	033	Check Vehicles and Equipment for Leaks
12	036	Park Vehicles Indoors or Under a Roof
12	037	Park Vehicles on an Impervious Surface
12	037A	Park Vehicles Away from Stormwater Conveyance Systems
12	038	Designate Special Areas for Draining or Replacing Fluids
12	039	Drain All Fluids from Stored or Salvaged Vehicles or Equipment
12	040	Completely Drain Oil Filters Before Disposal
12	040A	Drain Oil Filters While the Oil Is Warm
12	040B	Store Drained Filters in a Suitable Container or Drum, and Dispose of Properly
12	041	Wash Equipment and Vehicles in Designated Areas
12	044	Use Drip Pans Under Leaking Equipment

<b>BMP Category</b>	<b>BMP Number</b>	<b>BMP Description</b>
12	045	Perform Equipment Maintenance in Designated Areas
12	046	Designate Areas for Washing Non-Vehicular Air Filters and Other Greasy Equipment
12	046A	Confine Vehicles Awaiting Maintenance to Designated Staging Areas Delineated on a Site Map
12	047	Conduct Maintenance Within a Building or Covered Area
13	009	Do Not Pour Liquid Wastes into Storm Drain
13	042	Discharge Wash Water to a Sanitary Sewer
13	042A	Do Not Discharge Accumulated Laundry Wash Water to Storm or Ground Water
13	096	Divert Drainage to Treatment Facility/Sanitary Sewer
13	096A	Install Overflow Alarm at Cross Connection
13	096B	Install Auxiliary Pump at Existing Sanitary Sewer Pump Station
13	130	Treat and Recycle Water Back to Boilers
13	132	Recycle Water to Vehicle Wash Rack and Other Non-potable Water Users Nearby
13	194	Do Not Pour Liquid Waste Down Floor Drains, Sinks, or Outdoor Storm Drain Inlets
13	195	Plug Floor Drains Connected to the Storm or Sanitary Sewer
14.1	094	Establish Integrated Pest Control
14.1	095	Conduct Pesticide Operations under the Supervision of Licensed Applicator
14.2	118	Minimize Amount of Deicing Chemicals Used on Roads and Sidewalks
14.2	119	Evaluate Deicing Application Rates for Runways and Aircraft
14.2	120	Develop Anti-icing Procedures for Runways
14.2	121	Install Runway Ice Detection System (Pavement Sensors)
14.2	122	Use Alternative Deicing Chemicals on Runway
14.2	122A	Pre-treat Aircraft with Hot Water or Forced Air Prior to Deicing Chemical Application
14.2	123	Provide Covered or Heated Parking for Aircraft
14.2	124	Establish a Centralized Aircraft Deicing Station
14.2	125	Collect Spent Aircraft Deicing Fluid and Discharge to Sanitary
14.2	126	Collect Spent Aircraft Deicing Fluid and Recycle or Dispose of Properly
14.2	127	Collect Spent Aircraft Deicing Fluid in Detention Pond Prior to Discharge to Surface Water
14.2	128	Collect Spent Aircraft Deicing Fluid in Detention Pond Prior to Discharge to Sanitary Sewer
14.2	129	Construct Computer Controlled Gantry Deicing Facility
14.3	076	Enclose Outdoor Sanding and Painting Operations and Use Tarps to Contain and Collect Solid Wastes
14.3	077	Vacuum Particulate Wastes from Sanding or Painting Operations
14.3	079	Conduct Indoor Sanding and Painting in an Enclosed Area
14.3	081	Avoid Sanding or Painting in Windy Conditions
14.3	082	Use Efficient Painting Equipment
14.3	171	Prevent All Blasting and Painting Residuals from Reaching Stormwater

<b>BMP Category</b>	<b>BMP Number</b>	<b>BMP Description</b>
14.3	175	Perform Pressure Washing in Designated Areas
14.3	176	Use No Detergents or Additives in Pressure Wash Water
14.4	145	Prevent or Minimize Fugitive Dust Emissions from Coal Handling Areas
14.4	146	Prevent Off-site Tracking With Specially Designed Tires
14.4	147	Prevent Off-site Tracking by Washing Vehicles in Designated Areas Before Leaving Site
14.4	148	Inspect Coal Delivery Vehicles Arriving at Plant to Ensure Integrity of Body or Container
14.5	180	Sweep Up Drydock of Debris and Abrasives Before Flooding
14.8	131	Provide Remedial Investigation and Remove Source
14.8	217A	Perform Additional Tests to Determine Source of Connection
14.8	217B	Close Facility
14.8	217C	Construct Sloped Berms at Entrance and Exit to Wash Bay
14.8	217D	Construct Overflow Weir in Existing Strip Drain for Improved Grit Collection
14.8	217E	Remove Dual De-emulsification System
14.8	217F	Clean Oil/Water Separation System, Restore Operation, and Maintain in Good Working Order
14.8	217G	Train Employees on Proper Operation of System
14.8	218A	Abandon OW501-02

### **BMP 006A - Keep Records of All Spills or Leaks of Toxic or Hazardous Pollutants**

Description of Potential Pollutant Sources: Any spills or leaks of toxic or hazardous pollutants that are not controlled or cleaned properly have the potential to contaminate stormwater runoff. If records are kept that indicate the locations of and provide descriptions of spills or leaks, these areas can be evaluated during future SWPPP inspections with regard to current material exposure and employment of appropriate preventive measures.

Description of BMP: Records of all spills or leaks of toxic or hazardous pollutants that occur on base will be kept that include the following information: date, time, location, type of material, quantity of material, source, reason for spill or leak, amount of material recovered, preventive measures taken and an indication of whether material is still exposed to stormwater.

Frequency of BMP Application (if applicable): A record shall be kept for every spill or leak of a toxic or hazardous pollutant on base.

Training: Personnel will be trained in spill prevention and response procedure. This will include a procedure for notification of the person on base who is responsible for spill and leak reporting.

Effectiveness and Cost: Spill reporting is a moderately effective, low-cost BMP.

Limitations: None.

### **BMP 009B - All Floor Drains Must Be Properly Identified as Storm or Sanitary Drains**

Description of Potential Pollutant Sources: Floor drains inside of buildings may be connected to the storm drain sewer system and not the sanitary sewer system. Liquid wastes poured down floor drains that are connected to the storm sewer enter receiving waters without proper treatment.

Description of BMP: The sewer connection of all floor drains will be properly identified using an appropriate method such as visual inspection or dye testing. Signs will be stenciled at all floor drains indicating whether they are connected to the storm drain system or the sanitary sewer system after the connection is verified. No liquid wastes shall be poured into the storm drain system. Refer also to BMP 009, "Do Not Pour Liquid Wastes into Storm Drains."

Frequency of BMP Application (if applicable): The connection of all floor drains will be identified.

Training: All personnel will be trained in proper waste disposal procedures.

Effectiveness and Cost: Stenciling combined with proper waste disposal is a low-cost, highly effective BMP.

Limitations: None.

### **BMP 010 - Keep Absorbent Materials on Hand**

Description of Potential Pollutant Sources: Any spills or leaks of toxic or hazardous pollutants that are not controlled or cleaned immediately and properly have the potential to contaminate stormwater runoff. If appropriate spill response material is not kept close by to where significant materials are stored, it will not be possible to respond immediately to a spill or leak.

Description of BMP: Appropriate spill control materials will be kept at the site. Appropriate materials include kitty litter, sawdust, straw, and absorbent pads or booms. Containers of absorbent material will be easily accessible and clearly marked. Containers for spent absorbent will be made available and also clearly marked.

Frequency of BMP Application (if applicable): Absorbent material will be kept at all facilities that use or store liquid significant materials.

Training: Personnel will be trained in spill prevention and response procedure. This will include what absorbent to use, how to use the absorbent, where to find it, how to dispose of the spent material and who to notify in the event of a spill.

Effectiveness and Cost: Spill control is a moderately effective, low-cost BMP.

Limitations: None.

### **BMP 014A - Inspect Water Accumulated in Containment Area for Oil Sheen Prior to Release**

Description of Potential Pollutant Sources: Water that has accumulated within a bermed or curbed area may be contaminated with materials stored within the area. If the water is released to the storm drain system or surface water without first being evaluated for potential contamination, there is a potential for stormwater and receiving water pollution.

Description of BMP: During storm events, containment areas will be drained following guidelines specifically developed for that area. Stormwater accumulated in containment areas may be released to the storm drain system after the water quality has been evaluated based on the types of materials stored there. If sheening, discoloration, odor or evidence of spills is observed, the water will not be discharged to the storm drain system prior to treatment or further evaluation. Chemical analysis of the accumulated water may also be needed. (Refer also to BMP 014.)

Frequency of BMP Application (if applicable): Accumulated water will be evaluated for possible contamination prior to all discharges from containment areas.

Training: Personnel will be trained to drain containment areas according to the procedures developed for each containment area. Personnel will also be trained in the proper method of disposing materials that have been contained in the area after a spill.

Effectiveness and Cost: This is an effective, low-cost BMP.

Limitations: None.

### **BMP 016C - Regularly Inspect Storage Areas for Leaking Materials**

Description of Potential Pollutant Sources: Significant materials may leak in storage areas due to breaks in packaging or storage containers. The leaking materials may be exposed to stormwater and transported to the storm drain system.

Description of BMP: All areas where significant materials are stored should be inspected on a regular basis for leaks or spills. These inspections do not have to be time intensive. A basic walk through and observation of all storage areas will be sufficient. Improper storage practices such as over stacking of containers or boxes should be looked for and corrected. Any leaks or spills that are detected should be controlled and cleaned up as soon as they are discovered (see BMP 006).

Frequency of BMP Application (if applicable): Inspections of storage areas should be done at least on a weekly basis or more often depending on the level of activity in the area.

Training: Personnel should be instructed to look for leaks or potential leak situations such as stacking boxes or other containers too high or storing materials in high traffic areas.

Effectiveness and Cost: This is a moderately effective, low-cost BMP.

Limitations: None.

### **BMP 017A - Keep Inventory of Significant Materials**

Description of Potential Pollutant Sources: Keeping an inventory of the types and amounts of significant materials stored or used at a facility will allow for the limitation in the amount of materials stored. This should result in the reduction of the amount of materials available for potential entry into the storm drain system.

Description of BMP: An inventory will be kept of the type and amount of materials stored and used at the facility. Material usage records are especially important for ordering an appropriate supply of materials. Refer also to BMP 017.

Frequency of BMP Application (if applicable): This BMP will be used at all locations where significant materials are stored.

Training: Procurement officers and warehouse managers will be trained to accurately estimate delivery schedules and user's needs.

Effectiveness and Cost: This is a moderately effective, low-cost BMP.

Limitations: None.

**BMP 017B - Post Inventory List on Flammables Locker and Storage Locker Doors**

Description of Potential Pollutant Sources: A posted inventory list allows easy identification of what materials are stored inside the locker. An up to date list indicates that these materials are needed and used regularly. Spills and leaks of materials in abandoned lockers can potentially be exposed to stormwater.

Description of BMP: An inventory list of all the materials that are kept in a storage locker or flammables locker should be posted either on the inside or outside of the locker door. Quantities of materials are not necessarily needed on the inventory list.

Frequency of BMP Application (if applicable): All storage lockers and flammables lockers shall have a material inventory posted on the outside or inside door.

Training: No training is required.

Effectiveness and Cost: This is a moderately effective, low-cost BMP.

Limitations: None.

### **BMP 020A - Regrade Source Area**

Description of Potential Pollutant Sources: Source areas are those areas that have a high likelihood for the release of pollutants. This includes material handling areas, material storage areas, and equipment repair and maintenance areas. Run-on from adjacent areas may become contaminated if it comes into contact with pollutants in these areas. Additional off-site stormwater can wash accumulated pollutants from critical areas into the storm drain system and receiving waters. (See also BMP 020).

Description of BMP: Run-on will be controlled by regrading the source area to direct flow away from and around the site. Alternately, run-on will be slowed by the use of vegetated strips, grassed swales, or infiltration basins or trenches.

Frequency of BMP Application (if applicable): This BMP (or similar) will be used whenever a significant volume of off-site drainage flows onto an area where possible pollutants are present. This BMP will also be used where run-on may be polluted.

Training: N/A

Effectiveness and Cost: This is an effective, high-cost BMP.

Limitations: The current site drainage system may prohibit this BMP.

**BMP 037A - Park Vehicles Away from Stormwater Conveyance Systems**

Description of Potential Pollutant Sources: If a vehicle develops a leak and it is parked directly adjacent to the storm drain conveyance (open channel) or a storm drain inlet, the leaking material has a direct pathway to and will most likely end up in the storm drain system.

Description of BMP: Vehicles will not be parked adjacent to open waterways, channels or ditches or catch basin inlets if possible.

Frequency of BMP Application (if applicable): As often as possible.

Training: Personnel should be made aware of this BMP in the SWPPP training (see BMP 113).

Effectiveness and Cost: This is a moderately effective, low cost BMP.

Limitations: None.

**BMP 039A - Recycle or Properly Dispose of All Used Vehicle Fluids**

Description of Potential Pollutant Sources: Used vehicle fluids such as oil, antifreeze and transmission fluid can be sources of pollution to stormwater if not handled or disposed of properly. Used fluids will be recycled when possible or disposed of properly in order to reduce the potential for exposure to stormwater.

Description of BMP: Recycling of used vehicle fluids will be used to the fullest extent possible. If recycling is not feasible the materials will be disposed of properly.

Frequency of BMP Application (if applicable): Recycling of fluids will be done in all situations where possible. Proper disposal methods will be employed in all other situations.

Training: Personnel will be trained in proper recycling techniques. Waste materials will be kept separate to promote easier recycling. Signs will be posted and maintained to distinguish between temporary recycling and waste storage areas.

Effectiveness and Cost: Effectiveness and cost will be site-specific.

Limitations: Local vendors may not be available to receive certain recyclable materials.

### **BMP 040A - Drain Oil Filters While the Oil is Warm**

Description of Potential Pollutant Sources: Excess oil on a used oil filter has the potential for exposure to stormwater. Draining used oil filters while the oil is warm allows more oil to drain from the filter.

Description of BMP: Oil filters will be drained when the oil is warm so that the filter will completely drain more readily. Refer also to BMP 040.

Frequency of BMP Application (if applicable): All filters will be completely drained before disposal and draining filters while the oil is warm will be done when feasible.

Training: Signs will be posted to remind personnel of requirement to completely drain oil filters before disposal. Personnel will be instructed that draining oil while it is warm allows the filter to drain more easily.

Effectiveness and Cost: This is a moderately effective, low-cost BMP.

Limitations: None.

**BMP 040B - Store Drained Filters in a Suitable Container or Drum and Dispose of Properly**

Description of Potential Pollutant Sources: Excess material on used oil filters can be exposed to stormwater if not stored in a proper container and disposed of properly.

Description of BMP: Completely drained oil filters will be stored in labeled containers and recycled or disposed of properly.

Frequency of BMP Application (if applicable): All drained oil filters will be stored and disposed of properly.

Training: Appropriate storage containers will be made available for drained oil filters. Signs or labels will be clearly marked as such. Personnel well trained in proper storage and disposal procedures.

Effectiveness and Cost: This is a moderately effective, low-cost BMP.

Limitations: None.

**BMP 041B - Construct Wash Facility Plumbed to the Sanitary Sewer**

Description of Potential Pollutant Sources: Washing equipment and vehicles outdoors or in areas where wash water flows onto the ground can pollute stormwater. It is difficult to control wastewater from washing operations if it is not done in a designated area.

Description of BMP: A vehicle or equipment washing facility will be constructed. The facility will have bermed wash areas that contain the wash water and prevent contact with stormwater. The drains from these facilities will be connected to the sanitary sewer system.

Frequency of BMP Application (if applicable): All designated vehicles or equipment will be washed at this facility.

Training: Personnel will be instructed that all vehicles and equipment will be washed in a designated facility. (See also BMP 041).

Effectiveness and Cost: This is a highly-effective, relatively high cost BMP.

Limitations: The treatment facility may require pretreatment and monitoring of wash water discharges to the sanitary sewer system. This would greatly increase the cost of this BMP. The treatment plant owner must receive proper notification and approval must be obtained before discharge.

### **BMP 042A - Do Not Discharge Accumulated Laundry Wash Water to Storm or Ground Water**

Description of Potential Pollutant Sources: Wash water from soiled rags or work clothes often contains grease, oil, gasoline or other significant materials.

Description of BMP: Discharge all laundry wash water to the sanitary sewer. Do not dump into a storm drain inlet or on to the ground.

Frequency of BMP Application (if applicable): All laundry wash water will be discharged to the sanitary sewer.

Training: Personnel will be instructed as to proper laundry wash water disposal.

Effectiveness and Cost: This is a highly effective, variable-cost BMP depending on the configuration of the local sanitary sewer system.

Limitations: Some pre-treatment may be necessary depending on the nature of the items being laundered.

### **BMP 046A - Confine Vehicles Awaiting Maintenance to Designated Staging Areas Delineated on a Site Map**

Description of Potential Pollutant Sources: Vehicles, aircraft, or equipment awaiting maintenance may be leaking a variety of fluids such as fuel, oil, antifreeze, or transmission fluid. These materials may be exposed to stormwater.

Description of BMP: A staging area for vehicles awaiting maintenance should be created. This area should be away from storm drain inlets (see BMPs 022 and 037A), stormwater run-on from adjacent areas should be minimized (see BMP 020) or special catch basin inlets should be provided to capture stormwater runoff from this area (see BMPs 024, 025 and 099). In addition, vehicles awaiting maintenance should be inspected for leaks (see BMP 033).

Frequency of BMP Application (if applicable): A staging area for vehicles awaiting maintenance will be set aside or created at all vehicle and equipment maintenance areas.

Training: Signs should be posted and personnel trained as to the location and boundaries of the staging area. In addition, personnel should be trained to regularly check vehicles awaiting maintenance for leaks and to respond properly in the event a leak is found.

Effectiveness and Cost: This is a moderate to highly effective BMP and a low to moderate cost BMP depending on the BMP features implemented at the staging area.

Limitations: Space may not always be available to specifically designate this type of area.

**BMP 057A - Properly Dispose of Any Significant Materials or Contaminated Wastes**

Description of Potential Pollutant Sources: Improper storage, handling, and disposal of significant materials and contaminated wastes can result in exposure of these materials to stormwater.

Description of BMP: Significant materials and contaminated waste will be stored in proper containers (see BMP 016). If an outside contractor is not used to dispose of these materials (see BMP 052), they will be disposed of properly by Activity personnel.

Frequency of BMP Application (if applicable): All significant materials and contaminated wastes will be disposed of properly.

Training: All personnel will be trained in proper significant materials and contaminated waste handling, storage and disposal procedures.

Effectiveness and Cost: This is a highly effective, moderate-cost BMP.

Limitations: None.

### **BMP 066B - Take Tank Out of Service**

Description of Potential Pollutant Sources: An above ground or underground tank that is no longer suitable for storing POLs or other significant materials should be taken out of service. Significant materials may become exposed to stormwater if the tank is filled or used by mistake.

Description of BMP: All ASTs or USTs that are not suitable for storing the intended material should be taken out of service. This will include posting signs that the tank is no longer in service and locking the port valve so that the tank cannot be filled by mistake.

Frequency of BMP Application (if applicable): All tanks that no longer meet safety or inspection criteria shall be taken out of service until they are brought up to standards.

Training: Personnel responsible for filling tanks should be made aware of tanks that are no longer in use. Posted signs and locks should make this apparent.

Effectiveness and Cost: This is a moderately effective; variable cost BMP depending on the type of improvements needed to put the tank back into service or to replace the tank.

Limitations: None.

### **BMP 066C - Remove Tank**

Description of Potential Pollutant Sources: An above ground or underground tank that is no longer suitable for storing POLs or other significant materials should be taken out of service and removed. Significant materials may become exposed to stormwater if the tank is filled or used by mistake.

Description of BMP: All ASTs or USTs that are not suitable for storing the intended material should be taken out of service and then removed. This will include posting signs that the tank is not longer in service and locking the port valve so that the tank cannot be filled by mistake until removal takes place. Refer also to BMP 066B.

Frequency of BMP Application (if applicable): Remove as necessary.

Training: N/A

Effectiveness and Cost: This is an effective BMP. Costs will vary depending upon the size of tank to be removed.

Limitations: None.

### **BMP 075 - Provide Secondary Containment for AST**

Description of Potential Pollutant Sources: If a tank should develop a leak or if a spill from the tank should occur and there is no secondary containment provided, the material spilled will be exposed to stormwater and can then be transported to the storm drain system and receiving waters.

Description of BMP: Federal regulations (40 CFR 112.7) requires bulk petroleum storage tanks be provided with secondary containment. The containment should be impervious and the storage volume should be equal to 110% of the largest tank within the berm.

Frequency of BMP Application (if applicable): Install as needed.

Training: N/A

Effectiveness and Cost: This is an effective BMP. Costs will vary depending on the size of containment berm needed.

Limitations: The size and number of tanks requiring secondary containment could make this BMP expensive.

**BMP 075A - Provide Secondary Containment for Other POL Containing Structures, Facilities, or Containers**

Description of Potential Pollutant Sources: If a POL container of any size should develop a leak or if a spill from the container should occur and there is no secondary containment provided, the material spilled will be exposed to stormwater and can then be transported to the storm drain system and receiving waters.

Description of BMP: Provide secondary containment in the form of drip pans or bermed areas or similar to POL containers and structures other than ASTs.

Frequency of BMP Application (if applicable): Provide to all POL containers.

Training: N/A

Effectiveness and Cost: This is a highly effective BMP. Costs will vary depending on the size of the container.

Limitations: None.

**BMP 075B - Use Absorbent Material or Containment Boom for Secondary Containment**

Description of Potential Pollutant Sources: If a POL container should develop a leak or if a spill from the container should occur and there is no secondary containment provided the material spilled will be exposed to stormwater and can then be transported to the storm drain system and receiving waters.

Description of BMP: Absorbent blankets or booms will be placed around the base of POL containers as a temporary measure until permanent secondary containment can be provided (see BMP 075 and 075A).

Frequency of BMP Application (if applicable): Secondary containment will be provided for all POL containers. Temporary measures will be used until permanent containment is installed or obtained.

Training: N/A

Effectiveness and Cost: This is a moderately effective, low-cost temporary BMP.

Limitations: None.

### **BMP 075C - Provide Impervious Liners for AST Containment Berms**

Description of Potential Pollutant Sources: If a leak or spill from an AST should occur and the containment berm is not impervious, infiltration of the material stored in the AST into the ground can occur.

Description of BMP: ASTs should be contained by a containment berm. (See BMP 075, "Provide Secondary Containment for AST.") The berm and ground beneath the tank should be sufficiently impervious to prevent infiltration of the material in the event of a spill or leak. The impervious material will be concrete, asphalt concrete, or other impervious paving material. The lining material can also be clay, plastic or other impervious material. (Note: 40 CFR 112.7 requires bulk petroleum storage tanks be provided with secondary containment.)

Frequency of BMP Application (if applicable): Install as needed.

Training: N/A

Effectiveness and Cost: This is an effective BMP. Costs vary depending on the size of the containment berm.

Limitations: The size of some containment areas could make this BMP expensive.

### **BMP 096A - Install Overflow Alarm at Cross Connection**

Description of Potential Pollutant Sources: Sanitary sewer discharges can enter the storm drain system at locations where the two systems are cross connected. This typically occurs when the capacity of the sanitary sewer system (pipe or pump) is exceeded. Excess flow backs up and spills over through the cross connection and into the storm sewer system.

Description of BMP: An alarm will be installed at the cross connection location to signal overflow occurrences. This will enable personnel to detect and correct malfunctions before major spills occur.

Frequency of BMP Application (if applicable): An overflow alarm will be installed at all cross connection locations where other remedies for preventing or reducing sanitary sewer overflows into the stormwater system are not feasible.

Training: N/A

Effectiveness and Cost: Effective and relatively low cost.

Limitations: Requires maintenance to ensure alarm is working.

**BMP 096B - Install Auxiliary Pump at Cross Connection.**

Description of Potential Pollutant Sources: Sanitary sewer discharges can enter the storm drain system at locations where the two systems are cross-connected. This typically occurs when the capacity of the sanitary sewer system (pipe or pump) is exceeded. Excess flow backs up and spills over through the cross connection and into the storm sewer system.

Description of BMP: Auxiliary pumps will be installed at sanitary sewer pump stations that routinely cause overflow through a cross connection into the storm sewer system.

Frequency of BMP Application (if applicable): This BMP should be considered at all sanitary sewer pumping stations that overflow into a storm drain cross connection.

Training: N/A

Effectiveness and Cost: This is a highly effective, high-cost BMP.

Limitations: Cost and capacity of downstream sanitary sewer mains may limit the feasibility of this BMP.

### **BMP 097A - Construct Dead End Sump to Collect Small Spills**

Description of Potential Pollutant Sources: Overflows during fueling or transfer of fuels or other POL materials, small spills of POLs or other significant material liquids from storage drums or other small containers can expose these materials to stormwater.

Description of BMP: A dead end sump or day pit will be constructed in fueling or fuel transfer areas and in areas where significant material liquids are stored such as storage rooms or in vehicle maintenance areas. The sump acts as secondary containment protection. If a spill of toxic or hazardous material occurs, the sump will be cleaned and the waste materials disposed of properly.

Frequency of BMP Application (if applicable): A dead end sump will be constructed where determined to be the most efficient manner in which to provide secondary containment.

Training: N/A

Effectiveness and Cost: This is a highly effective BMP for small spills and leaks. Costs will depend vary depending on site characteristics and the size of sump required. This is not an effective BMP for large spills or leaks.

Limitations: Construction cost may not be feasible.

### **BMP 098A - Clean Oil/Water Separator Weekly**

Description of Potential Pollutant Sources: The degree and frequency of maintenance of an oil/water separator greatly affects its ability to remove petroleum compounds and grease from stormwater.

Description of BMP: Oil/water separators will be inspected monthly during the wet season and will be cleaned at least four times per year. They will always be cleaned in October, just prior to the wet season. The materials cleaned from the separator will be disposed of properly. The solids will be analyzed for hazardous materials and disposed of properly. Refer also to BMP 098, Construct Oil/Water Separator.

Frequency of BMP Application (if applicable): All oil/water separators will be maintained properly according to the description provided above.

Training: N/A

Effectiveness and Cost: Cleaning and maintaining oil/water separators is a moderately effective, moderate-cost BMP once the separator is installed.

Limitations: The sediment removed during maintenance must be tested and may be a hazardous waste. Hazardous waste must be disposed of accordingly.

### **BMP 098B - Maintain Oil/Water Separator in Good Operating Condition**

Description of Potential Pollutant Sources: Components to an oil/water separator may not function as they were designed to due to unanticipated site or operating characteristics. This type of problem will greatly affect the separator's ability to remove petroleum compounds and grease from stormwater.

Description of BMP: The oil/water separator will be evaluated to ensure that it is functioning as intended. Oil/water separators that are bypassed due to improper operation will be retrofitted or maintained to ensure proper operation.

Frequency of BMP Application (if applicable): All oil/water separators not functioning as designed will be retrofitted or redesigned and maintained to ensure proper operation.

Training: Operators of oil/water separators and oil/water separator maintenance workers will be trained to evaluate whether the system is operating as intended and is effectively removing oil and grease from stormwater.

Effectiveness and Cost: This is a moderately effective, variable cost BMP depending upon operating characteristics and specific problems encountered with the system.

Limitations: None.

### **BMP 098D - Upgrade Existing Oil/Water Separator**

Description of Potential Pollutant Sources: An existing oil/water separator that has exceeded its effective operation life, is outmoded, or one for which the original characteristics of the tributary area may have surpassed design criteria may not be able to effectively remove oil and grease from stormwater.

Description of BMP: The existing oil/water separator will be upgraded or replaced with an oil/water separator designed to meet appropriate design requirements.

Frequency of BMP Application (if applicable): Provide upgrades or construct new oil/water separator in recommended location.

Operation and Maintenance: The degree and frequency of maintenance significantly affects the performance of an oil/water separator. Cleaning the oil/water separator at regular intervals will prevent the accumulated sediment and oil to be discharged from the structure during intense storms.

The upgraded or new oil/water separator will be inspected monthly during the wet season and will be cleaned at least four times a year. It will be cleaned in October, before the start of the wet season. The accumulated oil and sediment will be properly disposed of.

Training: N/A

Effectiveness and Cost: This is a moderately effective, high-cost BMP.

Limitations: Oil/water separators are less effective when stormwater runoff has high sediment concentrations or detergent levels that disperse oil. Oil/water separators are only effective for highly pervious drainage areas. Oil/water separators cannot effectively treat large volumes of runoff. The maximum drainage area to oil/water separators is typically 1 acre. The sediment removed during maintenance must be tested and may be hazardous waste and disposed of accordingly.

### **BMP 099A - Construct Catch Basins with Sedimentation Chambers**

Description of Potential Pollutant Sources: Stormwater catch basin inlets are typically designed with a small sediment trap. This prevents some sediment from clogging up storm drains and from reaching the receiving water. Sediments carry the particulate phase of pollutants as heavy metals, PCBs PAHs and pesticides. Catch basins that are very old may not have been constructed with these sediment traps.

Description of BMP: Old stormwater catch basin inlets will be replaced with new inlet structures that contain sediment traps.

Operation and Maintenance: Accumulated sediments in the sediment traps must be cleaned regularly to prevent resuspension during a storm, which may increase the pollutant load from an individual storm.

Frequency of BMP Application (if applicable): New catch basin inlets will be constructed to replace old ones at recommended locations.

Training: N/A

Effectiveness and Cost: Catch basin inlets with sediment traps are somewhat effective in trapping coarser sediments and debris but ineffective in the removal of finer sediments and dissolved pollutants. They must be cleaned often to be of any benefit. This is a moderately effective, moderate-cost BMP.

Limitations: The sediment removed during maintenance must be tested. If it is a hazardous waste, it must be disposed of properly.

### **BMP 099B - Maintain Special Catch Basin Inlets**

Description of Potential Pollutant Sources: If special stormwater catch basin inlets (see BMPs 099 and 099A) are not maintained properly, the pollutants that they are designed to reduce in stormwater will not be captured by the structure and will enter the receiving water.

Description of BMP: The degree and frequency of maintenance significantly affects the performance of specially designed and constructed catch basin inlets. Cleaning the inlets at regular intervals will prevent the accumulated sediment and oil (in the case of water quality inlets) to be discharged from the structure during subsequent storms.

Frequency of BMP Application (if applicable): All special catch basin inlets will be cleaned and maintained regularly.

Training: N/A

Effectiveness and Cost: This is a moderately effective, low-cost BMP.

Limitations: Water quality inlet catch basins and catch basins with sediment traps must be frequently cleaned out in order to provide any pollutant removal. These inlets actually provide relatively little pollutant removal.

The sediment removed during maintenance must be tested. If it is a hazardous waste it must be disposed of properly.

### **BMP 110A - Upgrade Stormwater Conveyance System**

Description of Potential Pollutant Sources: Old stormwater conveyance systems may not be efficient in trapping sediment at inlets or in carrying stormwater away.

Description of BMP: Older stormwater conveyance systems will be upgraded to handle both water quantity and quality design criteria.

Frequency of BMP Application (if applicable): Upgrade existing stormwater conveyance systems in recommended locations.

Training: N/A

Effectiveness and Cost: This is moderately effective, high cost BMP.

Limitations: Cost may be prohibitive.

### **BMP 117 - Use Excess Parts in Future Construction Projects**

Description of Potential Pollutant Sources: Materials and parts ordered for construction projects that are in excess of what is actually needed are sometimes stored outside and exposed to stormwater.

Description of BMP: Excess materials and parts stored in outside storage areas will be inventoried and used in future construction projects as possible. This will help to reduce the amount of materials being stored outside and exposed to stormwater. In addition, if excess parts are used it will eliminate the need to dispose of them.

Frequency of BMP Application (if applicable): Inventory of all excess materials will be kept and used if possible in future construction projects.

Training: The inventory will be made available to personnel responsible for ordering construction materials so as to increase the likelihood of their being used in future projects.

Effectiveness and Cost: This is a moderately effective, low-cost BMP.

Limitations: Excess materials may not be suitable for all future projects.

**BMP 118 - Minimize amount of Deicing Chemicals Used on Roads and Sidewalks**

Description of Potential Pollutant Sources: Chemicals used to deice roads and sidewalks typically include salt and urea. If care is not taken to prevent excess application of these chemicals, higher concentrations than necessary will be exposed to stormwater than necessary.

Description of BMP: The amount of deicing chemicals applied to sidewalks and roadways will be minimized and only the amounts absolutely necessary for safety purposes will be applied.

Frequency of BMP Application (if applicable): All applications of deicing chemicals will be kept to the minimum amount required for providing safe walking and driving conditions. Refer also to BMP 119.

Training: Personnel responsible for applying deicing chemicals will be trained in the appropriate amounts of chemical needed to achieve safe walking and driving surfaces given the surface type, forecasted use and weather conditions.

Effectiveness and Cost: This is a moderately effective, low-cost BMP.

Limitations: None.

### **BMP 119 - Evaluate Deicing Application Rates for Runways and Aircraft**

Description of Potential Pollutant Sources: Urea, ethylene glycol or propylene glycol are typically used to deice runways. Ethylene or propylene glycol is typically used to deice aircraft. If care is not taken to prevent excess application of these chemicals, higher concentrations than necessary will be exposed to stormwater. Glycols increase the oxygen demand of receiving waters and ammonia, which is a by-product of urea degradation contributes to the nitrogenous oxygen of the receiving water and is potentially toxic to aquatic life.

Description of BMP: Airport operators will evaluate present application rates of deicing chemicals to both runways and aircraft to ensure against excessive over application. Utilization of devices that meter application rates should be considered. Other means of monitoring the use of deicing fluid would include the observation of ethylene glycol containers for differences in volume to determine the amount of fluid used during each application episode. This BMP should be considered in conjunction with other deicing BMPs: MPs 118 - 129.

Frequency of BMP Application (if applicable): Application rates of deicing chemicals on all runways and aircraft will be evaluated.

Training: Personnel responsible for applying deicing chemicals will be trained in the appropriate amounts of chemical needed to achieve safety standards given the surface type and weather conditions or other appropriate factors.

Effectiveness and Cost: Evaluation of deicing fluid application rates would not be effective in eliminating ethylene glycol runoff but may reduce the amount. Costs associated with this measure are low to none, depending on the method of evaluation. There would be no costs incurred in association with observing differences in deicing fluid container volume. Acquisition of flow meters would incur a low cost. Overall, this is a moderately effective, low-cost BMP.

Limitations: Cost of metering devices may be expensive.

### **BMP 120 - Develop Anti-Icing Procedures for Runways**

Description of Potential Pollutant Sources: A larger amount of chemical is required to remove ice that has formed and bonded to the runway surface than is required to prevent ice from forming. Urea, ethylene glycol or propylene glycol is typically used to deice runways. Glycols increase the oxygen demand of receiving waters and ammonia, which is a by-product of urea degradation contributes to the nitrogenous oxygen of the receiving water and is potentially toxic to aquatic life.

Description of BMP: Anti-icing procedures will be developed and implemented for runway deicing.

Frequency of BMP Application (if applicable): Anti-icing procedures should be implemented at all times.

Training: Personnel responsible for deicing runways should be fully trained in anti-ice procedures.

Effectiveness and Cost: This is a highly effective, low-cost BMP, because less chemicals are required to anti-ice than to deice, costs for purchasing the chemicals will go down.

Limitations: None.

### **BMP 121 - Install Runway Ice Detection System (Pavement Sensors)**

Description of Potential Pollutant Sources: A larger amount of chemical is required to remove ice that has formed and bonded to the runway surface than is required to prevent ice from forming. Pavement sensors can indicate to deicing personnel the appropriate time to begin anti-icing operations. Urea, ethylene glycol or propylene glycol is typically used to deice runways. Glycols increase the oxygen demand of receiving waters and ammonia, which is a by-product of urea degradation, contributes to the nitrogenous oxygen of the receiving water and is potentially toxic to aquatic life.

Description of BMP: A runway ice detection system will be installed at all operational runways. Personnel will monitor pavement temperatures that will indicate when freezing conditions are being approached. Anti-ice procedures will be initiated in an efficient and timely manner.

Frequency of BMP Application (if applicable): Runway ice detection system will be installed on all operational runways. Anti-ice operations will be initiated in a timely manner.

Operation and Maintenance: An appropriate operation and maintenance program is required to ensure that sensors are functioning correctly.

Training: Responsible personnel will be trained in the operation and maintenance of pavement sensor and monitoring system and in anti-ice procedures.

Effectiveness and Cost: This is a highly effective, high-cost BMP.

Limitations: This BMP is very expensive.

### **BMP 122 - Use Alternative Deicing Chemicals on Runways**

Description of Potential Pollutant Sources: Ethylene and propylene glycols and urea are the most common chemicals used for runway deicing. An alternative chemical approved by the Federal Aviation Administration (FAA) for runway deicing/anti-icing is potassium acetate, which has a lower oxygen demand than glycol and is non-toxic to aquatic habitat and humans.

Description of BMP: Use of the alternative deicing chemical potassium acetate on runways will be considered.

Frequency of BMP Application (if applicable): Potassium acetate will be used for runway deicing/ anti-icing as determined feasible.

Training: N/A

Effectiveness and Cost: This is a moderately effective BMP. Costs for potassium acetate are most likely higher than urea or glycols.

Limitations: Availability of potassium acetate and higher costs may limit its use.

### **BMP 122A - Pre-Treat Aircraft with Hot Water or Forced Air Prior to Deicing Chemical Application**

Description of Potential Pollutant Sources: Pretreating aircraft with hot water or forced air reduces the amount of deicing chemical required. Ethylene or propylene glycol is typically used to deice aircraft. Reducing the amount of chemical required to deice aircraft will reduce the concentrations of chemicals exposed to stormwater. Glycols increase the oxygen demand of receiving waters and ammonia, which is a by-product of urea degradation contributes to the nitrogenous oxygen of the receiving water and is potentially toxic to aquatic life.

Description of BMP: Aircraft will be treated with hot water or forced air prior to application of deicing chemical.

Frequency of BMP Application (if applicable): Treatment with hot water or forced air should be done prior to all aircraft deicing chemical applications.

Training: Aircraft deicing personnel will be trained in application of hot water or forced air and associated equipment.

Effectiveness and Cost: This is a moderately effective BMP. Glycol application is still required for anti-icing while the plane is exposed to weather during taxi and take-off. Costs of hot water or forced air equipment, additional training and additional personnel may be high.

Limitations: The costs associated with additional equipment and personnel may be high.

### **BMP 123 - Provide Covered or Heated Parking for Aircraft**

Description of Potential Pollutant Sources: Aircraft parked outside during passenger and cargo loading/unloading during inclement winter weather conditions allows ice and snow to build up on the surface of the aircraft. Providing covered or heated parking for aircraft reduces the amount of snow and ice build-up that can occur thereby reducing the amount of deicing chemical required. Reducing the amount of chemical required to deice aircraft will reduce the concentrations of chemicals exposed to stormwater. Glycols increase the oxygen demand of receiving waters and ammonia, which is a by-product of urea degradation, contributes to the nitrogenous oxygen of the receiving water and is potentially toxic to aquatic life.

Description of BMP: Provide covered or heated parking areas for aircraft in cargo and passenger loading/unloading areas.

Frequency of BMP Application (if applicable): N/A

Training: N/A

Effectiveness and Cost: This is a moderately effective BMP. Glycol is still required for anti-icing while the plane is exposed to weather during taxi and take-off. This is a high cost BMP.

Limitations: This is a high-cost BMP.

### **BMP 124 - Establish a Centralized Aircraft Deicing Station**

Description of Potential Pollutant Sources: Ethylene or propylene glycol is typically used to deice aircraft. Glycols released directly to the environment increase the oxygen demand of receiving waters and ammonia, which is a by-product of urea degradation, contributes to the nitrogenous oxygen of the receiving water and is potentially toxic to aquatic life.

Description of BMP: Spent deicing chemicals can be collected more readily if a centralized deicing area is used. This BMP can then be used in conjunction with other BMPs that require collection by vacuum or pipeline for recycling, detention or disposal to the sanitary sewer. Refer also to BMPs 125, 126, 127 and 128.

Frequency of BMP Application (if applicable): All aircraft will be deiced in a central location for easy collection of deicing chemical.

Training: N/A

Effectiveness and Cost: Establishment of a centralized deicing station would be highly effective in eliminating deicing fluid runoff to the storm drainage system because chemical is collected and treated in some manner prior to release to the environment or collected and not released to the environment. High winds, however, may carry fugitive deicing fluids outside the station. This can be a moderate to high cost BMP depending on the collection method employed. Costs may include: capital costs associated with construction of the station; capital costs to install discharge pipeline or costs for operation/maintenance costs associated with the use of a vacuum truck.

Limitations: Cost and available space for a centralized deicing location may limit its application.

### **BMP 125 - Collect Spent Aircraft Deicing and Discharge to Sanitary Sewer**

Description of Potential Pollutant Sources: Ethylene or propylene glycol is typically used to deice aircraft. Glycols released directly to the environment increase the oxygen demand of receiving waters and ammonia, which is a by-product of urea degradation, contributes to the nitrogenous oxygen of the receiving water and is potentially toxic to aquatic life.

Description of BMP: Spent deicing chemicals can be collected in a variety of manners and discharged to the sanitary sewer system. Collections methods include: use of mechanical vacuum systems; construction of valve inserts in existing storm drain catch basins to reroute deicing fluid to pipelines leading to the sanitary sewer system; installation of catch basins connected directly to the sanitary sewer system.

Frequency of BMP Application (if applicable): All aircraft will be deiced in a central deicing location and all spent deicing chemicals will be collected and discharged to the sanitary sewer system.

Training: Deicing crews will be trained in the operation of vacuum collection equipment if used. No other training would be required.

Effectiveness and Cost: This is a highly effective BMP because all glycol products are collected and treated. Costs associated with this BMP are high due to either the purchase of a new piece of equipment and associated training and maintenance or the cost of construction of a sanitary sewer hook-up.

Limitations: Cost, operation specification of sewage treatment plant.

### **BMP 126 - Collect Spent Aircraft Deicing Fluid and Recycle**

Description of Potential Pollutant Sources: Ethylene or propylene glycol is typically used to deice aircraft. Glycols released directly to the environment increase the oxygen demand of receiving waters and ammonia, which is a by-product of urea degradation, contributes to the nitrogenous oxygen of the receiving water and is potentially toxic to aquatic life.

Description of BMP: Spent deicing chemicals can be collected directly by mechanical vacuum systems to be recycled for other non-aircraft applications.

Frequency of BMP Application (if applicable): All spent deicing chemical will be collected and contained for shipment to a glycol recycler.

Training: Aircraft deicing personnel will be trained on collection procedure and equipment.

Effectiveness and Cost: This is a highly effective BMP. The costs associated with collection of the glycol may be high depending on the method used.

Limitations: The costs for collection equipment and disposal to a recycler may be high.

### **BMP 127 - Collect Spent Aircraft Deicing Fluid in Detention Pond to Pre-Treat Prior to Discharge to Surface Water**

Description of Potential Pollutant Sources: Ethylene or propylene glycol is typically used to deice aircraft. Glycols released directly to the environment increase the oxygen demand of receiving waters and ammonia, which is a by-product of urea degradation, contributes to the nitrogenous oxygen of the receiving water and is potentially toxic to aquatic life.

Description of BMP: Large volumes of glycol waste can be collected with stormwater runoff and piped to a detention basin where the mixture can be allowed to undergo biodegradation prior to being released to surface water. Continuous aeration can speed up the rate of biodegradation and reduce hydraulic capacity requirements.

Frequency of BMP Application (if applicable): All spent deicing chemical will be collected and discharged to the detention pond.

Training: N/A

Effectiveness and Cost: This is a highly effective BMP because the glycols are treated in a controlled surface water pond and allowed to undergo biodegradation prior to release to the receiving waters. Biodegradation may not be complete, however, due to the low water and air temperatures that will exist in the pond during the periods that deicing is required. Continuous aeration can be provided for enhanced degradation prior to being released into the environment. This is a high cost BMP. Costs would include: capital costs for the construction of the detention pond and associated drainage pipeline; and, operation/maintenance costs associated with the detention pond.

Limitations: Space for the detention pond may not be available. Cost of detention pond construction may be high.

**BMP 128 - Collect Spent Aircraft Deicing Fluid in Detention Pond Prior to Pre-Treat Prior to Discharge to Sanitary Sewer**

Description of Potential Pollutant Sources: Ethylene or propylene glycol is typically used to deice aircraft. Glycols released directly to the environment increase the oxygen demand of receiving waters and ammonia, which is a by-product of urea degradation, contributes to the nitrogenous oxygen of the receiving water and is potentially toxic to aquatic life.

Description of BMP: A detention basin will be constructed to hold and dilute glycol waste so that it can be discharged to the sanitary sewer in a manner such that the additional pollutant and hydraulic loads do not shock or overload the sewage treatment system.

Frequency of BMP Application (if applicable): All spent deicing chemical will be collected and pre-treated in a detention pond prior to release to the sanitary sewer.

Training: Personnel will be trained in collection equipment if used as the collection procedure.

Effectiveness and Cost: This is a highly effective, high-cost BMP.

Limitations: Discharge to pond must optimize stormwater runoff collection so that enough water is provided for dilution but not too much water has to be sent through the treatment plant. Costs are high.

### **BMP 129 - Construct Computer Controlled Gantry Deicing Facility**

Description of Potential Pollutant Sources: Ethylene or propylene glycol is typically used to deice aircraft. Glycols increase the oxygen demand of receiving waters and ammonia, which is a by-product of urea degradation, contributes to the nitrogenous oxygen of the receiving water and is potentially toxic to aquatic life. Reducing the amount of chemical required to deice aircraft will reduce the concentrations of chemicals exposed to stormwater.

Description of BMP: An automated taxi-through (gantry) deicing facility equipped with high-efficiency spray nozzles and computer controlled spray arms will be constructed. This will allow effective deicing with less chemical waste than manual deicing systems. The spent chemical is collected and requires disposal. Refer also to BMPs 125, 126, 127 and 128 for disposal BMPs.

Frequency of BMP Application (if applicable): All aircraft must be deiced in the gantry facility.

Training: Personnel must be trained in the operation of the gantry system.

Effectiveness and Cost: This is a moderate to highly effective BMP depending on where the spent glycol is discharged. This is a very high-cost BMP.

Limitations: Cost.

### **BMP 130 - Treat and Recycle Water Back to Boilers**

Description of Potential Pollutant Sources: Water from the boiler system that is wasted to help control buildup of solids or minerals is referred to as boiler blowdown. The water used in boilers is often subjected to treatment designed to control corrosion and scale formation. Caustics, sodium chromate, zinc or acids are typically used for this purpose making boiler blowdown an industrial wastewater. If these waters are discharged to the storm drain system or to surface water the potential for contaminated stormwater and receiving water exists.

Description of BMP: Condensate and blow-down waters from boilers will be collected, treated and recycled back to boiler.

Frequency of BMP Application (if applicable): N/A

Training: N/A

Effectiveness and Cost: This is a highly effective, medium to high cost BMP.

Limitations: Cost. It may be more economical to reroute the condensate and blow-down water directly to the sanitary sewer system if a sanitary sewer line is nearby.

### **BMP 131 - Provide Remedial Investigation and Remove Source**

Description of Potential Pollutant Sources: Soil located in outside areas that have had contact with toxic or hazardous materials may be contaminated with those materials. The contaminated soils are exposed to and have the potential for contaminating stormwater.

Description of BMP: Outside areas that have the likelihood of being contaminated with toxic or hazardous materials due to previous or current activities shall be evaluated for potential contamination. The evaluation will be conducted in a manner similar to the investigations performed for a remedial investigation and will include soil and groundwater sampling. Surface water samples of runoff from the site will be tested if possible. If contamination is evident, the soil should be removed and disposed of properly.

Frequency of BMP Application (if applicable): All outside areas (soils) that have had contact with toxic or hazardous materials should be evaluated for contaminated soils, groundwater or surface water.

Training: N/A

Effectiveness and Cost: This is an effective, high cost BMP.

Limitations: None.

### **BMP 132 - Recycle Water to Vehicle Wash Rack and other Nearby Non-Potable Water Users**

Description of Potential Pollutant Sources: Cooling waters or condensate from refrigeration compressor units can contaminate stormwater if discharged to the storm drain system.

Description of BMP: Recycle cooling water and condensate from refrigeration compressor units to nearby non-potable water users such as vehicle wash racks.

Frequency of BMP Application (if applicable): N/A

Training: N/A

Effectiveness and Cost: This is an effective, high-cost BMP. High capital costs for recycling which include costs for construction of a cooling tower require a long payback period before any economic benefit is realized.

Limitations: Costs may be too high than other feasible alternatives.

### **BMP 135 - Provide Good Housekeeping Practices**

Description of Potential Pollutant Sources: Disorderly shop and office areas where significant materials are stored or used can lead to spills and leaks of toxic or hazardous materials. These materials can then become exposed to stormwater. In addition, poor housekeeping can result in more waste being generated than necessary and an increased potential for stormwater contamination.

Description of BMP: Good housekeeping practices are those designed to maintain a clean and orderly work environment. These include regular sweeping and/or vacuuming (BMPs 003 and 005), cleaning spills and leaks promptly (BMP 006), regular pickup and disposal of garbage and waste materials (BMPs 007 and 057A), routine inspections for leaks and spills (BMPs 016C and 033), and keeping neat and orderly material storage areas.

Frequency of BMP Application (if applicable): All shops, offices and other facilities will implement good housekeeping practices.

Training: All Activity personnel will receive training on the Stormwater Pollution Prevention Plan. This will include instruction on the benefits of good housekeeping.

Effectiveness and Cost: This is a moderately effective, low-cost BMP.

Limitations: None.

### **BMP 136 - Confine Unloading/Loading Activities to a Designated Area**

Description of Potential Pollutant Sources: Significant materials can be exposed to stormwater if loading and unloading is not conducted in designated areas.

Description of BMP: Loading and unloading of significant materials will only be conducted at designated areas. The areas should be well away from storm drain inlets in case of a spill or leak of significant materials. If storm drain inlets do exist in the loading area, they should be covered during loading/unloading (see BMP 139).

Frequency of BMP Application (if applicable): Whenever possible, all loading and unloading activities will be performed in a designated area.

Training: Personnel will be trained to load and unload materials only in designated areas. Personnel will be informed as to where these areas are located at each facility.

Effectiveness and Cost: This is an effective, low-cost BMP.

Limitations: None.

### **BMP 137 - Consider Performing Loading/Unloading Activities Indoors or in a Covered Area**

Description of Potential Pollutant Sources: Significant materials can be exposed to stormwater if loading and unloading is conducted outdoors, not under cover.

Description of BMP: Loading and unloading of significant materials will be conducted inside a building or facility or within a cover area such as a covered loading dock if such an area exists.

Frequency of BMP Application (if applicable): Covered loading docks will always be used for loading and unloading if they exist. Loading and unloading of significant materials will be done inside if possible in the event no covered loading dock or other covered area exists.

Training: Personnel will be instructed to conduct loading/unloading operations inside or within a covered loading dock or other covered area if one exists.

Effectiveness and Cost: This is an effective, low-cost BMP.

Limitations: Covered loading areas or docks may not exist or it may not be physically possible to load/unload materials inside the building or facility.

**BMP 138 - Consider Covering Loading/ Unloading Area with Permanent Cover (e.g., roofs) or Temporary Cover (e.g., tarps)**

Description of Potential Pollutant Sources: Significant materials can be exposed to stormwater if loading and unloading is conducted outdoors, not under cover.

Description of BMP: A covered loading/unloading area will be constructed at the facility. This will be either a covered loading dock or other platform on ground surface adjacent to the facility.

Frequency of BMP Application (if applicable): N/A

Training: Personnel will be instructed to conduct loading/unloading operations inside or within a covered loading area.

Effectiveness and Cost: This is an effective BMP. Costs will vary depending on site characteristics, size and type of cover constructed.

Limitations: None.

**BMP 139 - Close Storm Drains During Unloading/Loading Activities in Surrounding Area**

Description of Potential Pollutant Sources: Spills or leaks of significant materials can potentially occur during unloading/loading operations. If these activities occur near a storm drain, the material may be discharged into the storm drain system.

Description of BMP: During loading and unloading activities, a portable rubber mat will be placed over the storm drain. If a spill or leak occurs during the operation, the mat will prevent the pollutant from entering the storm drain system. The spilled material will be cleaned up and disposed of properly before removal of the rubber mat.

Frequency of BMP Application (if applicable): Portable rubber mats will be placed over the storm drain for the duration of the loading/unloading operation.

Training: Personnel will be trained regarding the use of the rubber mat. In addition, personnel will be trained in proper cleanup and disposal of any spilled material.

Effectiveness and Cost: This is a highly effective, low-cost BMP.

Limitations: This BMP works best on flat storm drains.

**BMP 141 - Inspect the Unloading/Loading Areas to Detect Problems before they Occur**

Description of Potential Pollutant Sources: Spills or leaks of significant materials can potentially occur during unloading/loading operations. Regular inspections of loading/unloading areas to detect problems before they occur will prevent significant materials from being exposed to stormwater.

Description of BMP: Unloading/loading areas will be routinely inspected to detect potential problems before they occur. Items to look for include hazards that might hamper loading/unloading operations, open storm drain inlets, and integrity of containers to be transported. Refer also to BMPs 136, 137, 138, 139, 142 and 143.

Frequency of BMP Application (if applicable): All unloading/loading areas will be inspected prior to movement of any goods.

Training: Instruct personnel on items to look for and to be aware of during inspections.

Effectiveness and Cost: This is a moderately effective, low-cost BMP.

Limitations: None.

**BMP 142 - Inspect All Containers Prior to Loading/Unloading of any Raw or Spent Materials**

Description of Potential Pollutant Sources: Spills or leaks of significant materials can potentially occur during unloading/loading operations. If these activities occur near a storm drain, the material may be discharged into the storm drain system.

Description of BMP: All containers and packages will be inspected for leaks or potential leaks prior to loading or unloading of any raw or spent materials.

Frequency of BMP Application (if applicable): All containers to be moved will be inspected.

Training: Personnel will be instructed to properly inspect all containers and packages of all raw or spent materials prior to moving them.

Effectiveness and Cost: This is an effective, low-cost BMP.

Limitations: None.

**BMP 143 - Consider Berming, Curbing, or Diking Loading/Unloading Areas**

Description of Potential Pollutant Sources: Spills or leaks of significant materials can potentially occur during unloading/loading operations. If these activities occur near a storm drain, the material may be discharged into the storm drain system.

Description of BMP: A raised berm or dike will be constructed around the loading area. This will provide secondary containment and prevent any spills or leaks from leaving the area. It may be required to construct a speed bump to allow vehicle access to the area. A drain valve will be installed and procedures to drain stormwater from the bermed area will be posted (see BMP 014).

Frequency of BMP Application (if applicable): Install as needed.

Training: N/A

Effectiveness and Cost: This is a highly effective BMP. The cost will vary depending on the size of the fueling operation.

Limitations: Cost.

**BMP 145 - Prevent or Minimize Fugitive Dust Emissions From Coal Handling Areas**

Description of Potential Pollutant Sources: Coal dust generated at coal handling areas such as hoppers, conveyors, trucks, and railcars.

Description of BMP: Provide temporary or permanent tarps over handling areas to minimize wind.

Frequency of BMP Application (if applicable): Install as needed.

Training: N/A

Effectiveness and Cost: Difficult to implement at hoppers and conveyors. Moderate cost.

Limitations: BMP would work best at permanent stations, close to ground.

**BMP 146 - Prevent Off-site Tracking With Specially Designed Tires**

Description of Potential Pollutant Sources: Coal dust tracked by vehicles across coal yard.

Description of BMP: Tires with minimal tread.

Frequency of BMP Application (if applicable): Apply as needed.

Training: N/A

Effectiveness and Cost: Effective in combination with regulator pavement sweeping.

Limitations: Only feasible for vehicles designated primarily to coal yard service.

**BMP 147 - Prevent Off-site Tracking by Washing Vehicles in Designated Areas Before Leaving Site**

Description of Potential Pollutant Sources: Coal particles embedded in tire tread.

Description of BMP: Wash area with sloped pavement and sump to collect coal.

Frequency of BMP Application (if applicable): Wash all vehicles leaving coal yard.

Training: N/A

Effectiveness and Cost: Highly effective in limiting off site coal transport with low costs.

Limitations: Implementable where wash water can be decanted to sanitary sewer or infiltration.

**BMP 148 - Inspect Coal Delivery Vehicles Arriving at Plant to Ensure Integrity of Body or Container**

Description of Potential Pollutant Sources: Delivery vehicles with partially opened doors or poor seals will spill coal.

Description of BMP: Inspect vehicles to ensure door close properly. Prohibit use of faulty equipment by supplier.

Frequency of BMP Application (if applicable): Inspect each vehicle until consistency shown.

Training: N/A

Effectiveness and Cost: Effective in limiting spills, low cost.

Limitations: N/A

### **BMP 151 - Keep Dumpster Lids Closed at all Times**

Description of Potential Pollutant Sources: Dry waste, including such items as scrap metal, floor sweepings, metal chips, and paper goods that are stored in a dumpster can be dispersed by wind or operational error, be carried away by animals, or exposed to stormwater which may leak out of the bottom and into the storm drain system if the dumpster lid is not kept closed.

Description of BMP: All dumpsters will have lids that should be kept closed except during filling or servicing. If the dumpster has inadequate capacity and it is not possible to keep the cover closed, the frequency of pick-up will be increased, or the dumpster will be replaced with a model of greater capacity.

Frequency of BMP Application (if applicable): This practice will be followed for all dumpsters.

Training: Personnel will be reminded that the dumpster lid should remain closed at all times.

Effectiveness and Cost: This is moderately effective, no cost BMP.

Limitations: None.

**BMP 153 - Residue Hauling Vehicles Should Have Proper Coverings and Overall Integrity of Body or Container**

Description of Potential Pollutant Sources: Vehicles that haul loose materials such as gravel, construction residue, ash residue from coal fired steam electric power generating facilities, top soil or similar materials can lose a portion of their load if the vehicle container is not properly covered or if it is not structurally sound.

Description of BMP: All residue-hauling vehicles shall be inspected for proper covering over the load, adequate gate sealing and overall integrity of body and container.

Frequency of BMP Application (if applicable): This BMP applies to all vehicles that transport these types of materials.

Training: Truck drivers should be instructed on proper covering and containment of their loads.

Effectiveness and Cost: This is an effective, low to moderate cost BMP.

Limitations: None.

**BMP 171 - Prevent All Blasting and Painting Residuals From Reaching Stormwater**

Description of Potential Pollutant Sources: Sandblasting, in preparation for painting and painting itself creates wastes including glass, metal, stone, sand and other wastes that may become exposed to stormwater if not properly collected and disposed. These materials can then be transported to storm drains and/or receiving waters.

Description of BMP: There are several ways in which to contain sandblasting and painting wastes including: the enclosure of outside sanding and painting areas with tarps or plastic sheeting (see also BMP 076) and avoid sanding and painting in windy weather (see BMP 081); perform painting and sanding activities in facilities equipped with vacuum filters (see BMP 077); and, conduct indoor sanding and painting in an enclosed area (see BMP 079). All wastes will be collected in labeled drums and disposed of properly.

Frequency of BMP Application (if applicable): All sandblasting and painting activities will be conducted with appropriate waste collection measures.

Training: Personnel will be instructed in procedures for the proper containment, collection and disposal of painting and sandblasting wastes.

Effectiveness and Cost: Costs will vary depending upon the item being blasted or painted. This is usually a highly effective BMP.

Limitations: The size of some operations may make implementation of this BMP difficult.

### **BMP 175 - Perform Pressure Washing in Designated Areas**

Description of Potential Pollutant Sources: Grease, oil , metals, suspended solids.

Description of BMP: Use of a bermed wash area to contain all wash waters and prevent contact with stormwater. Collected wash water would be directed to the sanitary sewer or a closed loop recycling system.

Frequency of BMP Application (if applicable): All washing activities should be contained

Training: Personnel will be instructed on procedures for containment of all wash waters.

Effectiveness and Cost: Costs will vary depending of size of facility and the availability of a sanitary sewer connection.

Limitations: Utility connections may not be available in the area. In some cases pretreatment may be required increasing costs.

### **BMP 176 - Use No Detergents or Additives in Pressure Wash Water**

Description of Potential Pollutant Sources: Treatment is ineffective because of detergents used in wash water, solubilize grease and oil that enter storm drain system.

Description of BMP: Use only hot water for wash.

Frequency of BMP Application (if applicable): Apply where general washing such as for building, done outside of designated areas.

Training: N/A

Effectiveness and Cost: This is highly effective, low cost.

Limitations: None

### **BMP 179 - Where Feasible, Cover Drains, Trenches, and Drainage Channels to Prevent Entry of Blasting Debris**

Description of Potential Pollutant Sources: Sandblasting, in preparation for painting and painting itself creates wastes including glass, metal, stone, sand and other wastes that may become exposed to stormwater if not properly collected and disposed. These materials can then be transported to storm drains and/or receiving waters.

Description of BMP: There are several ways in which to contain sandblasting and painting wastes including: the enclosure of outside sanding and painting areas with tarps or plastic sheeting (see also BMP 076) and avoid sanding and painting in windy weather (see BMP 081); perform painting and sanding activities in facilities equipped with vacuum filters (see BMP 077); and, conduct indoor sanding and painting in an enclosed area (see BMP 079). Refer also to BMP 171. In addition to using one of these methods, drains, open channels and open trenches in the vicinity of sandblasting and painting operations will be closed during these operations to prevent fugitive wastes from entering them. Rubber mats or plastic tarps can be used for this purpose.

Frequency of BMP Application (if applicable): Where feasible, close all storm drain inlets, open drainage channels and open trenches in the vicinity of sandblasting and painting operations.

Training: Personnel will be instructed in procedures for the covering drains, trenches and channels during painting and sandblasting operations.

Effectiveness and Cost: This is a highly effective, low cost BMP when used in conjunction with proper containment, collection and disposal practices for paint and sandblasting wastes.

Limitations: None.

### **BMP 182 - Mix Paints and Solvents in Designated Areas Away From Stormwater Inlets**

Description of Potential Pollutant Sources: There is a greater chance for paints and solvents to be spilled while they are being mixed, and if this is done near a stormwater inlet, the spilled paint or solvent may be transported to the storm drain and/or receiving water.

Description of BMP: Paints and solvents will be mixed in designated areas away from stormwater inlets.

Frequency of BMP Application (if applicable): Mixing of paints and solvents will be always be conducted in a designated area away from storm drain inlets.

Training: Signs will be posted to remind personnel of designated mixing areas for paints and solvents.

Effectiveness and Cost: This is an effective, relatively low cost BMP.

Limitations: None.

### **BMP 184 - Keep Paint and Paint Thinner Away From Traffic Areas to Avoid Spills**

Description of Potential Pollutant Sources: Paint and thinner used in work areas not secured can be knocked over and spilt.

Description of BMP: Use only volumes needed and secure away from foot and vehicle traffic.

Frequency of BMP Application (if applicable): General practice to be used in all painting operations.

Training: Personnel will be trained on spill prevention.

Effectiveness and Cost: This is an effective BMP if used regularly. Cost is low.

Limitations: None

### **BMP 185 - Recycle Paint, Paint Thinners and Solvents**

Description of Potential Pollutant Sources: Paint, paint thinners and solvents are materials that can pollute stormwater. Recycling can help reduce the amount of waste material exposed to stormwater.

Description of BMP: Paint, paint thinners and solvents will be recycled to the fullest extent possible. (See also BMP 15)

Frequency of BMP Application (if applicable): Paint, paint thinners and solvents will be recycled to the fullest extent possible. (See also BMP 15)

Training: Personnel will be trained on proper handling and temporary storage of waste materials for recycling. Proper equipment and storage containers will be provided at each facility that uses these materials.

Effectiveness and Cost: This is an effective BMP if materials are handled, stored and recycled properly. Costs are variable.

Limitations: Local vendors may not be available to receive certain recyclable materials.

### **BMP 194 - Do Not Pour Liquid Wastes Down Floor Drains, Sinks, or Outdoor Storm Drain Inlets**

Description of Potential Pollutant Sources: Wastes inappropriately poured down floor drains and sinks connected to the sanitary can disrupt treatment. Waste poured into drains with storm connections introduce pollutants to receiving waters.

Description of BMP: Liquid waste shall not be poured down any drain that connects to the storm drainage system. Waste that could potentially disrupt treatment shall not be poured down any drain including those that connect to the sanitary sewer system.

Frequency of BMP Application (if applicable): Liquid waste shall always be disposed of properly.

Training: Personnel will be trained in proper disposal procedures. Signs will be posted or stenciled at all floor drains indicating drainage connection.

Effectiveness and Cost: Proper disposal of waste is a highly effective low cost BMP.

Limitations: None.

## **BMP 195 - Seal Floor Drains Connected to Storm Sewer System**

Description of Potential Pollutant Sources: Significant materials may be spilled or may leak in areas that they are used, handled and stored. These materials may be transported to the storm drain system and receiving water if floor drains in the vicinity of where the materials are present are connected to the storm drain system. Interior floor drains should not be connected to the storm drain system in any circumstance.

Description of BMP: Interior floor drains that are connected to the storm drain system will be permanently sealed (unless it is more feasible to reroute the drain to the sanitary sewer system, see BMP 096).

Frequency of BMP Application (if applicable): All interior floor drains that are connected to the storm drain system will be permanently sealed (unless it is more feasible to reroute the drain to the sanitary sewer system, see BMP 096).

Training: N/A

Effectiveness and Cost: This is an effective, low cost BMP.

Limitations: None.

### **BMP 199 - Store Reactive, Ignitable, or Flammable Liquids in Compliance with the Local Fire Code**

Description of Potential Pollutant Sources: The potential exists for liquids to be released to the environment or to react with an incompatible material and then become released to the environment, allowing pollutants to become exposed to stormwater runoff and receiving waters.

Description of BMP: All reactive, ignitable and flammable liquids shall be stored in accordance with the local fire code.

Frequency of BMP Application (if applicable): All reactive, ignitable and flammable liquids shall be stored in accordance with the local fire code.

Training: Personnel will be informed of storage requirements of the local Fire Code for all reactive, ignitable and flammable liquids.

Effectiveness and Cost: This is an effective low cost BMP.

Limitations: None

### **BMP 204 - Use Spill Troughs for Drums With Taps**

Description of Potential Pollutant Sources: Liquid storage drums that have taps with no spill troughs can easily drip significant materials which can then be transported to the storm drain system or receiving water.

Description of BMP: A spill trough will be provided for all liquid storage drums that are fitted with a tap shall.

Frequency of BMP Application (if applicable): All drums with taps will also have spill troughs.

Training: Personnel will be trained on the need for using spill troughs with drum taps.

Effectiveness and Cost: This is an effective, low-cost BMP.

Limitations: None.

### **BMP 207 - Inspect Connecting Hoses for Leaks**

Description of Potential Pollutant Sources: Connecting hoses may leak fuel or other significant materials due to corrosion, loose fittings, or improperly or poorly fitted gaskets. These materials can then be exposed to stormwater and transported to the storm drain system and/or receiving waters.

Description of BMP: Connecting hoses that carry significant materials will be inspected on a regular basis for proper fit and condition.

Frequency of BMP Application (if applicable): Routine inspections will be conducted at appropriate intervals.

Training: Personnel will be trained to regularly inspect for leaks and proper connections.

Effectiveness and Cost: This is an effective, low-cost BMP.

Limitations: None.

## **BMP 209 - Use Appropriate Material Transfer Procedures, Including Spill Prevention and Containment Activities**

Description of Potential Pollutant Sources: Overflows during fueling or transfer of fuels or liquids to storage tanks can expose significant materials to stormwater, which can transport them to the storm drain system and/or receiving waters.

Description of BMP: Appropriate transfer procedures will be used during fueling or transfer of fuels or liquids. These procedures will include appropriate checks and inspections prior to, during and after the material transfer is complete; use of containment materials and/or devices such as absorbent booms and overflow prevention equipment; and monitoring of fueling operations. See also BMPs 062, 064 and 065.

Frequency of BMP Application (if applicable): Appropriate procedures will be used during all material transfer operations.

Training: Personnel responsible for the transfer of materials will be properly trained in these procedures and the necessary equipment will be provided to them.

Effectiveness and Cost: This is a highly effective, low-cost BMP.

Limitations: None.

### **BMP 216 - Keep Records of Required Inspections, Maintenance Activities, Employee Training Programs, Deicing Chemical Application Rates, and Amount and Location of Herbicide/ Pesticide Application**

Description of Potential Pollutant Sources: Regular inspections and routine maintenance of equipment helps to prevent breakdowns and failures, which can result in the exposure of significant materials to stormwater. Employees who are properly informed and trained in pollution prevention techniques, health and safety and other related topics are more skilled at preventing pollution. Keeping accurate records of these inspections and maintenance activities, and training programs helps to ensure that they are being carried out properly.

Keeping records of chemical usage and application rates helps to identify ways to reduce the amounts used which can result in less exposure to stormwater.

Description of BMP: Records will be kept of all required inspections, maintenance activities, employee training programs, deicing chemical application rates, and herbicide/pesticide application rates as required by the SWPPP.

Frequency of BMP Application (if applicable): Records will be kept as required by the site SWPPP.

Training: N/A

Effectiveness and Cost: This is an effective, low-cost BMP.

Limitations: None.

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## **APPENDIX H: ILLICIT DISCHARGE SURVEY FORMS**

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# **APPENDIX I : STORMWATER CHARACTERIZATION DATA**

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## **APPENDIX J: STORMWATER MONITORING REPORTS**

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<b>STORMWATER VISUAL MONITORING RECORD</b>			
Outfall Number: ____			
Observer Name: ____			
Observation Date: __		Time: ____	
Quarter (Check)	January through March		<input type="checkbox"/>
	April through June		<input type="checkbox"/>
	July through September		<input type="checkbox"/>
	October through December		<input type="checkbox"/>
Estimated Time Runoff Discharge Began: _____			
<b>Visual Observations:</b>			
Color	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Describe : _____ _____
Odor	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Describe : _____ _____
Clear	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Describe : _____ _____
Floating Solids	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Describe : _____ _____
Settled Solids	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Describe : _____ _____
Suspended Solids	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Describe : _____ _____
Foam	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Describe : _____ _____
Oil Sheen	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Describe : _____ _____
Other Observations: _____ _____ _____			
<b>Suspected Sources of Pollutants by Visual Examination</b>			
List Sources: _____ _____ _____			

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## **APPENDIX K: RECORD OF SPILLS**

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## **APPENDIX L: FACILITY INSPECTION REPORTS**

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**Figure L-1**

**FACILITY VISUAL INSPECTION REPORT**

Date of Inspection:		Inspector:			
Facility Name:					
Building Number:		Sector:			
Inspection Frequency (Check):					
Monthly (Sectors O, Q, R) <input type="checkbox"/>		Quarterly (Sectors N, P, AA) <input type="checkbox"/>			
Annual (All Facilities) <input type="checkbox"/>					
<b>Pollution Sources and Controls (BMP) Status (See SWPPP Section 4, Table 4-XXXXD)</b>					
Pollution Source/Area in SWPPP	Are SWPPP BMPs in Place and Effective		Are Pollutants Being or Potentially Being Released		Follow-Up Action/New BMPs if Needed <sup>a</sup>
	Yes	No	Yes	No	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

<b>Pollution Control Equipment</b>				
Equipment Type	Operating Status		Follow-Up Action if Needed	
	Adequate	Unsatisfactory		
Oil Water Separators	<input type="checkbox"/>	<input type="checkbox"/>		
Catch Basins	<input type="checkbox"/>	<input type="checkbox"/>		
Spill Response Equipment	<input type="checkbox"/>	<input type="checkbox"/>		
Other:	<input type="checkbox"/>	<input type="checkbox"/>		
	<input type="checkbox"/>	<input type="checkbox"/>		
	<input type="checkbox"/>	<input type="checkbox"/>		
<b>New Pollution Source/Area</b>				
Not in SWPPP <sup>2</sup>	BMPs In Place and effective	Are Pollutants Being or Potentially Being Released		Identify Follow-Up Action (New BMPs if needed) <sup>2</sup>
		Yes	No	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<sup>1</sup> Inspection frequency may be extended to semi-annual if controls consistently found effective.				
<sup>2</sup> Update SWPPP with new BMPs and/or new pollutant sources whenever there is a change in design, construction, operation, or maintenance that has significant effect on the potential for discharge of pollutants to receiving waters or no later than 12 weeks after annual evaluation.				

## **APPENDIX M: MAINTENANCE REPORTS**

Maintenance activities are performed under the Base Operating Services Contract (BOSC). Records of inspections and maintenance are maintained online in Maximo. At the discretion of the pollution prevention team, copies of key maintenance reports may be included in this appendix.

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## **APPENDIX N: CORRECTIVE ACTION REPORTS**

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## **APPENDIX O: EMPLOYEE TRAINING RECORDS**

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<b>Table O-1</b>						
<b>STORMWATER POLLUTION PREVENTION TRAINING<sup>1</sup></b>						
<b>General Training Areas</b>	<b>N</b>	<b>O</b>	<b>P</b>	<b>Q<sup>3</sup></b>	<b>R<sup>3</sup></b>	<b>AA</b>
Goals of the Pollution Prevention Plan	X	X	X	X	X	X
Spill Prevention and Control	X	X	X	X	X	X
Good Housekeeping	X	X	X	X	X	X
Materials Management Practices	X	X	X	X	X	X
<b>Sector Specific Training Areas<sup>2</sup></b>						
Responsibilities for Pickup of Recyclable Materials	X					
Outdoor Storage of Recyclable Materials	X					
Proper Handling Storage of Hydraulic Fluids and Lubricants	X					
Used Oil Management			X	X	X	
Spent Solvent Management			X	X	X	
Spill Prevention, Response, and Control			X			
Fueling Practices			X	X	X	
Proper Painting and Blasting Procedures			X		X	
Used Battery Management			X	X	X	
Proper Handling Procedures for Hazardous Waste		X				
Proper Disposal of Spent Abrasives				X	X	
Proper Disposal of Vehicle Wash Waters				X	X	

<sup>1</sup>-Training to include personnel responsible for implementing activities identified in the plan or otherwise responsible for stormwater management.

<sup>2</sup>-Training areas only required when applicable to the facilities.

<sup>3</sup>-Employees, independent contractors, and customers must be informed of BMPs. Facility should consider posting easy to read depictions, of BMPs or graphic depictions of BMPs and emergency phone numbers in work areas.

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## **APPENDIX P: ANNUAL COMPREHENSIVE SITE INSPECTION REPORTS**

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