

# FACT SHEET

For the  
National Pollutant Discharge Elimination System (NPDES) and State Waste  
Discharge General Permit for Washington State Department of  
Transportation's Municipal Separate Storm Sewers

STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

*March 6, 2014*

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# TABLE OF CONTENTS

I. INTRODUCTION .....	6
II. PUBLIC INVOLVEMENT OPPORTUNITIES .....	6
Public Comment Period .....	6
The Stormwater Problem .....	8
Characterization of Stormwater .....	9
Controlling Stormwater Discharges.....	13
Limitations of the Permit in Protecting Water Quality.....	14
Recent Regional Efforts.....	14
Stormwater Monitoring Work Group .....	15
Toxic Loading Study for Puget Sound.....	16
III. LAWS AND REGULATIONS.....	17
EPA Rules.....	18
Chapter 90.48 RCW - The Water Pollution Control Act and Implementing Regulations .....	19
IV. RELATIONSHIP TO OTHER STORMWATER PERMITS .....	20
Industrial Stormwater General Permit .....	20
Construction Stormwater General Permit.....	21
Large and Medium (Phase I) Municipal Stormwater General Permits.....	21
Western and Eastern Washington Phase II Municipal Stormwater General Permits ...	22
V. ANTIDegradation.....	22
Formal Adaptive Process to Comply with WAC 173-201A-320(6) .....	23
How the WSDOT Stormwater Permit Meets the Antidegradation Requirement .....	23
VI. EXPLANATION OF PERMIT REVISIONS.....	26
Summary.....	26
S1 – Permittee and Permit Coverage .....	26
S2 – Authorized Discharges.....	27
S3 – Responsibility of the Permittee.....	29
S4 – Compliance with Standards .....	29
S5 – Stormwater Management Program .....	33
S6 – Total Maximum Daily Load Allocations.....	44
S7 – Monitoring .....	45
S8 – Reporting Requirements .....	56
General Conditions .....	57
Appendix A Response To Comments.....	60
Introduction.....	63
Summary Of Changes To The Draft Permit .....	63
Organization Of The Response To Comments .....	63
List Of Commenters.....	63

Response To Comments .....64

- Comments From Washington State Department of Transportation ..... 65
- Comments From King County Department of Natural Resources ..... 66
- Comments From Department of Natural Resources - Aquatic Division ..... 67
- Comments From Muckleshoot Indian Tribe Fisheries Division ..... 68
- Comments from the United States Fish and Wildlife Service ..... 70
- Comments From Stormwater Work Group..... 71

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## I. INTRODUCTION

This Fact Sheet accompanies the *Washington State Department of Transportation NPDES and State Waste Discharge Permit for Municipal Stormwater, March 6, 2014*. The Fact Sheet serves as the documentation of the legal, technical, and administrative decisions the Washington State Department of Ecology (Ecology) has made in the process of developing and issuing this permit.

This permit authorizes the discharge of stormwater to waters of the State of Washington from municipal separate storm sewers that are owned or operated by Washington State Department of Transportation (WSDOT). WSDOT land uses covered include highways, ferry terminals, rest areas, park and ride lots, maintenance facilities, vector decant and street sweepings facilities, and winter chemical storage facilities. As required by paragraph 402(p)(3) of the Clean Water Act, this permit must effectively prohibit non-stormwater discharges into storm sewers that discharge to surface waters and apply controls to reduce the discharge of pollutants to the Maximum Extent Practicable (MEP). As authorized by the Revised Code of Washington, RCW 90.48.030 and RCW 90.48.162, Ecology must take action through the issuance of this permit to control impacts of stormwater discharges to all waters of Washington State, including ground waters, unless the discharges are authorized by another regulatory program.

This permit does not directly regulate discharges from agricultural runoff, irrigation return flows, process and non-process wastewaters from industrial activities, and stormwater runoff from areas served by combined sewer systems. These types of discharges may be regulated by local or other state requirements if they discharge to municipal separate storm sewers. This permit authorizes the municipal separate storm sewer to discharge stormwater that comes from construction sites or industrial activities under certain conditions.

The 2009 permit went through three major modifications in May 2009, May 2010, and March 2012. The expiration date for the 2009 permit was March 6, 2014.

## II. PUBLIC INVOLVEMENT OPPORTUNITIES

### Public Comment Period

Ecology solicited public comment on the Draft Permit, Fact Sheet, and Appendices from November 6, 2013 until 5:00 p.m. on January 10, 2014. Ecology welcomed all comments on these formal draft documents. Ecology requested the following information be included with any comments:

- The specific language in the permit that is the subject of the comment. Please include the Special Condition number and page number.
- The basis for the comment, and in particular the legal, technical, administrative, or other basis for the concern.
- A suggested alternative to address the concern.

Send electronic comments to [foroozan.labib@ecy.wa.gov](mailto:foroozan.labib@ecy.wa.gov), or written comments to:

Foroozan Labib  
Department of Ecology  
Water Quality Program  
PO Box 47696  
Olympia, WA 98504-7696

Ecology hosted a public workshop followed by a public hearing on the Draft Permit during the public comment period at:

**Wednesday, January 8, 2014 at 1:30pm**  
**Department of Ecology**  
**300 Desmond Drive SE**  
**Lacey, WA 98503**  
**(360) 407-6000**

The purpose of the workshop was to explain how the permit has changed from the 2012 modified permit and to answer questions. Ecology accepted formal oral testimony or comments on the Draft Permit and/or Fact Sheet at a public hearing following the public workshop.

Ecology issued the final permit after receiving and considering all public comments on March 6, 2014 and it will become effective 30 days after issuance. Ecology will send a copy of the Notice of Issuance to all persons who submitted written comments.

When Ecology issues the final permit, the summary and response to comments will become part of the file on the permit, and parties submitting comments will receive a notice on how to obtain copies of the final permit and Ecology's response to comments. Ecology is issuing its response to comments and the resultant changes to the permit as an appendix to the Fact Sheet titled Response to Comments.

You may download a copy of the final and draft permit and fact sheet at: <http://www.ecy.wa.gov/programs/wq/stormwater/municipal/wsdot.html>. You may request copies of the permit or fact sheet from the Water Quality Program reception at (360) 407-6600.

Please direct questions about the **Permit** or **Fact Sheet** to Foroozan Labib at [foroozan.labib@ecy.wa.gov](mailto:foroozan.labib@ecy.wa.gov), or (360) 407-6439.

As part of the 2014 permit reissuance, WSDOT updated its HRM to be equivalent to Ecology stormwater manuals. The updates include adding Low Impact Development (LID) design guidelines for WSDOT projects.

Ecology recognizes that the HRM is used by many public works departments at local governments for their road projects. Ecology agreed that WSDOT can use their LID BMP selection process as described in HRM Section 5-3.3 to meet the LID performance standard on WSDOT arterial and collector roads and highways. Local governments using the HRM for their road projects can choose to require meeting the LID performance standard or use WSDOT's LID BMP selection process for their arterial and collector road projects. The following WSDOT web links provide clarification on a map of the arterial and collector roads.

- WSDOT Highways, Roads, and Streets functional classifications:  
<http://www.wsdot.wa.gov/mapsdata/travel/hpms/functionalclass.htm>
- Interactive functional classification map showing classification designations for the entire state, including at the local level:  
<http://www.wsdot.wa.gov/MapsData/Tools/FunctionalClass/>.

## **Background**

### **The Stormwater Problem**

Stormwater is the leading contributor to water quality pollution in our urban waterways and is also Washington's fastest growing water quality problem. Pollutants in stormwater can cause a wide range of impacts. Some pollutants such as metals, oil and grease, and organic compounds carried by stormwater are toxic to aquatic organisms if concentrations are high enough. Silt and fine particles in stormwater runoff cause tissue abrasion and gill clogging in fish, they reduce light and impair algal growth, they smother fish spawning habitat, and they transport other pollutants. Stormwater and sediments carried by stormwater contribute nutrients to surface waters that can accelerate eutrophication of surface waters and result in nuisance algal blooms, reduce clarity, produce odors and degrade drinking water quality. Stormwater runoff from impervious surfaces can increase the temperature of rain water and pose problems to fish and invertebrates that are sensitive to temperature and cannot survive in overly warm water bodies.

Impervious surfaces in urban areas increase the quantity and peak flows of runoff, which in turn cause hydrologic impacts such as scoured streambed channels, in-stream sedimentation and loss of habitat. Furthermore, because of the volume of runoff, mass loads of pollutants carried by stormwater significantly degrade water quality.

Impacts from stormwater are highly site-specific and vary geographically due to impervious surfaces, local land use conditions, hydrologic conditions, and the type of receiving water.

The following is a list of typical impacts caused by stormwater discharges:

- **Human Health:** In general, untreated stormwater is unsafe. It contains bacteria, toxic metals, and organic compounds. Untreated stormwater is not safe for people to drink, and is not recommended for swimming.
- **Drinking Water:** In some areas of Washington, notably Spokane County, and parts of Pierce and Clark counties, gravelly soils allow rapid infiltration of stormwater. Untreated stormwater seeping into the ground can contaminate aquifers that are used for drinking water.
- **Salmon Habitat:** In western Washington urban stormwater impairs streams that provide salmon habitat. Impervious surfaces cause higher winter stormwater flows that erode stream channels and destroy spawning beds. Also, because more water flows offsite rather than seeping into the ground during the wet season, streams lose summertime base flows, drying out habitat needed for salmon rearing.
- **Shellfish Industry:** The State's multimillion dollar shellfish industry is increasingly threatened by closures due to contaminants carried by stormwater.
- **Degraded Water Bodies:** Across Washington State changes in land cover resulting from residential, commercial and industrial land development has drastically altered, stream channels in urban areas. Fish resources, and other beneficial uses, have been and will continue to be severely degraded, and in many cases permanently lost, due to the impacts of urban land development.

### **Characterization of Stormwater**

Hydraulic impacts and the characterization of pollutants vary but can be generalized by land uses such as residential, commercial, industrial and open space.<sup>1</sup> In general, the wet season's first flush rains carry the most pollutants to receiving waters, the wettest months are October through May.

Many pollution sources contaminate stormwater including land use activities, operation and maintenance activities, illicit discharges and spills, atmospheric deposition, and vehicular traffic conditions. Many of these sources are not under the direct control of WSDOT. Table 1 lists sources of pollutants for several typical stormwater pollutants.

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<sup>1</sup> Pitt et al 2004, *The National Stormwater Quality Database*, <http://www.cwp.org>

**Table 1: Common Pollutants in Stormwater and Some Potential Sources<sup>2</sup>**

<b>Pollutant</b>	<b>Potential Sources</b>
Lead	Motor Oil, Transmission Bearings, Gasoline <sup>3</sup>
Zinc	Motor Oil, Galvanized Roofing, Tire Wear, Down Spouts
Cadmium	Tire Wear, Metal Plating, Batteries
Copper	Brake Linings, Thrust Bearings, Bushings
Chromium	Metal Plating, Rocker Arms, Crank Shafts, Brake Linings, Yellow Lane Strip Paint
Arsenic	ASARCO Smelter, Fossil Fuel Combustion
Bacterial/Viral Agents	Domestic and Wild Animals, Septic Systems, Animal & Manure Transport
Oil & Grease	Motor Vehicles, Illegal Disposal of Used Oil
Organic Toxins	Pesticides, Combustion Products, Petroleum Products, Paints & Preservatives, Plasticizers, Solvents
Sediments	Construction Sites, Stream Channel Erosion, Poorly Vegetated Lands, Slope Failure, Vehicular Deposition, Sanding Operations
Nutrients	Sediments, Fertilizers, Domestic and Wild Animals, Septic Systems, Vegetative Matter
Heat	Pavement Runoff, Loss of Shading Along Streams
Oxygen Demanding Organics	Vegetative Matter, Petroleum Products
PAHs	Motor oil, tire wear, vehicle exhaust, coal-tar based sealants

Oregon has collected and characterized data on the quality of stormwater discharges. The rainfall patterns and land cover characteristics in Oregon are sufficiently similar to Washington to provide an indication of the general quality of stormwater discharges in Washington. Table 2 shows the mean of the “event mean concentrations” (EMCs) of common stormwater pollutants for different land use categories.<sup>4</sup> The EMC is defined as

<sup>2</sup> Adapted from a number of sources: Novotny, V. and G. Chesters, 1981. *Handbook of Nonpoint Pollution*. Van Nostrand Reinhold Company, New York, p. 322. Galvin D. and R. Moore, 1982. *Toxicants in Urban Runoff*, METRO Toxicant Program, Report #2. METRO, Seattle, pp 3-89 - 3-92. PTI Environmental Services, 1991. *Pollutants of concern in Puget Sound*. Puget Sound Estuary Program, U.S. EPA, Seattle, pp 47-51. URS et al, 1988. City of Puyallup, Stormwater Management Program. *Technical Memorandum WQ-1: Stormwater Quality Issues*. Table 1.

<sup>3</sup> Although lead is no longer an additive to gasoline, it is still present in trace amounts and remaining lead on the ground is picked up by stormwater runoff.

<sup>4</sup> Strecker et al. 1997. *Analysis of Oregon Urban Runoff Water Quality Monitoring Data Collected from 1990 to 1996*, prepared for the Oregon Association of Clean Water Agencies, Table 3-2.

the total constituent mass discharge divided by the total runoff volume. EMCs are typically based on flow weighted composite samples. Total phosphorus concentrations for comparative purposes only, since phosphorous concentrations were not found to be consistent among similar land use stations. Total phosphorous concentrations may be more affected by soil type than by land use.

**Table 2: Land Uses Mean Concentrations for Selected Pollutants**

<b>Oregon Urban Runoff Water Quality Data</b>					
<b>Land Use</b>	<b>TSS mg/l</b>	<b>Total Cu mg/l</b>	<b>Total Zn mg/l</b>	<b>Dissolved Cu mg/l</b>	<b>Total P mg/l</b>
<b>In-pipe Industrial</b>	194	0.053	0.629	0.009	0.633
<b>Instream Industrial</b>	102	0.024	0.274	0.007	0.509
<b>Transportation</b>	169	0.035	0.236	0.008	0.376
<b>Commercial</b>	92	0.032	0.168	0.009	0.391
<b>Residential</b>	64	0.014	0.108	0.006	0.365
<b>Open</b>	58	0.004	0.025	0.004	0.166

The National Stormwater Quality Database (NSQD)<sup>5</sup> collected and evaluated data from a representative number of municipal stormwater permit holders across the country. To date it serves as the largest urban stormwater database ever developed.

Notable observations from the NSQD include the following:

- Preliminary statistical analyses found significant differences among land use categories for all pollutants. The because National Urban Runoff Program (NURP) findings show no significant differences in urban runoff concentrations as a function of common urban land uses (EPA, 1983).
- Freeway locations generally had the highest median values, except for phosphorus, nitrates, fecal coliforms, and zinc.
- The industrial sites had the highest reported zinc concentrations.
- Total Kjeldahl Nitrogen (TKN), copper, lead, and zinc observations are lowest for open space areas.
- Lead concentrations, as expected, have decreased by an order of magnitude over the last 20 years, largely assumed to be the result of instituting unleaded gasoline regulations.
- Nutrient concentrations between NSQD and NURP show relatively similar data..

Tables 3 and 4 from the NSQD are provided to give an indication of the general quality of stormwater discharges for a broader range of parameters than the Oregon data set.

<sup>5</sup> Pitt et al 2004, *The National Stormwater Quality Database*

**Table 3: Median Values and EMCs for Selected Parameters in the NSQD, Version 1.0**

Parameter	Overall	Residential	Commercial	Industrial	Freeways	Open Space
Area (acres)	56	57.3	38.8	39	1.6	73.5
% Imperv.	54.3	37	83	75	80	2
Precip. Depth (in)	0.47	0.46	0.39	0.49	0.54	0.48
TSS (mg/L)	58	48	43	77	99	51
BOD5 (mg/L)	8.6	9	11.9	9	8	4.2
COD (mg/L)	53	55	63	60	100	21
Fecal Coliform (mpn/100 mL)	5081	7750	4500	2500	1700	3100
NH3 (mg/L)	0.44	0.31	0.5	0.5	1.07	0.3
N02+NO3 (mg/L)	0.6	0.6	0.6	0.7	0.3	0.6
Nitrogen, Total Kjeldahl (mg/L)	1.4	1.4	1.6	1.4	2	0.6
Phos., filtered (mg/L)	0.12	0.17	0.11	0.11	0.2	0.08
Phos., total (mg/L)	0.27	0.3	0.22	0.26	0.25	0.25
Cd, total (ug/L)	1	0.5	0.9	2	1	0.5
Cd, filtered (ug/L)	0.5	ND	0.3	0.6	0.68	ND
Cu, total (ug/L)	16	12	17	22	35	5.3
Cu, filtered (ug/L)	8	7	7.6	8	10.9	ND
Pb, total (ug/L)	16	12	18	25	25	5
Pb, filtered (ug/L)	3	3	5	5	1.8	ND
Ni, total (ug/l)	8	5.4	7	16	9	ND
Ni, filtered (ug/L)	4	2	3	5	4	ND
Zn, total (ug/L)	116	73	150	210	200	39
Zn, filtered (ug/L)	52	33	59	112	51	ND

*ND = not detected, or insufficient data to present as a median value.*

**Table 4: Summary of Selected Organic Information**

	Methylene - chloride (ug/L)	Bis (2- ethylhexyl) phthalate (ug/L)	Di-n- butyl phthalate (ug/L)	Fluor- anthene (ug/L)	Phen- anthrene (ug/L)	Pyrene (ug/L)	Diazinon (ug/L)	2, 4-D (ug/L)
<b>Number of observations</b>	251	250	93	259	233	249	79	101
<b>% of samples above detection</b>	36	30	16	19	13	14	22	35
<b>Median of detected values</b>	11.2	9.5	0.8	6	3.95	5.2	0.06	3
<b>Coefficient of variation</b>	0.77	1.13	1.03	1.31	1.00	1.24	1.9	0.86

### Controlling Stormwater Discharges

Stormwater quality is difficult to manage because discharges are not continuous, highly predictable events. Rather, stormwater discharge depends on weather (i.e., rainfall and snowmelt) and flows intermittently. The range of pollutants in stormwater vary in type and concentrations depending on storm events. Further difficulty in controlling stormwater discharges from roads and highways comes from the large number of conveyance systems where stormwater is being discharged (hundreds or even thousands of outfalls within a highway system is typical). These features of stormwater runoff make it difficult to apply conventional end-of-pipe treatment options to existing discharges.

Three basic control strategies exist for stormwater. First, stormwater managers can prevent pollutants from coming into contact with stormwater by using source control best management practices (BMPs). Second, managers can apply treatment BMPs prior to discharge to surface or ground waters to reduce pollutants in the discharge. Third, managers can control the flow rate of stormwater through flow control BMPs.

Source control BMPs can effectively prevent stormwater contamination. Source control BMPs include diverse activities such as:

- changing vehicle and equipment maintenance activities to prevent the leaking of oil or other fluids;
- design, installing, and maintaining landscapes at rest areas, maintenance facilities etc., to minimize stormwater runoff;
- product replacement or substitution (e.g., replace galvanized downspouts that are sources of zinc contamination with downspouts that are coated with non-polluting materials) at rest areas, maintenance facilities etc.;

- minimizing the removal of forests and native vegetation;
- covering materials and equipment stored outside and exposed to rainfall and runoff; and
- prohibiting or restricting the use of certain chemicals that are causing a pollution problem (e.g., pesticides or phosphorus in watersheds that drain to lakes).

Treatment BMPs include ponds, swales, filtration, and infiltration devices that capture runoff and treat it using physical, biological, and/or chemical processes. The effectiveness and feasibility of treatment BMPs is variable, subject to some debate, and much remains to be learned.

Flow control BMPs usually detain (control release rates) or retain (infiltrate to the ground). Flow control prevents accelerated stream channel erosion and protects wetlands from changes in water elevations.

In summary, the complexity inherent in stormwater discharges and the difficulty of controlling such discharges will require many years to fully implement a program to adequately mitigate or prevent adverse environmental impacts.

### **Limitations of the Permit in Protecting Water Quality**

In developing this permit, Ecology recognizes that permits alone cannot prevent all stormwater impacts and preserve natural resources and their associated beneficial uses. For multiple reasons, the cumulative impact of unregulated stormwater will continue to contribute to water quality degradation.

Ecology is required to implement the federal Clean Water Act and State Water Pollution Control Act. Ecology has developed this draft permit within the framework created by these statutes and has adopted WSDOT's Stormwater Management Program to meet state and federal requirements. In this Fact Sheet, Ecology has documented the rationale for many of the proposed permit requirements. The permit does not address all stormwater management needs associated with highways, ferry terminals, rest areas, park and ride lots, maintenance facilities, vector decant and street sweepings facilities, and winter chemical storage facilities and will not prevent all stormwater impacts. Citizens, state and local governments will need to work together to implement other actions to protect our water bodies.

### **Recent Regional Efforts**

Over time, Ecology intends to inform and improve the stormwater management programs required in the permits by evaluating regional data to better understand the sources and pathways of pollutants and target effective management approaches. In recent years, four major regional efforts briefly discussed in this section have contributed to an understanding of stormwater impacts on the beneficial uses of Washington waters:

- A Stormwater Monitoring Work Group worked for several years to develop recommendations for a comprehensive stormwater monitoring program in Puget

Sound. Information on the work group is at:

<http://www.ecy.wa.gov/programs/wq/psmonitoring/swworkgroup.html>

- Ecology and others issued a 2010 report, *Toxics in Surface Runoff to Puget Sound*<sup>6</sup>, Phase 3 of a study to estimate toxic chemical loadings from surface runoff in the Puget Sound Basin. The studies began in 2006 and included a multi-partner steering committee of federal, state, and local government agencies, consultants, and reviewers. The report and additional information are at: <http://www.ecy.wa.gov/programs/wq/pstoxics/index.html>
- Phase I cities and counties and the ports of Tacoma and Seattle conducted stormwater outfall monitoring as required by the Phase I Municipal Stormwater General Permit and submitted the preliminary data to Ecology. Information on the monitoring program is at: <http://www.ecy.wa.gov/programs/wq/stormwater/municipal/strmH2Omonitoring.html>
- A Sediment Phthalates Work Group evaluated information to better understand how phthalates are reaching Puget Sound. The work group identified data gaps and made recommendations in a 2007 report, *Sediment Phthalates Work Group: Summary of Findings and Recommendations*, prepared by the City of Tacoma, the City of Seattle, King County, EPA, and Ecology. More information is at: [http://www.ecy.wa.gov/programs/tcp/smu/phthalates/phthalates\\_hp.htm](http://www.ecy.wa.gov/programs/tcp/smu/phthalates/phthalates_hp.htm)

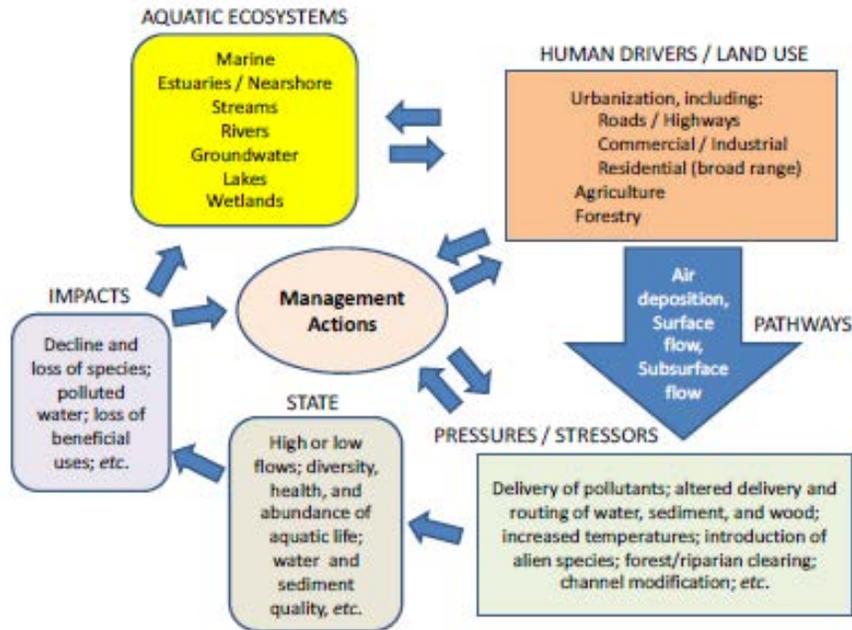
### **Stormwater Monitoring Work Group**

The Stormwater Monitoring Work Group brought together many of the region's stormwater experts to review previous work and evaluate the direct and indirect effects of stormwater on the Puget Sound ecosystem, and the various pathways by which those effects are transmitted. The primary task of the Stormwater Monitoring Work Group was to develop the monitoring approach proposed in the Phase I and Western Washington Phase II draft permits for the Puget Sound region. However, in the process of coming to a consensus on monitoring from a broad range of expertise and technical backgrounds, the work group members formulated a conceptual model of the factors driving the stormwater-related impairment of water quality and habitat in our region. Figure 1, below, shows the types of stressors that should be considered, the pathways by which those stressors are transmitted, and how the outcomes of our management efforts should be assessed, using a Driver-Pressure-State Impact-Response (DPSIR) conceptual model approach.<sup>7</sup>

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<sup>6</sup> Herrera Environmental Consultants, Inc. 2011. *Toxics in Surface Runoff to Puget Sound, Phase 3 Data and Load Estimates*, Washington State Department of Ecology, Olympia, WA.

<sup>7</sup> Puget Sound Stormwater Work Group. 2010. *Stormwater Monitoring and Assessment Strategy for the Puget Sound Region, Volume 1: Scientific Framework*, Washington State Department of Ecology, Olympia, WA.



**Figure 1: Stormwater Stressors and Pathways**

The conceptual model identifies land use as the driver for impacts to aquatic systems. Ecology is applying the DPSIR approach illustrated in this conceptual model to organize ecosystem recovery efforts and use monitoring information for adaptive management.

### Toxic Loading Study for Puget Sound

As part of Phase 3 of its toxics loading study, Ecology collected water quality samples of surface runoff during eight storm or baseflow events from 16 distinct sub-basins, each representative of one of four land covers (Commercial/Industrial, Residential, Agricultural, and undeveloped Forest/Field/Other). Analyses of the samples employed much lower detection limits than typically used to produce pollutant concentration and loading data. No other study in Washington has quantified pollutant loads for so many constituents at this scale. Although this data represents surface runoff in the sampled sub-basins and is not directly representative of regulated stormwater discharges, some of the findings are generally in agreement with those from the 2005 analysis of the National Stormwater Quality Database. The pollutant loading estimates were based on data collected from small streams, where pollutant concentrations had likely been reduced by attenuation, degradation, deposition, and/or dilution. Therefore, the loading estimates might have been greater if they had been based on outfalls from stormwater conveyance systems.

The study found the following:

- Surface water runoff, particularly from commercial and industrial areas, did not meet water quality or human health criteria for the following parameters: dissolved copper, lead, and zinc; total mercury; total polychlorinated biphenyls

(PCBs); several carcinogenic polycyclic aromatic hydrocarbons (PAHs); and DDT-related compounds.

- Organic pollutants and metals were generally detected more frequently and at greater concentrations in surface runoff from commercial and industrial areas than from other land uses. Runoff from residential and agricultural land had higher frequency of detection for most parameters than runoff from undeveloped/forested land, but generally less than runoff from commercial land. Greater detection frequencies occurred during storm events than during baseflow across all land cover types.
- During storm events, surface runoff from areas of Forested and Commercial land covers were chemically distinct from each other and from the other land cover types. Forested lands produced runoff with smaller concentrations of nitrate+nitrite nitrogen, total phosphorus, and total arsenic, copper, mercury, and suspended solids. Commercial land areas produced runoff with relatively greater concentrations of total lead, zinc, PBDEs, and PCBs.
- At the local scale, pollutant loading rates via small streams were substantially greater during storm events than during baseflow. The rain-induced surface runoff during storm events caused higher streamflow rates. These higher flow rates coupled with increased pollutant concentrations to produce substantially greater loading rates for storm events than for baseflow. This result suggested that the greatest opportunity for transport of toxic chemicals occurs during storm events.

### **III. LAWS AND REGULATIONS**

#### **Federal Clean Water Act**

The federal Clean Water Act (CWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the CWA is the National Pollutant Discharge Elimination System (NPDES) permitting program. In Washington, EPA has delegated authority to Ecology to administer the NPDES permit program for most dischargers including most municipal stormwater discharges. Chapter 90.48 RCW defines Ecology's authority and obligations in administering the NPDES permit program.

Amendments to the Clean Water Act in 1987 established new statutory requirements to control industrial and municipal stormwater discharges to waters of the United States. Waters of the United States include most surface water bodies and ground waters that are hydrologically connected to surface waters. The 1987 CWA amendments Congress directed EPA to study remaining sources of stormwater discharges and propose regulations, based on the study, to designate and control other stormwater sources.

In 1990 the EPA promulgated the phase I regulations. Phase I also included Washington State Department of Transportation. In 1999, EPA promulgated the Phase II rule which extends coverage to “small” municipal separate storm sewer systems.

Operators of separate storm sewers serving populations of 100,000 or greater are required to have a National Pollutant Discharge Elimination System (NPDES) permit to discharge stormwater. Operators with populations of 250,000 or more are defined as "large" while those with populations between 100,000 and 250,000 are defined as "medium". Under the Act the permit requirements for discharges from municipal separate storm sewer systems are:

*“Municipal Discharge. – Permits for discharges from municipal storm sewers -*

*(i) may be issued on a system- or jurisdiction-wide basis;*

*(ii) shall include a requirement to effectively prohibit non-stormwater discharges into the storm sewers; and*

*(iii) shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants.” (33 U.S.C. §1342 (p)(3)(B))*

The regulatory definition of an MS4 (40 CFR 122.26(b)(8)) is "*a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains): (i) Owned or operated by a state, city, town, borough, county, parish, district, association, or other public body (created to or pursuant to state law) 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 Clean Water Act that discharges into waters of the United States. (ii) Designed or used for collecting or conveying stormwater; (iii) Which is not a combined sewer; and (iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.*"

In practical terms, operators of MS4s include municipalities and local sewer districts, state and federal departments of transportation, public universities, public hospitals, military bases, and correctional facilities.

### **EPA Rules**

EPA implemented regulations that define the term "municipality" to mean incorporated cities and unincorporated counties that have sufficient population in a Census Bureau designated urbanized area to meet the population thresholds. In addition, other public entities (excluding incorporated cities) regardless of their size, that own and operate storm sewer systems located within the municipalities that meet the population thresholds are also required to be covered under the permit program. This includes state highway systems such as those owned or operated by WSDOT. Other examples of other publicly-

owned storm sewer systems include state highway systems, ports, drainage districts, and flood control districts located within named municipalities.

Recognizing the complexity of controlling stormwater, Congress and the EPA have established a regulatory framework for municipal stormwater discharges that is very different from traditional NPDES permit programs. Some of the key provisions of the stormwater rule that reflect these differences are:

- Permits must require the implementation of stormwater management programs rather than establishing numeric effluent standards for stormwater discharges (40 CFR 122.26(d)(2)(iv)).
- Permits must to cover a large geographic area rather than individual "facilities." A permit coverage area may include hundreds or even thousands of individual outfalls discharging stormwater (40 CFR 122.26(a)(3)).
- Flexibility that allows permittees to first focus their resources on the highest priority problems (40 CFR 122.26(d)(2)(iv)).
- Permits allow, and even encourage, a watershed approach to comprehensively manage stormwater (40 CFR 122.26(a)(3) & (d)(2)(iv)).
- Permits emphasize pollution prevention with some provisions requiring eliminating or controlling pollutants at their source. Permittees must assess potential future impacts due to population growth and other factors (40 CFR 122.26(d)(2)(iv)(B) & (d)(1)(iii)).

EPA rules for discharges from large and medium MS4s establish a two part application process, but did not establish actual permit requirements. EPA deliberately allowed the permitting authority flexibility to establish permit requirements that are appropriate for the local area under regulation.

### **Chapter 90.48 RCW - The Water Pollution Control Act and Implementing Regulations**

Along with requirements in federal law, state law requires the control of pollution. RCW 90.48.010 establishes “the public policy of the state of Washington (is) to maintain the highest possible standards to insure the purity of all waters of the state consistent with public health and public enjoyment thereof, the propagation and protection of wild life, birds, game, fish and other aquatic life, and the industrial development of the state, and to that end require the use of all known available and reasonable methods by industries and others to prevent and control the pollution of the waters of the state of Washington.”

RCW 90.48.020 defines the terms “pollution” and “waters of the state.” The statute does not define the phrase “all known available and reasonable methods” but authorizes Ecology to define it.

State law requires a permit to discharge pollutants or waste materials to waters of the state (RCW 90.48.162). A discharger must make an application to obtain a discharge

permit. Ecology has an obligation to investigate the application and determine whether the use of public waters for the waste disposal will pollute state waters in violation of the public policy of the state (RCW 90.48.170). Unless Ecology finds the disposal of waste materials will pollute the waters of the state in violation of the public policy (RCW 90.48.180), Ecology must issue a permit.

In 1987 the state legislature passed RCW 90.48.520 into law. When issuing or renewing state and federal wastewater discharge permits, Ecology must review an applicant's operations and incorporate permit conditions which require all known, available, and reasonable methods to control toxicants in the applicant's wastewater. The discharge of toxicants which would violate any water quality standard, including toxicant standards, sediment criteria, and dilution zone criteria is prohibited. (RCW 90.48.520)

RCW 90.48.035 grants Ecology authority to adopt standards for the quality of waters of the state. Ecology has adopted the following standards: Ch. 173-200 WAC Ground Water Quality Standards; Chapter 173-201A WAC Water Quality Standards for Surface Waters; and Ch. 173-204 WAC, Sediment Management Standards. These standards generally require that permits issued by Ecology to ensure standards are not violated, or a compliance schedule be in place to bring discharges into compliance.

The State Waste Discharge General Permit Program regulation, Chapter 173-226 WAC, establishes a general permit program applicable to the discharge of pollutants, wastes, and other materials to waters of the state. WAC 173-226-110 requires the preparation of a draft permit and an accompanying fact sheet before Ecology can issue a general permit under the NPDES permit program.

#### **IV. RELATIONSHIP TO OTHER STORMWATER PERMITS**

EPA stormwater regulations establish NPDES permit requirements for stormwater discharges from industrial facilities, construction sites, small municipal storm sewer systems (Phase II), large and medium municipal storm sewer systems (Phase I), and the Washington State Department of Transportation.

##### **Industrial Stormwater General Permit**

The federal stormwater regulations envision a cooperative relationship between industrial stormwater permittees that discharge to municipal separate storm sewer systems (MS4s) and those municipal permittees. A wide range of industrial facilities listed at 40 CFR 122.26(b)(14) must obtain NPDES permits from Ecology to authorize discharges to surface waters or to MS4s that discharge to surface waters. In Washington State, Ecology has also issued several industry-specific permits that authorize stormwater discharges from those facilities, including the Sand and Gravel General Permit and the General Permit for Boat Building and Repair Facilities.

Under 40 CFR 122.26(d)(2)(iv)(C), Phase I municipal permittees must establish a program to address stormwater discharges from industrial facilities that the Permittees

determine are contributing a substantial pollutant loading to the MS4. EPA describes this dual responsibility in the preamble to the Phase I stormwater regulations:

Although today's rule will require industrial discharges through municipal separate storm sewers to be covered by separate permit, EPA still believes the municipal operators of large and medium municipal systems have an important role in source identification, and the development of pollution controls for industries that discharge stormwater through the municipal separate storm sewer systems is appropriate. Under the CWA [*Clean Water Act*] large and medium municipalities are responsible for reducing pollutants in discharges from municipal separate storm sewers to the maximum extent practicable. Because stormwater from industrial facilities may be a major contributor of pollutants to municipal separate storm sewer systems, municipalities are obligated to develop controls for stormwater discharges associated with industrial activity through their system in their stormwater management program. (EPA, Federal Register, Vol. 55, No. 222; November 16, 1990, p.48090).

### **Construction Stormwater General Permit**

Under this permit, WSDOT must adopt and implement measures to prevent sediment and other pollutants associated with construction activity from impacting water quality and to comply with *NPDES Construction Stormwater General Permit (CSWGP)*. The construction stormwater permit is issued to individual construction site operators for projects of one acre or more or for projects of less than one acre that are part of a larger, common plan of development or sale. Construction site operators that are covered under and operating in compliance with the construction stormwater general permit issued by Ecology will be in compliance with the construction site runoff control requirements of the municipal stormwater permit.

### **Large and Medium (Phase I) Municipal Stormwater General Permits**

Ecology issued the first Phase I Municipal Stormwater Permits in 1995 and most recently reissued a general permit in 2013 to cover the cities of Seattle and Tacoma, and Snohomish, King, Pierce, and Clark counties. The Phase I federal rule established the list of Phase I jurisdictions, and no new jurisdictions will be added to this list.

Phase I and Phase II permittees share basins, have interconnected conveyance systems, and discharge into many of the same water bodies. During the current (2013) permit cycle, Phase I and Phase II communities in western Washington cooperated in a number of permit programs and grant projects, and worked together through coordination groups.

Wherever possible, Ecology coordinates the requirements of the municipal stormwater permits. All permits include similar approaches to compliance with standards, TMDL implementation, and the use of a regional stormwater manual. Programs for illicit discharge detection and elimination and controlling stormwater from construction sites are also similar. In areas where conveyance systems are interconnected or discharges go to the same water body, successful implementation of stormwater management programs

requires coordination between WSDOT and local jurisdictions. Ecology has established expectations in this permit for regional coordination in monitoring efforts and in proposed requirements for watershed-based stormwater planning for western Washington Permittees.

### **Western and Eastern Washington Phase II Municipal Stormwater General Permits**

Ecology issued the Eastern and Western Washington Phase II Municipal Stormwater General Permits at the same time as the Phase I permit to cover small municipal storm sewer systems. Small MS4s are part of EPA's NPDES regulatory program for stormwater discharges to surface waters.

Many of the Phase II Permittees in western Washington are located in counties regulated by Phase I permit. WSDOT shares basins with Phase I and Phase II permittees, have interconnected conveyance systems, and discharges into many of the same water bodies. In areas where conveyance systems are interconnected or discharges go to the same water body, successful implementation of stormwater management programs requires coordination between WSDOT and local jurisdictions. Ecology has established expectations in this permit for coordination with local jurisdictions in implementing the various elements of its stormwater management program plan.

## **V. ANTIDegradation**

### **Background**

Federal regulations (40 CFR 131.12) and the Water Quality Standards for Surface Waters of the State of Washington (WAC 173-201A-300, 310, 320, 330) establish a water quality antidegradation program. The purpose of the antidegradation program is to:

- Restore and maintain the highest possible quality of the surface waters of Washington.
- Describe situations under which water quality may be lowered from its current condition.
- Apply to human activities that are likely to have an impact on the water quality of surface water.
- Ensure that all human activities likely to contribute to a lowering of water quality, at a minimum, apply all known, available, and reasonable methods of prevention, control, and treatment (AKART).
- Apply three Tiers of protection (described below) for surface waters of the state.

The federally mandated program establishes three tiers of protection for water quality. Tier I ensures the maintenance and protection of existing and designated uses. Tier I applies to all waters and all sources of pollution. Tier II prevents the degradation of waters that are of a higher quality than the criteria assigned, except where such lowering of water quality is shown to be necessary and in the overriding public interest. Tier II applies only to a specific list of polluting activities. Tier III prevents the degradation of

waters formally listed as “outstanding resource waters,” and applies to all sources of pollution.

This permit addresses antidegradation of Tier I, Tier II and Tier III waters.

### **Formal Adaptive Process to Comply with WAC 173-201A-320(6)**

Washington’s Tier II requirements for general permits are outlined in WAC 173-201a-320(6):

- a) *Individual activities covered under these general permits or programs will not require a Tier II analysis.*
- b) *The department will describe in writing how the general permit or control program meets the antidegradation requirements of this section.*
- c) *The department recognizes that many water quality protection programs and their associated control technologies are in a continual state of improvement and development. As a result, information regarding the existence, effectiveness, or costs of control practices for reducing pollution and meeting the water quality standards may be incomplete. In these instances, the antidegradation requirements of this section can be considered met for general permits and programs that have a formal process to select, develop, adopt, and refine control practices for protecting water quality and meeting the intent of this section. This adaptive process must:*
  - (i) *Ensure that information is developed and used expeditiously to revise permit or program requirements;*
  - (ii) *Review and refine management and control programs in cycles not to exceed five years or the period of permit reissuance; and*
  - (iii) *Include a plan that describes how the information will be obtained and used to ensure full compliance with this chapter. The plan must be developed and documented in advance of the permit or program approved under this section.*
- d) *All authorizations under this section must still comply with the provisions of Tier I (WAC 173-210A-310).*

### **How the WSDOT Stormwater Permit Meets the Antidegradation Requirement**

Ecology’s process for reissuance of WSDOT’s stormwater general permit includes a formal process to select, develop, adopt, and refine control practices for protecting water quality and meeting the intent of WAC 173-201A-310. The permit is issued for a fixed term of five years. Each time Ecology reissues the general permit, it evaluates the permit conditions to determine if additional or more stringent requirements should be incorporated.

Ecology's evaluation of the WSDOT stormwater permit includes an ongoing review of information on new pollution prevention and treatment practices for storm water discharges. Sources of such information include:

1. Comments on draft permits. Ecology will review and use public comment and testimony from public hearings during the public comment period on the draft 2014 permit to develop the final permits.
2. Ecology's Stormwater Management Manuals. Ecology periodically updates the stormwater management manuals based on new information and science. The update process includes a public involvement element. WSDOT also updates the Highway Runoff Manual periodically to make sure it is functionally equivalent to Ecology manuals. This improves the effectiveness of stormwater controls for protecting water quality and meeting the intent of the antidegradation provisions of the water quality standards.
3. Technology Assessment Protocol – Ecology (TAPE) process. This formal process reviews and tests emerging treatment technologies for eventual adoption in Ecology's stormwater management manuals. The TAPE review process stimulates the development and use of innovative stormwater technologies used at construction sites and in new and redevelopment projects. Ecology funded the Washington Stormwater Center to revise the protocols and the TAPE guidance manual and re-opened the revised program in 2010 after a two-year suspension.
4. Washington Stormwater Center research. Ecology helped establish and fund the Stormwater Center and affiliated Low Impact Development research program to conduct stormwater technical research. The Center works in partnership with state academic institutions partners including Washington State University Puyallup Campus and the University of Washington Urban Waters Program in Tacoma. The Center disseminates information on current research and training opportunities to municipalities and businesses, and is compiling an interactive stormwater BMP toolbox.
5. WSDOT compliance reports. Each year, WSDOT submits to Ecology an annual report describing, among other requirements, the status of their stormwater management program plan implementation. Also annually, WSDOT submits the results of their research and monitoring studies. Ecology staff review and act on annual reports to address compliance issues and provide technical assistance. A statewide Ecology municipal stormwater permit team produces written guidance and permittee training opportunities to disseminate information on improved BMPs.

The low impact development requirements in the WSDOT stormwater permit is a part of the adaptive process to improve stormwater management and protect surface waters from degradation. Low impact development stormwater management is a nationally recognized innovative land use and stormwater management approach. Ecology is funding an update to the Western Washington Hydrologic Model to address LID BMPs, as well as a project to develop guidance and training on maintenance of LID BMPs. In

eastern Washington, Ecology is using incremental steps toward eventual broad implementation of LID as appropriate to the climate, soils, and geology of that region. These statewide requirements will support a fundamental shift to LID stormwater design and management in new and redevelopment that help meet the antidegradation requirements of WAC 172-203A-320(6).

The monitoring proposal in the draft permit also helps satisfy the anti-degradation requirements for adaptive management. The draft permit would require monitoring studies to evaluate the effectiveness of individual BMPs and/or elements of stormwater programs. A repository of information for Source Identification and Diagnostic Monitoring proposed for western Washington would benefit WSDOT and other stormwater permittees statewide in improving programs to eliminate pollution sources. The proposal for monitoring status and trends in Puget Sound receiving waters would provide information to evaluate water quality changes in urban areas where programs are being implemented. The proposed permit requires WSDOT participation in the planned status and trend monitoring studies in Puget Sound.

## **VI. EXPLANATION OF PERMIT REVISIONS**

### **Summary**

This stormwater NPDES permit requires the implementation of a stormwater management program for municipal separate storm sewers owned or operated by WSDOT. Implementation of the stormwater management program required under this permit constitutes reduction of pollutants to the maximum extent practicable (MEP) during the life of the permit, as required in section 402(p)(3)(B) of the federal Clean Water Act.

The conditions defining the stormwater management program requirements are based on EPA regulations for the municipal stormwater permit program (Code of Federal Regulations (CFR) title 40, §122.26), the stormwater elements of the Puget Sound Water Quality Management Plan, the State Water Pollution Control Act, Chapter 90.48 RCW and the annual reports submitted by the permittees under the previous municipal stormwater permit.

Ecology is issuing this permit under joint federal and state authorities. Under the federal Clean Water Act permits are required for point source discharges of pollutants to waters of the United States. Under that State Water Pollution Control Act (Chapter 90.48 RCW) permits are required for the disposal of waste materials into waters of the State. Under chapter 90.48 RCW the definition of ‘waters of the state’ includes underground waters whereas the definition of waters of the United States does not.

### **S1 – Permittee and Permit Coverage**

This permit is solely for WSDOT. This section of the permit defines the area covered under this permit.

The permit covers discharges from WSDOT’s Municipal Separate Storm Sewer Systems (MS4s), as defined by EPA at 40 CFR 122.26(b)(4) and (7), in all municipal stormwater Phase I and Phase II areas. This permit also covers stormwater discharges to any water body for which there is a U.S. Environmental Protection Agency (EPA) approved Total Maximum Daily Load (TMDL) with wasteload allocations and associated implementation documents specifying actions for WSDOT stormwater discharges. For TMDL areas that are not within the Phase I and Phase II areas, WSDOT shall, at a minimum, be responsible for the TMDL implementation actions found in Appendix 3 of the permit.

To comply with the requirements of Ch. 173-226 WAC, the General Permit Rule, WSDOT submitted an application that contains the information specified in WAC 173-226-200. WSDOT submitted an application to Ecology on March 24, 2003, and later amended that application to coincide with the Phase I and Phase II boundary areas.

S1 Revisions:

S1.B.1 was revised to add vector decant and street sweepings facilities and winter chemical storage facilities among the other WSDOT owned or operated facilities. The permit coverage area was also updated to correspond with the coverage areas in Phase I and II permits in effect as of August 2013.

S1.B.2 revisions intended to make the paragraph more clear.

## **S2 – Authorized Discharges**

S2.A – This section of the permit authorizes the discharge of stormwater from municipal separate storm sewers, owned or operated by WSDOT, to waters of the state, subject to certain limitations. Consistent with the federal rules, this permit does not cover direct discharges to surface waters from privately owned or operated storm drains. Discharges into and from municipal separate storm sewers owned or operated by WSDOT must comply with the terms and conditions of the permit.

This permit authorizes discharges from new municipal separate storm sewers, constructed by WSDOT after the issuance date of this permit provided those discharges have received all applicable state and local permits, including compliance with the State Environmental Policy Act (SEPA). The control measures required under the permits are area-wide and will apply to any future discharges from the municipal storm sewer systems regulated under this permit.

S2.A.1 – In accordance with state law Ecology regulates both discharges to surface waters and discharges to ground waters. Discharges to ground water are covered under the permit because portions of the areas regulated under these permits may include discharges of stormwater to the ground from municipal separate storm sewers. Stormwater management programs required under these permits should apply area-wide, regardless of where water is discharged, and that measures are taken to reduce the discharge of pollutants to ground waters as well as surface waters. However, as stated in paragraph S2.A.1 of the permit, discharges to ground water regulated under the Underground Injection Control (UIC) program are not covered under this permit to avoid overlapping regulation of these discharges.

Stormwater may be discharged to ground water via infiltration or injection techniques. Injection facilities such as drywells that are classified as UIC facilities are covered under the UIC program (Chapter 173-218 WAC); this permit does not cover UIC discharges. However, stormwater management programs developed to comply with this permit may be used to satisfy some of the requirements of the UIC program. This permit covers many infiltration facilities, including infiltration basins and trenches and dispersion techniques that are not classified as UIC wells because State law requires that they be addressed.

S2.A.2 – Clarifies that stormwater discharges to ground waters that are not subject to federal regulation are regulated only by state authority. EPA policy and case law support the regulation of stormwater discharging to groundwater where hydrologic connectivity

exists with surface water. (See e.g., *Exxon Corp. v. Train*, 554 F.2d 1310, 1312, n.1 5th Cir. 1977); *McClellan Ecological Seepage Situation v. Weinberger*, 707 F.Supp. 1182, 1195-96 (E.D. Cal. 1988); and *Washington Wilderness Coalition v. Hecla Mining*, case # CS 94-233 FVS). The best guidance on this issue comes from the United States District Court Eastern District of Washington (*Washington Wilderness Coalition v. Hecla Mining*, 870 F. Supp 983, 990). The court held that “since the goal of the CWA is to protect the quality of surface waters, any pollutant which enters such waters, whether directly or through groundwater, is subject to regulation by NPDES permit.” The court went on to hold, “[I]t is not sufficient to allege groundwater pollution, and then to assert a general hydrological connection between all waters. Rather, pollutants must be traced from their source to surface waters, in order to come within the purview of the CWA.” The decision on hydraulic continuity depends upon the pollutant (type and mobility in soils), the pollutant loading, the soils at the site, and the hydrology of the site.

S2.B.1 – Since municipal separate storm sewers carry stormwater and other flows, this permit authorizes the discharge of stormwater commingled with other flows, under certain circumstances. Section 402(p)(3)(B)(ii) of the federal Clean Water Act clearly states that municipal permits must effectively prohibit non-stormwater discharges to the municipal separate storm sewer system. However, another NPDES permit may authorize such discharges to municipal separate storm sewers (other than this municipal stormwater permit). This permit does not authorize industrial process wastewater and non-process wastewater discharges.

S2.B.2 – In accordance with 40 CFR 122.26(d)(2)(iv)(B)(1), this permit authorizes discharges from emergency fire fighting activities, in accordance with 40CFR122.26(d)(2)(iv)(B)(1). Training is not considered an emergency fire fighting activity. This permit does not authorize discharges from fire fighting training activities into the permittees MS4.

S2.B.3 – This permit requires all other non-stormwater discharges are to be addressed through the program to detect and remove illicit discharges and improper disposal as required under Appendix 5 of this permit.

S2.C – This permit does not authorize illicit discharges and other non-stormwater discharges except as allowed under the illicit discharge detection and elimination requirements of the stormwater management program required under Appendix 5 of this permit. Coverage under and compliance with this permit does not relieve WSDOT from compliance with other state and federal laws including but not limited to CERCLA (Superfund), and the Oil Pollution Act of 1990.

S2.D – This permit authorizes the discharge of stormwater associated with industrial activities through municipal separate storm sewers. For further explanation of the reasons for the separate stormwater permit requirement, see the preamble to the amendments to 40 CFR parts 122, 123, and 124 published in the Federal Register, November 16, 1990.

S2 Revisions:

Minor typo and clarification edits made to S2.A, S2.B, S2.D, and S2.E.

### **S3 – Responsibility of the Permittee**

This section states that WSDOT is solely responsible for compliance with this permit, however, this permit allows WSDOT to rely on another entity to meet permit requirements. EPA regulations for large and small MS4s explicitly allow such an arrangement. Ecology allows WSDOT to rely on other entities such as Health Districts or Conservation Districts to implement parts of their stormwater management programs and have included this provision. However, WSDOT retains ultimate responsibility for meeting all applicable permit conditions.

S3 Revisions:

S3.A revisions are made for more clarity.

S3.B revisions provide more clarity. S3.B.2 was renumbered to S3.C and a new paragraph was inserted in S3.B.2 which clarifies WSDOT may amend the terms of its shared responsibilities during the permit.

### **S4 – Compliance with Standards**

Ecology's permitting strategy for municipal stormwater discharges covered under this permit will:

- Require the adoption and implementation of a stormwater management program that meets federal requirements.
- Assess the effectiveness of those programs through monitoring and/or other evaluation efforts.
- Require in subsequent permits, implementation of more effective and/or more targeted stormwater best management practices if necessary to protect or restore water quality.
- Evolve towards eventual compliance with water quality standards through successive permit cycles

Consistent with Ecology's priority of preventing future impacts to water quality from municipal stormwater discharges, existing discharges were to meet the MEP standard by implementing the SWMP in Appendix 5 plus any TMDL requirements, and new discharges were not to cause or contribute to a violation of water quality standards.

S4.A – This condition prohibits the discharge of toxicants to waters of the State of Washington which would violate any water quality standard, including toxicant standards, sediment criteria, and dilution zone criteria. RCW 90.48.520 provides the basis for this condition as follows:

*“In order to improve water quality by controlling toxicants in wastewater, the department of ecology shall in issuing and renewing state and federal wastewater discharge permits review the applicant's operations and incorporate permit conditions which require all known, available, and reasonable methods to control toxicants in the applicant's wastewater. Such conditions may include, but are not limited to: (1) Limits on the discharge of specific chemicals, and (2) limits on the overall toxicity of the effluent. The toxicity of the effluent shall be determined by techniques such as chronic or acute bioassays. Such conditions shall be required regardless of the quality of receiving water and regardless of the minimum water quality standards. **In no event shall the discharge of toxicants be allowed that would violate any water quality standard, including toxicant standards, sediment criteria, and dilution zone criteria.**” (Emphasis added)*

Chapter 90.48 RCW does not define the term “toxicants” and there is no readily available legislative history which would help define which specific pollutants would be considered toxicants. Nor did the state water quality standards in existence at the time the legislature adopted RCW 90.48.520 include a definition for either toxicant or toxic pollutant.

At the time that RCW 90.48.520 was adopted, the federal Clean Water Act did contain a definition for toxic pollutant:

*“The term "toxic pollutant" means those pollutants, or combinations of pollutants, including disease-causing agents, which after discharge and upon exposure, ingestion, inhalation or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will, on the basis of information available to the Administrator, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunctions in reproduction) or physical deformations, in such organisms or their offspring.” (33 U.S.C. § 1362(13))*

The federal Clean Water Act at that time included a list of toxic pollutants. (33 U.S.C. § 1317(a)(1)) The list of toxic pollutants comprises the priority pollutant list. Based on the absence of legislative history, for this permit Ecology assumes the term ‘toxicant’ has the same meaning as ‘toxic pollutant’ as defined by the federal Clean Water Act and EPA’s implementing regulations. This is similar to the term “toxic substance” which is used in the Water Quality Standards for Surface Waters of the State of Washington, Chapter 173-201A WAC.

S4.B – This condition does not authorize a violation of Washington State surface water quality standards (Chapter 173-201A WAC), ground water quality standards (Chapter 173-200 WAC), sediment management standards (chapter 173-204 WAC), or human health-based criteria in the national Toxics Rule (Federal Register, Vol. 57, NO. 246, December 22, 1992, pages 60848-60923).

This section does not require strict compliance with water quality standards for municipal stormwater discharges under § 1342(p)(3)(B) of the federal Clean Water Act. EPA distinguishes between the maximum extent practicable permitting standard for municipal stormwater permits and the requirement under 33 U.S.C. § 1311(b)(1)(C) that permits include any more stringent limitation, including those necessary to meet water quality standards. In *Defenders of Wildlife v. Browner*, the Ninth Circuit Court determined:

*“...the text of 33 U.S.C. § 1342(p)(3)(B), the structure of the Water Quality Act as a whole, and this court's precedent all demonstrate that Congress did not require municipal storm-sewer discharges to comply strictly with 33 U.S.C. § 1311(b)(1)(C).”*

**(Note to readers:** *33 U.S.C. § 1311(b)(1)(C) is the part of the federal Clean Water Act requiring any more stringent effluent limitations necessary to meet water quality standards.*)

Although the Clean Water Act does not require municipal storm sewer discharges to comply strictly with U.S.C. § 1311(b)(1)(C), U.S.C. § 1342(p)(3)(B)(iii) states: *“[p]ermits for discharges from municipal storm sewers . . . shall require . . . such other provisions as the Administrator . . . determines appropriate for the control of such pollutants.”* (Emphasis added.)

This provision gives Ecology discretion to determine whether strict compliance with U.S.C. § 1311(b)(1)(C) is appropriate. In this permit Ecology has adopted an interim BMP-based approach towards meeting the goals of the Clean Water Act and eventual compliance with water quality standards.

Consistent with the EPA permitting approach for municipal stormwater discharges, Ecology has not established numeric end-of-pipe effluent limits for the discharges covered under this permit. EPA policy, transmitted in 1996, explains an alternative approach to effluent limits that is appropriate for storm water permits:

*“Due to the nature of storm water discharges, and the typical lack of information on which to base numeric water quality-based effluent limitations (expressed as concentration and mass), EPA will use an interim permitting approach for NPDES storm water permits.”*

*The interim permitting approach uses best management practices (BMPs) in first-round storm water permits, and expanded or better-tailored BMPs in subsequent permits, where necessary, to provide for the attainment of water quality standards. In cases where adequate information exists to develop more specific conditions or limitations to meet water quality standards, these conditions or limitations are to be incorporated into storm water permits, as necessary and appropriate.”* (EPA policy, Interim Permitting Approach for Water-Quality Based Effluent limits in Storm Water Permits, September 1, 1996.)

While the permit does not require strict compliance with state water quality standards for municipal stormwater discharges (except where compliance may be required by RCW 90.48.520), neither does Ecology intend the permit provide a categorical exemption from compliance with state water quality standards for municipal stormwater discharges. Because compliance with the water quality standards is an eventual goal of this permit, it is appropriate to use the water quality standards as a measure of the effectiveness of WSDOT's Stormwater Management Plan (SWMP) and to help identify priorities.

Ecology acknowledges that WSDOT may need decades to address the water quality impacts of existing municipal stormwater discharges. In part, this is because of the difficulty and challenges associated with reversing the water quality impacts of existing stormwater discharges. The focus of this permit is to prevent further water quality impairment due to new stormwater discharges and make reasonable progress in addressing existing sources of water quality impairment.

S4.C – This condition requires WSDOT to reduce the discharge of pollutants to the maximum extent practicable, based on U.S.C § 1342(p)(3)(B)(iii). Neither Congress nor EPA has defined "maximum extent practicable" (MEP), and they have instead left the determination of what constitutes MEP up to the individual permitting authorities. As a result, permit requirements established by Ecology must be tempered and limited by state law. For example, the application of post construction stormwater controls on new development and re-development required by this permit must be done within the context of state vesting laws. Similarly, the inspection requirements of this permit must be carried out in a manner that is consistent with the state constitution and state law.

In adopting both the Phase I and Phase II rules, EPA recognized that state law and at times local law may limit or restrict the scope of permit requirements (FR Vol. 55, No. 222, pg 48041) and (FR Vol. 64, No. 235, pg 68766).

Ecology has determined the development, implementation and enforcement of stormwater management programs required under this permit constitute the controls necessary to reduce the discharge of pollutants to the maximum extent practicable.

S4.D – This condition requires the use of all known, available, and reasonable methods of prevention, control, and treatment to prevent and control pollution of waters of the State of Washington, based on RCW 90.48.170 and RCW 90.48.520. Ecology has determined compliance with this permit including the development, implementation and enforcement of stormwater management programs required under this permit constitute the use of all known, available and reasonable methods of prevention, control, and treatment to prevent and control pollution.

S4.F – In a 2009 ruling, the Pollution Control hearing Board (PCHB) clarified that “*..when a Permittee follows the notification process in S4.F, the Permittee remains in compliance with permit conditions S4.A and S4.B prohibiting discharges that violate water quality standards*”

#### S4 Revisions:

Minor typo and clarification edits made to S4.A, S4.B, S4.F, S4.F.1, S4.F.2, S4.F.3.a.i, S4.F.3.a.ii, S4.F.3.b, S4.F.3.d. and S4.G.

New TMDL language is inserted in S4.F.3.e which explains that a TMDL or other approved enforceable cleanup plan supersedes and terminates S4.F.3 implementation plan. Subsequently old paragraph S4.F.3.e is renumbered to S4.F.3.f and S4.F.3.f is renumbered to S4.F.3.g with a minor typo made to S4.F.3.g.

### **S5 – Stormwater Management Program**

S5.A – This section of the permit establishes the requirements for WSDOT to implement its stormwater management program (SWMP) described in Appendix 5. The SWMP forms the core requirements of this permit.

S5.A.1 – Consistent with state and federal law, this section requires that WSDOT design the SWMP to reduce the discharge of pollutants to the MEP, and meet state AKART requirements. However, WSDOT can continue to implement existing stormwater management programs that go beyond what is required in this permit where they are necessary to reduce the discharge of pollutants to the MEP.

S5.A.2 – Ecology approved WSDOT’s SWMP updates during the permit development process. It is attached as Appendix 5 to the draft permit and is available for public review and comment.

S5.A.5 – WSDOT must track the cost of implementation of the SWMP. 40 CFR 122.26 requires a fiscal analysis of the necessary capital and operations and maintenance expenditures to implement the SWMP; and 40 CFR 122.42(c) requires reporting of annual expenditures and proposed budgets. Ecology has deviated from the EPA requirement by requiring tracking of expenditures. The anticipated cost and resources available to implement the program are not part of the basis for deciding whether the SWMP meets the MEP standard for this permit. Tracking of expenditures is still necessary; however, to evaluate the MEP standard established in future permits.

#### S5.B – Stormwater Program Assessment and Evaluation

During the SWMP development process, WSDOT identified key activities and performance indicators associated with each minimum required activity. Those performance indicators were combined into a separate table of performance indicators that WSDOT will track and report on for each annual report. Appendix 2, Table of Performance Indicators, is attached to the draft permit.

#### S5 Revisions:

Minor clarification and name change edits are made to S5.A.3, and S5.A.4. These include reference to the updated HRM incorporating LID implementation guidelines, various

HRM implementation dates, and the compliance costs and budgeting. S5.A.5 language on LID was removed since LID is incorporated in HRM. The new language in S5.A.4 requires WSDOT to participate in the water-scale stormwater planning led by the Phase I county carrying out the planning.

In S5.B “performance measures” are renamed more appropriately to “performance indicators.”

### **Stormwater Management Program Plan (SWMP) Components (Appendix 5)**

This fact sheet describes SWMP components and minimum performance indicators required under 40 CFR 122.26. The SWMP needs to include administrative and legal components that WSDOT has in place to ensure program implementation, as well as components which should directly effect pollutant reductions and reduction of impacts.

#### **Legal Authority**

This requirement is drawn directly from EPA regulations (40 CFR 122.26). However, the language requiring legal authority to prohibit illicit discharges, and carry out inspections and enforcement (within the limitations of state law) applies to discharges coming into the MS4 from another jurisdiction. As operator of an MS4, WSDOT receives, conveys, and discharges pollutants from third parties, and is responsible for those pollutants. By accepting discharges, whether passively or not, the operator of the MS4 accepts responsibility and the consequences of those discharges. These discharges may cause or contribute to a condition of contamination or exceedances of receiving water quality standards. WSDOT can control the contribution of pollutants into its system through a broad range of actions – source control inspections and follow-up technical assistance programs; targeted inspection and maintenance programs; coordination with entities having the legal authority to enforce local water quality ordinances and cooperative agreements with adjoining municipalities or other public entities.

Ecology recognizes controlling the contribution of pollutants from adjoining municipalities or permittees whose storm sewers interconnect with those of WSDOT may be difficult, particularly if the adjoining municipality is not covered under a municipal stormwater NPDES permit. However, as explained above, a permittee cannot passively accept pollutants into its MS4 from outside sources. Adequate control in these circumstances means, at minimum, having an established process and point of contact for working with the adjoining municipality or co-permittee to resolve problems.

#### **Municipal Separate Storm Sewer System Mapping and Documentation**

This condition is a continuation of the requirement in the existing permit to gather and maintain adequate information to conduct planning, priority setting and program evaluation activities.

#### **Coordination**

This permit requires WSDOT to establish coordination mechanisms both internally and externally to aid in the implementation of the SWMP.

Internal coordination requires WSDOT establish communication and coordination mechanisms necessary to comply with the permit. The permit does not specify how the coordination will take place, allowing WSDOT the flexibility to design coordination systems to meet this requirement.

For external coordination WSDOT must develop mechanisms to increase intergovernmental coordination as a necessary part of a SWMP since drainage basins seldom follow jurisdictional boundaries. This requirement is based on EPA regulations (40 CFR 122.26(d)(2)(iv)) calling for intergovernmental coordination, where necessary, to reduce the discharge of pollutants to the MEP. Ecology will accept coordination through watershed councils to fulfill this requirement. Note that Ecology encourages coordination with Tribes and others, but does not mandate it under this permit, because Tribes are not covered under an NPDES permit issued by Ecology.

### **Public Involvement and Participation**

The EPA Phase II regulations require public involvement and participation as part of the SWMP. Ecology felt this was a reasonable expectation for Phase I permittees as well. Ecology expects that existing public involvement and participation opportunities conducted by WSDOT are likely sufficient to satisfy this requirement.

### **Controlling Runoff from New Development, Redevelopment, and Construction Sites**

The EPA regulations require Phase I municipal stormwater permittees to “develop, implement and enforce controls to reduce the discharge of pollutants from municipal separate storm sewers which receive discharges from areas of new development and significant redevelopment” (40 CFR Part 122.26(d)(2)(iv)(A)(2)). The rules also require a program “to reduce pollutants in storm water runoff from construction sites.” (40 CFR Part 122.26(d)(2)(iv)(D)).

Ecology requires the permittees to update their stormwater requirements to be consistent with Ecology’s updated stormwater manuals. WSDOT’s Highway Runoff Manual has been revised, reviewed, and approved for consistency with Ecology’s manuals. The HRM will be appended to this permit for public review and comment. In developing the content for this section of the reissued permit, Ecology also considered the requirements in more recently issued federal rules for the Phase II municipal stormwater permittees (40 CFR 122.34.(b)(4) and (5)).

The program for post-construction stormwater management in new development and redevelopment must:

- Develop and use strategies which include a combination of structural and/or non-structural BMP’s that are appropriate for the community;
- Use an ordinance to address stormwater to the extent allowable under law;
- Ensure adequate long-term operation and maintenance of BMP’s.

The HRM identifies maintenance standards for structural and non-structural BMPs. The standards are used for determining when maintenance actions are required for conditions identified through inspections. The inspections are part of post construction activities.

### **How the Permit is Consistent with Federal Rules:**

The most effective way to minimize the impacts of stormwater discharges from areas of new development and redevelopment (as called for in the federal rules) is to design developments using techniques that:

- 1) minimize the generation of stormwater runoff (low impact development);
- 2) reduce exposure of pollutants to precipitation and stormwater runoff (source control BMP's);
- 3) remove pollutants in stormwater runoff (treatment BMP's); and
- 4) control either the volumetric flow rate of stormwater discharged (for discharges to streams), or control the volume of water discharged (if discharging to a wetland).

The most recent editions of the Eastern and Western Washington stormwater manuals provide the latest technical guidance from the Department of Ecology on measures to control the quantity and quality of stormwater runoff from new development and redevelopment projects. The stormwater manuals, consistent with federal stormwater regulations, represent a generic, presumptive approach to meeting federal and state water quality requirements. The presumption is the procedures and best management practices outlined in the manual will generally result in compliance with the statutes.

This generic presumptive approach to meeting water pollution control laws is intended to handle the vast majority of new and redevelopment projects. There are literally thousands of those projects every year. There are not sufficient human resources or time to do the type of site-by-site analysis that occurs with municipal sewage treatment and industrial wastewater discharges. In addition, a site-specific analysis is difficult to perform for stormwater because of its ephemeral nature and variable pollutant concentration over the course of a discharge event. So, EPA, some state water pollution control agencies, and some local governments have published or adopted stormwater manuals that provide an established process for identifying appropriate prevention, treatment, and flow management practices.

However, there are instances where because of the size of a project or the sensitivity of a receiving water, or because of some other regulatory need to ensure compliance with standards (e.g., a certification under section 401 of the Clean Water Act that the discharge will comply with water quality standards), a site-specific stormwater analysis is necessary. In those instances, the appropriate level of treatment will be developed through a basin planning process and the treatment and control of stormwater runoff may be different from what is identified in the Highway Runoff Manual.

The permit allows the WSDOT to adopt alternative minimum requirements, thresholds, definitions, adjustment and variance criteria as compared to those in Appendix 1, if they have been approved by Ecology as equivalent. WSDOT must demonstrate to Ecology's satisfaction that its alternative provides equal protection of receiving waters and equal levels of pollutant control when compared to the provisions in Appendix 1. In addition,

WSDOT may propose alternative site planning processes, and BMP selection and design criteria. WSDOT must demonstrate to Ecology's satisfaction that their alternative approaches will protect water quality, meet the "maximum extent practicable" requirement of federal statutes, and meet the all known, available and reasonable methods of prevention, control, and treatment requirements of the state's Water Pollution Control Act.

This condition requires that WSDOT establish legal authority to conduct inspections and enforce maintenance standards for all projects approved under the new development and redevelopment provisions of this permit. This provision is included in response to case law in this state which limits a municipality's ability to gain access to private property without permission from the owner or tenant (*City of Seattle v. McCready*, 123 Wash. 2d 260, 868 P.2d 134 (Wa. 02/24/1994)).

Ecology established minimum performance measures for WSDOT to demonstrate capability to implement stormwater requirements. Those measures include review of all stormwater site plans submitted prior to construction records of performance of 95% of the required pre-project, active project, and completed project inspections. Pre-project inspections are required only for projects that have a high potential for sediment transport as identified by use of the criteria in Chapter 6 of the HRM, Appendix 1 to the permit. The information in Chapter 6 is now contained in a stand alone manual entitled "WSDOT *Temporary Erosion and Sediment Control Manual (TESCM)*." Chapter 6 of HRM references TESCM and provides a link to it. That information in TESCM was developed in conjunction with local government stormwater managers.

The permit does not include any specific minimum measures for WSDOT's enforcement strategies, however, Ecology expects WSDOT will establish clear thresholds for escalating levels of enforcement action in response to violations.

#### **Provisions for Adequate Recordkeeping and Training of Stormwater Staff**

To help organize, track, and document achievement of stormwater program implementation, the permit includes a requirement for WSDOT to maintain records for reviews, inspections, enforcement actions, training, and the staff trained. Ecology may use these records to evaluate WSDOT's compliance with permit requirements.

#### **Structural Stormwater Controls**

EPA rules in 40 CFR 122.26(b)(2) require a stormwater management program that includes, among other things, structural and source control measures, accompanied with an estimate of the expected reduction of pollutant loads and an implementation schedule. Ecology has not set a minimum expectation for the level of effort for this requirement. Ecology understands that it is not feasible to provide structural controls to mitigate the impacts of runoff from all existing development. WSDOT will set priorities and address the highest-ranked problems subject to the limitations of available resources.

### **Source Control Program for Existing Development**

EPA rules in 40 CFR 122.26(b)(2) require a stormwater management program that includes source control measures.

The permit requires WSDOT to identify sites which potentially generate pollutants. A complaint-based response program which WSDOT may combine with the requirement for a citizen complaints/reports telephone number for the illicit discharge detection and elimination program.

This condition also requires an inspection and enforcement program for identified sites. The permit calls for inspecting 100% of the sites over the 5 year term of the permit. WSDOT may prioritize sites, categories of land use or geographic areas. Those sites where the property owner denies entry and where WSDOT has no legal authority to inspect the site may be excluded from onsite inspection. Evidence of an illicit or contaminated discharge can be documented without entering the property.

WSDOT may combine training for the source control program with training for the illicit discharge detection and elimination program and operation and maintenance programs.

### **Illicit Connections and Illicit Discharges Detection and Elimination (IDDE)**

EPA requires a program to control illicit discharges and improper disposal in 40 CFR 122.26(d)(2). The requirements are based on the provision in the Clean Water Act that municipal stormwater NPDES permits include a requirement to effectively prohibit non-stormwater discharges into the storm sewers. This section requires continued implementation of an IDDE program with an implementation deadline concurrent with the effective date of this permit.

Ecology determined that the following types of non-stormwater discharges do not contribute significant sources of pollutants and therefore need not be addressed by the SWMP: diverted stream flows, rising ground waters, uncontaminated ground water infiltration, uncontaminated pumped ground water, foundation drains, footing drains, air conditioning condensation, springs, water from crawl space pumps, footing drains, and flows from riparian habitats and wetlands.

The requirement to conduct screening to detect illicit connections comes directly from the EPA rules [40 CFR 122.26(d)(2)(B).] Ecology has specified the screening methods in Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assistance, published by the Center for Watershed Protection in October 2004. The manual is available at <http://www.cwp.org/>. Ecology has reviewed this manual and finds it provides a comprehensive, understandable and reasonable methods to detect, trace, identify and fix illicit connections.

The permit specifies the timeframes for response to illicit discharges based on experience of Ecology field staff in conducting similar investigation and enforcement actions.

Ecology encourages WSDOT to communicate and coordinate with Ecology regional office staff when investigating illicit discharges.

The requirements to prevent, respond to, and clean up spills and improper disposal into the MS4 comes directly from EPA rules [40 CFR 122.26(d)(2)(B).]

### **Operation and Maintenance Program**

The permit also includes requirements to achieve adequate long-term operation and maintenance of stormwater facilities. WSDOT must implement maintenance standards that are at least as protective as those in the 2012 Western Washington Stormwater Management Manual in western Washington and those in the 2004 Stormwater Management Manual for Eastern Washington for eastern Washington. The maintenance schedules for stormwater facilities that are included in the permit were originally drafted with the participation of local government stormwater managers during the effort to develop the “Tri-County” stormwater proposal as part of a response to the Endangered Species Act listing of Chinook salmon. Those maintenance standards have been adopted into the HRM.

WSDOT must continue inspecting all facilities owned or operated by the them annually. The inspection program should be designed to inspect all sites, and achieve at least a 95% inspection ratio.

The maintenance inspection frequencies may be changed where there are records or a formal affidavit attesting to maintenance experience. Ecology recognizes that facilities require maintenance at different frequencies depending circumstances such as surrounding land use, soils, type and age of facility.

This section requires annual inspection and maintenance of catchbasins to remove accumulated sediment, trash, oily residue and other materials captured by catchbasins. Two strategies for conducting inspections are allowed in the permit. In the first a subset of catch basins are inspected and based on that information all catchbasins in that conveyance are cleaned. An alternative method of inspecting all catchbasins and then cleaning individual basins as needed is also allowed.

The section also requires proper disposal of decant water in accordance with the requirements in the Ecology stormwater manuals. The street waste liquids or decant water is generated in the process of maintaining stormwater BMPs. The BMPs capture settleable solids from stormwater runoff and may also minimize the discharge of oily runoff by retaining floatable oils in the BMP. The settled solids typically have high concentrations of adsorbed metals, oils and grease. The agitation involved in removing the solids from catch basins results in the resuspension of the fine fraction of the sediments. The pretreatment and treatment requirements are designed to remove the fine sediment and sheen causing oils (if any), from the decant water before it reaches the receiving water.

In previous permits a Spill Control Catch Basin was specified as a pretreatment requirement to remove oil. Ecology has determined that such devices do not provide sufficient reliability to make the presumption that they will function reliably enough to prevent oily sheens in receiving waters (see Volume V of the Western Washington Stormwater Manual). WSDOT may use any BMP (e.g., spill control catch basin, or decant methods) that can be demonstrated to prevent the discharge of sheen-causing oily discharges to eliminate the need for an approved oil water separator, as part of the treatment train.

The permit requires implementation of practices to reduce stormwater impacts associated with the permittee's parking lots, streets, roads and highways. [Based on EPA rules in [40 CFR 122.26(d)(2)(iv)(3)]. WSDOT may use the following guidance documents to develop this program:

- Ecology guidance for street waste disposal (2012 Stormwater Management Manual for Western Washington for street waste solids).
- The 2012 Stormwater Management Manual for Western Washington, Vol. II Construction Stormwater Pollution Prevention and Vol. IV Source Control.

As land owners, WSDOT has the ability to directly control the quality of stormwater runoff from their own practices. This section of the permit requires WSDOT to establish and implement policies and procedures to reduce pollutants from lands they own or maintain.

Of particular concern are the selection and application of insecticides and herbicides. US Geological Survey (USGS) has detected insecticides and herbicides (collectively termed pesticides) in all rivers, lakes and streams sampled across the United States. In King County researchers detected 23 pesticides in water from urban streams during rainstorms and the concentrations of five of these pesticides were at levels that pose danger to aquatic life. *Our Built and Natural Environments: A Technical Review of the Interactions between Land Use, Transportation and Environmental Quality* 21 May, Christopher W. 1996. *Assessment of Cumulative Effects of Urbanization on Small Streams in the Puget Sound Lowland Ecoregion: Implications for Salmonid Resource Management*. PhD Dissertation, University of Washington. 22 USGS Fact Sheet 097-99. April 1999. Since pesticides are difficult or impossible to remove from water, Ecology is focusing on the use of integrated pest management plans as a way to reduce both the need and use of pesticides.

RCW 17.15 provides the definition for Integrated Pest Management (IPM) as:

“Integrated pest management” means a coordinated decision-making and action process that uses the most appropriate pest control methods and strategy in an environmentally and economically sound manner to meet agency programmatic pest management objectives. The elements of integrated pest management include:

- 1) Preventing pest problems;
- 2) Monitoring for the presence of pests and pest damage;
- 3) Establishing the density of the pest population, that may be set at zero, that can be tolerated or correlated with a damage level sufficient to warrant treatment of the problem based on health, public safety, economic, or aesthetic thresholds;
- 4) Treating pest problems to reduce populations below those levels established by damage thresholds using strategies that may include biological, cultural, mechanical, and chemical control methods and that must consider human health, ecological impact, feasibility, and cost-effectiveness; and
- 5) Evaluating the effects and efficacy of pest treatments.

Reducing the use of pesticides will reduce the risk of the chemicals being carried to streams by stormwater. Many sectors of agriculture have adopted the methodology. IPM provides reasonable and prudent steps to use when applying chemicals designed to kill plant or animal life. Following them will minimize the risk of discharging pesticides into the MS4.

Excess nutrients entering water ways is also a large and significant urban source of pollution. An analogous plan to manage nutrients will ensure that nutrients are only used when necessary and in the amounts needed. At a minimum Ecology expects that WSDOT will apply fertilizer consistent with recommendation based on soil tests.

The routine practice of landscape maintenance, trash management and building cleaning can affect stormwater quality. Using relatively simple management techniques, WSDOT can minimize pollutants generated from these activities. BMPs for these activities are included in Volume IV of the 2012 Stormwater Management Manual for Western Washington.

Ecology has determined that activities at certain sites owned or operated by WSDOT are similar to activities at sites regulated under the Industrial Stormwater General Permit. For this reason, this provision of the permit calls for developing Stormwater Pollution Prevention Plans (SWPPPs) for these sites. A SWPPP documents measures to identify, prevent, and control the contamination of discharges of stormwater to surface or ground water. Ecology provides guidance for developing SWPPPs at <http://www.ecy.wa.gov/programs/wq/stormwater/industrial/guidance.html>.

#### **Public Education and Outreach**

EPA rules for Phase I and Phase II municipal stormwater permit programs, and the 2000 Puget Sound Water Quality Management Plan require permittees to implement a public education program. WSDOT has developed a variety of programs to educate the public, consultants, contractors, and WSDOT personnel on stormwater issues. They include the Adopt-A-Highway Program, Highway Runoff Manual-related trainings, and internet web

pages that provide access to WSDOT's stormwater-related guidance manuals, procedures, design tools, and other related resources.

## **Summary of Revisions to Stormwater Management Program Components (Appendix 5)**

### **Section 1: Background and Overview**

Section 1 provides an introduction/overview of WSDOT's stormwater management program, the area and facilities that are affected, and the regulations that govern WSDOT operations. This section explains that WSDOT permit requires WSDOT to develop and implement a stormwater management program (SWMP) plan to reduce discharge of pollutants in stormwater runoff from MS4 owned or operated by WSDOT. This section has been shortened by reducing background information on the permit and eliminating sections on the applicable laws and regulations. However, clarification is made on the facilities that are affected by specifically adding vector decant and street sweepings facilities and winter chemical storage sites to Section 1.

### **Section 2: Stormwater Program Management Framework**

WSDOT's organizational framework and management responsibilities for overall permit compliance and program implementation. Section 2 also describes interagency coordination, key WSDOT stormwater-related guidance and procedures, WSDOT's legal authority to control discharges into its storm drainage systems, program planning, and the SWMP revision process. Revisions include changes to WSDOT internal organizational structure, deleting reporting requirements due to redundancy as reporting is in permit section S8, formatting and clarification. This section also establishes WSDOT approach and pace for conveyance mapping and verification of its MS4.

**Section 3: Traffic Accident Related Spills, Illicit Discharges, and Illicit Connections** describe the procedures and protocols related to responding to non-construction-related spills. This section also describes procedures to identify and eliminate illicit discharges and illegal connections to WSDOT's MS4. Revisions to this section include the addition of the procedure for traffic accident related spills and notification. This spills cleanup and notification procedure was developed and tested with involvement from Washington State Patrol, Ecology, WSDOT, King County, and City of Seattle. Other revisions include clarification on WSDOT's activities related to illicit discharge and illicit connection (ID/IC) identification, procedures for responding and reporting ID/IC, and ID/IC training.

### **Section 4: Construction Stormwater Pollution Prevention**

This section describes construction-related stormwater pollution prevention. These elements include WSDOT's erosion control program and its spill prevention, control and countermeasures. Revisions include clarification that WSDOT is ultimately responsible for all erosion and sediment control activities and compliance with the construction general permit requirements on WSDOT construction projects. WSDOT will confirm Erosion and Sediment Control Lead (CESCL) certification as a condition of authorizing

construction contracts and require personnel responsible for designing or inspecting a Temporary Erosion and Sediment Control (TESC) plan and consultant personnel designing these plans to take WSDOT's Construction Site Erosion and Sediment Control course. Each fall season WSDOT's Erosion Control Program performs a *Statewide Erosion Control Plan Implementation and Effectiveness Assessment* (Fall Assessments) for all active construction projects with moderate to high-risk of erosion, WSDOT combines Fall Assessment findings into a project summary report which project management teams use to better prepare for the wet season work. A summary of the Fall Assessment findings will be included in WSDOT's annual report.

**Section 5: Stormwater Management for New Facilities**

This section describes post-construction stormwater management controls as prescribed by the Highway Runoff Manual (HRM). The HRM meets the level of stormwater management established by the Washington Department of Ecology's stormwater management manuals. The HRM receives periodic updates (subject to review and approval by Ecology) to enhance content clarity as well as reflect changes in regulations, advancements in stormwater management, and improvements in design tools. The revisions to HRM include design guidelines for incorporating low impact development (LID) best management practices (BMPs) in WSDOT road projects.

**Section 6: Stormwater Management for Existing Facilities**

This section describes stormwater BMP retrofit program to address existing impervious surfaces that do not have treatment or flow control, or for which treatment or flow control is substandard. The major revision to Section 6 is the inclusion of the "Cleanup Plan-triggered" element as the fourth element in the WSDOT's stormwater facilities retrofit program. This element includes the TMDL-related retrofit obligations in the permit section S6 and the retrofit obligations associated with the superfund site remediation to prevent recontamination.

**Section 7: Maintenance**

This section describes maintenance-related technical guidance, manuals, and standards used by WSDOT. Revisions include clarification on the various maintenance procedures including compliance with the inspection requirements and cleaning of catch basins, conducting maintenance of stormwater treatment and flow control BMPs and correcting deficiencies discovered, and providing and tracking training for maintenance staff.

**Section 8: Research and Monitoring**

The research and monitoring requirements are now covered in section S7 of the 2014 permit.

**Re-numbered Section 9 to Section 8: Education/Training/Public Involvement Programs**

This section describes education programs for WSDOT employees and contractors, and the WSDOT permit's and SWMP's public involvement process. Revisions to this section reflect WSDOT activities to provide training and education to the professionals, to

disseminate its research reports through publications and presentations, and to participate in public meetings and hearings on transportation projects.

**Section 10: Program Assessment and Reporting**

This section is eliminated as the requirements for program assessment and reporting are contained in the Section S8 of the permit.

**S6 – Total Maximum Daily Load Allocations**

When the water quality of a water body is impaired, the federal Clean Water Act requires states to set limits on the amount of pollutants that the water body receives from all sources. States may also set limits on pollutant loads when water bodies are threatened. These limits are known as Total Maximum Daily Loads (TMDLs). Ecology develops a TMDL through a defined process through which Ecology identifies the maximum amount of a pollutant that may be discharged from all sources to a water body without causing violations of water quality standards. Then with stakeholders, Ecology develops pollutant control strategies to keep pollutant loading below that level. The strategies include numeric Waste Load Allocations (WLAs) for NPDES permitted dischargers and Load Allocations (LAs) to control the loadings from nonpoint sources.

WSDOT must implement actions for stormwater discharges covered by this permit necessary to achieve the pollutant reductions called for in applicable TMDLs. Applicable TMDLs include only TMDLs which have been approved by the EPA before the issuance date of the permit. Appendix 3 lists of all applicable TMDLs. Information on Ecology’s TMDL program is available on Ecology’s website at [www.ecy.wa.gov/programs/wq/tmdl](http://www.ecy.wa.gov/programs/wq/tmdl).

Ecology reviewed all TMDLs approved by EPA before November 6, 2013 to determine whether WSDOT stormwater sources were identified.

For TMDLs that EPA approves after the permit is issued, Ecology may establish TMDL-related permit requirements through a formal permit modification or through the issuance of an appealable administrative order. Ecology will base any decision to enforce requirements of TMDLs completed after the issuance of the permit on the determination that implementation of actions, monitoring or reporting necessary to demonstrate reasonable further progress toward achieving TMDL waste load allocations, and other targets, are not occurring and must be implemented during the term of the permit. For this reason, Ecology encourages WSDOT to participate in development of TMDLs within their jurisdiction and to begin implementation where appropriate.

Revisions to Section S6 of the permit are intended to provide clarity on the TMDLs applicable to WSDOT and to provide specificity on the actions required of WSDOT to comply with the TMDL requirements. Applicable TMDLs and their associated action items for WSDOT are described in “Appendix 3 – Applicable TMDL Requirements”. Appendix 3 has been revised to reflect WSDOT progress in implementing the required action items under the TMDLs listed in Appendix 3. Appendix 3 is also revised to incorporate new TMDLs and their associated action items.

## **S7 – Monitoring**

### **Background**

The federal stormwater rules require municipalities to propose a stormwater monitoring program for the term of the permit (40 CFR Part 122.26(d)(2)(iii)(D)). However, EPA provided few specific requirements of such programs. In the preamble to the federal rule (See pages 48049 - 48052 of the Federal Register, Volume 55, No. 222, November 16, 1990), EPA indicates that they favor ... *"a permit scheme where the collection of representative data is primarily a task that will be accomplished through monitoring programs during the term of the permit."* In the same text, they indicate that *"an estimate of annual pollutant loading associated with discharges from municipal stormwater sewer systems is necessary to evaluate the magnitude and severity of the environmental impacts of such discharges and to evaluate the effectiveness of controls which are imposed at a later time."*

### **S7.A Monitoring Objectives**

WSDOT did not complete all of the monitoring studies that were required under the 2009 permit. Baseline highway runoff and BMP effectiveness monitoring elements are ongoing. WSDOT completed the seasonal first flush toxicity testing required in the 2009 permit and no toxicity was found. After reviewing the test results, Ecology believes information to be gained from further testing would be minimal and therefore eliminated the requirement for first flush toxicity testing in the 2014 permit. WSDOT also completed 2 years of sampling under the required baseline monitoring of rest areas, maintenance facilities, and ferry terminals in 2009 permit. However, as of the issuance of the 2014 draft permit, the final report for this baseline monitoring has not been completed and will not be due until within one month of the 2009 permit expiration on March 6, 2014.

#### *Specific Parameters of Interest*

A special interest across the state exists for the below-indicated parameters. After careful examination of WSDOT land uses, potential sources, sampling capabilities and impacts, Ecology chose the following parameters to be pertinent to each WSDOT land use for monitoring under the 2009 permit and will continue in the proposed 2014 permit, where applicable:

Baseline Monitoring	Metals <sup>1</sup>	Phthlates	PAH's	TPH <sup>2</sup>	TSS	Herbicides <sup>3</sup>	MBAS	Chlorides	Nutrients	Fecal Coliform	Temperature
5 Highways (Selected Based on AADT)	√	√	√	√	√	√		√	√ (TP and Ortho-P only)	√	√
6 Regional Maintenance Facilities (1 Site Selected in each WSDOT Region)	√		√	√	√	√	√	√ (storage of deicers)	√ (TP, N/N, Ortho-P and TKN)		
1 Ferry Terminal (High-use)	√		√	√	√		√			√	√
2 Rest Areas (High-use)	√		√	√	√	√		√ (only if deicer is used)	√ (TP, N/N, Ortho-P and TKN)	√	√
	<b>Metals</b>	<b>Phthlates</b>	<b>PAH's</b>	<b>TPH<sup>2</sup></b>	<b>TSS</b>	<b>Herbicides<sup>3</sup></b>	<b>MBAS</b>	<b>Chlorides</b>	<b>Hardness</b>		
First Flush Toxicity-Chemical Analysis (3 Edge of Pavement, 3 w/same BMP type/ AADT)	√	√	√	√	√	√	√	√	√		
	<b>Metals</b>	<b>Phthlates</b>	<b>PAH's</b>	<b>TPH</b>	<b>Total solids</b>	<b>Herbicides<sup>3</sup></b>	<b>Particle size</b>	<b>Phenolics</b>	<b>Total Organic Carbon</b>		
5 Sediment (annually at each highway site)	√	√	√	√ Dx only	√	√	√	√	√		

Notes/Acronyms

TP = Total phosphorus

Ortho-P = Orthophosphorus

N/N = Nitrate/Nitrite

TKN = Total Kjeldahl nitrogen

PAH = Polycyclic aromatic hydrocarbons

~~MBAS = ?????~~

Temp ≠ Temperature

<sup>1</sup>Total and dissolved copper, zinc, cadmium and lead

<sup>2</sup>TPH=total petroleum hydrocarbons, Gx (gasoline) and Dx (diesel)

<sup>3</sup>PestHerbicide samples required only for those pestherbicides that WSDOT applies on-site, stores on-site or applies by vehicles parked on-site.

**Metals total and dissolved** – The monitoring of total metals is required by Ecology of many discharge types. Stormwater under the Industrial Stormwater General Permit as well as NPDES point sources are reported as total metals. Although total metals are not directly related to water quality standards, they are useful for comparisons with these other discharge types. Total metals can be used to estimate dissolved metals with a metals translator.

**Metals in sediment** – The sediment management standards require arsenic, cadmium, chromium, copper, lead, mercury, and zinc.

**Hardness** – Hardness is defined as the sum of the calcium and magnesium concentrations. At sufficiently high concentrations hardness salts can precipitate. The impact of many metals on receiving waters is hardness-based. In cases where stormwater released to receiving waters is at relatively high flows, stormwater hardness is of particular interest. Hardness is an inexpensive analysis

**PAH's – Polycyclic Aromatic Hydrocarbons** should be monitored. It has been found in road dust. Asphalt sealants have been found to be a considerable source. PAHs are also products of combustion from common sources such as motor vehicles and other gas-burning engines. Many of these compounds are highly carcinogenic at relatively low levels.

**TPH –Gx (gasoline range) and –Dx (diesel range)** – TPH is a mixture of many different compounds. Source of TPHGx includes gasoline spills, spilled oil on pavement, and chemicals used at home or work. Source of TPHDx includes spills or leaks from diesel engines, lube oils, heavy fuel oils and other semi volatile petroleum produces. TPH has been found in at least 23 of the 1,467 National Priorities List sites identified by the Environmental Protection Agency (EPA).

**TSS** – The USGS has been a proponent of the Suspended-Sediment Concentration (SSC) method, as in the paper, “Comparability of Suspended –Sediment Concentration and Total Suspended Solids Data”; wrir 00-4191; August 2000. The value of SSC as an indicator of the physical impact of sediments on river and stream beds may be of value for issues such as salmonid spawning. But SSC is a measurement of all solids including sediments, so that large, heavier particles influence the SSC value far more than finer sediments. Total Suspended Solids (TSS) is more appropriate for water quality indications as it represents the concentration of smaller solids with better correlation to the adsorption of metals and some organics to small solids in the water column

**Herbicides** – Herbicides should only be analyzed in locations probable of picking up herbicides in runoff. For example, a high traffic area of a highway that is being monitoring may only contain runoff from pervious pavement with no potential for picking up herbicides in the runoff. This analysis will depend on location of the stormwater monitoring site and should be limited to those herbicides used by WSDOT.

**MBAS** – MBAS is a surfactant (a surface-active substance) which dissociates in water and releases cations and anions. Examples of anionic surfactants are generally called fatty acid soaps and alkylsulfonic acid salts, which is the main component of synthetic detergent. MBAS is useful for estimating the anionic surfactant content of waters. Anionic surfactants have toxic effects on aquatic organisms and have been shown to affect fish behaviors based upon smell.

**Nutrients** – [Nutrients, particularly ammonia to nitrate/nitrite may have a considerable oxygen demand. Nutrients are commonly monitored for runoff from highway facilities; see Table 1.

**Chlorides** – The chloride parameter should be retained as it is a direct indicator of any de-icer use during the time period up to the storm event. It is more reliable, and more direct than attempting to keep up with the history of de-icer use at any particular location. The chloride test is an inexpensive one.

**Fecal coliform** – FC are present in virtually all stormwater discharges. Sources include urban wildlife, domestic wildlife, animal hauling, and illegal cross-connections of sanitary sewers. Because roadways are impervious surfaces, defecation on those surfaces is quickly washed into the storm drainage systems.

**Temperature** – Discharge permits, total maximum daily loads (TMDLs), and other pollution control programs must be designed to meet all elements of the state's temperature standards (WAC 173-201A-200-210, and 600-612).

**Conductivity** – is an inexpensive test which helps to estimate the amount of total dissolved salts and metals as the total amount of dissolved ions in the water.

**Phthlates** – Phthlates are ubiquitous in the environment, but very little data exists on its occurrence in stormwater runoff.

**Phenolics** – Phenolics are hydroxyl derivatives of benzene. This parameter will provide data on the presence of benzene is present in crude oil, the main source of a chemical which is used as a raw material for a wide range of products. Its one major downfall is its toxicity

**PCBs** – Approximately 60 percent of PCBs were used in electrical applications, primarily in dielectric fluids for transformers and capacitors. PCBs also were used in hydraulic and heat transfer systems, lubricants, gasket sealers, paints, plasticizers, adhesives, carbonless copy paper, flame retardants, brake linings, and asphalt.

**Particle Size** – The objectives of a grain-size analysis are to accurately measure individual particle sizes or hydraulic equivalents, to determine their frequency distribution, and to calculate a statistical description that adequately characterizes the sample

**% Solids** – Analyzing percent solids normalizes concentrations on a dry weight basis.

**Total Organic Carbon (TOC)** – The organic compound in water is composed of a variety of organic compounds in various oxidation states. TOC is a more convenient and direct expression of total organic content than either biological oxygen demand and chemical oxygen demand.

#### *Caltrans Studies*

The California Department of Transportation (Caltrans) conducted a study similar to the monitoring program described in this permit. The objectives from the 2003 Caltrans Discharge Characterization Study Report include:

- Monitoring to achieve compliance with California NPDES permit requirements;
- To produce scientifically credible data that represents of runoff from Department-owned facilities; and
- To provide information useful to the Department for designing effective stormwater management strategies

The California study also included a three-year statewide stormwater characterization study to characterize runoff quality from the edge of pavement of highways, monitor sediment quality and characterize runoff toxicity. The purpose of the study was to use data to design and evaluate existing and/or potentially new BMPs and/or new BMP sites, to assess current stormwater management programs, provide a foundation for long-term management decisions and use the results to prioritize pollutants in runoff from Caltrans owned facilities.

The Caltrans study found the following criteria to have a significant impact on data results examined from edge of pavement of highways:

- AADT level,
- total event rainfall
- seasonal rainfall
- antecedent dry period

Caltrans found that pollutant concentrations increased with higher traffic levels on every pollutant analyzed, as seasonal precipitation increases, pollutant concentration decreased which indicated that dry season pollutants were more prominent due to the first flush theory and that first flush effect resulted in higher pollutant concentrations in runoff and lengthy build up of pollutants on surfaces such as highways resulted in a positive correlation between runoff and antecedent dry period.

Caltrans did not employ a receiving water quality study since the study objectives were not intended to apply directly to stormwater runoff discharges. Many constituents monitored did not have relevant water quality standards or objectives.

## **S7.B Baseline Monitoring of Highways**

S7.B requires WSDOT to continue their monitoring program under the 2009 permit to establish baseline stormwater discharge information from its highways through September 30, 2014 to obtain 2 years of data.

Ecology and WSDOT must have knowledge of pollutant loads from highways and average event mean concentrations to gauge the progress of WSDOT's comprehensive stormwater management program in reducing the amount of pollutants discharged and protecting water quality. Ecology intends this type of monitoring to continue beyond this permit term. The number of samples per year, 67% of qualifying events, up to a maximum of 14 events (11 required) will establish a sufficient data base from which to discern annual and seasonal loading trends over a long time period.

S7.B includes collection of data at a variety of geographic locations, at various AADT levels, and storms.

### *Highway runoff Monitoring*

Fossil fuel combustion, wear of tires, brake pads, bearings, bushings and other moving parts in engines, leaking lubricants and hydraulic fluids, and road deicing are processes that may contribute constituents of concern to highways. Limited monitoring of highway runoff has occurred under the previous NPDES permit. This permit will require monitoring numerous constituents, including:

- Metals (total and dissolved copper, zinc, cadmium and lead)
- Polycyclic aromatic hydrocarbons (PAHs)
- Total petroleum hydrocarbons (TPH-Dx and Gx)
- Total suspended solids (TSS)
- Chlorides
- Phthalates
- Fecal coliform
- Herbicides (only for those herbicides that WSDOT applies on-site, stores on-site or applies by vehicles parked on-site)
- Total phosphorus
- Ortho-phosphorus
- Temperature

Baseline monitoring for highways includes grab sampling for specific parameters (TPH and fecal coliform), because of the volatile nature of some of the compounds in this broad class of compounds. Fecal coliform bacteria, a pollutant presented in virtually all

stormwater discharges, are the most common reason for a surface water to be listed as not attaining water quality standards.

### *Baseline Sediment Testing*

The permit requires WSDOT to collect 1 sediment sample for each highway monitoring site on an annual basis. The sediment sample is to be collected in sediment traps or using similar methods in close proximity of the discharge location, in a place accessible by field staff. Ecology established the sediment parameters as those that have a history of association with stormwater discharges, are found in urban embayments, have a marine sediment quality standard or that provide necessary support information. The following parameters are required in the sediment analysis:

- Particle size (grain size)
- Total organic carbon
- Metals (total and dissolved copper, zinc, cadmium and lead)
- PAHs
- TPH
- Phenolics
- Herbicides (only for those herbicides that WSDOT applies on-site, stores on-site or applies by vehicles parked on-site)
- Phthalates
- Total solids

### **S7.C Toxicity Testing in the 2009 permit is eliminated**

S7.C Toxicity Testing in the 2009 permit is proposed to be eliminated in the 2014 permit. WSDOT completed the 2009 toxicity testing and no toxicity was found. After reviewing the test results, Ecology believes information to be gained from further testing would be minimal.

### **S7.C Monitoring the Effectiveness of Stormwater Treatment and Hydrologic Management BMPs at Rest Areas, Maintenance Facilities, or Ferry Terminals**

S7.C in the proposed 2014 permit requires WSDOT to develop and implement a monitoring program to evaluate the effectiveness of stormwater treatment and hydrologic management BMPs at rest areas, maintenance facilities, or ferry terminals. These BMPs address concerns identified from water year 2012 (WY12) and WY13 rest area, maintenance facility, and or ferry terminal monitoring data. WSDOT shall evaluate BMPs at three facilities:

two facilities in western Washington, and  
one facility in eastern Washington.

## **Background**

### *Maintenance Facilities*

WSDOT's rest areas, maintenance facilities and ferry terminals are considered WSDOT land uses for purposes of this permit. WSDOT's Regional maintenance facilities are similar to industrial permitted properties in that they exhibit activities including vehicle and equipment cleaning, fueling, and repair, and may contribute various constituents to stormwater discharges from their sites, including synthetic organic compounds (e.g., from adhesives, cleaners, sealants, solvents) and petroleum hydrocarbons. Throughout the United States, heavy metals (namely chromium, copper, lead, nickel and zinc), oil and grease, nutrients and solvents have been associated with runoff from vehicle service/maintenance activities. In addition, eroded sediment, the primary source of suspended material, may be a site-specific concern at some maintenance yards. An early decision made between WSDOT and Ecology placed an agreement that maintenance facilities in particular would be covered under this permit instead of the industrial permit program.

WSDOT and Ecology recognize the potential pollutants that may runoff from these maintenance facilities and other land uses including rest areas and ferry terminals; therefore, have developed an appropriate monitoring program to evaluate the level of pollutants discharged from these sites and to improve Stormwater Pollution Prevention Plans and/or Stormwater Management Programs that currently exist for these sites. This section of the permit will require monitoring numerous constituents, including:

- TSS
- TPH
- Metals (total and dissolved copper, zinc, cadmium and lead)

### *Rest Areas*

Petroleum products, metals, sediment, bacteria, and trash and debris may be present in stormwater runoff from rest areas. Coliform (Total and Fecal) bacteria may be present in runoff at varying concentrations. This permit will require monitoring numerous constituents, including:

- TPH
- Metals (total and dissolved copper, zinc, cadmium and lead)
- TSS
- Nutrients

### *Ferry Terminals*

Petroleum products, metals, sediment, bacteria, and trash and debris may be present in stormwater runoff from ferry terminals. Coliform (Total and Fecal) bacteria may be present in runoff at varying concentrations. This permit will require monitoring numerous constituents, including:

- TPH

- Metals (total and dissolved copper, zinc, cadmium and lead)
- TSS

## **S7.D Monitoring the Effectiveness of Stormwater Treatment and Hydrologic Best Management Practices**

S7.D in the proposed 2014 permit requires WSDOT to continue their monitoring of the effectiveness of stormwater treatment and hydrologic management best management practices (BMPs) at highway monitoring sites. This monitoring will continue until statistical goals in Ecology's 2011 or most recent version of the *Technical Guidance Manual for Evaluating Emerging Stormwater Treatment Technologies: Technology Assessment Protocol - Ecology* (TAPE) are met. At a minimum, 12 sampling events are needed for statistically significant performance data. Regardless of statistical significance, the permit limits the required maximum sampling effort to 35 sample events as defined in the QAPP.

Following the completion and conclusion of the existing BMP effectiveness study, S7.D requires WSDOT to develop and begin implementation of the next highway BMP effectiveness studies at approximately the same level of effort and cost as the previous vegetative filter strip (VFS) BMP effectiveness studies.

### **Background**

#### *Treatment Monitoring*

On a smaller scale, Ecology also needs to determine the effectiveness of specific treatment BMPs in reducing pollutant discharges

Ecology's stormwater manuals and WSDOT's Highway Runoff Manual include lists of treatment BMPs that WSDOT may apply in new development and re-development projects. Though most of these treatment types have been recommended and in common use for many years, Ecology has incomplete information about the BMP pollutant removal capabilities. Ecology has some confidence that they are based on sound engineering concepts, but does not know how well they perform in relation to one another. Without a feedback loop of performance, Ecology cannot confirm which BMP's perform best for certain pollutants. Ecology also needs this information to estimate pollutant loadings that is necessary to implement TMDL's. Without the feedback loop, Ecology has no good basis for altering design criteria in order to improve their performance.

Researchers have conducted few studies in the maritime Pacific Northwest climate on facilities constructed using design criteria in the stormwater manuals. Ecology has general performance information on categories of treatment BMP's (e.g., wet ponds, dry ponds, biofiltration swales) from data collected around the country. But the collectors of that data acknowledge its limitations because of the broad range of design criteria used around the country and because of regional variations in rainfall patterns and soil types. We are overdue to perform studies to firm-up our knowledge of the capabilities and limitations of

the “best management practices” that permittees have used to reduce the pollutant impacts of developments.

The permit allows WSDOT to select 2 treatment BMP types that are standard technologies in their manuals, for detailed performance monitoring. Since other Phase I permittees have the same permit conditions, Ecology hopes to get useful performance information on different BMP types. If necessary, Ecology will work with the permittees to coordinate monitoring to avoid duplication and so that the widest range of BMP types can be assessed.

The statistical goal for treatment BMP effectiveness monitoring is to determine mean effluent concentrations and mean percent removals with 95% confidence and 80% power. Those are the goals in the “Technology Assessment Protocol – Ecology” (TAPE). They are commonly used statistical goals. Based on expected coefficients of variation for stormwater pollutant parameters, it is likely that these statistical goals can be reached with between 12 to 35 sample pairs. However, in the event of a large coefficient of variation, a maximum of 35 sample pairs will suffice, and the confidence and power will be identified. WSDOT is required to meet statistical goals for the required parameters for each BMP type based on treatment level, as listed on page 19 of TAPE Guidance (Pub. No. 11-10-061).

The influent particle size distribution can have a significant effect on the pollutant removal performance of treatment BMP’s. Prior to, or early in the sampling effort at a particular treatment BMP site, WSDOT will analyze the influent particle distribution to see if it falls within a range that is typical for the BMP’s application and meets the requirements of the TAPE.

WSDOT must use appropriate sections of *Ecology’s 2011 Technical Guidance Manual for Evaluating Emerging Stormwater Treatment Technologies: Technology Assessment Protocol - Ecology (TAPE)*, or its updated version, for preparing, implementing, and reporting on the results of the BMP evaluation program. Because these efforts have significant costs, Ecology recommends that WSDOT submit a QAPP for review and approval before implementing the monitoring program. This will reduce time and cost wasted on monitoring activities that Ecology will not accept or deem useful.

Ecology is also proposing that WSDOT collect additional data, consistent with the recommendations in the “National Stormwater BMP Data Base Requirements.” Additional data may help the national data base improve to the point that it can provide constructive observations and recommendations to modify Washington’s designs, goals, and monitoring methods.

#### *Hydrology Monitoring*

Much interest has arisen in using various low impact development (LID) practices for new developments and for retrofitting into existing developments. Ecology needs to establish a feedback loop for documenting designs that have promise for long-term functionality, and for documenting the extent to which they can reduce surface water runoff volumes and flow rates. No commonly accepted field monitoring protocols exist for measuring LID

project functionality and effectiveness. Seattle has a surface water monitoring effort for its Broadview/Green Grid project and a surface and groundwater monitoring effort for its High Point project. The Washington State University Cooperative Extension Office in Tacoma is monitoring surface and groundwater flows at a site near the Pierce/King County line.

A one-size fits all monitoring protocol does not seem a likely approach. Ecology will accept suggestions for minimum field and statistical requirements for hydrologic monitoring. In all cases, it is likely that a long-term monitoring station is necessary to record flows and water surface elevations over an extended range of precipitation and soil moisture conditions. Ecology and WSDOT's monitoring results may be used to improve the methods by which LID features are represented in predictive runoff models for determining treatment and flow control needs.

#### **S7.E Status and Trends Monitoring**

S7.E is added to the proposed 2014 permit and requires WSDOT to participate in the Puget Sound status and trends monitoring component of the Regional Stormwater Monitoring Program (RSMP) through one of three options available.

#### **S7.F Quality Assurance Project Plans**

WSDOT is required to submit Quality Assurance Project Plans (QAPPs) using the most recent versions of Ecology's Guidelines for Preparing Quality Assurance Project Plans for Environmental Studies (Publication #04-03-030) or EPA's *Guidance for Quality Assurance Project Plans* as additional guidance.

#### **S7.G Collaborative and Independent Monitoring Programs**

Ecology will allow WSDOT to collaborate on monitoring programs. It could involve hiring the same third party to perform some part or all of the monitoring efforts. It could entail sharing staff and equipment, standard operating procedures, laboratory facilities or contracts, or monitoring sites with other agencies.

WSDOT may also identify a monitoring site that can be used to meet more than one permit requirement. For instance, it may be possible to identify an influent monitoring station for a treatment BMP that could also double as a site for monitoring stormwater quality. Ecology will review the sampling protocol to assure both monitoring requirements are met.

### **S8 – Reporting Requirements**

- A. The federal stormwater rules at [40 CFR 122.42(c)] requires municipal stormwater permittees to submit an annual report. Ecology included the annual reporting requirement in the WSDOT permit, and clarified reporting requirements consistent with other provisions in the permit.
- B. Ecology modified items for inclusion in the annual report from the federal requirements for the following reasons:

- Ecology provides additional clarification about requirements in the portion of the report on the status of implementing the components of the stormwater management program. WSDOT must address compliance with the performance standards.
- The EPA rules require reporting on annual expenditures. Ecology has provided clarification on what kind of information is required in the portion of the report on annual expenditures.
- Ecology deleted the federal requirement for information on revisions to the assessment of controls from the annual report. The purpose of the federal requirement is to predict the effectiveness of Stormwater Management Plans in reducing pollutants discharged. Except for qualitative observations, it is not possible to estimate pollutant reductions annually without extensive monitoring. Ecology prefers the broader monitoring program outlined in S7 to estimate concentrations and loads from representative areas or basins, evaluate management actions and evaluate the effectiveness of selected Best Management Practices.
- Ecology retained the EPA requirements to provide a summary of monitoring data as a separate monitoring report under Special Condition S7. In addition, Ecology has requested a description of any other stormwater monitoring programs.

C. Ecology does not want the annual reporting requirement to unnecessarily take resources away from program implementation. However, it is necessary to have enough information to evaluate compliance with permit requirements and prepare the next permit.

### **General Conditions**

General Conditions are based directly on state and federal law and regulations and have been standardized for all NPDES permits issued by the Ecology. Some of these conditions were developed for different types of discharges. Although Ecology is required by federal regulation to include them in the permit, they may not be strictly applicable.

- G1 Requires discharges and activities authorized by the draft permit to be consistent with the terms and conditions of the permit in accordance with 40 CFR 122.41.
- G2. Requires WSDOT to operate and maintain all stormwater pollution control facilities and system with terms and condition of this Permit.
- G3. Require WSDOT to notify Ecology immediately of all spills that may threaten human health and environment within 24 hours. In addition, spills that may cause bacterial contamination of shell fish must also reported to the State, Department of Health shellfish program. G3 is revised in the proposed permit to include notification and response procedures for traffic-related spills.
- G4. This Permit prohibits bypass unless certain conditions exist in accordance with 40 CFR 122.41(m).

- G5. Require WSDOT to allow Ecology to access the facilities and conduct inspections of the facilities and records related to this Permit in accordance with 40 CFR 122.41(i), Chapter 90.48.090 RCW, and WAC 173-220-150(1)(e).
- G6. For discharges with reasonable likelihood of adversely affecting human health or the environment, this Permit requires WSDOT take all reasonable steps to minimize or prevent any discharge in violation of this Permit.
- G7. Specifies that the Permit does not convey property rights in accordance with 40 CFR 122.41(g).
- G8. Prohibits WSDOT from using the Permit as a basis for violating any laws, statutes or regulations in accordance with 40 CFR 122.5(c).
- G9. This Permit contains certain sets of monitoring requirements to insure compliance. The monitoring shall be based on representative samples of the discharge that must also include the actual flow. The samples shall be tested by an accredited laboratory based on certain pre-prescribed procedures and the results shall be retained by WSDOT for the life of the permit plus three years, or longer in case of enforcement or other litigations.
- G10. Prohibits the reintroduction of removed substances back into the storm sewer system or to waters of the state in accordance with 40 CFR 125.3(g), Chapter 90.48.010 RCW, Chapter 90.48.080 RCW, WAC 173-220-130, and WAC 173-201A-040.
- G11. Invokes severability of permit provisions in accordance with Chapter 90.48.904 RCW.
- G12. Identifies conditions for revoking coverage under the general permit in accordance with 40 CFR 122.62, 40 CFR 124.5, WAC 173-226-240, WAC 173-220-150(1)(d), and WAC 173-220-190.
- G13. Identifies the requirements for transfer of permit coverage in accordance with 40 CFR 122.41(1)(3) and WAC 173-220-200.
- G14. Identifies conditions for revoking coverage under the general permit in accordance with 40 CFR 122.62, 40 CFR 124.5, WAC 173-226-240, WAC 173-220-150(1)(d), and WAC 173-220-190.
- G15. Requires WSDOT to notify Ecology when facility changes may require modification or revocation of permit coverage in accordance with 40 CFR 122.62(a), 40 CFR 122.41(l), WAC 173-220-150(1)(b), and WAC 173-201A-060(5)(b).
- G16. Defines appeal options for the terms and conditions of the general permit and of coverage under the Permit by an individual discharger in accordance with Chapter 43.21B RCW and WAC 173-226-190.
- G17. Any person who is found guilty of willfully violating the terms and conditions of this Permit shall be deemed guilty of a crime, and upon conviction thereof shall be punished by a fine of up to ten thousand dollars (\$10,000) and costs of prosecution, or by imprisonment in the discretion of the court. Each day upon which a willful violation occurs may be deemed a separate and additional violation. Any person who violates the terms and conditions of a waste discharge permit shall incur, in addition to any other penalty as provided by law, a civil penalty in the amount of up to ten thousand dollars (\$10,000) for every such violation. Each and every such

violation shall be a separate and distinct offense, and in case of a continuing violation, every day's continuance shall be deemed to be a separate and distinct violation. Describes the penalties for violating permit conditions in accordance with 40 CFR 122.41(a)(2).

- G18. Requires WSDOT to reapply for coverage 180 prior to the expiration date of this General Permit in accordance with 40 CFR 122.21(d), 40 CFR 122.41(b), and WAC 183-220-180(2). An expired permit continues in force and effect until a new permit is issued or until Ecology cancels the Permit. Only Permittees who have reapplied for coverage under this Permit are covered under the continued permit. This section is derived from Chapter 90.48.170 RCW.
- G19. Requires responsible officials or their designated representatives to sign submittals to Ecology in accordance with 40 CFR 122.22, 40 CFR 122.22(d), WAC 173-220-210(3)(b), and WAC 173-220-040(5).
- G20. Require WSDOT to notify Ecology in the event that they are unable to comply with the permit or is out of compliance with the permit.
- G21. Require WSDOT shall meet the conditions of 40 CFR 122.41(n) regarding "Upsets." "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of WSDOT. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

APPENDIX 6 contains an application form for the next permit issuance.

**Appendix A - Response To Comments  
on the  
Washington State Department of Transportation  
Municipal Stormwater General Permit**

**National pollutant discharge elimination system (NPDES) and state waste discharge general permit for discharges from Washington State Department of Transportation owned or operated separate stormwater sewers.**

March 6, 2014

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## TABLE OF CONTENTS

### Contents

Appendix A Response To Comments.....	60
Introduction.....	63
Summary Of Changes To The Draft Permit .....	63
Organization Of The Response To Comments .....	63
List Of Commenters.....	63
Response To Comments .....	64
Comments From Washington State Department of Transportation .....	65
Comments From King County Department of Natural Resources .....	66
Comments From Department of Natural Resources - Aquatic Division .....	67
Comments From Muckleshoot Indian Tribe Fisheries Division .....	68
Comments from the United States Fish and Wildlife Service .....	70
Comments From Stormwater Work Group.....	71

## **Introduction**

On November 6, 2013 Ecology filed a notice with the State Register to reissue the Washington State Department of Transportation (WSDOT's) NPDES and State Waste Discharge General Permit for their Municipal Separate Storm Sewer System (MS4s). Ecology invited public comment on the draft permit and fact sheet, WSDOT's revised *Highway Runoff Manual* (HRM), (included in the permit as Appendix 1), and the Implementing Agreement between Ecology and WSDOT regarding the statewide application of the HRM. The public comment period ended January 10, 2014.

## **Summary Of Changes To The Draft Permit**

Ecology made numerous changes to improve clarity and readability of the permit. Changes have been incorporated in the 2014 Highway Runoff Manual to improve its readability and clarity. In addition, some errors and outdated information were found in the 2014 public draft fact sheet. The corrections were incorporated in the 2014 public draft factsheet.

Changes were made in response to comments receive by the five entities that commented on the draft permit. In particular, changes were made to the monitoring and reporting sections, to the TMDL requirements in Appendix 3, and to the definitions and acronyms for consistency with the municipal Phase I and II permits. Where particular comments led to changes to the requirements in the permit, those modifications are noted in the response.

## **Organization Of The Response To Comments**

Ecology organized this Response to Comments by listing comments from each entity and providing responses to the comments. The comments received are enumerated for ease of reference. Those who commented are listed below. Their comments can be read in full on our website at:

<http://www.ecy.wa.gov/programs/wq/stormwater/municipal/wsdot/2014permit.html>

## **List Of Commenters**

Megan White, Environmental Services Office Director, Washington State Department of Transportation

Abby Barnes, Department of Natural Resources - Aquatic Division

Douglas D. Navetski, Environmental Programs Managing Supervisor, King County

Karen Walter, Watersheds and Land Use Team Leader, Muckleshoot Indian Tribe Fisheries Division

Ryan McReynolds, US Fish and Wildlife Service

Jim Simmonds, Stormwater Work Group Chair, Puget Sound Ecosystem Monitoring Program

## **Response To Comments**

Each page of comments received has been copied below and is followed by Ecology's responses. In addition, Ecology received over 200 other comments considered minor on the permit and HRM. Those comments addressed typo corrections, grammatical corrections, formatting, rewording clarifications, and correcting references in the permit and HRM. The corrections and clarifications were incorporated in the final permit and HRM and are not reproduced in this appendix.

## Comments From Washington State Department of Transportation

Table below summarizes WSDOT major comments are Ecology responses:

<b>Section Page #</b>	<b>WSDOT Comment</b>	<b>Ecology Response</b>
“S5.3.a” Page 9	Adjusting timelines for using 2014 HRM for projects receiving design approval before July 1, 2014 that go to advertisement by June 30, 2017. This change reflects policy contained in WSDOT's Design Manual which call for evaluating designs over three years to determine if the design meets the current standards.	Agreed with the implementation timing for new projects and the previously approved projects using 2011 HRM.
“S6.2” Page 10	Adding applicable EPA QAPP guidance for additional detail and further explanation about necessary QAPP components.	Modified to clarify that Ecology must review and approve the QAPP. Ecology primarily relies on the Ecology guidance document, however, Ecology would consider additional guidance where needed.
“S7.E.2” Page 21	“WSDOT shall, in coordination with RSMP implementation ... collect samples at up to 12 Puget Sound lowland small stream sites”	The original language from SWG has “100” as the number sites. Upon further confirmation from SWG, the number is kept at “100”.
“S7.E.4” Page 22	WSDOT suggested adding Option #4 as part of the Puget Sound status and trends monitoring component of the Regional Stormwater Monitoring Program (RSMP)	Option 4 could be an effectiveness study for WSDOT to pursue. Option 4 is not considered receiving water monitoring study or participation in the RSMP.
“Appendix 3” Page 47	WSDOT proposed an additional action item for South Fork TMDL #10.	Ecology agreed.

## Comments From King County Department of Natural Resources

	proposed changes. The pertinent comments and suggestions are listed below.
#1	<ul style="list-style-type: none"><li>In the WSDOT Permit, page 41, Appendix 2, 'Reportable Performance Indicators' SWMPP Reference Table 7-1: King County strongly supports the common sense approach of allowing the conducting of 95 percent of the planned inspections to meet permit requirements. King County sought to have these conditions placed in the Phase I permit for both inspections and maintenance requirements, which would reduce the G20 reporting on <i>de minimus</i> inspection and maintenance shortfalls and would have no appreciable reduction in environmental protection.</li></ul>
#2	<ul style="list-style-type: none"><li>In the WSDOT Permit, Appendix 5, page 6-5, Table 6-1: This item identifies "summer spawning areas" as a prioritization criterion and refers specifically to "summer chum and summer steelhead." These fish do not spawn in summer. They do return to natal streams in summer and spawn in September-October (chum) or January-May (steelhead). Consider revising the rationale column to read "Spawning areas, and summer holding and migration areas provide critically important habitat for summer chum and summer steelhead."</li></ul>
#3	<ul style="list-style-type: none"><li>In the WSDOT Permit, on page 30, G10, 'Removed Substances:' Disposal of decant for street waste vehicles must be in alignment with local jurisdictions requirements. For example, King County does not allow the disposal of decant liquids back into the MS4.</li></ul>
#4	<ul style="list-style-type: none"><li>In the WSDOT Permit, page 34, 'Definitions and Acronyms,' Consistency among various NPDES municipal stormwater permits is critical for regional collaboration and coordination. It facilitates effective implementation of stormwater management within Washington State. King County strongly encourages that any settlement on definitions of outfalls, discharge points, and receiving waters be included and applied to all three municipal stormwater permits, Phase I, Phase II, and the WSDOT.</li></ul>

Response to King County Comment #1: Comment noted. Will keep language unchanged.

Response to King County Comment #2: Incorporated suggested edits in Table 6-1 "Stormwater Retrofit Prioritization Scheme" in Section 6 of Appendix 5.

Response to King County Comment #3: Modified G10 to include consideration of the local codes and ordinances. This is also consistent with the Phase I and II MS4 permits.

Response to King County Comment #4: Incorporated changes to the definitions per settlement agreement with Phase II permittees and for consistency with Phase I and II permits.

## Comments From Department of Natural Resources - Aquatic Division

The Department of Natural Resources (DNR) as the steward of the aquatic lands owned by the State of Washington has the obligation to protect state owned aquatic lands. State-owned aquatic lands are managed by DNR for future and current citizens of the state to sustain ecosystems and economic viability and ensure long-term access to aquatic lands and the benefits derived from them.

The DRAFT Washington State Department of Transportation Municipal Stormwater Permit (Permit) was developed to protect the waters and sediment of the state from discharges from municipal separate sewer systems owned or operated by Washington Department of Transportation (WSDOT) in areas covered by the Phase I and Phase II Municipal Stormwater General Permits. The management of stormwater and stormwater outfalls is important for the protection of human health, the environment, and the sustainability and continuing development of aquatic resources.

DNR is pleased with the progress the Permit has achieved and is hopeful it will be successful in adequately protecting aquatic lands. DNR's comments on the Permit are as follows:

### S4.F.1 -

*WSDOT shall notify Ecology in writing within 30 days of becoming aware, based on credible site-specific information that a discharge from the MS4 owned or operated by WSDOT is causing or contributing to a known or likely violation of Water Quality Standards in the receiving water.*

DNR understands that this is a typical time-frame outlined in most Stormwater General Permits, but if a facility is having a problem that is causing violation of Water Quality Standards Ecology should be notified as soon as the site is aware of the issue. There seems to be no benefit in allowing a 30-day time period to lapse prior to notifying Ecology of a violation.

*For ongoing or continuing violations, a single written notification to Ecology will fulfill this requirement.*

The point of the adaptive management process is to prevent an ongoing violation to occur. It seems that if an ongoing violation is allowed to occur without notification to Ecology then the process is inadequate. For reporting purposes the length of the ongoing violation should be documented.

### S7.B.6.a

*WSDOT shall sample, analyze, and report the following parameters in sediments, as indicated in order of priority if sufficient volume exists. Chemicals below method detection limits after two years of data analysis may be dropped from the list of parameters.*

In addition to the baseline sediment sampling testing required in the above section of the Permit, DNR would like to have WSDOT to perform the full Sediment Management Standards suite once every permit cycle as well. At minimum, sediment should be analyzed for PCB and arsenic at least once in a permit cycle.

Response to DNR S4.F.1 Comment: WSDOT is required to report immediately discharges that could constitute a threat to human health, welfare, or the environment Stormwater. For discharges that are likely to cause Water Quality Standards violations, S4.F.1 requires that, within 30 days, WSDOT provide written notification to Ecology after conducting an investigation to identify and describe the nature and extent of the known or likely violation. Appendix 3, Section 3, of WSDOT permit also includes notification and mitigation procedures for potential discharges associated with traffic accident spills, other illicit discharges, and illicit connections.

Response to DNR S7.B.6.a Comment: Per 2009 permit requirements, WSDOT has been monitoring sediments from 5 highway locations in 2012 and 2013. WSDOT reported 2012 sediment monitoring results in October of 2013. The proposed permit requires another sediment monitoring from each of the 5 highway locations. PCBs and arsenic is added to the list of parameters in the sediments that WSDOT monitors in 2014.

## Comments From Muckleshoot Indian Tribe Fisheries Division

1. The discussion of stormwater impacts are too limited with respect to salmon. Salmon can be adversely affected by pollutants in stormwater (see attached paper from Scholz et al.). In addition to pollutant concerns, stormwater flows can adversely affect juvenile salmon by creating instream velocities that reduce rearing habitat conditions; flushing juvenile salmon; or creating conditions where they are forced to swim to maintain station and limit feeding opportunities and predator avoidance. As many streams receiving stormwater are also simplified channels that lack wood and low velocity habitats, stormwater discharges can be significant. Also, one has to also consider juvenile salmon access to low velocity habitats which may be precluded due to culverts and other barriers. As you can see, the problem is not simply impacts to stream channels and spawning beds.

2. Many of the elements of the revised permit are real improvements (i.e. inclusion of Low Impact Development requirements; improved monitoring; assessment of best management practices). However, there is no discussion or plan as to how information generated from the permit implementation and associated activities will be made readily available, particularly to affected Indian Tribes. Many of us tribal resource staff are working on stormwater issues, water quality standards, and WSDOT projects. We would benefit from learning about how specific aspects of the permit are being implemented and what monitoring is finding out to help us in our efforts to improve water quality for salmon. For example, it would be helpful there was a central clearinghouse for the MS4 permit monitoring activities, their results and the effectiveness of best management practices.

3. While there are improvements in the proposed permit, we remain concerned that WSDOT's proposed permit does not include numeric effluent limitations. This is a key point because as noted on page 54 of the Fact Sheet (i.e. WDOE has incomplete information regarding BMP pollutant removal capabilities), there are unknowns about BMP effectiveness. With the uncertainty of BMP effectiveness and the lack of numeric effluent limitations, it is unclear how this NPDES permit will achieve compliance with state water quality standards. The permit should include numeric effluent limitations for pollutant parameters of concern identified in the Fact Sheet on page 46. Other parameters may need to be added in the next round of reissuing this stormwater permit as more monitoring data become available. This approach would advance the effectiveness of these permits towards compliance with WA State water quality standards.

We appreciate the opportunity to review this Proposed 2014 MS4 Permit and look forward to Ecology's responses. Please let me know if you have any questions.

Response to Muckleshoot Indian Tribe Comment #1: Stormwater treatment and flow control requirements in permit rely on the application of technical standards established in the Ecology's stormwater management manuals for the western and eastern Washington and how they can be protective of the water quality standards in the receiving waters. On a case-by-case basis, where application of the technical standards in the manuals are determined inadequate for the protection of a stream water quality or its beneficial uses, more stringent requirements would have to be developed and applied for that stream. Typically, this involves development of a Total Maximum Daily Load (TMDL) for that stream with an associated implementation plan involving multiple dischargers to the stream. On a larger scale, development of Watershed Plans would better protect streams. WSDOT's permit includes numerous TMDLs identifying appropriate action items for WSDOT. The permit also requires WSDOT participation in the development of watershed plans, generally initiated by local governments, within the permit coverage area.

Response to Muckleshoot Indian Tribe Comment #2: Monitoring reports from 2009 permit are available on Ecology's database PARIS and can be accessed through the internet at: <http://www.ecy.wa.gov/programs/wq/permits/paris/index.html>. Search for WSDOT Municipal SW GP.

Response to Muckleshoot Indian Tribe Comment #3: Comment noted. As more monitoring data are collected and the effectiveness of existing BMPs is better understood, steps can be taken to address deficiencies in the various treatment BMPs under study.

## Comments from the United States Fish and Wildlife Service

### Comments (General)

These permits have progressively incorporated new and revised requirements addressing the following: inspection, source control, and maintenance and maintenance accountability; Total Maximum Daily Loads; shared watershed-scale program planning and implementation; new standards and performance measures for low impact development techniques; and, a coordinated strategy for monitoring and obtaining status and trends, stormwater BMP effectiveness, and program effectiveness data.

These requirements and performance measures address planning, programming/budgeting, design, construction, inspection and maintenance, monitoring, reporting, and adaptive management, and in doing so meaningfully and comprehensively improve controls for discharges from regulated stormwater systems. We continue to support the inclusion of these important permit requirements and performance measures. We commend Ecology and their permittees for demonstrating a good faith, cooperative effort to refine and improve municipal stormwater controls.

### Comments for Retrofit Guidelines and Prioritization

With our previous comments for Permit No. WAR043000A and the WSDOT's Highway Runoff Manual (HRM), the Service expressed concern that the project thresholds currently in-use for applying Minimum Requirements 5 and 6 to replaced impervious surfaces (runoff treatment and flow control) do not adequately target and scale stormwater retrofits, and therefore miss available opportunities to more completely address existing sources of water quality impairment (December 23, 2011; FWS Ref. No. 2012-CPA-0042; pp. 4-6).

However, based on our review of the current draft of the permit, including Appendix 5 (the WSDOT's approved draft Stormwater Management Program Plan), and of the WSDOT's revised HRM, we believe that these concerns have now been adequately addressed.

Pages 6-1 through 6-6 of the draft Stormwater Management Program Plan, and Chapter 3 of the HRM (pp. 3-4 thru 3-6, 3-32 thru 3-39), outline and describe the general approach, criteria and thresholds, prioritization, procedures, accounting, and reporting that will guide and inform decisions regarding Stand-Alone, Cleanup Plan-Triggered, Project-Triggered, and Opportunity-Based stormwater retrofits for existing and replaced impervious surfaces.

We agree that stormwater retrofit dollars should be spent at high-priority locations where they will provide the greatest net benefit. The current draft of the permit and revised HRM give us confidence that Ecology and the WSDOT will consider appropriate program and design criteria (site constraints, incremental costs, land use context), in conjunction with biologically-relevant factors (landscape position, hydrology, beneficial uses, baseline environmental condition, and habitat value), when making, implementing, and tracking their retrofit program decisions.

Thank you for the opportunity to review and offer comments for the WSDOT's draft Municipal Stormwater General Permit, and the revised and updated HRM. Ecology and the WSDOT have made good progress refining and implementing the permit and program. We are encouraged by the continued focus and attention to a number of elements which we consider important and essential.

Response to USF&WS Comments: Comments noted. Thank you for your comments.

## Comments From Stormwater Work Group

The SWG has two specific comments and suggestions for improving the draft language in S7.E on p. 21:

1. The SWG recommends that WSDOT be required to notify Ecology which status and trends monitoring option they have selected no later than mid-summer, 2014. The draft October 5, 2014 deadline for WSDOT to notify Ecology which status and trends monitoring option they have selected will make WSDOT's participation in the RSMP more challenging to include in RSMP planning and implementation.
2. The SWG recommends that Ecology edit the language in WSDOT's second status and trends monitoring option (S7.E.2) to clarify whether an acceptable means by which WSDOT may implement this monitoring option would be to join the RSMP's coordinated effort to collect and analyze these samples; i.e., to provide the RSMP with funding for these additional samples and analyses. Multiple members of the SWG interpret the current draft language for this option as requiring WSDOT to send its own field crews. We believe this would be unnecessary and inefficient and would like for WSDOT to have the opportunity to seriously consider this option for RSMP participation.

Response to SWG Comment #1: The notification date in the permit has changed from September 15, 2014 to July 15, 2014. WSDOT has also agreed to this change.

Response to SWG Comment #2: Edits have been incorporated in the permit to clarify Option 2 for status and trends monitoring in Puget Sound.