

CITY OF PUYALLUP



STORMWATER POLLUTION PREVENTION PLAN  
(SWPPP)  
PUBLIC WORKS FACILITY

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## LIST OF ABBREVIATIONS

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<b>BMP</b>	best management practice
<b>CB</b>	catch basin
<b>CERCLA</b>	Comprehensive Environmental Response, Compensation, and Liability Act
<b>CFR</b>	Code of Federal Regulations
<b>CMP</b>	corrugated metal pipe
<b>CWA</b>	Clean Water Act
<b>Ecology</b>	Washington State Department of Ecology
<b>EPA</b>	U.S. Environmental Protection Agency
<b>ISGP</b>	Industrial Stormwater General Permit
<b>MH</b>	manhole
<b>MS4</b>	Municipal Separate Stormwater System
<b>NPDES</b>	National Pollutant Discharge Elimination System
<b>OWS</b>	oil/water separator
<b>P2</b>	Pollution Prevention Team
<b>Phase II Permit</b>	Department of Ecology's Phase II Western Washington Phase II Municipal Stormwater Permit
<b>POTW</b>	Publicly Owned Treatment Works
<b>PVC</b>	polyvinyl chloride (pipe)
<b>SARA</b>	Superfund Amendments and Reauthorization Act
<b>SPPM</b>	King County Stormwater Pollution Prevention Manual
<b>SRP</b>	Spill Response Plan
<b>SWMP</b>	Stormwater Management Program
<b>SWPPP</b>	Stormwater Pollution Prevention Plan
<b>WSDOT</b>	Washington State Department of Transportation
<b>WSP</b>	Washington State Patrol

## LIST OF DEFINITIONS

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*The majority of the definitions below come from the Washington Department of Ecology Western Washington Phase II Municipal Stormwater Permit. Definitions not provided from the Permit were taken from other sources, including the Washington Department of Ecology Stormwater Management Manual for Western Washington, EPA NPDES website glossary, and the Illicit Discharge Detection and Elimination, A Guidance Manual for Program Development and Technical Assessments.*

**Best management practices (BMPs)** are the schedules of activities, prohibitions of practices, maintenance procedures, and structural and/or managerial practices approved by the Department of Ecology (Ecology) that, when used singly or in combination, prevent or reduce the release of pollutants and other adverse impacts to waters of Washington State.

**Combined sewer** means a sewer that has been designed to serve as a sanitary sewer and a storm sewer, and into which inflow is allowed by local ordinances.

**Discoloration** is a means by which to characterize stormwater. Typically, stormwater is yellowish in color. However, discoloration other than turbidity can indicate whether there is rust from iron pipes or iron bacteria, as seen by a yellowish/red color, or if paint or cleaning agent emulsions have entered the stormwater system, as indicated by a white cloudy color.

**Erosion and sediment control BMPs** are BMPs that are intended to prevent erosion and sedimentation, such as preserving natural vegetation, seeding, mulching and matting, plastic covering, and sediment traps and ponds. Erosion sediment control BMPs are synonymous with stabilization and structural BMPs.

**Floatables** is a means by which to characterize stormwater. A floatable is used as an indicator if very obvious trash or other controllable debris, such as landscaping material, leaf litter, etc. has entered into the storm system.

**Foam** is a means by which to characterize stormwater. Foam is used as an indicator that potentially soap or other cleaning products have entered into the storm system. However, stormwater can often be slightly foamy from pollen and other natural organic material. The way to tell the difference is by touch and smell. If the foam is persistent and accompanied by a fragrant odor, it is probably coming from a cleaning product. If the suds break up quickly, then it is probably from turbulence and/or natural conditions.

**Hazardous substance:** (1) Any material that poses a threat to human health and/or the environment. Typical hazardous substances are toxic, corrosive, ignitable, explosive, or chemically reactive. (2) Any substance designated by the U.S. Environmental Protection Agency (EPA) to be reported if a designated quantity of the substance is spilled in the waters of the United States or is otherwise released into the environment.

**Hyperchlorinated** means water that contains more than 10 mg/L chlorine. Disinfection of water mains and appurtenances requires a chlorine residual of 10 mg/L at the end of the disinfection period. This level is well above the Maximum Residual Disinfectant Level of an annual average of 4 mg/L chlorine for potable water.

**Illegal dumping** means any intentional and non-permitted disposal of any substance other than stormwater into the municipal separate storm sewer system, unless otherwise called out as an allowed non-stormwater discharge.

**Illicit connection** means any manmade conveyance that is connected to a municipal separate storm sewer without a permit, excluding roof drains and other similar type connections. Examples include sanitary sewer connections, floor drains, channels, pipelines, conduits, inlets, or outlets that are connected directly to the municipal separate storm sewer system.

**Illicit discharge** means any discharge to the municipal separate storm sewer that is not composed entirely of stormwater except discharges pursuant to a National Pollutant Discharge Elimination System (NPDES) permit (other than the NPDES permit for discharges from the municipal separate storm sewer) and discharges resulting from fire fighting activities.

**Industrial Stormwater General Permit (ISGP)** means the NPDES Industrial Stormwater General Permit, issued by Ecology for stormwater discharges associated with industrial activities (issued 2002, modified 2004, effective January 2005).

**Material storage facilities** are uncovered areas where bulk materials (liquid, solid, granular, etc.) are stored in piles, barrels, tanks, bins, crates, or by other means.

**Municipal Separate Storm Sewer System (MS4)** means a conveyance, or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains) that meets the following criteria:

- i. Owned or operated by a state, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to state law) having jurisdiction over disposal of wastes, stormwater, or other wastes, including special districts under state law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under Section 208 of the federal Clean Water Act (CWA) that discharges to waters of the United States.
- ii. Designed or used for collecting or conveying stormwater.
- iii. Is not a combined sewer.
- iv. Is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

**National Pollutant Discharge Elimination System (NPDES)** means the national program for issuing, modifying, revoking, and reissuing, terminating, monitoring, and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 402, 318, and 405 of the federal Clean Water Act, for the discharge of pollutants to surface waters of the state from point sources. These permits are referred to as NPDES permits and, in Washington State, are administered by Ecology.

**Non-stormwater discharges** are discharges of process wastewaters, vehicle wash waters, cooling waters, or any other wastewaters associated with the facility into the stormwater collection system. Other discharges must be addressed in a separate NPDES permit (EPA). See also **Illicit discharges**. Certain non-stormwater discharges are conditionally approved under the ISGP but are subject to specific provisions, including identifying the location, flow volumes, quality, potential for water quality issues, and ability to apply appropriate BMPs. Examples of conditionally approved non-stormwater discharges under an ISGP include the following:

- discharges from firefighting activities
- fire protection system flushing, testing, and maintenance
- discharges of potable water including water line flushing, provided that water line flushing must be de-chlorinated prior to discharge
- uncontaminated air conditioning or compressor condensate
- irrigation drainage
- uncontaminated groundwater or spring water
- discharges associated with dewatering of foundations, footing drains, or utility vaults where flows are not contaminated with process materials such as solvents.

Incidental windblown mist from cooling towers that collects on rooftops or areas adjacent to the cooling tower. This does not include intentional discharges from cooling towers such as piped cooling tower blow down or drains.

**Odor** is a means by which to characterize stormwater. Contaminants in stormwater can give off specific odors, which should be described as accurately as possible. Odors can include rotten eggs, solvent, fuel/oil, cleaning agent, etc. When noting odors, make sure the odor is not related to other sources beyond the runoff being inspected. If gasoline or a flammable solvent is suspected, leave the immediate area, notify facility management immediately, and take action to prevent a fire or explosion.

**Operational source control BMPs** are schedules of activities, prohibition of practices, and other managerial practices to prevent or reduce pollutants from entering stormwater. Operational BMPs include formation of a pollution prevention team, good housekeeping, preventive maintenance procedures, spill prevention and cleanup, employee training, inspections of pollutant sources and BMPs, and record-keeping. They can also include process changes, raw material/product changes, and recycling wastes.

**Outfall** means a point source as defined by 40 CFR 122.2 at the point where a municipal separate storm sewer discharges to waters of the state and does not include open conveyances connecting two municipal separate storm sewer systems, or pipes, tunnels, or other conveyances which connect segments of the same stream or other waters of the state and are used to convey waters of the state.

**Runoff** is water that travels across the land surface and discharges to water bodies either directly or through a collection and conveyance system (see also **Stormwater**).

**Run-on** is stormwater runoff from another entity/jurisdiction or another area of the property that is not subject to the provision at issue.

**Sediment/erosion-sensitive feature** means an area subject to significant degradation due to the effect of construction runoff or areas requiring special protection to prevent erosion.

**Sheen** is used as an indicator in stormwater flows of petroleum products. Sheen looks like a rainbow hue on the water surface, and is commonly indicative of petroleum products, often present from parking lot runoff.

**Significant material** includes, but is 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 CERCLA; any chemical the facility is required to report pursuant to Section 313 of Title III of SARA; fertilizers; pesticides; and waste products such as ashes, slag, and sludge that have the potential to be released with stormwater discharges.

**Source control BMPs** means a structure or operation that is intended to prevent pollutants from coming into contact with stormwater through physical separation of areas or careful management of activities that are sources of pollutants. The Western Washington Stormwater Management Manual separates source control BMPs into two types. *Structural source control BMPs* are physical, structural, or mechanical devices or facilities that are intended to prevent pollutants from entering stormwater. *Operational BMPs* are nonstructural practices that prevent or reduce pollutants from entering stormwater.

**Spill** means a release, either accidental or intentional, of a non-stormwater material.

**Stormwater** means runoff during and following precipitation and snowmelt events, including surface runoff and drainage.

**Stormwater Management Manual for Western Washington** means the five-volume technical manual (Publications Nos. 99-11 through 99-15 for the 2001 version and Publication No. 05-10-029-033 for the 2005 version [the 2005 version replaces the 2001 version]) prepared by Ecology for use by local governments that contains BMPs to prevent, control, or treat pollution in stormwater.

**Stormwater Management Program (SWMP)** means a set of actions and activities designed to reduce the discharge of pollutants from the regulated small MS4 to the maximum extent practicable and to protect water quality, and comprising the components listed in S5 of S6 of the Western Washington Phase II Municipal Stormwater Permit and any additional actions necessary to meet the requirements of applicable requirements.

**Structural source control BMPs** are physical, structural, or mechanical devices or facilities that are intended to prevent pollutants from entering stormwater. Structural source control BMPs typically include the following practices:

- enclosing and/or covering the pollutant source (building or other enclosure, a roof over storage and working areas, temporary tarp, etc.).
- segregating the pollutant source to prevent run-on of stormwater, and to direct only contaminated stormwater to appropriate treatment BMPs.

**Treatment BMPs** are intended to remove pollutants from stormwater. A few examples of treatment BMPs are wet ponds, oil/water separators (OWS), biofiltration swales, and constructed wetlands.

**Turbidity** is a means by which to characterize stormwater. The dispersion or scattering of light in a liquid, caused by suspended solids and other factors, is commonly used as a measure of suspended solids in a liquid.

**Vehicle maintenance or storage facility** means an uncovered area where any vehicles are regularly washed or maintained, or where at least 10 vehicles are stored.

**Water quality** means the chemical, physical, and biological characteristics of water, usually with respect to its suitability for a particular purpose.

**Waters of the state** include those waters as defined as “waters of the United States” in 40 CFR Subpart 122.2 within the geographic boundaries of Washington state and “waters of the state” as defined in Chapter 90.48 RCW, which include lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and water courses within the jurisdiction of the state of Washington.

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# STORMWATER POLLUTION PREVENTION PLAN

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## 1. INTRODUCTION

This section provides the background information for this Stormwater Pollution Prevention Plan (SWPPP) including applicable permit requirements and the intended goals and objectives. This section also provides the limitations of this document.

### 1.1 Background

This SWPPP applies to the city of Puyallup's (City) Public Works maintenance facility (Facility) located at 1100 39th Avenue SE, Puyallup, Washington (see Figure 2-1), also known as Corporate Yards. This SWPPP identifies actions that Facility staff will take to comply with the terms and conditions of the Department of Ecology (Ecology)'s Western Washington Phase II Municipal Stormwater Permit (Phase II Permit).

This SWPPP was prepared in accordance with Phase II Permit condition S5.C.5.i, which requires the following activities:

- implement nonstructural best management practices (BMPs) immediately after the SWPPP is developed or updated
- include a schedule for implementation of structural BMPs
- inspect the effectiveness of BMPs periodically
- conduct periodic visual inspection of discharges from the facility during wet and dry conditions
- update the SWPPP when major BMP and/or administrative role revisions occur.

### 1.2 Goals and Objectives

This SWPPP is intended to help the City satisfy the following goals:

- implement and maintain BMPs that identify, reduce, eliminate, and/or prevent the discharge of stormwater pollutants
- prevent violations of surface water quality, groundwater quality, or sediment management standards
- eliminate the discharges of unpermitted process wastewater, domestic wastewater, non-contact cooling water, and other illicit discharges to stormwater drainage systems.

To meet these goals, this SWPPP takes the following actions:

- identifies potential sources of stormwater pollution that could affect the quality of stormwater discharges associated with the Facility
- evaluates the potential for stormwater contamination from the identified potential sources
- identifies the stormwater BMPs that will be used at the Facility for the prevention and control of pollutants in stormwater discharges
- identifies operations, maintenance, inspections, and record-keeping needed for these BMPs.

The City has formed a Pollution Prevention (P2) team to oversee implementation of this SWPPP. The P2 team will annually review the SWPPP and confirm its implementation. The P2 team is discussed in detail in Section 3.2. The P2 team will modify the SWPPP annually or more often if needed to reflect changing conditions at the Facility, such as new operations, Facility modifications, or BMPs. Appendix A contains the SWPPP Revision Form, which will be completed when revisions are made.

## 1.3 Limitations

Ecology has not yet developed a SWPPP template or guidelines specifically for municipal facilities covered by the Phase II Permit. Therefore, this SWPPP was modeled after the city of Mount Vernon's Fir Street Maintenance Facility SWPPP (Brown and Caldwell 2009), which Ecology has cited as an example on its Web page titled Resource for Stormwater Management Plan Elements: Pollution Prevention and Good Housekeeping for Municipal Operations, which is located at the address below: (<http://www.ecy.wa.gov/programs/wq/stormwater/municipal/pollutionPREVENTION.html>).

This SWPPP is organized to be easy to use and update. The main body contains useful information for those in charge of administering and documenting implementation of the plan. The appendices contain the most relevant information for City staff at the Public Works maintenance facility.

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## STORMWATER POLLUTION PREVENTION PLAN

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### 2. FACILITY ASSESSMENT

This section provides an overview of the Facility and its stormwater drainage system.

#### 2.1 Overview of Facility and Operations

The City's Public Works Facility is located at 1100 39th Avenue SE in Puyallup, Washington, and encompasses a rectangular area of approximately 10 acres. Four main buildings and two storage sheds are located on the site. Approximately two-thirds of the site is covered with impervious surfaces. Figure 2-1 provides a vicinity map of the area.

The Facility is owned by the city of Puyallup and is bordered by a secured fence with two main entry points. Buildings on site include:

- Public Works administrative offices and storage building
- Vehicle maintenance and truck wash building
- Equipment shed
- Information technology and emergency operations center
- Two material storage sheds, and a
- Fueling island

#### 2.2 Facility Drainage

Figure 2-2 shows the drainage features at the Facility. Runoff from the northwest portion of the Facility is collected in catch basins and a strip drain and conveyed to a storm sewer pipe and a ditch on the western edge of the site which lead to an EcoStorm Plus stormwater filtration system installed in 2011. Runoff from the fuel island passes through an oil/water separator (OWS) prior to discharge. Runoff from the northwest portion of the site discharges into the City storm sewer on 39th Avenue SE. Subsequently, the City storm sewer system appears to discharge to Bradley Lake, located approximately 0.5 miles northwest of the Site.

Runoff from the southwestern portion of the Facility drains is collected in catch basins and conveyed via a storm sewer to a low area on the southwest corner of the site.

Runoff from the eastern half of the Facility is collected in a series of grass-lined swales with check dams, which ultimately flow through a short section of pipe and then into a two-celled treatment pond located near the eastern edge of the site. The upper cell is a wet pond and the lower cell is a dry pond with check dams in it. The pond discharges into an unlined channel that flows to a wooded area at the southeast corner of the site. Runoff from the eastern portion appears to drain to a pothole nearby.

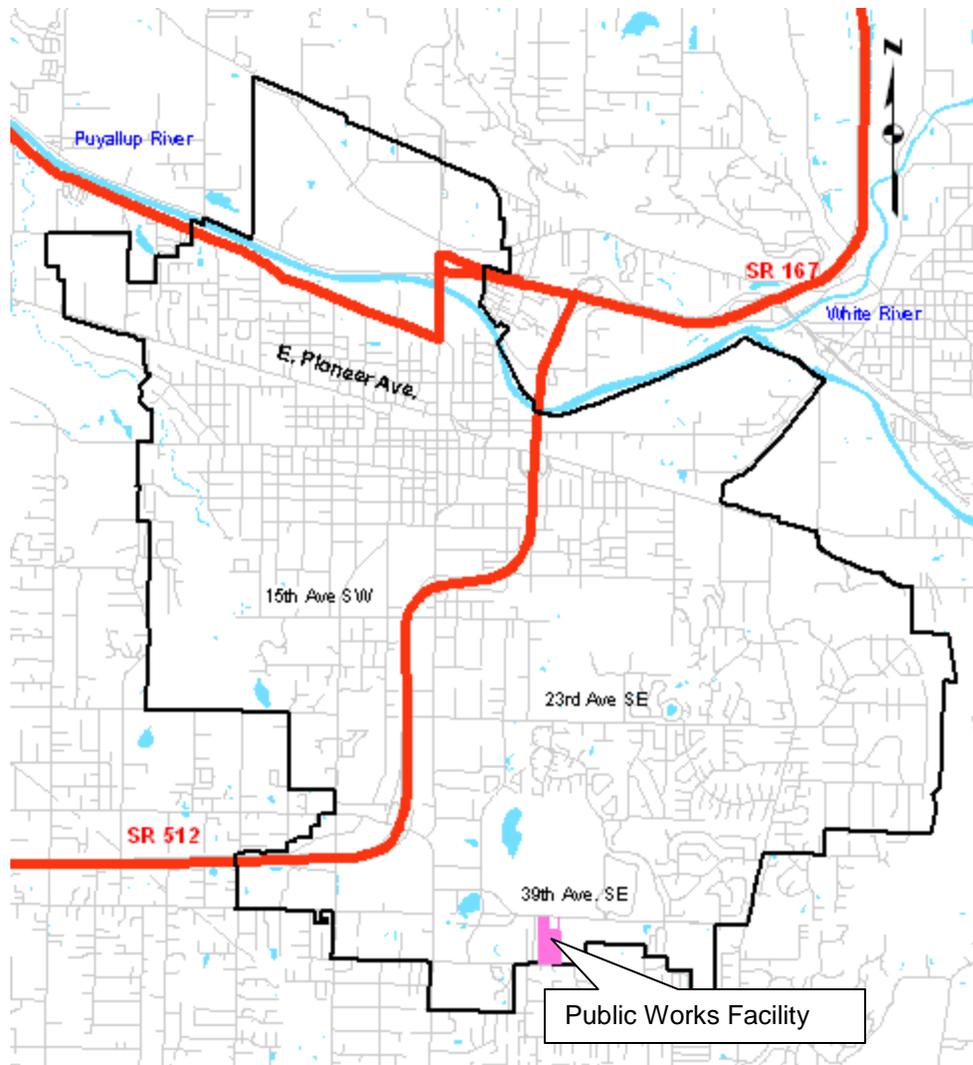


Figure 2-1. Vicinity map

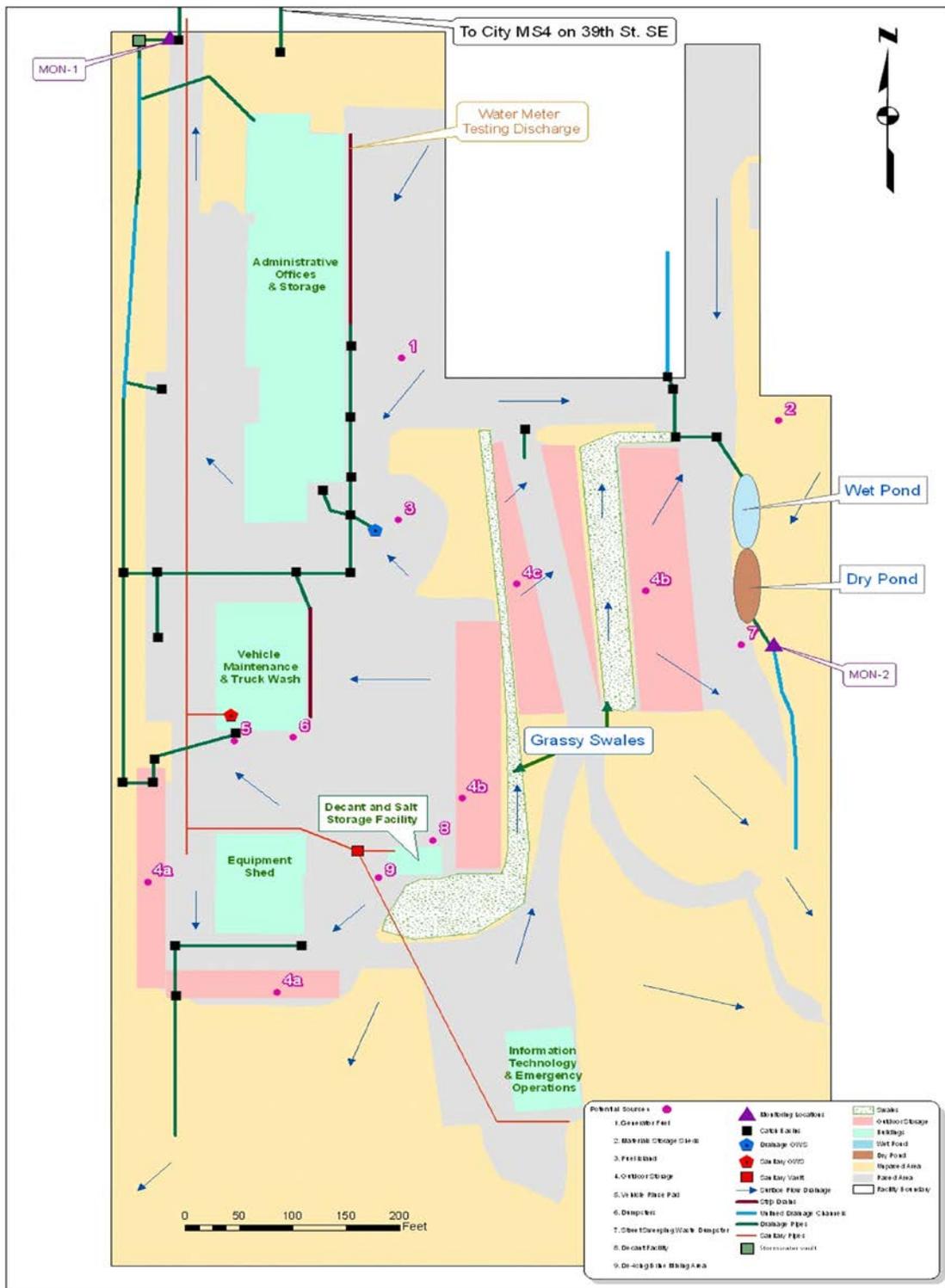


Figure 2-2. Maintenance facility map (sources: city of Puyallup GIS data and information collected in the field)

## 2.3 Description of Maintenance Facility Activities

The Facility serves multiple functions for the Public Works Department. Table 2-1 lists the activities conducted in areas that can drain to the stormwater system. The table also lists the types of pollutants that could be associated with each activity.

Table 2-1. General Facility Activities and their *Potential* Effects on Stormwater

Facility activity	Description of Facility activity (Figure 2-2 location)	Potential pollutants in stormwater runoff								
		Sediment/ suspended solids	Nutrients	Metals	Bacteria	Hydrocarbons	Other organics	Dissolved solids	Oxygen demanding substances	Abnormal pH
Storage of liquid materials in stationary tanks <sup>a</sup>	A 500-gallon aboveground storage tank containing diesel to fuel a backup generator is also located in this area (Area 1).					✓	✓		✓	
Fueling operations <sup>a</sup>	Fueling is conducted at the fuel island supplied by underground storage tanks (Area 3).					✓	✓			
Outside storage of non-containerized materials, by-products, or finished products <sup>b</sup>	Several areas are used for outdoor storage of any of the following: metals, building materials, including galvanized pipe, and concrete products; or erodible materials, including sand and gravel. The sand and gravel piles are contained in bays (Area 4).	✓	✓	✓		✓		✓	✓	✓
Vehicle rinsing <sup>c</sup>	Vehicles are rinsed off at the vehicle wash area located to the south of the mechanics building (Area 5).	✓	✓	✓		✓	✓	✓		
Storage of solid waste <sup>a</sup>	A dumpster with a mesh lid is located south of the mechanics building (Area 6).	✓	✓	✓	✓	✓	✓		✓	✓
	Street-sweeping waste is stored in the street-sweeping waste dumpster located at the eastern edge of the site (Area 7).	✓	✓	✓	✓	✓	✓		✓	
Loading and unloading area for liquid or solid material <sup>c</sup>	City trucks decant waste from storm sewer cleaning. Roof does not cover entire pad (Area 8).	✓	✓	✓	✓	✓	✓		✓	
	De-icing brine is pumped from inside the materials storage shed into a large tank located outside of the building and then subsequently loaded onto Public Works vehicles for transport (Area 9).	✓						✓		✓
Vehicle and equipment parking and storage <sup>b</sup>	Parking of City cars, educator (vactor) trucks, dump trucks, and other equipment occurs throughout the site.	✓		✓		✓	✓			

BMP Activity Sheets were adopted from the following sources and are included in Appendix B:

a. King County Stormwater Pollution Prevention Manual

b. City of Seattle Source Control Technical Requirements Manual

c. Stormwater Management Manual for Western Washington, Volume IV: Source Control BMPs

## 2.4 Inventory of Significant Materials and Chemicals

Table 2-2 lists the materials and chemicals stored in areas that could drain to the storm drainage system and pose a potential threat to stormwater. It should be noted that materials are moved around frequently; therefore, quantities are constantly changing.

Table 2-2. Materials Exposed or Potentially Exposed to Rainfall/Runoff				
List of exposed significant materials	Period of exposure	Quantity	Map location(s)	Method of storage, handling, and disposal
Diesel fuel	Continuous	500 gallons	Area 1	Diesel is stored in a double-walled AST. It is transferred according to manufacturer safety protocols.
Miscellaneous drainage & utility equipment (e.g., pipes, signs, meters)	Continuous	NA	Area 4	Stored on ground, used when needed.
Gravel, sand, and other material stockpiles	Continuous	Approximately 3,000 yd <sup>2</sup>	Area 4	Stored in contained areas.
Garbage dumpster with mesh cover	Continuous	1 dumpster	Area 6	Dumpster emptied as necessary.
Street-sweeping dumpster	Continuous	1 dumpster	Area 7	Dumpster emptied as necessary.
Miscellaneous maintenance vehicles	Continuous	Up to 12	Areas 6 & 1	Most vehicles are stored under cover.

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## STORMWATER POLLUTION PREVENTION PLAN

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### 3. BEST MANAGEMENT PRACTICES

This section provides a description of best management practices (BMPs) that are recommended for the Facility. Stormwater BMPs include structures, activities, or practices intended to help prevent or reduce stormwater pollution. This section also discusses the Pollution Prevention (P2) team, training requirements, and the BMPs currently implemented at the site.

#### 3.1 Facility BMPs

Phase II Permit Section S5.i requires implementation of nonstructural and structural BMPs. To develop BMP recommendations for this SWPPP, we reviewed the Ecology (2005) stormwater manual as well as the city of Seattle and King County manuals to identify the potentially appropriate BMPs for each activity at the Facility. We identified the existing BMPs for each activity. We then developed the BMP recommendations presented in Table 3-1. The table lists the recommended BMPs for each activity and notes which BMPs are already being implemented. The BMPs are included as separate activity pullout sheets in Appendix B for ease of use in the field.

Table 3-1 includes a combination of structural and nonstructural measures. The nonstructural measures include general good-housekeeping measures that apply throughout the Facility (sweeping, etc.), as well as measures tailored to a specific activity (e.g., checking storage tanks for spills and leaks). The table also includes structural measures (e.g., repair or replace spill containment pad around fuel island). In general, the structural measures focus on activities and areas where nonstructural measures are impractical.

As noted in Table 3-1, the Facility has a number of stormwater treatment BMPs in place, including the following:

- storm filter vault that treats runoff from the northwest portion of the site
- a coalescing plate OWS that treats runoff from the fuel island
- grass-lined swales with check dams to remove sediment in runoff from the outdoor storage areas
- a two-celled pond (wet cell and dry cell) to remove sediment and other pollutants in runoff from the eastern portion of the Facility. Both cells of the pond should be visually inspected for any potential water quality issues, as described in Section 4.

The Facility also contains an OWS and settling vault that are connected to the sanitary sewer system. These devices are intended to remove settleable solids and other pollutants that could cause maintenance problems in the sanitary system.

The Phase II Permit prohibits most non-stormwater discharges. Therefore, Table 3-1 also includes recommended measures to address the following three non-stormwater discharges that were identified on the site:

- The administration building contains a water meter testing device that discharges potable water into the storm drain adjacent to the building. Because chlorine can be toxic to aquatic life, the Phase II Permit requires that potable water must be de-chlorinated before it is discharged to the storm drain. The City could address this discharge by re-routing the flow to the sanitary sewer, de-chlorinating the water prior to discharge into the storm drain, or directing the runoff from the device to nearby grassy/lawn areas. Several manufacturers have developed portable de-chlorination devices for use during fire flow testing, water line flushing, and similar activities. Installing such a device at the outlet to the water meter test pipe would meet the Phase II Permit requirement if re-routing to the sanitary sewer or directing it to a grassy/lawn area are not viable options.
- The facility contains an outdoor, covered fueling station with two (2) gas pumps. Currently, the facility needs the canopy replaced, the fuel island needs repair to provide spill containment and divert run-on, and

the storm inlet needs to be relocated so runoff from the containment pad is directed to the OWS. The following items also need to be addressed:

- Post signs to remind employees not to top off the fuel tank when filling.
- Route fuel island runoff to sanitary sewer
- There is an outdoor, uncovered area on the site used for storing common materials used in the maintenance and repair of the City's infrastructure (roads, MS4, etc.). It is a graveled area and the materials stored, such as gravel, sands, etc. contain sediment-laden material that should not be allowed to enter the storm system. One option to prevent the runoff of sediment laden runoff into any nearby catch basins is to install a cutoff (French) drain that will catch any sediment laden runoff and direct it to a device that will allow for the removal of the sediment, such as a storm filter vault or the onsite settlement pond.

Table 3-1. BMPs for Maintenance Facility Activities				
Facility activity	Location on Figure 2-2	BMPs	Currently in place	New CIP needed / Date to be Implemented
General (good housekeeping)	Site-wide	▪ Sweep paved areas regularly.	✓	
		▪ Clean up debris and old equipment periodically.	✓	
		▪ Remove trash and garbage.	✓	
		▪ Inspect routinely for leaks or spills.	✓	
		▪ Implement waste and material minimization programs.	✓	
Storage of liquid materials in stationary tanks <sup>a</sup>	1. Generator & diesel tank	▪ Ensure that if tank ruptures, no liquid will flow into the storm system. Tanks are double-walled.	✓	
		▪ Place drip pans or absorbent materials beneath all mounted taps and at all potential drip and spill locations during filling and unloading of tanks.	✓	
		▪ Store and maintain appropriate spill cleanup materials near the tank storage area, in a location known to all. Ensure that all employees are familiar with the site's spill cleanup procedures.	✓	
		▪ Sweep and clean the area as needed. Do not hose down area to storm drain.	✓	
		▪ Check tanks daily for leaks and spills. Replace tanks that are leaking, corroded, or otherwise deteriorating. Collect any spilled liquids and dispose of them properly.	✓	
		▪ Inspect spill control devices regularly to remove separated floatables.	✓	
Storage of liquid materials in portable containers <sup>a</sup>	2. Materials storage sheds	▪ Place applicable activity sheet near storage area for easy reference.		✓
		▪ Hire qualified contractor to identify, label, and dispose of all "unknown" containers in accordance with applicable regulations.	✓	
		▪ Refine City policy regarding handling of containers illegally dumped on City property to minimize future storage of "unknown" containers at the Facility.		✓
		▪ Treat runoff in wet and dry ponds prior to discharge offsite.	✓	
		▪ Place tight-fitting lids on all containers.	✓	
		▪ Enclose or cover the containers where they are stored.	✓	
		▪ Raise containers off the ground by using a spill containment pallet or similar method that has provisions for spill control or contain the material in such a manner that if the containers leak or spill, the contents will not discharge, flow, or be washed into the storm drainage system.	✓	
▪ Place drip pans or absorbent materials beneath all mounted taps and at all potential drip and spill locations during filling and unloading of tanks/containers.	✓			

Table 3-1. BMPs for Maintenance Facility Activities

Facility activity	Location on Figure 2-2	BMPs	Currently in place	New CIP needed / Date to be Implemented
		<ul style="list-style-type: none"> <li>Store and maintain appropriate spill cleanup materials near the container storage area, in a location known to all.</li> </ul>	✓	
		<ul style="list-style-type: none"> <li>Sweep and clean the area as needed.</li> </ul>	✓	
		<ul style="list-style-type: none"> <li>Check containers daily for leaks and spills. Replace containers that are leaking, corroded, or otherwise deteriorating. Collect all spilled liquids and properly dispose of them.</li> </ul>	✓	
		<ul style="list-style-type: none"> <li>Any collected liquids or soiled absorbent materials must be reused, recycled, or disposed of properly.</li> </ul>	✓	
Fueling operations <sup>a</sup>	3. Fuel island	<ul style="list-style-type: none"> <li>Never hose down the fueling area to storm drains</li> </ul>	✓	
		<ul style="list-style-type: none"> <li>Post signs to remind employees not to top off the fuel tank when filling.</li> </ul>		✓ December 2012
		<ul style="list-style-type: none"> <li>Store and maintain spill kit materials in a location known to all.</li> </ul>	✓	
		<ul style="list-style-type: none"> <li>Conduct regular spill response training for all City staff.</li> </ul>		✓ December 2012
		<ul style="list-style-type: none"> <li>Replace canopy over fuel island.</li> </ul>	✓	
		<ul style="list-style-type: none"> <li>Replace or repair fuel island pad so it provides spill containment and diverts run-on.</li> </ul>		✓ One year after approval by council
		<ul style="list-style-type: none"> <li>Locate storm drain inlet so that only runoff from the containment pad goes to the OWS.</li> </ul>		✓
		<ul style="list-style-type: none"> <li>Inspect OWS at least once during wet season and after large storm events or fuel spills. Maintain as needed to ensure proper function.</li> </ul>	✓	
Outside storage of non-containerized materials, by-products, or finished products <sup>b</sup>	4a/4c. Outdoor storage (pipes, posts, signs, etc.)	<ul style="list-style-type: none"> <li>Treat runoff in grassed swales, wet and dry ponds prior to discharge offsite.</li> </ul>	✓	
		<ul style="list-style-type: none"> <li>Sweep paved storage areas as needed to remove loose materials.</li> </ul>	✓	
		<ul style="list-style-type: none"> <li>Store cleanup supplies and equipment (e.g., vacuum sweepers, brooms, dust pans) in an easily accessible place for all employees.</li> </ul>	✓	
Outside storage of non-	4b. Outdoor storage	<ul style="list-style-type: none"> <li>Treat runoff in grassed swales, wet and dry ponds prior to discharge offsite.</li> </ul>	✓	

Table 3-1. BMPs for Maintenance Facility Activities				
Facility activity	Location on Figure 2-2	BMPs	Currently in place	New CIP needed / Date to be Implemented
containerized materials, by-products, or finished products <sup>b</sup>	(gravel & sand)	<ul style="list-style-type: none"> <li>Inspect outside storage areas during storm event and if stormwater run-on from surrounding areas is observed, install berms to divert flow away from storage area.</li> </ul>	✓	
		<ul style="list-style-type: none"> <li>Sweep paved storage areas as needed depending on site conditions to remove loose solid materials.</li> </ul>	✓	
Vehicle rinsing <sup>c</sup>	5. Vehicle rinse pad	<ul style="list-style-type: none"> <li>The City has constructed site improvements to re-route rinse water to the sanitary sewer. Improvements include new wash pad configured as a spill containment pad so that it contain rinse water and divert run-on; pre-treatment in a baffled vault or other device designed to remove settleable solids prior to discharge to sanitary. To minimize storm flow into the sanitary sewer, considering extending adjacent building roof to cover pad.</li> </ul>	✓	
Storage of solid waste <sup>a</sup>	6/7. Dumpsters	<ul style="list-style-type: none"> <li>Cover storage containers with leak proof lids or some other means.</li> </ul>	✓	
		<ul style="list-style-type: none"> <li>Check dumpsters as needed for leaks and to ensure that lids fit tightly. Replace lids that are leaking, corroded, or otherwise deteriorating.</li> </ul>	✓	
Loading and unloading (vector trucks) area for liquid or solid material <sup>c</sup>	8. Decant facility	<ul style="list-style-type: none"> <li>Inspect during storm events to ensure that all decant material is conveyed to the sump. If inspection indicates that decant liquids or solids are escaping the pad, evaluate structural alternatives, (e.g., berm, strip drain)</li> </ul>	✓	
		<ul style="list-style-type: none"> <li>Sweep surfaces as needed to remove material that could be washed off by stormwater.</li> <li>Construct a new protected dumping station in a more suitable location that incorporates drainage safeguards.</li> </ul>	✓	December 2012 ✓
Loading and unloading area for liquid or solid material <sup>c</sup>	9. De-icing brine mixing area	<ul style="list-style-type: none"> <li>When loading the de-icing trucks, ensure that there are appropriate temporary containment devices in place if a spill or leak should occur.</li> </ul>	✓	
		<ul style="list-style-type: none"> <li>Prior to loading or unloading, check equipment, such as valves, pumps, flanges, and connections.</li> </ul>	✓	
		<ul style="list-style-type: none"> <li>Inspect the equipment frequently and repair as needed.</li> </ul>	✓	
Storage of liquid containers <sup>c</sup>	9. De-icing brine mixing area	<ul style="list-style-type: none"> <li>Provide portable temporary secondary containment for the brine mixing tank.</li> </ul>	✓	
		<ul style="list-style-type: none"> <li>Place a tight fitting lid on the brine tank when it is outside and not in use.</li> </ul>	✓	
		<ul style="list-style-type: none"> <li>Inspect the brine tank and surrounding area regularly for structural failure, spills, leaks and overfills. Repair or replace as needed.</li> </ul>	✓	

Table 3-1. BMPs for Maintenance Facility Activities

Facility activity	Location on Figure 2-2	BMPs	Currently in place	New CIP needed / Date to be Implemented
Vehicle and equipment parking and storage <sup>b</sup>	Parking of fleet vehicles happens throughout the site.	<ul style="list-style-type: none"> <li>▪ Sweep parking areas as needed to collect dirt, waste, and debris. Do not hose down area to the storm drainage system.</li> </ul>	✓	
		<ul style="list-style-type: none"> <li>▪ If washing/pressure washing of the parking areas occurs, the wash water must be collected and discharged to a sanitary sewer system.</li> </ul>	✓	
		<ul style="list-style-type: none"> <li>▪ If vehicles are observed to track dirt out of the parking and storage areas, install basic sediment controls if needed to complement existing BMPs and minimize sediment transport to storm drainage systems.</li> </ul>	✓	

BMP Activity Sheets were adopted from these following sources and are included in Appendix B:

a. King County Stormwater Pollution Prevention Manual

b. City of Seattle Source Control Technical Requirements Manual

c. Ecology Stormwater Management Manual for Western Washington, Volume IV: Source Control BMPs

## 3.2 Pollution Prevention (P2) Team

The City has formed a Facility Pollution Prevention (P2) team consisting of staff responsible for key SWPPP activities. Table 3-2 below lists the P2 members, their contact information, and their responsibilities.

Position	Name and contact information	Responsibilities
Public Works Compliance	Donald Keith Henry 253-841-5560	Permit compliance
City Engineer	Mark Palmer, P.E. 253-435-3606	Supervisory responsibility
Stormwater Engineer	Steve Carstens, P.E. 253-841-5597	Technical Advisor, coordination, and Permit Compliance

This table should be revisited at least once per year and updated if staff assignments change.

## 3.3 Training

The Phase II Permit requires training of Facility employees whose activities could impact stormwater quality. Employee training is an ongoing program, and will be provided for all existing employees on a regular basis and for all new employees when they begin work at the Facility. Training material content will include the information in this SWPPP, spill response procedures, and visual inspection procedures.

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## STORMWATER POLLUTION PREVENTION PLAN

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### 4. MONITORING (VISUAL INSPECTIONS)

The Phase II Permit requires that the SWPPP prescribe periodic visual observation of discharges from the Facility to evaluate the effectiveness of BMPs (S5.C.5.i). The stormwater BMP monitoring for the Facility will rely upon annual wet and dry weather visual inspections of discharge quality to indicate obvious or potential problems and an annual BMP evaluation. The wet weather inspection will help assess overall BMP performance. The dry weather inspection will help confirm that illicit discharges have been eliminated. Coupled with the other BMPs for the Facility, as discussed in Section 3, this approach should reduce the potential for adverse impacts on stormwater quality.

#### 4.1 Drainage and Outfall Characteristics

The locations recommended for the wet and dry weather visual inspections are MON-1 and MON-2. These locations are shown in Figure 2-2 and described below.

MON-1 is located at the catch basin at the northwestern corner of the site, where the facility storm drain system connects to a storm sewer under 39th Avenue SE. It receives runoff from the northwestern portion of the site, including the vehicle rinsing area, fuel island, public works outdoor material storage area, dumpster, decant facility, backup generator, and propane tank.

MON-2 is located at the outlet pipe for the downstream cell of the stormwater pond located at the eastern edge of the site. This pond treats stormwater from the western portion of the site, which encompasses a range of materials storage areas and a dumpster used for the street sweeper waste.

#### 4.2 Wet and Dry Weather Visual Inspections

Each outfall will be inspected twice each year, once during dry weather and once during a storm runoff event. Appendix C contains the inspection forms. A designated member of the P2 team will perform these inspections.

Wet weather inspections means that discharges from the identified outfalls will be assessed during a significant rainfall event resulting in visible stormwater runoff and discharges from the site. Inspections are not required to be conducted outside of regular business hours or during unsafe conditions. Dry weather inspections should be conducted when no rain has occurred at the Facility for at least 24 hours prior to inspection.

The person conducting the inspection should look for the indicators described below:

- **Floatables:** Floatables indicate if obvious trash or other controllable debris, such as landscaping material, leaf litter, etc. has entered into the storm system.
- **Foam:** Foam indicates that potentially soap or other cleaning products have entered into the storm system. However, stormwater can often be slightly foamy from pollen and other natural organic material. One can determine the difference by inspecting appearance and smell. If the foam is persistent and accompanied by a fragrant odor, it could be related to a cleaning product. If the suds break up quickly, then it could be from turbulence and/or natural conditions.
- **Sheen:** Sheen, which also looks like a rainbow hue on the water surface, is commonly indicative of petroleum products, often present from parking lot runoff. If gasoline or a flammable solvent is suspected, the inspector should leave the immediate area, notify facility management immediately, and take action to prevent a fire or explosion.
- **Turbidity:** Turbidity, which makes the water appear cloudy, is usually an indication of dirt or sediment in the water.

- **Odor:** Certain contaminants in stormwater can give off specific odors, which should be described as accurately as possible. Odors can include those similar to rotten eggs, solvent, fuel/oil, cleaning agent, etc. When noting odors, the inspector should make sure that the odor is not related to sources other than beyond the runoff being inspected. If gasoline or a flammable solvent is suspected, the inspector should leave the immediate area, notify the Facility management immediately, and take action to prevent a fire or explosion (see spill response procedures in Section 5 of this SWPPP).
- **Discoloration:** A red/orange color can indicate rust from iron pipes or iron bacteria. Other colors such as white could indicate paint or cleaning agent emulsions.
- **Flow:** Note presence or discharge from each outfall. If flow is present, the approximate discharge rate should be indicated on the inspection form (i.e., < 10 gpm, or >10 gpm).

The inspector should note whether each indicator was present or absent at the time of inspection, and note the approximate magnitude for any indicators that were observed.

### 4.3 Annual BMP Evaluation

Once each year, the P2 team will evaluate the BMPs at the Facility to determine if additional BMPs are needed or if current BMPs should be modified. The evaluations should be performed using the Annual BMP Evaluation Form. A copy of this form is provided in Appendix D.

### 4.4 SWPPP Revisions

The SWPPP should be revisited once per year and revised if needed to reflect any administrative changes (e.g., change in P2 team members). In addition, the SWPPP should be revised when significant changes occur that could affect stormwater quality and BMP needs. Appendix A contains a copy of the SWPPP Revision Form.

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## STORMWATER POLLUTION PREVENTION PLAN

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### 5. SPILL RESPONSE

#### 5.1 Spill Response Plan and Emergency Cleanup

This section describes the Facility's Spill Response Plan (SRP). The main objective of responding to pollutant spill events is to contain the spill in order to minimize detrimental impacts to the environment and life safety. This SRP is intended for the use by the city of Puyallup's public works staff.

In response to a spill, staff should take the following steps:

1. Call supervisor Donald Keith Henry at (253) 841-5560. Alternative contacts are: Ted Egeland, (253) 841-5469, John Wiklander, (253) 770-3341, and Karen Michaud, (253) 841-5593.
2. If an employee can identify the material, an employee may conduct spill containment and/or cleanup only if ALL of the following conditions are met:
  - Without jeopardizing safety, the employee is able to determine that the material is not a hazardous material.
  - The employee considers himself or herself prepared and trained to respond to the spill.
  - Appropriate spill containing materials are available.
3. If the material involved shows ANY indication of being hazardous (for example, flammable, corrosive, or dangerous in nature), employees should take the following steps:

**ACTION:** *If you cannot identify the product involved, STOP and follow these procedures:*

1. Leave the immediate area where the product is located.
2. Prevent others from approaching the product.
3. Call the police and Fire Department by dialing 911.

If an employee cannot identify the material, or determines that the material is hazardous, the employee should follow Spill Response Plan included in Appendix E, along with the corresponding Spill Response flow diagram included in Appendix F.

#### 5.2 Location of Spill Kits

Spill kits containing adsorbent materials are located at the fuel island and in the mechanics/storage building. Spill kit materials are re-stocked after each use.

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## STORMWATER POLLUTION PREVENTION PLAN

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### 6. RECORD-KEEPING

All forms completed pursuant to this SWPPP will be maintained for at least 5 years. Maintained documentation will include at least the following forms:

- SWPPP Revision Form, located in Appendix A
- Wet and Dry Weather Visual Inspection Forms, located in Appendix C
- Annual BMP Evaluation Form, located in Appendix D.
- Spill Response Plan Form, located in Appendix E.

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## STORMWATER POLLUTION PREVENTION PLAN

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### 7. REFERENCES

- Brown and Caldwell 2008, Stormwater Pollution Prevention Plan, Fir Street Maintenance Facility, city of Mt. Vernon.  
<http://www.ecy.wa.gov/programs/wq/stormwater/municipal/MUNIdocs/SWPPPMtVernon2008.pdf>.
- California Stormwater Quality Association Stormwater Best Management Practice Handbook, Municipal. January 2003.  
Available at the following Web site: <http://www.camphandbooks.com>.
- Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments by the Center for Watershed Protection and Robert Pitt University of Alabama. October 2004.
- King County Stormwater Pollution Prevention Manual (SPPM). January 2005. Available at the following Web site:  
<http://dnr.metrokc.gov/wlr/dss/sppm.htm>.
- The city of Seattle. Volume 1: Source Control Technical Requirements Manual. Issued July 2000.
- U.S. Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) Glossary.  
Available at the following Web site: <http://cfpub.epa.gov/npdes/glossary>.
- Washington State Department of Ecology. Stormwater Management Manual for Western Washington. Volume IV, Source Control BMPs. Prepared by Washington State Department of Ecology, Water Quality Program. February 2005. Publication No. 05-10-32.

## APPENDIX A: SWPPP REVISION FORM

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This appendix contains the SWPPP Revision Form.

## APPENDIX B: BMP ACTIVITY SHEETS

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This Appendix contains the activity sheets specific to the city of Puyallup's Public Works maintenance facility, as adapted from King County's Stormwater Pollution Prevention Manual (KC), City of Seattle's Source Control Technical Requirements Manual (SEA), and Ecology's Stormwater Management Manual for Western Washington, Volume IV- Source Control BMPs (Ecology).

The following activity sheets are enclosed:

- KC A2: Storage of Liquid Materials in Stationary Tanks
- KC A3: Storage of Liquid Materials in Portable Containers
- KC A8: Storage of Solid Waste and Food Wastes (including Cooking Grease)
- KC A17: Fueling Operations
- KC A31: Vehicle and Equipment Parking and Storage
- SEA: Outside Storage of Non-Containerized Materials, By-Products, or Finished Products
- Ecology: Loading and Unloading for Liquid and Solids
- Ecology: Storage of Liquid Waste Containers
- Ecology: Vehicle Rinsing.

## APPENDIX C: VISUAL INSPECTION FORMS

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This appendix contains the following visual inspection forms:

- Wet Weather Visual Inspection Form
- Dry Weather Visual Inspection Form.

## APPENDIX D: ANNUAL BMP EVALUATION FORM

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This appendix contains the Annual BMP Evaluation Form.

## APPENDIX E: SPILL RESPONSE PLAN FORM

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This appendix contains the Spill Response Plan Form.

## APPENDIX F: SRP FLOW DIAGRAM

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This appendix contains the SRP Flow Diagram