

# **INDUSTRIAL STORMWATER GENERAL PERMIT – FACT SHEET**

June 3, 2009 Public Comment Draft

The Washington State Department of Ecology is proposing to reissue the Industrial Stormwater General Permit (ISWGP). The permit will replace the permit that expired on April 30, 2009. The permit authorizes stormwater discharges associated with industrial activities and a limited number of non-stormwater discharges. The permit limits the *discharge* of pollutants to surface waters under the authority of the Federal Water Pollution Control Act (U.S.C.S. 1251) and limits the discharge of pollutants to surface and ground water under the authority of Chapter 90.48 RCW. Ecology anticipates that Permittees' diligent implementation of the requirements of this permit will result in discharges that do not cause or contribute to violations of state water quality standards.

This fact sheet is a companion document to the draft National Pollutant Discharge Elimination System (NPDES) and State Waste Discharge General Permit for Stormwater Discharges Associated with Industrial Activities (Industrial Stormwater General Permit, or ISWGP). The draft permit authorizes discharge of stormwater only. Discharges of process wastewater are not authorized by this permit and require a separate permit. This fact sheet explains the nature of authorized discharges, Ecology's decisions on limiting the pollutants in stormwater and non-stormwater discharges, and the regulatory and technical bases for those decisions.

The draft permit retains the existing concept of stormwater sampling, benchmarks, and escalating levels of adaptive management that was instituted in 2005. However, many of the SWPPP/BMP requirements, sampling and inspection requirements, benchmark concentrations, and specific elements of the adaptive management program have been revised. The primary changes are summarized in the following table.

<b>Change</b>	<b>Previous Permit</b>	<b>Draft Permit</b>
<b>S1. Permit Coverage</b>		
S1.A Facilities required to seek permit coverage	<ul style="list-style-type: none"> <li>• Applicable in 40 CFR, but unclear in previous permit language</li> </ul>	<ul style="list-style-type: none"> <li>• Adds category of hazardous waste treatment, storage, and disposal facilities (TSDs)</li> </ul>
<b>S2. Application For Coverage</b>		
S2.A. Obtaining permit coverage	<ul style="list-style-type: none"> <li>• Required new facilities to submit SWPPP during application process</li> <li>• Required existing, but unpermitted, facilities to submit SWPPP within 30 days of receiving permit coverage</li> </ul>	<ul style="list-style-type: none"> <li>• Eliminates requirement for SWPPP to be submitted in relation to application process.</li> <li>• Retains requirement for SWPPPs to be submitted to Ecology or public upon request.</li> </ul>
<b>S3. Stormwater Pollution Prevention Plan</b>		
S3.A.6 Signatory Requirements	<ul style="list-style-type: none"> <li>• Unclear that SWPPP subject to G2 Signatory Requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Requires SWPPP to be signed according to G2 Signatory Requirements</li> </ul>
S3.B Specific SWPPP requirements	<ul style="list-style-type: none"> <li>• BMPs from applicable Stormwater Management Manuals</li> </ul>	<ul style="list-style-type: none"> <li>• Specified mandatory BMPs, including monthly vacuum sweeping, catch basin maintenance standards, etc.</li> </ul>
<b>S4. Sampling</b>		
S4.B. Sampling Requirements	<ul style="list-style-type: none"> <li>• Sample required during first hour of discharge.</li> <li>• 24-hour antecedent dry period</li> <li>• At least 0.1 inches of rain in 24-hour period</li> </ul>	<ul style="list-style-type: none"> <li>• Sample anytime during discharge</li> <li>• If a discharge from the facility occurs, then it can be sampled, as long as at least 24 hrs between samples</li> </ul>
<b>S5. Benchmarks and Effluent Limitations</b>		
S5.A Benchmark and Sampling Requirements	<ul style="list-style-type: none"> <li>• Metals benchmarks based on EPA values in 2006 Multi-sector General Permit</li> </ul>	<ul style="list-style-type: none"> <li>• Copper and zinc benchmarks reflect Washington State stream conditions</li> </ul>
S5.A Benchmark and Sampling Requirements	<ul style="list-style-type: none"> <li>• Copper and lead sampling triggered by 2 zinc exceedances</li> </ul>	<ul style="list-style-type: none"> <li>• Cooper and lead not triggered by zinc exceedances; only applied to specific sectors.</li> </ul>
S5.B Sector-specific benchmarks	<ul style="list-style-type: none"> <li>• Ammonia and metals benchmarks based on EPA values in Multi-sector General Permit</li> </ul>	<ul style="list-style-type: none"> <li>• Ammonia benchmarks reflect updated EPA values</li> <li>• Added benchmarks for Hazardous waste TSDs</li> <li>• Added TPH sampling to “metals” industries</li> </ul>
<b>S7. Inspections</b>		

S7.A Inspection Frequency	<ul style="list-style-type: none"> <li>• Quarterly inspections</li> <li>• Dry season inspections</li> <li>• Visual monitoring</li> </ul>	<ul style="list-style-type: none"> <li>• All forms of inspections consolidated into monthly inspections</li> <li>• 2012/2013 deadlines for inspections to be conducted by Certified Industrial Stormwater Manager</li> </ul>
S8. Corrective Actions		
S8.A,B, C.	<ul style="list-style-type: none"> <li>• See previous permit</li> </ul>	<ul style="list-style-type: none"> <li>• Numerous changes to clarify requirements, timelines, and expectations <ul style="list-style-type: none"> <li>• Added allowance for Level 2 time extension or waiver</li> <li>• Added requirement for Level 3 treatment to be certified by P.E.</li> </ul> </li> </ul>
S8.D Level 4 Corrective Action	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>	<ul style="list-style-type: none"> <li>• Level 4-Triggers site specific regulatory action by Ecology if 4 more benchmark exceedances after Level 3.</li> </ul>
S13. Notice of Termination		
S13.A Submittal of NOT	<ul style="list-style-type: none"> <li>• Submit Notice of Termination if Conditional No Exposure granted.</li> </ul>	<ul style="list-style-type: none"> <li>• Not necessary to submit Notice of Termination if Conditional No Exposure granted.</li> </ul>

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## INTRODUCTION

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. The National Pollutant Discharge Elimination System (NPDES) permit program is one of the mechanisms for achieving the goals of the CWA. The NPDES Permit program is administered by the Environmental Protection Agency (EPA). The EPA has delegated responsibility to administer the NPDES permit program to the state of Washington on the basis of Chapter 90.48 RCW. Chapter 90.48 RCW defines the Department of Ecology's authority and obligations in administering the wastewater discharge permit program.

State regulations specify procedures for issuing general permits (Chapter 173-226 WAC), water quality criteria for surface and ground waters (Chapters 173-201A and 173-200 WAC), and sediment management standards (Chapter 173-204 WAC). These regulations require that Ecology issue a permit before allowing discharge of wastewater to waters of the state. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the draft permit. WAC 173-226-110 requires the preparation of a draft permit and an accompanying fact sheet before issuing a general permit under the NPDES permit program. The fact sheet and draft permit are available for review (see Appendix A—Public Involvement of the fact sheet for more detail on the Public Notice procedures).

After the public comment period has closed, The Department of Ecology (Ecology) will summarize the substantive comments and respond to each comment. The summary and response to comments will become part of the administrative record. Parties submitting comments will receive a copy of Ecology's response. Ecology will summarize comments and the resultant changes to the draft permit in Appendix C—Response to Comments.

## **BACKGROUND INFORMATION**

### **DESCRIPTION OF PERMIT COVERAGE**

#### **History**

Ecology first issued a baseline stormwater general permit for stormwater discharges on November 18, 1992. The general permit covered both industrial and construction activities. When reissued in 1995, Ecology separated the construction and industrial permits. Ecology issued the Industrial Stormwater General Permit (ISWGP) on November 18, 1995 with an expiration date of November 18, 2000.

Ecology reissued the ISWGP on October 4, 2000. The permit, which became effective on November 18, 2000, had no substantive changes from the 1995 permit. Only changes that made the permit consistent with the revised timeframe were made. The reissued permit became effective on November 18, 2000 with an expiration date of November 18, 2005. However, Ecology fully intended to revise and replace this permit before the expiration date to incorporate the newly-issued Phase II stormwater regulations. The intent was to reissue the permit before March 10, 2003.

A Notice of Appeal was filed on November 17, 2000 by a coalition of environmental groups. The Association of Washington Business (AWB) filed a motion to intervene and became party to the case. In response to the litigation, Ecology altered its approach to revising the permit. Ecology did not conduct a formal public process to examine stormwater issues associated with the reissued permit. However, Ecology examined the issues raised by the appeal, and issues and proposals made by parties to the appeal. Ecology also consulted with staff responsible for managing the coverage of facilities under the permit. Ecology made revisions to address these issues and to implement EPA's Phase II Storm Water Regulations.

On August 21, 2002 Ecology issued the current ISWGP. The permit was appealed to the Pollution Control Hearings Board (PCHB) by Snohomish County, The Boeing Company, and a coalition of environmental groups. The AWB later joined the appeal as an intervening party. Eight of the 11 appeal issues were settled through negotiations or dismissed by the PCHB. During the fall and early winter of 2003, Ecology, the AWB, and the environmental groups made several attempts to reach a negotiated settlement on the remaining three appeal issues.

Early in the 2004 state legislative session, the business community introduced legislation in both the Senate and the House in an attempt to resolve the ongoing appeal of the ISWGP. Eventually, the Senate and the House passed Engrossed Substitute Senate Bill 6415 (ESSB 6415), and the bill was signed into law by the governor on March 31, 2004. The passage of ESSB 6415 led directly to an agreement between the AWB, the environmental groups, and Ecology to drop the on-going permit appeal and to proceed with the modification of the ISWGP which incorporated the settlement agreements reached between Ecology and the appealing parties, the PCHB's rulings, and some of the provisions of ESSB 6415. Ecology issued the modified permit on December 1, 2004 to address the settlement agreements and legislation. The 2004 ISWGP was reissued without changes on August 15, 2007, and October 15, 2008.

This draft permit (released for public comment on June 3, 2009) incorporates lessons learned from the previous permit cycles, and new science; and streamlines monitoring and reporting requirements.

### **General Permit Approach**

Ecology has determined that the general permit approach to regulate industrial stormwater is appropriate for the following reasons:

- A general permit is the most efficient method to handle the large number of industrial stormwater permit applications;
- The application requirements for coverage under a general permit are far less rigorous than individual permit application requirements and more cost effective;
- A general permit is consistent with EPA's four-tier permitting strategy, the purpose of which is to use the flexibility provided by the Clean Water Act in designing a workable and reasonable permitting system; and,
- A general permit is an efficient method to establish the essential regulatory requirements that are appropriate for a broad spectrum of industrial facilities with similar pollutant-generating activities.

In most cases, the draft general permit will provide sufficient and appropriate stormwater management requirements for discharges of stormwater from industrial sites.

### **SOURCES OF STORMWATER POLLUTANTS**

Stormwater may become contaminated by industrial activities as a result of contact with materials stored outside, spills and leaks from equipment or materials used onsite, contact with materials during loading, unloading or transfer from one location to another, and from airborne contaminants.

Many of the potential pollutants in stormwater discharges are industry specific but there are also significant commonalities among various industrial activities. Motorized equipment, cars, trucks, and heavy equipment are typically used at industrial sites. They represent a source of contamination by petroleum products and metals that are common to most facilities with coverage under this permit. Industrial activities are typically associated with impervious surfaces and the collection of dirt and other debris that stormwater may mobilize. This can result in high levels of suspended solids and turbidity in the stormwater discharge. Metals are also common contaminants at industrial sites. Sources of metals pollution include oils and lubricants from motor vehicles, tire dust, brake pad dust, raw material and products, and exposed galvanized metal surfaces on buildings, fences, and equipment.

### **STORMWATER CHARACTERIZATION BY INDUSTRIAL GROUP**

This section of the fact sheet provides descriptions of many industrial groups covered by the permit and the associated stormwater characterization for each group. Characterizations are arranged alphabetically by industrial sector. Industrial sectors reflect the format of the Standard Industrial Classification (SIC) code system. A SIC code describes a broad sector of industries

with a similar type of product or purpose. A SIC code group is denoted by a four-digit alphanumeric code. For example, SIC code group 49xx – Electric, Gas and Sanitary Services, includes Electric Services (491x), Gas Production and Distribution (492x), and Sanitary Services (495x). More specifically, a sewerage system and wastewater treatment plant is identified by the SIC code 4952. For more detailed information about SIC codes, please refer to the Standard Industrial Classification Manual, 1987.

Each of the following SIC code groups contains abbreviated descriptions of the activities common to industries in the group. Only the primary SIC code directly associated with the descriptive title is cited. For example, chemical manufacturing is generally contained in group 28xx; however, the production of chemicals associated with photography is identified with SIC code 3861. This format is consistent with the organization of the legislatively-mandated 6415 report, which provides a stormwater characterization for each SIC industrial category.

Ecology compiled the characterization data from Discharge Monitoring Reports submitted by Permittees. These data were initially entered into a database that is maintained at Ecology's headquarters building and were exported for analysis. The data characterize sampling conducted over 11 quarters: the second, third and fourth quarters of 2003 and all four quarters of 2004 and 2005. These data were obtained from a total of 808 permitted facilities, with 758 located in western Washington and 45 in eastern Washington. Eight facilities were unclassified because no address information was provided in the database download. The number of facilities issued permit coverage may differ from the number of facilities characterized in the data tables due to Permittee reports of “no qualify storm event.” Detailed analysis of the data can be found in the 6415 report, *Data Analysis Report: Evaluation of Monitoring Data from General NPDES Permits for Industrial and Construction Stormwater*, October 2006 (2006 Herrera Analysis); available online: <http://www.ecy.wa.gov/programs/wq/stormwater/industrial/Evaliswgp.pdf>.

The data tables cite the minimum, median and maximum concentrations for each pollutant. The median, rather than the average, value is given because the median is more appropriate to describe non-parametric data. Data not normally distributed around the mean of a dataset cannot be assessed using the standard parametric statistics (e.g., mean, standard deviation) because the data violate the underlying assumptions. Non-parametric statistics are appropriate for such data and were used in 2006 Herrera analysis. Thus, Herrera used the median value - a non-parametric statistic, rather than the mean, because the raw data are not normally distributed. The median value is the middle value when data are arranged from lowest to highest or highest to lowest.

A summary of the data and a short discussion are provided at the end of this section of the fact sheet.

Detailed information about the following industries, activities that generate pollution, and pollution prevention opportunities, may be found in EPA's sector notebook series at: <http://www.epa.gov/compliance/resources/publications/assistance/sectors/notebooks/index.html>

The subsequent sections describe industrial categories currently covered by the permit. Data presented were obtained from discharge monitoring reports (DMRs) submitted by Permittees between 2003 and 2005. In some instances the number of Permittees regulated is greater than the number who had submitted data via DMRs. More recently, Ecology has received DMR data from a greater proportion of the Permittees.

### **Agricultural Services – SIC 07xx**

Description: Industrial activities in support of agriculture performed by businesses in this group include crop services, veterinary services, landscape and horticultural services, and farm labor and management services.

Existing Coverages: As of October 6, 2006, Ecology had issued coverage to 2 facilities with primary activities in this group.

Potential Sources of Pollutants: Chemical/material storage areas, equipment storage yards, loading/unloading areas, and galvanized surfaces exposed to stormwater, such as heating/air conditioning equipment and metal roofs.

Table 1 contains a data summary of effluent characteristics for the industry. Data are taken from the 6415 *Data Analysis Report* cited above.

**Table 1: Effluent Characterization for Agricultural Services Category—Data from 1 facility**

<b>Parameter</b>	<b>No. of Values</b>	<b>Min Value</b>	<b>Median Value</b>	<b>Max Value</b>	<b>Exceedance of Benchmark</b>	<b>Exceedance of Action Level</b>
Turbidity, in NTU	5	9.8	16	60		
pH, in su	5	6.5	7.8	8.4	0%	0%
Total Zinc, in µg/L	5	0.01	10	40	0%	0%
Oil & Grease, in mg/L	5	1.0	5.0	5.0	0%	0%

### **Airfields and Aircraft Transportation and Maintenance - SIC 45xx**

Description: Industrial activities include vehicle and equipment fueling, maintenance and cleaning, and aircraft/runway deicing.

Existing Coverages: As of October 6, 2006, Ecology had issued coverage to 41 facilities with primary activities in this group.

Potential Sources of Pollutants: Tank trucks fueling aircraft parked at passenger gates can result in spills. Additional sources of stormwater contamination include dripping of fuel and engine fluids from the aircraft and at vehicle/equipment maintenance cleaning areas, and the application of deicing materials to the aircraft runways. Aircraft maintenance and cleaning produces a wide variety of waste products, similar to those found with any vehicle or equipment maintenance, including: used oil and cleaning solvents, paints, oil filters, soiled rags, and soapy wastewater. Deicing materials used on aircraft and/or runways include ethylene glycol, propylene glycol, and urea. Other chemicals currently used for ice control include sodium and potassium acetates, isopropyl alcohol, and sodium fluoride. Pollutant constituents include oil and grease, total suspended solids (TSS), biochemical oxygen demand (BOD), chemical oxygen demand (COD), total kjeldahl nitrogen (TKN), pH and specific deicing components such as glycol and urea.

Table 2 contains a data summary of effluent characteristics for the industry. Data are taken from the 6415 *Data Analysis Report* cited above.

**Table 2: Effluent Characterization for Air Transportation Category—Data from 41 facilities**

Parameter	No. of Values	Min Value	Median Value	Max Value	Exceedance of Benchmark	Exceedance of Action Level
Turbidity, in NTU	154	0	5.3	690	13%	7%
pH, in su	137	4.5	6.9	10.6	10%	2%
Total Copper, in µg/L	15	5.0	7.0	150	27%	7%
Total Lead, in µg/L	15	25	40	50	0%	0%
Total Zinc, in µg/L	146	1.56	50	6,300	32%	12%
Oil & Grease, in mg/L	74	1.0	5.0	96.3	4%	1%

**Building materials, hardware, garden supply, and mobile home dealers – SIC 52xx**

Description: Activities in this group include retail establishments selling lumber and other building materials, paint, glass, wallpaper, nursery stock, lawn and garden supply, and mobile homes.

Existing Coverages: As of October 6, 2006, Ecology had issued coverage to 5 facilities with primary activities in this group.

Potential Sources of Pollutants: Activities that can contaminate stormwater include raw material and product storage yards, equipment storage yards, loading/unloading areas, and galvanized surfaces exposed to stormwater, such as heating/air conditioning equipment and metal roofs.

Table 3 contains a data summary of effluent characteristics for the industry. Data are taken from the 6415 *Data Analysis Report* cited above.

**Table 3: Effluent Characterization for Building Materials, Hardware, Garden Supply, and Mobile Home Dealers Category—Data from 2 facilities**

Parameter	No. of Values	Min Value	Median Value	Max Value	Exceedance of Benchmark	Exceedance of Action Level
Turbidity, in NTU	2	2.1	101	200	50%	50%
pH, in su	2	5.0	5.8	6.5	50%	0%
Total Zinc, in µg/L	1	7,840	7,840	7,840	100%	100%
Oil & Grease, in mg/L	1	7.1	7.1	7.1	0%	0%

**Chemicals Manufacturing - SIC 28xx**

Description: This group manufactures chemicals, or products based on chemicals such as acids, alkalis, inks, chlorine, industrial gases, pigments, chemicals used in the production of synthetic resins, fibers and plastics, synthetic rubber, soaps and cleaners, pharmaceuticals, cosmetics, paints, varnishes, resins, photographic materials, chemicals, organic chemicals, agricultural chemicals, adhesives, sealants, and ink.

Existing Coverages: As of October 6, 2006, Ecology had issued coverage to 59 facilities with primary activities in this group.

Potential Sources of Pollutants: Activities that can contaminate stormwater include bagging, blending, packaging, crushing, milling, shredding, granulation, grinding, storage, distribution, loading/unloading, and processing of materials; equipment storage; manufacture of fertilizers; foundries; lime application; use of machinery; material handling and warehousing; cooling towers; fueling; boilers; hazardous waste generation, treatment, storage and/or disposal; wastewater treatment; plant yard areas of past industrial activity; access roads and tracks; drum washing, and maintenance and repair. Additional pollutant sources include equipment storage yards, and galvanized surfaces exposed to stormwater, such as heating/air conditioning equipment and metal roofs.

Chemical businesses in the Seattle area surveyed for dangerous wastes were found by Ecology to produce caustic solutions, soaps, heavy metal solutions, inorganic and organic chemicals, solvents, acids, alkalis, paints, varnishes, pharmaceuticals, and inks.

Table 4 contains a data summary of effluent characteristics for the industry. Data are taken from the 6415 *Data Analysis Report* cited above.

**Table 4: Effluent Characterization for Chemical Manufacturing Category—Data from 40 facilities**

Parameter	No. of Values	Min Conc.	Median Conc.	Max Conc.	Exceedance of Benchmark	Exceedance of Action Level
Turbidity, in NTU	226	0.4	14	193	31%	16%
pH, in su	226	4.3	6.8	10.7	14%	4%
Total Copper, in µg/L	49	5.0	25.9	300	18%	4%
Total Lead, in µg/L	43	2.0	40	597	12%	9%
Total Zinc, in µg/L	221	0.02	179	8,110	61%	27%
Oil & Grease, in mg/L	156	0.3	4.3	26.0	3%	0%
BOD <sub>5</sub> , in mg/L	159	1.5	6.0	320	9%	4%
Phosphorus, in mg/L	170	0.004	0.1	137	7%	6%
Nitrate/Nitrite, as N, in mg/L	174	0.01	0.6	83.7	43%	22%

### Coal Mining – SIC 12xx

Description: Industrial activities in the group include the production of bituminous, anthracite, and lignite coal. Contract services associated with coal mining, including coal washing facilities, are also included in this group.

Existing Coverages: As of October 6, 2006, Ecology had issued coverage to 1 facility with primary activities in this group.

Potential Sources of Pollutants: Equipment storage yards, loading/unloading areas, and galvanized surfaces exposed to stormwater, such as heating/air conditioning equipment and metal roofs.

Table 5 contains a data summary of effluent characteristics for the industry. Data are taken from the 6415 *Data Analysis Report* cited above.

**Table 5: Effluent Characterization for Coal Mining Category—Data from 1 facility**

Parameter	No. of Values	Min Value	Median Value	Max Value	Exceedance of Benchmark	Exceedance of Action Level
Turbidity, in NTU	9	1.3	2.7	10	0%	0%
pH, in su	9	7.5	8.0	8.0	0%	0%
Total Zinc, in µg/L	9	2.0	11	220	11%	0%
Oil & Grease, in mg/L	9	1.0	1.0	2.0	0%	0%

**Construction Special Trade Contractors – SIC 17xx**

Description: Industrial activities included in this group include painting, electrical work, carpentry work, heating, air conditioning, and roofing associated with construction projects.

Existing Coverages: As of October 6, 2006, Ecology had issued coverage to 5 facilities with primary activities in this group.

Potential Sources of Pollutants: Activities that can contaminate stormwater include equipment storage yards, loading/unloading areas, and galvanized surfaces exposed to stormwater, such as heating/air conditioning equipment and metal roofs.

Table 6 contains a data summary of effluent characteristics for the industry. Data are taken from the 6415 *Data Analysis Report* cited above.

**Table 6: Effluent Characterization for Construction Special Trade Contractors Category—Data from 3 facilities**

Parameter	No. of Values	Min Value	Median Value	Max Value	Exceedance of Benchmark	Exceedance of Action Level
Turbidity, in NTU	19	3.9	27	778	58%	37%
pH, in su	19	6.0	6.9	8.7	0%	0%
Total Copper, in µg/L	12	7.1	99	222	67%	33%
Total Lead, in µg/L	11	1.7	33	70	0%	0%
Total Zinc, in µg/L	19	0.98	392	1,040	79%	53%
Oil & Grease, in mg/L	5	2.0	6.6	7.2	0%	0%

**Educational Services – SIC 82xx**

Description: Facilities in this group provide academic or technical instruction, including schools, colleges, and libraries.

Existing Coverages: As of October 6, 2006, Ecology had issued coverage to 2 facilities with primary activities in this group.

Potential Sources of Pollutants: Activities that can contaminate stormwater include equipment storage yards, loading/unloading areas, and galvanized surfaces exposed to stormwater, such as heating/air conditioning equipment and metal roofs.

Table 7 contains a data summary of effluent characteristics for the industry. Data are taken from the 6415 *Data Analysis Report* cited above.

**Table 7: Effluent Characterization for Educational Services Category—Data from 2 facilities**

<b>Parameter</b>	<b>No. of Values</b>	<b>Min Value</b>	<b>Median Value</b>	<b>Max Value</b>	<b>Exceedance of Benchmark</b>	<b>Exceedance of Action Level</b>
Turbidity, in NTU	1	3.8	3.8	3.8	0%	0%
pH, in su	1	6.6	6.6	6.6	0%	0%
Total Zinc, in µg/L	1	19	19	19	0%	0%
Oil & Grease, in mg/L	0	-	-	-	-	-

**Electric, Gas and Sanitary Services – SIC 49xx**

Description: Businesses in this SIC group engage in the generation, transmission, and/or distribution of electricity, gas or steam. Additional services provided by these businesses may include transportation, communications, and refrigeration. This SIC code also includes establishments who operate water and irrigation systems, and sanitary systems engaged in the collection and disposal of garbage or sewage. In addition, businesses that provide such services as mosquito eradication, oil spill cleanup, and street sweeping.

Existing Coverages: As of October 6, 2006, Ecology had issued coverage to 60 facilities with primary activities in this group.

Potential Sources of Pollutants: Activities that can contaminate stormwater include leaks of materials from pipelines, leaks of lubricants/cooling fluids from pump stations and transformers, heavy metals from transmission towers and other infrastructure. Additional pollutant sources include equipment storage yards, loading/unloading areas, and galvanized surfaces exposed to stormwater, such as heating/air conditioning equipment and metal roofs.

Table 8 contains a data summary of effluent characteristics for the industry. Data are taken from the 6415 *Data Analysis Report* cited above.

**Table 8: Effluent Characterization for Electric, Gas and Sanitary Services Category—Data from 42 facilities**

Parameter	No. of Values	Min Conc.	Median Conc.	Max Conc.	Exceedance of Benchmark	Exceedance of Action Level
Turbidity, in NTU	250	0.4	8.0	640	17%	9%
pH, in su	250	5.0	7.0	9.3	6%	0.4%
Total Copper, in µg/L	37	1.0	16.7	1,230	14%	5%
Total Lead, in µg/L	36	0.9	7.0	110	3%	0%
Total Zinc, in µg/L	224	0.002	37	4,400	21%	7%
Oil & Grease, in mg/L	153	1.0	5.0	914	5%	3%
BOD <sub>5</sub> , in mg/L	64	0.2	4.5	39.0	0%	0%
Ammonia, as N, in mg/L	66	0.0	0.1	4.8	0%	0%

### Electrical Products - SIC 36xx

Description: This industrial sector manufactures a wide variety of products including electrical transformers and switchgear, motors, generators, relays, and industrial controls; communications equipment for radio and TV stations and systems; electronic components and accessories including semiconductors; printed board circuits; electromedical and electrotherapeutic apparatus; and electrical instrumentation. Manufacturing processes include electroplating, machining, fabricating, etching, sawing, grinding, welding, and parts cleaning. Materials used include metals, ceramics, quartz, silicon, inorganic oxides, acids, alkaline solutions, arsenides, phosphides, cyanides, oils, fuels, solvents, and other chemicals.

Existing Coverages: As of October 6, 2006, Ecology had issued coverage to 12 facilities with primary activities in this group.

Potential Sources of Pollutants: Activities that can contaminate stormwater include bulk storage of raw materials, by-products or finished products; loading and unloading of liquid materials from truck or rail; temporary storage of waste oil and solvents from cleaning manufacturing equipment; used equipment temporarily stored on site that could drip oil and residual process materials; maintenance and repair of vehicles and equipment; and temporary storage of dangerous wastes. Additional pollutant sources include equipment storage yards, loading/unloading areas, and galvanized surfaces exposed to stormwater, such as heating/air conditioning equipment and metal roofs.

Waste liquids which are sometimes stored outside include spent acetone and solvents, ferric chloride solutions, soldering fluxes mixed with thinner or alcohol, spent acids, and oily waste. Several of these liquid wastes contain chlorinated hydrocarbons, ammonium salts, and metals such as chromium, copper, lead, silver, zinc, nickel, and tin. Waste solids include soiled rags and sanding materials.

Table 9 contains a data summary of effluent characteristics for the industry. Data are taken from the 6415 *Data Analysis Report* cited above.

**Table 9: Effluent Characterization for Electrical Products Category—Data from 7 facilities**

Parameter	No. of Values	Min Conc.	Median Conc.	Max Conc.	Exceedance of Benchmark	Exceedance of Action Level
Turbidity, in NTU	63	0.5	6.5	78	16%	5%
pH, in su	65	2.7	7.0	8.0	8%	3%
Total Copper, in µg/L	10	3.2	20.6	54.3	0%	0%
Total Lead, in µg/L	8	1.44	6.5	78	0%	0%
Total Zinc, in µg/L	65	5.0	88	3,500	37%	14%
Oil & Grease, in mg/L	53	0	5.0	5.4	0%	0%

**Environmental Quality Programs – 95xx**

Description: Industries in this group engage in the administration of environmental quality and housing programs.

Existing Coverages: As of October 6, 2006, Ecology had issued coverage to 2 facilities with primary activities in this group.

Potential Sources of Pollutants: Activities that can contaminate stormwater include equipment storage yards, loading/unloading areas, and galvanized surfaces exposed to stormwater, such as heating/air conditioning equipment and metal roofs.

Table 10 contains a data summary of effluent characteristics for the industry. Data are taken from the 6415 *Data Analysis Report* cited above.

**Table 10: Effluent Characterization for Environmental Quality Programs Category—Data from 1 facility**

Parameter	No. of Values	Min Value	Median Value	Max Value	Exceedance of Benchmark	Exceedance of Action Level
Turbidity, in NTU	12	2.5	11	28	8%	0%
pH, in su	12	6.5	6.9	7.7	0%	0%
Total Copper, in µg/L	4	11	25	30	0%	0%
Total Lead, in µg/L	4	1.6	2	7.6	0%	0%
Total Zinc, in µg/L	12	20	72	300	25%	0%
Oil & Grease, in mg/L	9	1.3	5.0	46.8	8%	8%

**Fabricated Metal Products – SIC 34xx**

Description: Businesses that fabricate metal products from metal stock provide a wide range of products. The raw stock is manipulated in a variety of ways including grinding, heating, shearing, deformation, cutting and welding, soldering, sand blasting, brazing, and laminating. Fabricators may first clean the metal by sand blasting, descaling, or solvent degreasing. Final finishing may involve electroplating, painting, or direct plating by fusing or vacuum metalizing. Raw materials, in particular recycled metal, are stored

outside prior to use, as are billets before reforming. The descaling process may use salt baths, sodium hydroxide, or acid (pickling).

Existing Coverages: As of October 6, 2006, Ecology had issued coverage to 115 facilities with primary activities in this group.

Potential Sources of Pollutants: Activities that can contaminate stormwater include outside storage of chemicals, metal feedstock, byproducts (fluxes), finished products, fuels, lubricants, waste oil, sludge, waste solvents, dangerous wastes, piles of coal, coke, dusts, fly ash, baghouse waste, slag, dross, sludges, sand refractory rubble, and machining waste; unloading of chemical feedstock and loading of waste liquids such as spent pickle liquor by truck or rail; material handling equipment such as cranes, conveyors, trucks, and forklifts; particulate emissions from scrubbers, baghouses or electrostatic precipitators; fugitive emissions; maintenance shops; erosion of soil from plant yards; and floor, sink, and process wastewater drains. Additional pollutant sources include equipment storage yards, loading/unloading areas, and galvanized surfaces exposed to stormwater, such as heating/air conditioning equipment and metal roofs.

Table 11 contains a data summary of effluent characteristics for the industry. Data are taken from the 6415 *Data Analysis Report* cited above.

**Table 11: Effluent Characterization for Fabricated Metal Products Category—Data from 62 facilities**

Parameter	No. of Values	Min Conc.	Median Conc.	Max Conc.	Exceedance of Benchmark	Exceedance of Action Level
Turbidity, in NTU	307	0.2	18.0	1,150	39%	19%
pH, in su	300	2.3	6.8	9.9	15%	3%
Total Copper, in µg/L	215	0.0	24.0	1,700	21%	7%
Total Lead, in µg/L	192	0.02	25.0	3,000	11%	5%
Total Zinc, in µg/L	291	1.58	310	130,000	75%	45%
Oil & Grease, in mg/L	192	0.0	5.0	83.3	8%	3%

### Food and Kindred Products - SIC 20xx

Description: Businesses in this category include meat packing plants, poultry slaughtering and processing, sausage and prepared meats, dairy products, preserved fruits and vegetables, flour, bakery products, sugar and confectioneries, vegetable and animal oils, beverages, canned, frozen or fresh fish, pasta products, snack foods, and manufactured ice. Food processing typically occurs inside buildings. Exceptions are meat packing plants where live animals may be kept outside, and fruit and vegetable plants where the raw material may be temporarily stored outside. Meat production facilities include stockyards, slaughtering, cutting and deboning, meat processing, rendering, and materials recovery. Dairy production facilities include receiving stations, clarification, separation, and pasteurization followed by culturing, churning, pressing, curing, blending, condensing, sweetening, drying, milling, and packaging. Canned frozen and preserved fruits and vegetables are typically produced by washing, cutting, blanching, and cooking followed by drying, dehydrating, and freezing.

Existing Coverages: As of October 6, 2006, Ecology had issued coverage to 80 facilities with primary activities in SIC 20xx.

Potential Sources of Pollutants: Activities that can contaminate stormwater include loading/unloading of materials, equipment/vehicle maintenance, liquid storage in tanks and drums, air emissions (ovens, vents), solid wastes handling and storage, wastewater treatment, pest control, animal containment and transit, and vegetable storage. Materials potentially exposed to stormwater include acids, ammonia, activated carbon, bleach, blood, bone meal, brewing residuals, caustic soda, chlorine, coke oven tar, detergents, eggs, feathers, feed, ferric chloride, fruits, vegetables, coffee beans, gel bone, grain, hides, lard, manure, milk, salts, skim powder, starch, sugar, tallow, ethyl alcohol, oils, fats, whey, yeast, and wastes. The following are the pollutants typically expected from this industry segment: BOD, TSS, oil and grease, pH, total Kjeldahl nitrogen, copper, manganese, fecal coliform, and pesticides.

Table 12 contains a data summary of effluent characteristics for the industry. Data are taken from the 6415 *Data Analysis Report* cited above.

**Table 12: Effluent Characterization for Food and Kindred Products Category—Data from 82 facilities**

Parameter	No. of Values	Min Conc.	Median Conc.	Max Conc.	Exceedance of Benchmark	Exceedance of Action Level
Turbidity, in NTU	268	0.1	22	5,490	46%	28%
pH, in su	265	3.8	6.7	9.7	15%	3%
Total Copper, in µg/L	58	0.8	20.5	734	17%	3%
Total Lead, in µg/L	55	0.05	10	200	4%	2%
Total Zinc, in µg/L	269	0.12	204	2882	69%	29%
Oil & Grease, in mg/L	213	1.0	5.0	151	12%	5%
BOD <sub>5</sub> , in mg/L	221	2.0	13	340	29%	16%
Phosphorus, in mg/L	230	0.005	0.3	23	14%	7%
Nitrate/Nitrite, as N, in mg/L	217	0.01	0.4	61	34%	21%

### Forestry – SIC 08xx

Description: Industrial activities in this group include the operation of timber tracts, tree farms, forest nurseries, and related activities, including reforestation services.

Existing Coverages: As of October 6, 2006, Ecology had issued coverage to 1 facility with primary activities in this group.

Potential Sources of Pollutants: Activities that can contaminate stormwater include equipment storage yards, loading/unloading areas, and galvanized surfaces exposed to stormwater, such as heating/air conditioning equipment and metal roofs.

Table 13 contains a data summary of effluent characteristics for the industry. Data are taken from the 6415 *Data Analysis Report* cited above.

**Table 13: Effluent Characterization for Forestry Category—Data from 1 facility**

Parameter	No. of Values	Min Conc.	Median Conc.	Max Conc.	Exceedance of Benchmark	Exceedance of Action Level
Turbidity, in NTU	7	1.5	2.5	149	29%	29%
pH, in su	7	5.0	6.0	6.5	43%	0%
Total Zinc, in µg/L	4	0.021	9.0	47	0%	0%
Oil & Grease, in mg/L	0	-	-	-	-	-

**Furniture and Fixtures SIC - 25xx**

Description: Industrial activities include production of household, office, public building and restaurant furniture, and office and store fixtures.

Existing Coverages: As of October 6, 2006, Ecology had issued coverage to 5 facilities with primary activities in this group.

Potential Sources of Pollutants: Activities that can contaminate stormwater include outdoor storage of raw materials, process chemicals, wastes, and loading/unloading areas. Businesses typically employ cutting equipment whose by-products are metal filings, wood chips and sawdust. Potential pollutants include: metal wastes, paint wastes, spent solvents, paint thinners, turpentine, shellac, varnishes, petroleum distillates, alcohols, detergents, and other waste liquids. Outside storage, trucking, and handling of these materials can also be pollutant sources.

Table 14 contains a data summary of effluent characteristics for the industry. Data are taken from the 6415 *Data Analysis Report* cited above.

**Table 14: Effluent Characterization for Furniture and Fixtures Category—Data from 3 facilities**

Parameter	No. of Values	Min Value	Median Value	Max Value	Exceedance of Benchmark	Exceedance of Action Level
Turbidity, in NTU	14	4.8	22	91	29%	14%
pH, in su	14	5.6	6.5	7.2	14%	0%
Total Zinc, in µg/L	12	10	49	800	25%	8%
Oil & Grease, in mg/L	9	5.0	5.3	5.9	0%	0%

**Hazardous Waste Treatment, Storage, and Disposal Facilities – SIC 4953**

Description: Hazardous waste treatment, storage, and disposal facilities are included in this group. It includes those sites that are operating under interim status or final permitted status under Subtitle C of RCRA. Hazardous wastes are generally stored in containers and tanks, which are enclosed by a bermed area to prevent any releases to the environment from the storage units. Hazardous waste disposal units include landfills, surface impoundments, waste piles, and land treatment units.

The processes for treating hazardous wastes can be divided into two major categories based on whether the waste is organic or inorganic in nature. Organic wastes are treated

by destructive technologies, such as incineration, whereas inorganic wastes are treated using fixation technologies, such as stabilization, in which the hazardous constituents are immobilized in the residual matrix. Residuals from fixation processes are usually land-disposed where the stabilized constituents are much less likely to leach into the environment.

Existing Coverages: As of October 6, 2006, there were no facilities specifically identified in this group with permit coverage. There are no hazardous waste landfills located within Washington. EPA's Multi-Sector General Permit regulates both hazardous waste landfills and other TSD's (see MSGP, Part 4, Subsection K). The existing ISWGP does not require coverage for TSD facilities, but the draft permit requires TSD's to apply for coverage. Approximately 4 TSD's and 4 dangerous waste recyclers are expected to apply for coverage.

Potential Sources of Pollutants: Hazardous waste treatment, storage, and disposal facilities may include hazardous wastes and/or their constituents if spills or leaks are not properly contained or cleaned up. 40 CFR Part 261 Subpart D contains the lists of hazardous wastes, and Appendix VII to Part 261 is a list of the hazardous constituents for which each of these wastes is listed.

### **Industrial and Commercial Machinery and Computer Equipment – SIC 35xx**

Description: Industrial activities in this category includes the manufacture of a variety of equipment including engines and turbines, farm and garden equipment, construction and mining machinery, metal working machinery, pumps, computers and office equipment, automatic vending machines, refrigeration and heating equipment, and equipment for the manufacturing industries. This group also includes many small machine shops.

Manufacturing processes include various forms of metal working and finishing, such as electroplating, anodizing, chemical conversion coating, etching, chemical milling, cleaning, machining, grinding, polishing, sand blasting, laminating, hot dip coating, descaling, degreasing, paint stripping, painting, and the production of plastic and fiberglass parts. Raw materials include ferrous and non-ferrous metals, such as aluminum, copper, iron, steel, and their alloys, paints, solvents, acids, alkalis, fuels, lubricating and cutting oils, and plastics.

Existing Coverages: As of October 6, 2006, Ecology had issued coverage to 49 facilities with primary activities in this group.

Potential Sources of Pollutants: Activities that can contaminate stormwater include fuel islands, maintenance shops, loading/unloading of materials, and outside storage of gasoline, diesel, cleaning fluids, equipment, solvents, paints, wastes, detergents, acids, other chemicals, oils, metals, and scrap materials. Air emissions from stacks and ventilation systems are also potential areas for exposure of materials to rain water. Additional pollutant sources include equipment storage yards, loading/unloading areas, and galvanized surfaces exposed to stormwater, such as heating/air conditioning equipment and metal roofs.

Table 15 contains a data summary of effluent characteristics for the industry. Data are taken from the 6415 *Data Analysis Report* cited above.

**Table 15: Effluent Characterization for Industrial and Commercial Machinery and Computer Equipment Category—Data from 28 facilities**

Parameter	No. of Values	Min Conc.	Median Conc.	Max Conc.	Exceedance of Benchmark	Exceedance of Action Level
Turbidity, in NTU	86	0.05	14.0	235.0	33%	16%
pH, in su	91	2.6	6.7	8.5	13%	1%
Total Copper, in µg/L	10	3.2	20.6	54.3	0%	0%
Total Lead, in µg/L	1	1.7	1.7	1.7	0%	0%
Total Zinc, in µg/L	79	0.0	96.0	9,410	43%	16%
Oil & Grease, in mg/L	36	0.0	5.1	106.0	19%	8%

### Landfills – SIC 4953

Description: This group includes non-hazardous waste landfills, land application sites, and open dumps that receive or have received industrial waste. Since operation of an open dump is prohibited under RCRA Section 4004, inclusion of this activity is moot. Subtitle D of the Resource Conservation and Recovery Act (RCRA), 40 CFR Part 257, defines landfills as areas of land or excavation in which wastes are placed for permanent disposal, and that are not land application units, surface impoundments, injection wells, or waste piles. Included in this definition are municipal solid waste landfills and industrial solid non-hazardous waste landfills. Land application sites are defined as facilities at which wastes are applied onto or incorporated into the soil surface for the purpose of beneficial use or waste treatment and disposal.

Existing Coverages: As of October 6, 2006, Ecology had issued coverage to 28 facilities with primary activities included in this group.

Potential Sources of Pollutants: Activities that can contaminate stormwater include extensive land disturbance often associated with landfill operations expose soil to stormwater and can easily result in contaminating stormwater with suspended solids. Application of fertilizers, pesticides, and herbicides at the site can result in stormwater contamination. Exposure of waste at the open face of the landfill, residual from leachate leaks, leaks from machinery and vehicles provide additional opportunities to contaminate stormwater. The EPA established effluent limits based on available technology for pollution prevention and treatment of wastewater. Contaminated stormwater is regulated under these effluent limits and includes the following parameters: BOD<sub>5</sub>, TSS, ammonia, α-terpineol, benzoic acid, p-cresol, phenol, zinc, and pH.

Table 16 contains a data summary of effluent characteristics for the industry. Data are taken from the 6415 *Data Analysis Report* cited above.

**Table 16: Effluent Characterization for Landfills Category—Data from 20 facilities**

Parameter	No. of Values	Min Conc.	Median Conc.	Max Conc.	Exceedance of Benchmark	Exceedance of Action Level
Turbidity, in NTU	135	0.48	7.9	165.0	16%	4%
pH, in su	135	5.0	6.9	8.3	6%	1%
Total Copper, in µg/L	22	2.1	14.0	1,230	14%	5%
Total Lead, in µg/L	21	1.0	6.0	110.0	5%	0%
Total Zinc, in µg/L	120	0.002	35.0	4,400	18%	8%
Oil & Grease, in mg/L	75	1.0	5.0	914.0	4%	3%

**Leather and Leather Products – SIC 31xx**

Description: Industries in this group tan, curry, and finish hides, skins, and other similar materials.

Existing Coverages: As of October 6, 2006, Ecology had issued coverage to 1 facility with primary activities in this group.

Potential Sources of Pollutants: Activities that can contaminate stormwater include equipment storage yards, loading/unloading areas, and galvanized surfaces exposed to stormwater, such as heating/air conditioning equipment and metal roofs.

Table 17 contains a data summary of effluent characteristics for the industry. Data are taken from the 6415 *Data Analysis Report* cited above.

**Table 17: Effluent Characterization for Leather and Leather Products Category—Data from 1 facility**

Parameter	No. of Values	Min Value	Median Value	Max Value	Exceedance of Benchmark	Exceedance of Action Level
Turbidity, in NTU	4	4.1	10	16	0%	0%
pH, in su	4	6.9	7.2	7.2	0%	0%
Total Zinc, in µg/L	4	12.4	32	82	0%	0%
Oil & Grease, in mg/L	4	5.4	5.4	6	0%	0%

**Local and Interurban Passenger Transportation – SIC 41xx**

Description: This group includes all businesses which own, operate and maintain or repair large vehicle fleets, including cars, buses, trucks and taxis, as well as the renting or leasing of cars, trucks, and trailers.

Existing Coverages: As of October 6, 2006, Ecology had issued coverage to 33 facilities with primary activities in this group.

Potential Sources of Pollutants: Activities that can contaminate stormwater include spills/leaks of fuels, used oils, antifreeze, solvents; dirt, oils and greases from outside steam cleaning and vehicle washing; solid and liquid wastes not properly stored while

awaiting disposal or recycling; and, leaking underground storage tanks that can cause groundwater contamination and is a safety hazard. Additional pollutant sources include equipment storage yards, loading/unloading areas, and galvanized surfaces exposed to stormwater, such as heating/air conditioning equipment and metal roofs.

Table 18 contains a data summary of effluent characteristics for the industry. Data are taken from the 6415 *Data Analysis Report* cited above.

**Table 18: Effluent Characterization for Local and Interurban Passenger Transportation Category—Data from 23 facilities**

Parameter	No. of Values	Min Conc.	Median Conc.	Max Conc.	Exceedance of Benchmark	Exceedance of Action Level
Turbidity, in NTU	101	1.5	12	490	29%	15%
pH, in su	100	4.8	6.6	8.5	10%	1%
Total Copper, in µg/L	13	7.0	15.5	41.0	0%	0%
Total Lead, in µg/L	9	1.0	4.5	40	0%	0%
Total Zinc, in µg/L	101	4.7	103	1,210	46%	10%
Oil & Grease, in mg/L	54	1.0	5.0	223.0	13%	9%

**Lumber and Wood Products - SIC 24xx**

Description: This group includes sawmills, log storage, and all businesses that make wood products using cut wood, with the exception of pressure wood preservation businesses. Also included in this group are log yards, chip/bark piles, planing mills, millworks, and businesses that make wooden containers and prefab building components, mobile homes, and glued-wood products like laminated beams. Finishing is conducted at some facilities.

Existing Coverages: As of October 6, 2006, Ecology had issued coverage to 210 facilities within SIC 24xx, lumber and wood products. This is a diverse group but the majority of permit coverages are for log yards (SIC 2411), sawmills and planing mills (SIC 2421), and millwork, veneer, plywood, and structural wood (SIC 2430).

Potential Sources of Pollutants: All businesses in this category employ cutting equipment whose by-products are chips and sawdust. Businesses may have operations that use paints, solvents, wax emulsions, formaldehyde and other thermosetting resins, and produce waste paints and paint thinners, turpentine, shellac, varnishes and other waste liquids. Additional pollutant sources include equipment storage yards, loading/unloading areas, and galvanized surfaces exposed to stormwater, such as heating/air conditioning equipment and metal roofs.

Table 19 contains a data summary of effluent characteristics for the industry. Data are taken from the 6415 *Data Analysis Report* cited above.

**Table 19: Effluent Characterization for Lumber and Wood Products Category—Data from 127 facilities**

Parameter	No. of Values	Min Conc.	Median Conc.	Max Conc.	Exceedance of Benchmark	Exceedance of Action Level
Turbidity, in NTU	799	0.2	27	9,700	51%	33%
pH, in su	784	2.0	6.5	9.8	19%	3%
Total Copper, in µg/L	83	0.1	21.4	600	17%	2%
Total Lead, in µg/L	67	0.006	8	332	3%	3%
Total Zinc, in µg/L	734	0.362	119	2,600	50%	17%
Oil & Grease, in mg/L	382	0	5.0	120	8%	2%
BOD <sub>5</sub> , in mg/L	615	0.5	14.0	639	30%	21%

**Measuring, Analyzing, and Controlling Instruments – SIC 38xx**

Description: Industries in this group manufacture instruments used to measure, test, analyze, and control a variety of products, processes, and phenomena.

Existing Coverages: As of October 6, 2006, Ecology had issued coverage to 6 facilities with primary activities in this group.

Potential Sources of Pollutants: Activities that can contaminate stormwater include equipment storage yards, loading/unloading areas, and galvanized surfaces exposed to stormwater, such as heating/air conditioning equipment and metal roofs.

Table 20 contains a data summary of effluent characteristics for the industry. Data are taken from the 6415 *Data Analysis Report* cited above.

**Table 20: Effluent Characterization for Measuring, Analyzing, and Controlling Instruments Category—Data from 1 facility**

Parameter	No. of Values	Min Value	Median Value	Max Value	Exceedance of Benchmark	Exceedance of Action Level
Turbidity, in NTU	8	1.5	5.2	11	0%	0%
pH, in su	8	6.0	6.5	7.0	0%	0%
Total Zinc, in µg/L	8	2.0	20	56	0%	0%
Oil & Grease, in mg/L	8	1.0	1.0	2.7	0%	0%

**Metal Mining – SIC 10xx**

Description: Industries in this group are engaged in mining, developing mines, or exploring for metallic minerals (ores). This category includes primary processing mills, such as ore dressing and beneficiating processes, and metal mining services.

Existing Coverages: As of October 6, 2006, Ecology had issued coverage to 4 facilities with primary activities in this group.

Potential Sources of Pollutants: Pollutant-generating activities directly associated with mining include mine dewatering, the acid leaching process, and tailings piles. Ancillary sources of pollutants include blasting and hydrocarbons from vehicles. Additional pollutant sources include equipment storage yards, loading/unloading areas, and galvanized surfaces exposed to stormwater, such as heating/air conditioning equipment and metal roofs. Potential pollutants include heavy metals, trace metals, acids, cyanide, sediments, ammonium nitrate, and hydrocarbons.

Table 21 contains a data summary of effluent characteristics for the industry. Data are taken from the 6415 *Data Analysis Report* cited above.

**Table 21: Effluent Characterization for Metal Mining Category—Data from 1 facility**

Parameter	No. of Values	Min Value	Median Value	Max Value	Exceedance of Benchmark	Exceedance of Action Level
Turbidity, in NTU	1	52	52	52	100%	100%
pH, in su	1	7.2	7.2	7.2	0%	0%
Total Copper, in µg/L	1	158	158	158	100%	100%
Total Lead, in µg/L	1	13.9	13.9	13.9	0%	0%
Total Zinc, in µg/L	1	297	297	297	100%	100%
Oil & Grease, in mg/L	1	1.8	1.8	1.8	0%	0%

**Miscellaneous Manufacturing Industries – SIC 39xx**

Description: Industries in this group manufacture products not classified in any other manufacturing SIC group. Products may include: jewelry, dolls, toys, artist's materials, buttons, brooms, and caskets.

Existing Coverages: As of October 6, 2006, Ecology had issued coverage to 11 facilities with primary activities in this group.

Potential Sources of Pollutants: Activities that can contaminate stormwater include equipment storage yards, loading/unloading areas, and galvanized surfaces exposed to stormwater, such as heating/air conditioning equipment and metal roofs.

Table 22 contains a data summary of effluent characteristics for the industry. Data are taken from the 6415 *Data Analysis Report* cited above.

**Table 22: Effluent Characterization for Miscellaneous Manufacturing Industries Category—Data from 6 facilities**

Parameter	No. of Values	Min Value	Median Value	Max Value	Exceedance of Benchmark	Exceedance of Action Level
Turbidity, in NTU	24	1.2	11	80	33%	17%
pH, in su	24	5.0	6.3	8.4	33%	0%
Total Copper	3	4.0	7.1	10	0%	0%
Total Lead	4	1.8	4	5.7	0%	0%
Total Zinc, in µg/L	24	19	169	1,200	67%	17%
Oil & Grease, in mg/L	11	1.0	7.1	16	9%	0%

**Motor Freight Transportation and Warehousing – SIC 42xx**

Description: Businesses that own, operate and maintain or repair large transport fleets and associated warehousing facilities are in this SIC.

Existing Coverages: As of October 6, 2006, Ecology had issued coverage to 197 facilities in this industrial category.

Potential Sources of Pollutants: Activities that can contaminate stormwater include spills/leaks of fuels, used oils, antifreeze, solvents; dirt, oils and greases from outside steam cleaning and vehicle washing; solid and liquid wastes not properly stored while awaiting disposal or recycling; and, leaking underground storage tanks that can cause ground water contamination and is a safety hazard. Additional pollutant sources include equipment storage yards, loading/unloading areas, and galvanized surfaces exposed to stormwater, such as heating/air conditioning equipment and metal roofs.

Table 23 contains a data summary of effluent characteristics for the industry. Data are taken from the 6415 *Data Analysis Report* cited above.

**Table 23: Effluent Characterization for Motor Freight and Warehousing Category—Data from 108 facilities**

Parameter	No. of Values	Min Conc.	Median Conc.	Max Conc.	Exceedance of Benchmark	Exceedance of Action Level
Turbidity, in NTU	529	0.3	23.0	5,380	48%	30%
pH, in su	526	1.0	6.5	9.0	12%	1%
Total Copper, in µg/L	108	3.8	29.4	496.0	19%	6%
Total Lead, in µg/L	111	2.0	15.0	289.0	6%	4%
Total Zinc, in µg/L	502	0.14	162	16,200	62%	21%
Oil & Grease, in mg/L	302	1.0	5.0	359.0	10%	4%

## No Sector Specified

Description: Facilities in this section did not provide Ecology with a SIC and Ecology has not yet determined the appropriate category of the facilities.

Existing Coverages: As of October 6, 2006, Ecology had issued coverage to 26 uncategorized facilities.

Potential Sources of Pollutants: Activities that can contaminate stormwater include equipment storage yards, loading/unloading areas, and galvanized surfaces exposed to stormwater, such as heating/air conditioning equipment and metal roofs.

Table 24 contains a data summary of effluent characteristics for the industry. Data are taken from the 6415 *Data Analysis Report* cited above.

**Table 24: Effluent Characterization for Uncategorized Facilities—Data from 26 facilities**

Parameter	No. of Values	Min Value	Median Value	Max Value	Exceedance of Benchmark	Exceedance of Action Level
Turbidity, in NTU	137	0.7	8.4	1,190	24%	15%
pH, in su	132	4.4	6.6	8.2	14%	1%
Total Copper, in µg/L	20	0.0	10	4,930	20%	10%
Total Lead, in µg/L	19	0.007	10	576	11%	11%
Total Zinc, in µg/L	132	0.255	150	18,200	58%	28%
Oil & Grease, in mg/L	66	1.3	5.0	46.8	8%	6%
BOD <sub>5</sub>	15	3.0	15	90	7%	7%
Nitrate/Nitrite, as N	4	0.2	0.3	2.4	25%	25%
Total Phosphorus	5	0.044	0.1	0.18	0%	0%

## Paper and Allied Products - SIC 26xx

Description: Businesses that take paper stock and produce basic paper products such as cardboard boxes and other containers, and stationery products such as envelopes and bond paper are included in this category. Wood chips, pulp, and paper can be used as feedstock.

Existing Coverages: As of October 6, 2006, Ecology had issued coverage to 20 facilities in this industrial category.

Potential Sources of Pollutants: Activities that can contaminate stormwater include outside loading/unloading of solid and liquid materials; outside storage and handling of dangerous wastes, and other liquid and solid materials; and maintenance and fueling activities. Additional pollutant sources include equipment storage yards, and galvanized surfaces exposed to stormwater, such as heating/air conditioning equipment, metal roofs and fences.

Table 25 contains a data summary of effluent characteristics for the industry. Data are taken from the 6415 *Data Analysis Report* cited above.

**Table 25: Effluent Characterization for Paper and Allied Products Category—Data from 14 facilities**

Parameter	No. of Values	Min Conc.	Median Conc.	Max Conc.	Exceedance of Benchmark	Exceedance of Action Level
Turbidity, in NTU	77	0.5	10.0	190	21%	13%
pH, in su	80	4.0	6.9	9.1	19%	4%
Total Copper, in µg/L	8	20.0	25.0	140.0	25%	0%
Total Lead, in µg/L	8	1.0	40.0	110.0	13%	0%
Total Zinc, in µg/L	79	8.0	90.0	7,950	41%	16%
Oil & Grease, in mg/L	69	1.0	3.7	70.0	3%	1%

**Petroleum Products – SIC 29xx**

Description: Industrial activities use the processes of fractionation or distillation to produce such products as gasoline, fuel oils, kerosene, solvents, liquefied petroleum gases, waxes, and asphalt.

Existing Coverages: As of October 6, 2006, Ecology had issued coverage to 6 facilities with primary activities in this group.

Potential Sources of Pollutants: Raw material input to petroleum refineries is primarily crude oil. However, petroleum refineries use and generate an enormous number of chemicals, all of which have the potential to contaminate stormwater. Many products, byproducts and wastes are stored in tanks that may leak. Byproducts include: sulfur, phosphoric acid, aliphatic and aromatic chemicals. Additional pollutant sources include equipment storage yards, loading/unloading areas, and galvanized surfaces exposed to stormwater, such as heating/air conditioning equipment and metal roofs. Potential stormwater pollutants include: suspended solids, dissolved solids, BOD, metals, hydrogen sulfide, ammonia, phenols, cyanide, solvents, oil and grease.

Table 26 contains a data summary of effluent characteristics for the industry. Data are taken from the 6415 *Data Analysis Report* cited above.

**Table 26: Effluent Characterization for Petroleum Products Category—Data from 6 facilities**

Parameter	No. of Values	Min Value	Median Value	Max Value	Exceedance of Benchmark	Exceedance of Action Level
Turbidity, in NTU	27	2.3	28	220	56%	37%
pH, in su	27	5.4	7.0	7.9	19%	0%
Total Zinc, in µg/L	23	20.8	140	2,600	57%	22%
Oil & Grease, in mg/L	18	1.0	5.0	41	11%	6%

**Primary Metal Industries – SIC 33xx**

Description: This group includes mills that produce basic metals and primary products, as well as foundries, electroplaters, and fabricators of final metal products. Basic metal production includes steel, copper, and aluminum. Mills that transform metal billets,

either ferrous or nonferrous such as aluminum, to primary metal products are included. Primary metal forms include sheets, flat bar, building components such as columns, beams and concrete reinforcing bar, and large pipe.

Primary products often receive a surface coating treatment. Prior to the coating the product surface may be prepared by acid pickling to remove scale or alkaline cleaning to remove oils and greases. The two major classes of metallic coating operations are hot and cold coating. Zinc, tin, and aluminum coatings are applied in molten metal baths. Tin and chromium are usually applied electrolytically from plating solutions.

Existing Coverages: As of October 6, 2006, Ecology had issued coverage to 21 facilities with primary activities in this group.

Potential Sources of Pollutants: Activities that can contaminate stormwater include raw material and equipment storage yards, loading/unloading areas, and galvanized surfaces exposed to stormwater, such as heating/air conditioning equipment and metal roofs.

Table 27 contains a data summary of effluent characteristics for the industry. Data are taken from the 6415 *Data Analysis Report* cited above.

**Table 27: Effluent Characterization for Primary Metals Industries Category—Data from 13 facilities**

Parameter	No. of Values	Min Conc.	Median Conc.	Max Conc.	Exceedance of Benchmark	Exceedance of Action Level
Turbidity, in NTU	75	0.5	12	580	23%	11%
pH, in su	76	3.2	7.0	8.6	7%	4%
Total Copper, in µg/L	65	18.0	61.4	473	28%	12%
Total Lead, in µg/L	48	0.01	10	1,240	21%	8%
Total Zinc, in µg/L	76	1.0	100	5,160	41%	14%
Oil & Grease, in mg/L	54	0	2.0	9.6	0%	0%

**Printing, Publishing, and Allied Industries – SIC 27xx**

Description: Industrial activities in the group include the printing of newspapers, books, and periodicals, and associated services, such as bookbinding and platemaking.

Existing Coverages: As of October 6, 2006, Ecology had issued coverage to 4 facilities with primary activities in this group.

Potential Sources of Pollutants: Activities that can contaminate stormwater include raw material and equipment storage yards, loading/unloading areas, and galvanized surfaces exposed to stormwater, such as heating/air conditioning equipment and metal roofs. Pollutants that may contaminate stormwater include solvents, primarily toluene, and metals stored in outdoor tanks.

Table 28 contains a data summary of effluent characteristics for the industry. Data are taken from the 6415 *Data Analysis Report* cited above.

**Table 28: Effluent Characterization for Printing, Publishing and Allied Industries Category—Data from 2 facilities**

<b>Parameter</b>	<b>No. of Values</b>	<b>Min Value</b>	<b>Median Value</b>	<b>Max Value</b>	<b>Exceedance of Benchmark</b>	<b>Exceedance of Action Level</b>
Turbidity, in NTU	10	1.2	6.8	33	20%	0%
pH, in su	10	5.0	6.4	7.0	20%	0%
Total Zinc, in µg/L	10	0.149	77	250	20%	0%
Oil & Grease, in mg/L	0	-	-	-	-	-

**Railroad Transportation - SIC 40xx**

Description: Railroad activities are spread over a large geographic area: along railroad lines, in switching yards, and in maintenance yards. Railroad activity occurs on both property owned or leased by the railroad and at the loading or unloading facilities of its customers. Employing best management practices (BMPs) at commercial or public loading and unloading areas is the responsibility of the particular property owner.

Existing Coverages: As of October 6, 2006, Ecology had issued coverage to 11 facilities with primary activities in SIC Code group 40XX.

Potential Sources of Pollutants: The following activities are potential sources of pollutants: dripping of vehicle fluids onto the road bed, leaching of wood preservatives from the railroad ties, human waste disposal, litter, locomotive sanding areas, locomotive/railcar/equipment cleaning areas, fueling areas, outside material storage areas, the erosion and loss of soil particles from the bed, and herbicides used for vegetation management. Additional pollutant sources include equipment storage yards, loading/unloading areas, and galvanized surfaces exposed to stormwater, such as heating/air conditioning equipment and metal roofs.

Maintenance activities include maintenance shops for vehicles and equipment, track maintenance, and ditch cleaning. In addition to the railroad stock, the maintenance shops service highway vehicles and other types of equipment. Waste materials can include waste oil, solvents, degreasers, antifreeze, radiator flush, acid solutions, brake fluids, soiled rags, oil filters, sulfuric acid and battery sludge, and machine chips with residual machining oil and any toxic fluids or solids lost during transit.

Table 29 contains a data summary of effluent characteristics for the industry. Data are taken from the 6415 *Data Analysis Report* cited above.

**Table 29: Effluent Characterization for Railroad Transportation Category—Data from 11 facilities**

<b>Parameter</b>	<b>No. of Values</b>	<b>Min Conc.</b>	<b>Median Conc.</b>	<b>Max Conc.</b>	<b>Exceedance of Benchmark</b>	<b>Exceedance of Action Level</b>
Turbidity, in NTU	54	0.6	34	1,990	57%	39%
pH, in su	54	5.5	6.6	10.2	9%	2%
Total Copper, in µg/L	10	5.0	22.3	490.0	10%	10%
Total Lead, in µg/L	8	1.5	40.0	81.0	0%	0%
Total Zinc, in µg/L	50	0.34	183.0	1,800	70%	22%
Oil & Grease, in mg/L	26	2.0	6.5	18.8	12%	0%

### **Rubber and Plastic Products - SIC 30xx**

Description: Although different in basic feedstock and processes used, businesses that produce rubber, fiberglass and plastic products belong to the same SIC group. Products in this category include rubber tires, hoses, belts, gaskets, seals; and plastic sheet, film, tubes, pipes, bottles, cups, ice chests, packaging materials, and plumbing fixtures. The rubber and plastics industries use a variety of processes ranging from polymerization to extrusion using natural or synthetic raw materials. These industries use natural or synthetic rubber, plastics components, pigments, adhesives, resins, acids, caustic soda, zinc, paints, fillers, and curing agents.

Existing Coverages: As of October 6, 2006, Ecology had issued coverage to 50 facilities with primary activities in SIC 30XX.

Potential Sources of Pollutants: Pollutant generating sources/activities include storage of liquids, other raw materials or by-products, scrap materials, oils, solvents, inks and paints; unloading of liquid materials from trucks or rail cars; washing of equipment; waste oil and solvents produced by cleaning manufacturing equipment; used equipment that could drip oil and residual process materials; and maintenance shops. Additional pollutant sources include equipment storage yards, loading/unloading areas, and galvanized surfaces exposed to stormwater, such as heating/air conditioning equipment and metal roofs.

Table 30 contains a data summary of effluent characteristics for the industry. Data are taken from the 6415 *Data Analysis Report* cited above.

**Table 30: Effluent Characterization for Rubber and Plastic Products Category—Data from 37 facilities**

Parameter	No. of Values	Min Conc.	Median Conc.	Max Conc.	Exceedance of Benchmark	Exceedance of Action Level
Turbidity, in NTU	207	0.5	15.0	460.0	34%	20%
pH, in su	206	4.0	6.1	8.4	23%	1%
Total Copper, in µg/L	43	3.6	20.0	530.0	26%	12%
Total Lead, in µg/L	33	0.08	7.0	40.0	0%	0%
Total Zinc, in µg/L	202	5.0	160.0	2,960	62%	22%
Oil & Grease, in mg/L	129	0.0	4.0	39.1	4%	2%

**Stone, Clay and Glass Products – SIC 32xx**

Description: Facilities in this group produce a wide variety of products from mined minerals, including concrete building materials, sewer pipes, septic tanks, Portland cement, and glass products. SIC 3273, Ready-Mixed Concrete, is not eligible for coverage under the ISWGP, and will typically be covered under the Sand and Gravel General Permit.

Existing Coverages: As of October 6, 2006, Ecology had issued coverage to 38 facilities with primary activities in SIC Code group 32XX.

Potential Sources of Pollutants: Pollutant generating activities/sources include stockpiles; washing of waste concrete from trucks, forms, equipment, and the general work area; and water from the curing of concrete products. Chemicals used in the curing of concrete and the removal of forms may contaminate stormwater. These chemicals can include latex sealants, bituminastic coatings and release agents. Additional pollutant sources include equipment storage yards, loading/unloading areas, and galvanized surfaces exposed to stormwater, such as heating/air conditioning equipment and metal roofs.

Stormwater at cement manufacturing sites may be contaminated during the crushing, grinding, storage, and handling of kiln dust, limestone, shale, clay, coal, clinker, gypsum, anhydrite, slag, sand, and product and at the vehicle and equipment maintenance, fueling, and cleaning areas. At any facility within this industrial group with trucks and equipment maintained on-site may generate waste oil and solvents, and other waste materials. Potential pollutants include TSS, COD, potassium, sulfate, iron, oil and grease, high/low pH, and heavy metals such as arsenic, cadmium, chromium, lead, mercury, and zinc.

Table 31 contains a data summary of effluent characteristics for the industry. Data are taken from the 6415 *Data Analysis Report* cited above.

**Table 31: Effluent Characterization for Stone, Clay and Glass Products Category—Data from 23 facilities**

Parameter	No. of Values	Min Conc.	Median Conc.	Max Conc.	Exceedance of Benchmark	Exceedance of Action Level
Turbidity, in NTU	109	0.3	16	980	41%	23%
pH, in su	111	3.9	7.0	11.6	9%	4%
Total Copper, in µg/L	12	10	19.2	11,000	8%	8%
Total Lead, in µg/L	4	25	25	40	0%	0%
Total Zinc, in µg/L	100	0.03	135	39,400	56%	16%
Oil & Grease, in mg/L	51	1.0	5.0	34.0	6%	4%

**Recycling Facilities – SIC 50xx**

Description: SIC 5093 includes facilities engaged in assembling, breaking up, sorting and the wholesale distribution of scrap and recyclable waste materials including bag, bottle and box wastes, fur cuttings, iron and steel scrap, metal and nonferrous metal scrap, oil, plastics, rags, rubber, textiles, waste paper, aluminum and tin cans, and rag wastes. SIC 5015 includes facilities engaged in the dismantling of used motor vehicles for the purpose of selling parts.

Existing Coverages: As of October 6, 2006, Ecology had issued coverage to 141 facilities that listed recycling as their primary activity.

Potential Sources of Pollutants: Outdoor storage of engines, transmissions, radiators, batteries, brakes, power steering units, and differential gears which contain fluids. Scrap yards provide additional sources of pollutants depending on the materials recycled. Dismantling, processing, and storage all have potential to contaminate stormwater. Outside storage of materials is likely to result in contamination of stormwater. Additional pollutant sources include loading/unloading areas, and galvanized surfaces exposed to stormwater, such as heating/air conditioning equipment and metal roofs.

Table 32 contains a data summary of effluent characteristics for the industry. Data are taken from the 6415 *Data Analysis Report* cited above.

**Table 32: Effluent Characterization for Recycling Facilities Category—Data from 64 facilities**

Parameter	No. of Values	Min Conc.	Median Conc.	Max Conc.	Exceedance of Benchmark	Exceedance of Action Level
Turbidity, in NTU	295	0.0	19.0	710.0	42%	27%
pH, in su	294	2.2	7.0	10.0	8%	1%
Total Copper, in µg/L	196	2.0	26.0	5,940	29%	10%
Total Lead, in µg/L	178	0.1	25.0	3,730	21%	11%
Total Zinc, in µg/L	288	2.0	119.0	6,410	50%	23%
Oil & Grease, in mg/L	196	0.8	5.0	232.0	16%	7%

### Textile Mill Products – SIC 22xx

Description: Industrial activities typically performed at businesses in this group include: production of fabrics, carpets, and rugs; dying and treating fabrics; and the manufacture of felts, knit apparel, lace goods, and other miscellaneous textiles.

Existing Coverages: As of October 6, 2006, Ecology had issued coverage to 3 facilities with primary activities in this group.

Potential Sources of Pollutants: Activities that can contaminate stormwater include equipment storage yards, loading/unloading areas, and galvanized surfaces exposed to stormwater, such as heating/air conditioning equipment and metal roofs. Potential pollutants to stormwater include chemical oxygen demand (COD), total suspended solids (TSS), solvents, ethers, phenols, nitrates, chlorine, copper, chromium, and zinc.

Table 33 contains a data summary of effluent characteristics for the industry. Data are taken from the 6415 *Data Analysis Report* cited above.

**Table 33: Effluent Characterization for Textile Mill Products Category—Data from 3 facilities**

Parameter	No. of Values	Min Value	Median Value	Max Value	Exceedance of Benchmark	Exceedance of Action Level
Turbidity, in NTU	12	1.7	12	52	33%	8%
pH, in su	12	5.3	6.7	7.3	17%	0%
Total Copper, in µg/L	6	6.7	23.5	140	33%	0%
Total Lead, in µg/L	5	6	6	7.56	0%	0%
Total Zinc, in µg/L	12	87	288	3,400	92%	42%
Oil & Grease, in mg/L	9	3.0	5.0	5.0	0%	0%

### Transportation Equipment – SIC 37xx

Description: Businesses in this category manufacture equipment for transportation of passengers and cargo by land, sea, and air. Products manufactured by businesses in this group include bicycles, motor vehicles, ships and boats, railroad equipment, aircraft, missiles, and space vehicles.

Existing Coverages: As of October 6, 2006, Ecology had issued coverage to 70 facilities within this category.

Potential Sources of Pollutants: Maintenance activities can be a major source of pollutants. Maintenance shops service road vehicles and other types of equipment. Waste materials can include waste oil, solvents, degreasers, antifreeze, radiator flush, acid solutions, brake fluids, soiled rags, oil filters, sulfuric acid and battery sludge, and machine chips with residual machining oil and any toxic fluids or solids lost during transit. Additional pollutant sources include equipment storage yards, loading/unloading areas, and galvanized surfaces exposed to stormwater, such as heating/air conditioning equipment and metal roofs.

Table 34 contains a data summary of effluent characteristics for the industry. Data are taken from the 6415 *Data Analysis Report* cited above.

**Table 34: Effluent Characterization for the Transportation Equipment Category—Data from 33 facilities**

Parameter	No. of Values	Min Conc.	Median Conc.	Max Conc.	Exceedance of Benchmark	Exceedance of Action Level
Turbidity, in NTU	343	0.5	8.4	560	18%	8%
pH, in su	344	3.8	6.8	10.0	10%	0%
Total Copper, in µg/L	132	0	22.8	177	8%	1%
Total Lead, in µg/L	122	0.01	3.3	89.7	1%	0%
Total Zinc, in µg/L	329	0.05	120	5,300	52%	16%
Oil & Grease, in mg/L	197	0.0	1.0	38	1%	1%

### Transportation Services – SIC 47xx

Description: Industries in this group provide services incidental to transportation, such as forwarding and packing services, and the arrangement of passenger and freight transportation.

Existing Coverages: As of October 6, 2006, Ecology had issued coverage to 5 facilities with primary activities in this group.

Potential Sources of Pollutants: Activities that can contaminate stormwater include equipment storage yards, loading/unloading areas, and galvanized surfaces exposed to stormwater, such as heating/air conditioning equipment and metal roofs.

Table 35 contains a data summary of effluent characteristics for the industry. Data are taken from the 6415 *Data Analysis Report* cited above.

**Table 35: Effluent Characterization for Transportation Services Category—Data from 2 facilities**

Parameter	No. of Values	Min Value	Median Value	Max Value	Exceedance of Benchmark	Exceedance of Action Level
Turbidity, in NTU	4	50	115	250	100%	75%
pH, in su	4	6.0	7.0	8.1	0%	0%
Total Zinc, in µg/L	4	71	283	3,900	75%	50%
Oil & Grease, in mg/L	3	6.9	7.9	48	33%	0%

### Treatment Works

Description: Facilities in this category collect, treat and dispose of domestic and industrial wastewater.

Existing Coverages: As of October 6, 2006, Ecology had issued coverage to 11 facilities within this category.

Potential Sources of Pollutants: Activities that can contaminate stormwater include treatment plant and vehicle maintenance activities, loading/unloading areas, poorly managed biosolids, spills, and leaching of metals, particularly zinc, from galvanized surfaces.

Table 36 contains a data summary of effluent characteristics for the industry. Data are taken from the 6415 *Data Analysis Report* cited above.

**Table 36: Effluent Characterization for the Treatment Works Category—Data from 12 facilities**

Parameter	No. of Values	Min Conc.	Median Conc.	Max Conc.	Exceedance of Benchmark	Exceedance of Action Level
Turbidity, in NTU	77	0.4	5.7	100	10%	8%
pH, in su	77	5.4	6.8	7.9	8%	0%
Total Copper, in µg/L	18	5.2	26.0	224	11%	6%
Total Lead, in µg/L	18	0.9	7.0	30	0%	0%
Total Zinc, in µg/L	76	1.0	43.6	1,140	29%	7%
Oil & Grease, in mg/L	55	1.0	5.1	82.0	5%	4%

### Water Transportation – SIC 44xx

Description: Businesses in this category transport passengers and freight on the open seas and inland waters. Incidental services such as towing, boat storage, and the operation of sightseeing boats are also included in this category.

Existing Coverages: As of October 6, 2006, Ecology had issued coverage to 57 facilities within this category.

Potential Sources of Pollutants: Activities that can contaminate stormwater include vessel maintenance, fueling, and discharges from on-board tanks. Additional pollutant sources include equipment storage yards, loading/unloading areas, and galvanized surfaces exposed to stormwater, such as heating/air conditioning equipment and metal roofs. Potential pollutants include fuels and machinery lubricants, solvents, paints, heavy metals, and paint stripping wastes.

Table 37 contains a data summary of effluent characteristics for the industry. Data are taken from the 6415 *Data Analysis Report* cited above.

**Table 37: Effluent Characterization for Water Transportation Category—Data from 30 facilities**

Parameter	No. of Values	Min Conc.	Median Conc.	Max Conc.	Exceedance of Benchmark	Exceedance of Action Level
Turbidity, in NTU	151	0.3	18.0	343	39%	21%
pH, in su	151	5.0	6.9	9.8	7%	0%
Total Copper, in µg/L	30	0.0	36.3	194	20%	7%
Total Lead, in µg/L	27	0.05	13	144	11%	0%
Total Zinc, in µg/L	145	0.7	244	4,000	74%	34%
Oil & Grease, in mg/L	92	0.0	5.0	561	4%	1%

### Wholesale Trade-Durable Goods – SIC 50xx

Description: Businesses in this SIC group engage in the wholesale distribution of durable goods to retailers, contractors, or other wholesalers. Durable goods are products designed to last at least three years. Durable goods include such products as motor vehicles, construction materials, appliances, machinery, and recreational equipment. Auto wrecking and auto recycling are included in this category.

Existing Coverages: As of October 6, 2006, Ecology had issued coverage to 141 facilities within this category.

Potential Sources of Pollutants: Activities that can contaminate stormwater include equipment storage yards, loading/unloading areas, and galvanized surfaces exposed to stormwater, such as heating/air conditioning equipment and metal roofs.

Table 38 contains a data summary of effluent characteristics for the industry. Data are taken from the 6415 *Data Analysis Report* cited above.

**Table 38: Effluent Characterization for Wholesale Trade-Durable Goods Category—Data from 63 facilities**

Parameter	No. of Values	Min Conc.	Median Conc.	Max Conc.	Exceedance of Benchmark	Exceedance of Action Level
Turbidity, in NTU	289	0.0	19.0	710	42%	27%
pH, in su	289	2.2	6.9	10.0	8%	1%
Total Copper, in µg/L	204	2.0	22.7	5,940	27%	10%
Total Lead, in µg/L	186	0.1	25.0	3,730	22%	10%
Total Zinc, in µg/L	276	2.0	120.0	6,410	53%	23%
Oil & Grease, in mg/L	191	0.8	5.0	232.0	17%	8%

### Wholesale Trade-NonDurable Goods – SIC 51xx

Description: Businesses in this SIC group engage in the wholesale distribution of nondurable goods to retailers, contractors, or other wholesalers. Nondurable goods include paper, apparel, food, chemicals and drugs, and paints.

Existing Coverages: As of October 6, 2006, Ecology had issued coverage to 42 facilities within this category.

Potential Sources of Pollutants: Activities that can contaminate stormwater include equipment storage yards, loading/unloading areas, and galvanized surfaces exposed to stormwater, such as heating/air conditioning equipment and metal roofs.

Table 39 contains a data summary of effluent characteristics for the industry. Data are taken from the 6415 *Data Analysis Report* cited above.

**Table 39: Effluent Characterization for Wholesale Trade-Nondurable Goods Category—Data from 23 facilities**

Parameter	No. of Values	Min Conc.	Median Conc.	Max Conc.	Exceedance of Benchmark	Exceedance of Action Level
Turbidity, in NTU	89	0.1	14.0	676.0	28%	9%
pH, in su	88	5.0	6.5	10.0	8%	1%
Total Copper, in µg/L	16	2.0	16.5	63.6	0%	0%
Total Lead, in µg/L	13	2.0	20.0	81.6	0%	0%
Total Zinc, in µg/L	88	0.37	168.0	3,110	63%	23%
Oil & Grease, in mg/L	67	1.0	5.0	82.0	3%	3%

**Discussion of the Data**

The 6415 *Data Analysis Report* describes the data for most parameters as exhibiting a distinctly right-skewed distribution, due to the presence of numerous outliers in the upper end of the data range. This distribution is commonly observed in water quality data that are collected during stormwater sampling, due to the influence of sporadic, “first flush” events that are associated with high pollutant concentrations. After the “first flush”, discharges typically have lower pollutant concentrations.

The results also indicate that the data for many of the parameters exhibit a high degree of variability. For example, the coefficients of variation (CV = standard deviation/mean) calculated from these data ranged from 0.12 for pH to 7.06 for total zinc. The high degree of variability in these data is generally consistent with the findings from other studies of compiled data from NPDES stormwater permits. For example, Strenstrom and Lee (2005) reported coefficients of variation ranging from 0.2 to 17 for data from a suite of 16 sampling parameters that were compiled using stormwater data from two California counties and the state of Connecticut.

After analyzing the data, the contractors categorized each pollutant into a level of concern, based on the percentage of samples that exceeded the benchmark (BM) or action level (AL) values. Categorizing of problem pollutant parameters informed Ecology's decisions regarding this draft permit and the subsequent implementation. Table 40 contains the contractors' prioritization of pollutants.

**Table 40: Pollutant Levels of Concern**

Level of Concern	Parameter(s)	Exceedances
High	Total Zinc	More than 50% of samples exceeded BM; more than 20% of samples exceeded AL
Moderate	Turbidity, Total Copper, BOD, Nitrate + Nitrite Nitrogen	Between 20% and 50% of samples exceeded BM
Low	pH, Oil and Grease <sup>1</sup> , Total Lead, Total Phosphorus, and Ammonia Nitrogen	Less than 20% of samples exceeded BM

<sup>1</sup> According to Herrera’s 2006 *Evaluation of Washington’s Industrial Stormwater General Permit*, “The reason there are few excursions of the oil and grease benchmark is more likely related to how and when the samples are collected, rather than providing evidence of well controlled site conditions.”

For more detailed information on the data analysis and conclusions of the study, see the 6415 report, *Data Analysis Report: Evaluation of Monitoring Data from General NPDES Permits for Industrial and Construction Stormwater*, October 2006.

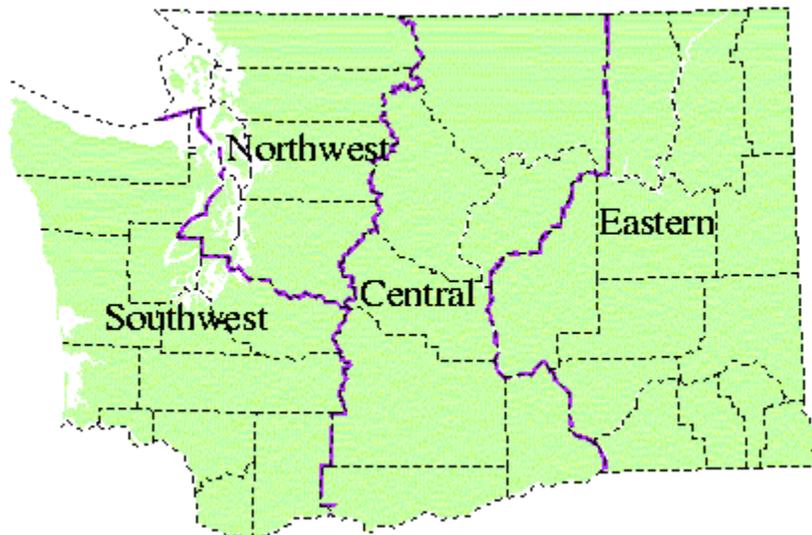
**PERMIT STATUS AND SUMMARY OF COMPLIANCE WITH THE EXISTING PERMIT**

The existing stormwater discharge permit for industrial activities became effective on September 20, 2002. The permit required new Permittees to develop and implement a stormwater pollution prevention plan (SWPPP) before beginning operation. Permittees must update their SWPPP as necessary and follow the practices and procedures identified in the SWPPP. After initial submittal of the SWPPP, Permittees were not required to submit revisions to the SWPPP to Ecology unless they receive a specific request to do so. The permit requires Permittees to manage stormwater through best management practices (BMPs). BMPs must be sufficient to assure that the discharge of stormwater does not violate water quality standards. Permittees are required to conduct stormwater sampling and analysis. Facilities determined to be out of compliance must implement BMPs to achieve compliance. The permit requires visual inspection of stormwater discharges and the BMPs to assure that stormwater management is successful, but does not require the Permittee to submit visual inspection results to Ecology.

As of May 7, 2009, Ecology has 1,207 facilities covered under this permit. Table 41 summarizes the number of Permittees by Ecology region. Between 2004 and 2007, the number of facilities covered under this permit ranged from 1,150 and 1,200 facilities.

**Table 41: Distribution of Permittees by Ecology Region**

<b>Ecology Region</b>	<b>No. of Permittees</b>
Northwest	518
Southwest	585
Central	60
Eastern	44



In April 2004, Ecology determined that approximately 30 percent of Permittees were not submitting discharge monitoring reports (DMRs) in a typical quarterly reporting period. During the next two years, Ecology worked with Permittees to reduce the rate of facilities not submitting DMRs to approximately 15 percent.

In June 2006, Ecology sent letters to three groups of Permittees.

1. Permittees that had received coverage in 2002 or 2003 that had never submitted DMRs received notices of potential liability.
2. Permittees that had received coverage between 2004 and 2006 that had never submitted DMRs received warning letters.
3. Permittees that had submitted DMRs, but had reported no qualifying storm events for four quarters.

Table 42 summarizes the number of letters and results of the effort.

**Table 42: Summary of June 2006 Effort to Improve DMR Submittal Compliance**

Type of Letter Sent	No. of Letters	Phone Calls	DMR Packets Received <sup>a</sup>	Database Corrections <sup>b</sup>
No Qualifying Storm Event for Four Quarters	169	100	Not Applicable- DMRs were submitted	83 <sup>c</sup>
No DMRs (2002-2003 Permittees)	78	5	20	20
No DMRs (2004-2006 Permittees)	43	20	20	7
<sup>a</sup> Each packet contains all nonsubmitted DMRs from a Permittee.				
<sup>b</sup> Terminations, transfers, and monitoring site changes.				
<sup>c</sup> Number of database corrections to reflect companies out of business or not required to sample.				

As a result of this effort, Ecology estimated the compliance rate for DMR submittal in 2007 at approximately 95 percent. However, a review of DMR submittal rates in 2008, indicate that each quarter, approximately 30 percent of permittees were not submitting DMRs.

Site visits play an important role in assuring compliance with permit requirements. Ecology inspects about 50 percent of permitted facilities each year. As of February 2, 2007, Ecology has conducted 1,457 inspections at 1,019 facilities. Facilities not in compliance often require multiple site visits.

Facility inspections have revealed that many facilities with permit coverage are not in compliance with permit provisions. The stormwater pollution prevention plan (SWPPP) is a critical permit requirement; it identifies how stormwater at a facility will be managed to prevent stormwater pollution. Ecology field inspectors estimate approximately 75 percent of Permittees can provide their SWPPP during an Ecology inspection. Based on site inspections, about 60 percent to 70 percent of the facilities could identify one or more BMPs that were maintained to manage stormwater. Approximately 40 percent of the sites had SWPPPs were up-to-date and

fully implemented. No more than 10 percent would be considered in full compliance with all permit requirements.

40 CFR 122.41(a) requires the Permittee to comply with all conditions of this permit. Permittees that violate permit conditions are subject to enforcement. Enforcement actions can range from the most severe (civil penalty) to least formal (warning letter). During the current permit cycle, Ecology initiated more than 600 formal or informal enforcement actions. The number of actions may not be conclusive because all informal enforcement actions may not be entered into Ecology's database. Table 43 summarizes enforcement actions taken by Ecology.

**Table 43: Summary of Enforcement Actions, by Type, September 2002 to February 2007**

<b>Type of Action</b>	<b>Number of Actions</b>
Informal	549
Civil penalty	22
Administrative order	20
Notice of violation	2
Notice of correction	1

## **SEPA COMPLIANCE**

New facilities must demonstrate compliance with the State Environmental Policy Act, SEPA (Chapter 43.21C RCW), before permit coverage can be authorized. Permit modification also requires SEPA compliance, and additional SEPA review may be necessary if the modification falls outside of the scope of the initial SEPA evaluation of industrial siting and activities.

Any existing facility planning a significant process change must submit a new application for coverage to modify their permit. With this submittal they must also demonstrate that the proposed change has complied with SEPA review. A significant process change for industries covered under this permit may cause a change in the nature of pollutants in the stormwater or an increase in the volume of stormwater. Therefore, any change in facility activities or procedures that would alter the types or concentration of pollutants in the stormwater discharge such as by adding a new industrial activity (SIC) that was not previously covered will require modification of permit coverage. Any change that would add additional impervious surface or acreage increasing stormwater discharge by 25 percent or more requires modification of permit coverage. Facilities must demonstrate compliance with SEPA and must apply for modification of coverage at least 60 days before implementing any significant process change.

## DRAFT PERMIT LIMITATIONS

### Introduction to Legal Requirements For Limitations to Control Pollutants in Discharges

Section 502(11) of the CWA defines “effluent limitation” as *any restriction on the quantity, rate, and concentration of chemical, physical, biological, and other constituents which are discharged from point sources into navigable waters, the waters of the contiguous zone, or the ocean, including schedules of compliance*. Effluent limitations are among the permit conditions and limitations prescribed in NPDES permits issued under Section 402(a) of the Act, 33 U.S.C. §1342(a).

### Types of Effluent Limitations: Technology-Based & Water-Quality Based

The CWA requires that discharges from existing facilities, at a minimum, meet technology-based effluent limitations reflecting, among other things, the technological capability of permittees to control pollutants in their discharges which are economically achievable. State laws (RCW 90.48.010, 90.52.040 and 90.54.020) require the use of “all known, available and reasonable methods of prevention, control and treatment” (AKART).

Water quality-based effluent limitations (WQBELs) are required by CWA Section 301(b)(1)(C) and, in Washington State, are based upon compliance with the Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Standards (Chapter 173-200 WAC), Sediment Quality Standards (Chapter 173-204 WAC) or the National Toxics Rule (40 CFR 131.36). The more stringent of these two limits (technology or water quality-based) must be chosen for each of the parameters of concern, and implemented through NPDES permits. [CWA sections 301(a) and (b)].

Effluent limitations in NPDES permits may be expressed as numeric or non-numeric standards. Under EPA’s regulations, non-numeric effluent limits are authorized in lieu of numeric limits, where “[n]umeric effluent limitations are infeasible.” [40 CFR 122.44(k)(3).] Courts have recognized that there are circumstances when numeric effluent limitations are infeasible and have held that EPA may issue permits with conditions (e.g., Best Management Practices or “BMPs”) designed to reduce the level of effluent discharges to acceptable levels:

*Natural Res. Def. Council, Inc. v. EPA, 673 F.2d 400, 403 (D.C. Cir. 1982)* (noting that “section 502(11) defines ‘effluent limitation’ as ‘any restriction’ on the amounts of pollutants discharged, not just a numerical restriction”; holding that section of CWA authorizing courts of appeals to review promulgation of “any effluent limitation or other limitation” did not confine the court’s review to the EPA’s establishment of numerical limitations on pollutant discharges, but instead authorized review of other limitations under the definition) (emphasis added).

In *Natural Res. Def. Council, Inc. v. Costle, 568 F.2d 1369 (D.C. Cir. 1977)*, the D.C. Circuit stressed that when numerical effluent limitations are infeasible, EPA may issue permits with conditions designed to reduce the level of effluent discharges to acceptable levels.

## **TECHNOLOGY-BASED LIMITATIONS**

### **Types of Technology-Based Effluent Limitations**

Technology-based effluent limitations are in many cases established by EPA in regulations known as effluent limitations guidelines, or “ELGs.” EPA establishes these regulations for specific industry categories or subcategories after conducting an in-depth analysis of that industry.<sup>1</sup>

The Act sets forth different standards for the effluent limitations based upon the type of pollutant or the type of permittee involved.

The CWA establishes two levels of pollution control for existing sources. In the first stage, existing sources that discharge pollutants directly to receiving waters were initially subject to effluent limitations based on the “best practicable control technology currently available” or “BPT.” 33 U.S.C. § 1314(b)(1)(B). BPT applies to all pollutants. In the second stage, existing sources that discharge conventional pollutants are subject to effluent limitations based on the “best conventional pollutant control technology,” or “BCT.” 33 U.S.C. §1314(b)(4)(A); see also 40 C.F.R. §401.16 (list of conventional pollutants) while existing sources that discharge toxic pollutants or “nonconventional” pollutants (*i.e.*, pollutants that are neither “toxic” nor “conventional”) are subject to effluent limitations based on “best available technology economically achievable,” or “BAT.” 33 U.S.C. §1311(b)(2)(A); see also 40 C.F.R. §401.15 (list of toxic pollutants).

The factors to be considered in establishing the levels of these control technologies are specified in section 304(b) of the CWA and EPA’s regulations at 40 CFR §125.3.

All NPDES permits are required to consider technology-based limitations (water quality-based effluent limitations may be more stringent). 40 CFR §§122.44(a)(1) and 125.3. CWA sections 301(b)(1)(A) for (BPT); 301(b)(2)(A) for (BAT); and 301(b)(2)(E) for (BCT). Technology-based limits in this permit represent the BPT (for conventional, toxic, and non-conventional pollutants), BCT (for conventional pollutants), and BAT (for toxic pollutants and non-conventional) levels of control for the applicable pollutants. When EPA has not promulgated effluent limitation guidelines for an industry, or if an operator is discharging a pollutant not covered by the effluent guideline, permit limitations may be based on the best professional judgment (BPJ, sometimes also referred to as “best engineering judgment”) of the permit writer. 33 U.S.C. § 1342(a)(1); 40 CFR 125.3(c). See *Student Public Interest Group v. Fritzsche, Dodge & Olcott*, 759 F.2d 1131, 1134 (3d Cir. 1985); *American Petroleum Inst. v. EPA*, 787 F.2d 965, 971 (5th Cir. 1986). For this permit, most of the technology-based limits are based on BPJ decision-making because no ELG applies. However, the permit also includes technology-based limits based on the stormwater-specific ELGs, where applicable.

### **Authority to Include Non-Numeric Technology-Based Limits in NPDES Permits**

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<sup>1</sup> Where EPA has not issued effluent guidelines for an industry, EPA and State permitting authorities establish effluent limitations for NPDES permits on a case-by-case basis based on their best professional judgment. See 33 U.S.C. § 1342(a)(1); 40 C.F.R. § 125.3(c)(2).

Under EPA's regulations, non-numeric effluent limits are authorized in lieu of numeric limits, where "[n]umeric effluent limitations are infeasible." 40 CFR 122.44(k)(3). As far back as 1977, courts have recognized that there are circumstances when numeric effluent limitations are infeasible and have held that EPA may issue permits with conditions (e.g., Best Management Practices or "BMPs") designed to reduce the level of effluent discharges to acceptable levels. *Natural Res. Def. Council, Inc. v. Costle*, 568 F.2d 1369 (D.C.Cir.1977).

Through the Agency's NPDES permit regulations, EPA interpreted the CWA to allow BMPs to take the place of numeric effluent limitations under certain circumstances. 40 C.F.R. §122.44(k), entitled "Establishing limitations, standards, and other permit conditions (applicable to State NPDES programs ...)," provides that permits may include BMPs to control or abate the discharge of pollutants when: (1) "[a]uthorized under section 402(p) of the CWA for the control of stormwater discharges"; or (2) "[n]umeric effluent limitations are infeasible." 40 C.F.R. § 122.44(k).

As recently as 2006, The U.S. Court of Appeals for the Sixth Circuit has once again held that the CWA does not require the EPA to set numeric limits where such limits are infeasible. *Citizens Coal Council v. United States Environmental Protection Agency*, 447 F3d 879, 895-96 (6th Cir. 2006). The *Citizens Coal* court cited to *Waterkeeper Alliance, Inc. v. EPA*, 399 F.3d 486, 502 (2d Cir. 2005), stating "site-specific BMPs are effluent limitations under the CWA." "In sum, the EPA's inclusion of numeric and non-numeric limitations in the guideline for the coal remining subcategory was a reasonable exercise of its authority under the CWA."

Additionally, the Sixth Circuit cited to *Natural Res. Def. Council, Inc. v. EPA*, 673 F.2d 400, 403 (D.C.Cir.1982) noting that "section 502(11) [of the CWA] defines 'effluent limitation' as 'any restriction' on the amounts of pollutants discharged, not just a numerical restriction." EPA has substantial discretion to impose non-quantitative permit requirements pursuant to Section 402(a)(1)), especially when the use of numeric limits is infeasible. See *NRDC v. EPA*, 822 F.2d 104, 122-24 (D.C. Cir. 1987) and 40 CFR 122.44(k)(3).

### **Rationale for Non-Numeric Technology-Based Effluent Limits in This Permit**

Numeric effluent limitations are not always feasible for industrial stormwater discharges as such discharges pose challenges not presented by the vast majority of NPDES-regulated discharges. Stormwater discharges can be highly intermittent, they are usually characterized by very high flows occurring over relatively short time intervals, and they carry a variety of pollutants whose source, nature and extent varies. See 55 FR at 48,038; 53 FR at 49,443. This is in contrast to process wastewater discharges from a particular industrial or commercial facility where the effluent is more predictable and can be more effectively analyzed to develop numeric effluent limitations.

To develop numeric technology-based effluent limitations, EPA generally obtains efficacy data concerning removals achieved from representative facilities employing the technology viewed as representing the BAT level of control. Even in this situation, there is some variability in performance at facilities properly using the BAT levels of control and EPA is often subject to

challenge that it did not sufficiently take into account the variability that occurs even in a well-controlled discharge. In other words, facilities argue that the numeric effluent limits cannot be met even when they are properly operating BAT levels of control.

The variability of effluent and efficacy of appropriate control measures makes setting uniform effluent limits for stormwater extremely difficult. There is a high level of variability among stormwater discharges, in terms of both flow rates and volumes and levels of pollutants, since the volume and quality of stormwater discharges associated with industrial activity depend on a number of factors. These factors include:

- the industrial activities occurring at the facility,
- the nature of precipitation, and
- the degree of surface imperviousness.

Due to the dissimilarity among the different industrial sectors covered by this permit, and among the individual facilities within the different industrial sectors, the sources of pollutants in stormwater discharges differ with the type of industry operation and specific facility features. For example, material storage operations may be a significant source of pollutants at some facilities, shipping and receiving areas at others, while runoff from such areas at other facilities may result in insignificant levels of pollutants. Additionally, because it is often not reasonable to use traditional wastewater treatment technologies to control industrial stormwater discharges due to the absence of a steady flow of wastewater, control measures for such discharges tend to focus on pollution prevention measures, called Best Management Practices (BMPs). In addition, the same set of pollution prevention measures or BMPs typically is not appropriate for all the different types of facilities and discharges covered by this permit. The pollutant removal/reduction efficacies of these pollution prevention and BMP-based control measures are not amenable to the type of comparative analyses conducted for non-stormwater treatment technologies and used to set numeric limits.

While EPA continues to study the efficacy of various types of pollution prevention measures and BMPs, EPA at this time does not have a basis for developing numeric limits that would reasonably represent a well-run application of BMPs. Because the flow and content is so variable, if EPA were to try to base numeric limits on a few sites, it is likely that any number it would develop would not be technologically available and economically achievable by all well-run facilities.

These factors create a situation where, at this time, it is generally not feasible for EPA or Ecology to calculate numeric effluent limitations, with the limited exception of certain effluent limitations guidelines that have already been established through EPA rulemaking. For example, covering exposed areas where feasible and cleaning them regularly where they are not covered may be an effective way of significantly reducing stormwater pollutant discharges, but the degree of pollutant reduction will be highly site-specific and cannot be generally quantified. Therefore, EPA and Ecology have determined that it is not feasible to calculate numeric, technology-based limitations for many of the discharges covered under this general permit and, based on the authority of 40 CFR 122.44(k), has chosen to adopt non-numeric technology-based effluent limitations.

The AKART/BAT/BPT/BCT (technology-based) effluent limitations in this permit are expressed as specific pollution prevention requirements for minimizing the pollutant levels in stormwater discharges. In the context of this general permit, these requirements represent AKART and the best technologically available and economically practicable and achievable controls. Ecology has determined that the combination of pollution prevention approaches and structural management practices required by these limits are the most practical and environmentally sound way to control the discharge of pollutants in stormwater runoff. Pollution prevention (source control of pollutants) continues to be the cornerstone of the NPDES stormwater program.

Ecology has determined that permittees in full compliance with the Industrial Stormwater General Permit meet the state AKART requirements in Chapter 90.48 RCW.

### **Rationale for Numeric Technology-Based Effluent Limitations in this Permit**

Technology-based effluent limitations are in many cases established by EPA in regulations known as effluent limitations guidelines, or “ELGs.” EPA establishes these regulations for specific industry categories or subcategories after conducting an in-depth analysis of that industry.

This requirement holds permittees responsible for complying with any applicable Federal effluent limitations guidelines eligible and authorized for coverage under this permit. Although the 2002 permit included limits based upon three different ELGs (hazardous waste landfills, non-hazardous waste landfills, and coal storage piles), Ecology has decided to retain only the limits for non-hazardous waste landfills. The limits for hazardous waste landfills were deleted because there currently are none of these facilities covered under the permit, and Ecology has determined that if any needed an NPDES permit in the future, an individual permit would be issued. The limits for coal runoff piles were deleted because EPA has recently clarified in the 2008 Multi-Sector General Permit that these limits only pertain to coal piles at steam electric generating facilities. Although two facilities had been subject to effluent limits for coal piles, these facilities are not steam electric generating facilities, and therefore are not subject to the limits set forth in the ELG (40 CFR Part 423).

Non-hazardous waste landfills subject to the provisions of 40 CFR Part 445 Subpart B must comply with the applicable EPA technology-based limits. These limits are contained in Condition S5.C of the permit and are as follows:

## Non-hazardous Waste Landfills

**Table 44: Effluent Limitations Applicable to Non-Hazardous Waste Landfills**

Parameter	Units	Average Monthly <sup>a</sup>	Maximum Daily <sup>b</sup>	Analytical Method <sup>c</sup>	Laboratory Quantitation Level <sup>d</sup>	Minimum Sampling Frequency <sup>e</sup>
BOD <sub>5</sub>	mg/L	37	140	EPA 405.1 or SM 5210B	2	1/quarter
TSS	mg/L	27	88	SM2540-D	5	1/quarter
Ammonia	mg/L	4.9	10	SM4500- NH3-GH	0.3	1/quarter
Alpha Terpineol	µg/L	16	33	EPA 625	5	1/quarter
Benzoic Acid	µg/L	71	120	EPA 625	50	1/quarter
p-Cresol	µg/L	14	25	EPA 8270D	Not established	1/quarter
Phenol	µg/L	15	26	EPA 625	4.0	1/quarter
Zinc, Total	µg/L	110	200	EPA 200.8	2.5	1/quarter
pH	SU	Between 6.0 and 9.0		Meter/Paper <sup>e</sup>	±0.1	1/quarter

<sup>a</sup> The average monthly effluent limitation is defined as the highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month. If only one sample is taken during the calendar month, the average monthly effluent limitation applies to that sample. If only one sample is taken during the reporting period, the average monthly effluent limitation applies to that sample.

<sup>b</sup> The maximum daily effluent limitation is defined as the highest allowable daily discharge. The daily discharge means the discharge of a pollutant measured during a calendar day. The daily discharge is the average measurement of the pollutant over the day; this does not apply to pH.

<sup>c</sup> Or other equivalent EPA-approved method with the same or lower quantitation level.

<sup>d</sup> The Permittee shall ensure laboratory results comply with the quantitation level specified in the table.

<sup>e</sup> 1/quarter means 1 sample taken each quarter, year-round.

## **SURFACE WATER QUALITY LIMITATIONS**

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will not cause a violation of established Surface Water Quality Standards. The Washington State Surface Water Quality Standards (Chapter 173-201A WAC) is a state regulation designed to protect the beneficial uses of the surface waters of the state. Surface water quality-based effluent limitations may be based on an individual waste load allocation (WLA) or on a WLA developed during a basin-wide total maximum daily loading study (TMDL).

### **Numerical Criteria for the Protection of Aquatic Life**

"Numerical" water quality criteria are numerical values set forth in the State of Washington's Water Quality Standards for Surface Waters (Chapter 173-201A WAC). They specify the maximum levels of pollutants allowed in receiving waters to be protective of aquatic life. Numerical criteria set forth in the Water Quality Standards are used along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in a discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limitations, they must be used in a discharge permit.

### **Numerical Criteria for the Protection of Human Health**

The EPA has promulgated 91 numeric water quality criteria for the protection of human health that are applicable to Washington State (40 CFR 131.36). These criteria are designed to protect humans from cancer and other diseases, primarily from fish and shellfish consumption and drinking water from surface waters. Because most human health-based criteria are based on lifetime exposures, direct comparisons of receiving water criteria with pollutant concentrations in intermittent stormwater discharges may not be appropriate. This and the high variation in stormwater pollutant concentrations, both between storms and during a single storm make the application of human health criteria to stormwater particularly problematic.

### **Narrative Criteria**

In addition to numerical criteria, "narrative" water quality criteria (WAC 173-201A-030) limit toxic, radioactive, or deleterious material concentrations below those which have the potential to adversely affect characteristic water uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health. Narrative criteria protect the specific beneficial uses of all fresh water (WAC 173-201A-130) and marine water (WAC 173-201A-140) in the state of Washington.

### **Antidegradation**

The purpose of Washington's Antidegradation Policy (WAC 173-201A-300-330; 2006) 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.

Tier I ensures existing and designated uses are maintained and protected and applies to all waters and all sources of pollutions. Tier II ensures that waters of a higher quality than the criteria assigned are not degraded unless such lowering of water quality is 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.

Tier I and Tier II are considered in this permit. Ecology has determined there are no coverages under this permit to Tier III waters.

Tier I applies water quality-based limitations to point source discharges and is discussed below.

Tier II requirements for general permits are given in 173-201A-320(6) as follows:

*(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 information will be obtained and used to ensure full compliance with this chapter. The plan must be developed and documented in advance of permit or program approval under this section.*

*(7) All authorizations under this section must still comply with the provisions of Tier I (WAC 173-201A-310).*

This fact sheet describes how the permit and control program meets the antidegradation requirement.

The formal process for updating stormwater pollutant control technology is described in a January 2008 Ecology publication entitled Guidance for Evaluating Emerging Stormwater

Treatment Technologies, Technology Assessment Protocol - Ecology (TAPE). The guidance documents primary purpose is to establish a testing protocol and process for evaluating and reporting on the performance and appropriate uses of emerging stormwater treatment technologies. This document is also intended for use in evaluating public domain practices possibly resulting in changes to the design standards for these practices in the Stormwater Management Manual.

### **Critical Conditions**

Surface water quality-based limits are derived for the water body's critical condition, which represents the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota, human health, and existing or characteristic water body uses. The factors include the flow and background level of toxic substances in the receiving water and the flow and concentration of toxic substances in the discharge. The inherent variability of storm events and stormwater discharges add complexity to defining critical conditions. Storm events are naturally occurring and affect the characteristics of both the stormwater discharge and the receiving water body. They vary in intensity and duration; they can be isolated events or part of storm event pattern. All these factors affect flows and water quality.

Acute conditions are changes in the physical, chemical, or biological environment which are expected or demonstrated to result in injury or death to an organism as a result of short-term exposure to the substance or detrimental environmental condition. The acute criteria for metals are one-hour concentrations not to be exceeded more than once every three years. The most likely critical stormwater conditions for acute toxicity would be a high intensity short duration storm event that occurs after a long period of no rain. Under this scenario, the receiving water experiences low flows and the stormwater has a high potential to mobilize pollutants. The critical condition for acute toxicity is most likely to occur during a summer-time or early fall storm event.

Chronic conditions are changes in the physical, chemical, or biological environment which are expected or demonstrated to result in injury or death to an organism as a result of repeated or constant exposure over an extended period of time to a substance or detrimental environmental condition. The chronic criteria for metals are four-day averages not to be exceeded more than once every three years. Since chronic exposure is over several days, the "first flush" effect that occurs after a dry period is not as likely to be significant. Chronic exposure also requires storm events that result in stormwater discharge over a four-day period. However, the critical condition is still most likely to occur after the summer drought when water body flows are low. Much of the stormwater that falls in a drainage basin at the beginning of the wet season will be absorbed reducing the impact on flow in the receiving water body. During the same time the stormwater discharge off a developed site is likely to be in direct proportion to the storm event.

Due to the variability of storm events and the characteristics of stormwater discharges, the critical condition of a receiving water body is difficult to quantify. For example, after the beginning of a storm event the hardness of a stream typically decreases, depending on the intensity and duration of the storm. As the hardness of the stream decreases, the water quality criteria of some metals change and the toxicity of these metals increases. The variability of storm events makes the determination of critical conditions very difficult. Ecology believes that

with the infrequent occurrence of summer storms in Washington, the critical period for stormwater discharge is in the fall when storms are more frequent and runoff becomes more consistent. This period is approximately October 1.

### **Mixing Zones**

The Water Quality Standards allow the Ecology to authorize mixing zones around a point of discharge in establishing surface water quality-based effluent limits. Ecology may authorize both "acute" and "chronic" mixing zones for pollutants that can have a toxic effect on the aquatic environment near the point of discharge. The concentration of pollutants at the boundary of these mixing zones may not exceed the numerical criteria for that type of zone. Mixing zones can only be authorized for discharges that are receiving AKART and in accordance with other mixing zone requirements of WAC 173-201A-400.

RCW 90.48.555(12) applies to this permit and addresses mixing zones. It states: "The department may authorize mixing zones only in compliance with and after making determinations mandated by the procedural and substantive requirements of applicable laws and regulations."

The applicable laws and regulations include federal Clean Water Act, RCW 90.48, WAC 173-200, WAC 173-201A, WAC 173-204, and human health based criteria in the National Toxics Rule (40 CFR 131.36).

No mixing zones are authorized in this permit. Since a general permit must apply to a number of different sites, precise mixing zones and the resultant dilution are not applicable to facilities covered under a general permit.

Any discharger may request a mixing zone through an application for an individual permit in accordance with WAC 173-220-040 or WAC 173-216-070.

### **Description of the Receiving Water**

This draft general permit applies to facilities across the state that may discharge to many different receiving waters. Stormwater may be discharged to a municipal separate stormwater sewer system, a stormwater conveyance system such as a roadside ditch, or directly to a creek, lake, pond or other surface water body. The discharge will enter waters assigned designated uses intended to protect aquatic life and human health.

In highly urbanized areas, the discharge likely enters a collection system and commingles with other sources of stormwater before discharging to a water body. In these urbanized locations, the receiving water is likely to be more than a small creek in size but also likely to be subject to a significant number of municipal and industrial stormwater discharges. In a more suburban setting, the receiving water is not as likely to be subject to multiple municipal and industrial stormwater discharges, but is more likely to be a small creek or intermittent stream. In both cases, the potential impact of stormwater can be significant. Ecology anticipates that the diligent implementation and maintenance of BMPs identified in the Permittee's SWPPP will result in stormwater discharges that do not cause or contribute to violations of the state's Surface Water Quality Standards (Chapter 173-201A WAC).

## **Surface Water Quality Criteria**

WACs 173-201A-200 through -260 define applicable surface water quality criteria for aquatic biota. These criteria were established to protect existing and potential uses of the surface waters of the state. Consideration was also given to both the natural water quality and its limitations. The surface water quality criteria are an important component of the state's Surface Water Quality Standards (Chapter 173-201A WAC).

Application of the surface water quality criteria to a discharge requires site-specific analysis of the discharge and the receiving water. Such analysis is not possible in a statewide general permit that covers more than 1,200 facilities. However, the criteria influenced calculation of the benchmarks for turbidity, copper, lead and zinc. See section S5. Benchmarks and Effluent Limitations of this fact sheet for a discussion of this issue.

## **Consideration of Surface Water Quality-Based Limits for Numeric Criteria**

40 CFR Part 122.44 and RCW 90.48.555 require the permit to contain effluent limitations to control all pollutants or pollutant parameters which are, or may be, discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any water quality standard.

Based upon EPA's Nationwide Urban Runoff Program (NURP), *Evaluation of Washington's Industrial Stormwater General Permit* (2006 Herrera Evaluation), and best professional judgment, Ecology has determined that stormwater discharges may cause a violation of water quality standards for a variety of pollutant parameters. Therefore, the draft permit includes water quality-based effluent limits (WQBELs) to control discharges as necessary to meet applicable water quality standards. The provisions of Conditions S6.C & D (303(d) and TMDLs), S8 (Corrective Actions), S10.A (Compliance with Standards) and S12 (Solid Waste Management) constitute the WQBELs of this permit. These WQBELs supplement the permit's technology-based effluent limits in S3 (SWPPP), S5.C (ELGs), S5.E (Prohibited Discharges), S5.F (General Prohibitions), and S10.B (AKART).

The following is a list of the permit's WQBELs:

- Condition S6.C requires certain facilities who discharge to 303(d) listed waterbodies to comply with water quality-based numeric effluent limitations in accordance with RCW 90.48.555(7)(a).
- Condition S6.D requires facilities to comply with TMDLs, including any applicable wasteload allocations.
- Conditions S5 A & B, and S8 requires facilities that exceed (water quality-based) benchmark values to implement escalating levels of source control and treatment BMPs to ensure that future discharges do not cause or contribute to violations of water quality standards.
- Condition S10.A prohibits discharges that cause or contribute to violations of Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Quality Standards

(Chapter 173-200 WAC), and Sediment Management Standards (Chapter 173-204 WAC), and human health-based criteria in the National Toxics Rule (40 CFR 131.36).

- Condition S12 requires facilities to prevent solid waste material or leachate from causing violations of the Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Quality Standards (Chapter 173-200 WAC), and Sediment Management Standards (Chapter 173-204 WAC).

The rationale for water quality based effluent limitations in the draft permit are discussed below.

### **Condition S6.C. Water Quality-Based Effluent Limitations for Certain Discharges to 303(d)-Listed Waters**

The Washington State Water Pollution Control Act RCW 90.48.555 requires the Department of Ecology (Ecology) to develop appropriately derived water quality-based numeric effluent limitations for discharges regulated by the Industrial Stormwater General Permit (ISWGP).

Specifically, RCW 90.48.555(7) states:

(a) By November 1, 2009, the department shall modify or reissue the industrial storm water general permit to require compliance with appropriately derived numeric water quality-based effluent limitations for existing discharges to water bodies listed as impaired according to 33 U.S.C. Sec. 1313(d) (Sec. 303(d) of the federal clean water act, 33 U.S.C. Sec. 1251 et seq.).

(b) The industrial storm water general permit must require permittees to comply with appropriately derived numeric water quality-based effluent limitations in the permit, as described in (a) of this subsection, by no later than six months after the effective date of the modified or reissued industrial storm water general permit.

(c) For permittees that the department determines are unable to comply with the numeric water quality-based effluent limitations required by (a) of this subsection, within the timeline established in (b) of this subsection, the department shall establish a compliance schedule as follows:

(i) Any compliance schedule provided by the department must require compliance as soon as possible, and must require compliance by no later than twenty-four months, or two complete wet seasons, after the effective date of the industrial storm water general permit. For purposes of this subsection (7)(c)(i), "wet seasons" means October 1st through June 30th.

(ii) The department shall post on its web site the name, location, industrial storm water permit number, and the reason for requesting a compliance schedule for each permittee who requests a compliance schedule according to this subsection (7)(c). The department shall post this information no later than thirty days after receiving a permittee's request for a compliance schedule under this subsection (7)(c). The department shall also prepare a list of organizations and individuals seeking to be notified when such requests for compliance schedules are made, and notify them within thirty days after receiving a permittee's request for a compliance schedule. Notification under this subsection may be accomplished electronically.

To meet RCW 90.48.555(7)(a), Ecology applied the basic assumption that numeric effluent limitations would only be applied to facilities discharging to impaired waterbodies that were “listed” due to pollutants that are typically present in industrial stormwater discharges.

Under this assumption, water quality-based numeric effluent limitations would not be required for discharges to the following types of 303(d)-listed waterbodies:

- *Temperature.* Numeric effluent limits would not apply to dischargers to waterbodies listed for temperature. The rationale is that temperature is a seasonal water quality problem, and considering weather patterns in Washington State, stormwater discharges typically do not occur during the late summer months when temperature impaired waterbodies are relatively warm and more susceptible to thermal loading (discharges of heated water).
- *Fecal Coliform.* Numeric effluent limits would not apply to dischargers to waterbodies listed for fecal coliform bacteria, unless the industrial facility is determined by Ecology to be a source of fecal coliform bacteria to the receiving water, based upon Standard Industrial Classification (SIC). Specifically, facilities in the following categories are subject to effluent limitations for fecal coliform bacteria, unless the facility provides documentation and certification that there is no potential for their stormwater associated with industrial activity to contribute fecal coliform bacteria to the 303(d)-listed waterbody:
  - Food and Kindred Products (SIC Codes 20xx);
  - Treatment Works (SIC Code 4952);
  - Landfills (SIC Code 4953); and
  - Compost facilities (SIC Code 2873),
- *Low Dissolved Oxygen.* Numeric effluent limits would not apply to waterbodies listed for low dissolved oxygen (D.O.). Low D.O. impairments are seasonal (summer) problems, while stormwater discharges in Washington commonly occur from October through April. Low D.O. impairments are typically attributed to:
  - Heavy loading of nutrients (e.g., nitrogen or phosphorus) that cause excessive algae and plant growth, the decay of which depletes oxygen levels in the summer-time (eutrophication), or
  - Excessive discharges of wastewater or other substances with a high biochemical oxygen demand, expressed as BOD<sub>5</sub> - a test to see how fast biological organisms use up oxygen in a waterbody. These kinds of pollutants have a “far field” effect – which means the demand for oxygen doesn’t occur directly where the effluent or runoff water is discharged; it occurs somewhere downstream where decomposition finally occurs. This can make it difficult to show a direct relationship between the discharge of oxygen demanding substance and a low D.O. problem without site-specific water quality modeling.
- *Fish Tissue/Bioassessment.* Numeric effluent limits would not apply to waterbodies

303(d)-listed due contaminated fish tissue (e.g., PCBs, DDT, etc.) or bioassessment (surveys of benthic invertebrate communities). It would be extremely difficult to show a direct relationship between stormwater discharges and impairments due to contaminated fish tissue or bioassessment.

As described above, discharges to water bodies listed for temperature, and low dissolved oxygen, would not trigger a numeric effluent limitation. Discharges to water bodies impaired for fecal coliform bacteria would only be required if the industrial facility is a potential source of bacteria. In addition, 303(d) listings related to contaminated fish tissue (e.g., PCBs, DDT, etc.) or bioassessment (surveys of benthic invertebrate communities), would not trigger numeric effluent limitations. However, facilities discharging to any other waterbodies with 303(d)-listings (Category 5) would be subject to numeric effluent limitations for the 303(d)-listed parameter (e.g., if receiving waterbody listed for total zinc, the facility would be subject to a numeric effluent limitation for total zinc), or in the case of a sediment quality listing, a numeric effluent limitation for Total Suspended Solids (30 mg/L). The technical basis for these limitations is described below.

- *Fecal Coliform*. Facilities with outfalls to freshwater that are subject to a numeric effluent limitation for fecal coliform bacteria will be assigned a water quality based numeric effluent limitation of 100 colonies/100 mL fecal coliform bacteria. This limitation is based upon WAC 173-201-200(2)(b) [Table 200 (2)(b)], which lists the bacteria criteria to protect water contact recreation in fresh waters. Specifically, the effluent limitation is based on Table 200(2)(b), which states that fecal coliform organism levels in the “Extraordinary Primary Contact Recreation” category must not exceed a geometric mean value of 50 colonies/100 mL, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 100 colonies/100 mL. Since the general permit only requires one grab sample per quarter, facilities will have fewer than 10 sample points. Therefore, the numeric effluent limitation is 100 colonies/100 mL fecal coliform bacteria.

Facilities with outfalls to marine waters that are subject to a numeric effluent limitation for fecal coliform bacteria will be assigned a water quality based numeric effluent limitation of 43 colonies/100 mL. This limitation is based upon WAC 173-201A-210(2)(b) [Table 200 (2)(b)], which lists the bacteria criteria to protect shellfish harvesting and primary contact recreation in marine waters. Both criterion state that fecal coliform organism must not exceed a geometric mean value of 14 colonies/100 mL, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 43 colonies/100 mL. Since the general permit only requires one grab sample per quarter, facilities will have fewer than 10 sample points. Therefore, the numeric effluent limitation is 43 colonies/100 mL fecal coliform bacteria.

- *pH*. Facilities with outfalls to freshwater on the 303(d) list for pH are subject to a water quality based numeric effluent limitation, applied end-of-pipe, as follows:
  - Between 6.0 and 8.5 if the 303(d) listing was for high pH only;
  - Between 6.5 and 9.0 if the 303(d) listing was for low pH only; and
  - Between 6.5 and 8.5 if the 303(d) listing was for both low and high pH.

These limitations are based upon the aquatic life criteria in WAC 173-201A-200(1)(g).

Facilities with outfalls to marine waters on the 303(d) list for pH are subject to a water quality based numeric effluent limitation of between 7.0 and 8.5, applied end-of-pipe. This effluent limitation is based on the aquatic life criteria in WAC 173-201A-210(1)(f).

- *Total Phosphorus.* Facilities with outfalls to waterbodies on the 303(d) list for Total Phosphorus are subject to a water quality based numeric effluent limitation. This effluent limitation will be derived and assigned at the time of permit coverage based upon the receiving water-specific ecoregion and trophic-state in accordance with the lake nutrient criteria in the state surface water quality standards (WAC 173-201A-230).
- *Total Copper.* Facilities with outfalls to waterbodies on the 303(d) list for Total Copper are subject to a water quality based numeric effluent limitation. This effluent limitation will be derived as the dissolved copper criteria at the time of permit coverage, based upon receiving water type (freshwater or marine) and hardness, and a total/dissolved translator factor, in accordance with WAC 173-201A-240(3), applied end-of-pipe as a “daily maximum” limit.
- *Total Zinc.* Facilities with outfalls to waterbodies on the 303(d) list for Total Zinc are subject to a water quality based numeric effluent limitation. This effluent limitation will be derived and assigned at the time of permit coverage based upon receiving water type (freshwater or marine) and hardness, and total/dissolved conversion factor, in accordance with WAC 173-201A-240(3), applied end-of-pipe as a “daily maximum” limit..
- *Total Mercury.* Facilities with outfalls to waterbodies on the 303(d) list for Total Mercury are subject to a water quality based numeric effluent limitation. This effluent limitation will be derived and assigned at the time of permit coverage based upon receiving water type (freshwater or marine), applied end-of-pipe as a “daily maximum” limit.
- *Total Ammonia.* There are currently no marine waters on the 303(d) list for total ammonia. Facilities with outfalls to fresh waters on the 303(d) list for total ammonia will be assigned a water quality based numeric effluent limitation based on the toxic substances criteria in WAC 173-201A-240 and the table below, applied end-of-pipe as a “daily maximum” limit:

<b>ACUTE, FRESH WATER AMMONIA CRITERIA BASED ON pH. <sup>2</sup></b>		
<b>pH</b>	<b>Total Ammonia Nitrogen in mg-N/L</b>	
	<b>Acute Criteria with Salmonids Present</b>	<b>Acute Criteria with Salmonids Absent</b>
<b>6.5</b>	32.6	48.8
<b>6.6</b>	31.3	46.8

<sup>2</sup> The reference for this table is EPA, 1999, *1999 Update of Ambient Water Quality Criteria for Ammonia*, EPA 822-R-99-014.

<b>ACUTE, FRESH WATER AMMONIA CRITERIA BASED ON pH. <sup>2</sup></b>		
<b>pH</b>	<b>Total Ammonia Nitrogen in mg-N/L</b>	
	<b>Acute Criteria with Salmonids Present</b>	<b>Acute Criteria with Salmonids Absent</b>
<b>6.7</b>	29.8	44.6
<b>6.8</b>	28.1	42.0
<b>6.9</b>	26.2	39.1
<b>7.0</b>	24.1	36.1
<b>7.1</b>	22.0	32.8
<b>7.2</b>	19.7	29.5
<b>7.3</b>	17.5	26.2
<b>7.4</b>	15.4	23.0
<b>7.5</b>	13.3	19.9
<b>7.6</b>	11.4	17.0
<b>7.7</b>	9.65	14.4
<b>7.8</b>	8.11	12.1
<b>7.9</b>	6.77	10.1
<b>8.0</b>	5.62	8.40
<b>8.1</b>	4.64	6.95
<b>8.2</b>	3.83	5.72
<b>8.3</b>	3.15	4.71
<b>8.4</b>	2.59	3.88
<b>8.5</b>	2.14	3.20
<b>8.6</b>	1.77	2.65
<b>8.7</b>	1.47	2.20
<b>8.8</b>	1.23	1.84
<b>8.9</b>	1.04	1.56
<b>9.0</b>	0.885	1.32

- *Pentachlorophenol*. Facilities with outfalls to waterbodies on the 303(d) list for Pentachlorophenol are subject to a water quality based numeric effluent limitation. The effluent limitation will be derived and assigned at the time of permit coverage, based upon the toxic substances criteria in WAC 173-201A-240, applied end-of-pipe as a “daily maximum” limit.
- *Sediment Quality Listings*. Facilities with outfalls to waterbodies on the 303(d) list for excursions of sediment quality standards (Chapter 173-204 WAC) are subject to a water quality based numeric effluent limitation of 30 mg/L Total Suspended Solids (TSS). This limitation is based upon a best professional judgment determination that stormwater discharges with less than 30 mg/L TSS will not cause or contribute to a violation of sediment management standards.

### **Condition S6.D. Effluent Limitations for Discharges to Waterbodies with Approved TMDLs**

Ecology plans to continue implementing a permit application review process to identify discharges to impaired waters with an approved or established Total Maximum Daily Load (TMDL). Where an operator indicates on its application for coverage form that the discharge is to one of these waters, Ecology will review the applicable TMDL to determine as a threshold matter whether the TMDL includes requirements that apply to the individual discharger or its industrial sector. Ecology will determine whether any more stringent requirements are necessary to comply with the WLA, whether compliance with the existing permit limits is sufficient, or, alternatively, whether an individual permit application is necessary. If Ecology determines that additional requirements are necessary, Ecology will incorporate the final limits as site-specific terms to the facilities general permit coverage.

Condition S6.D is intended to implement the requirements of 40 CFR 122.44(d)(1)(vii)(B), which requires that water quality based effluent limits “are consistent with the assumptions and requirements of any available wasteload allocation for the discharge . . . .” Because WLAs for stormwater discharges may be specified in many different formats, Ecology plans to ensure that these requirements are properly interpreted and communicated to the permittee in way that can be implemented.

### **Condition S5.A&B and S8. Benchmarks and Corrective Actions**

Special Condition S8 includes a non-numeric effluent limitation that requires facilities that exceed water quality-based numeric benchmark values (Special Condition S5.A&B) trigger incremental revisions to the facilities Stormwater Pollution Prevention Plan (SWPPP) to include additional Best Management Practices (BMPs). In accordance with RCW 90.48.555(8), the adaptive management mechanism requires monitoring, evaluation, and reporting requirements to ensure that stormwater discharges are controlled by adequate best management practices (BMPs) that prevent violations of water quality standards.

RCW 90.48.555(8)(a) states that “. . .the adaptive management mechanism shall include elements designed to result in permit compliance and shall include, at a minimum, the following elements:

- (i) An adaptive management indicator, such as monitoring benchmarks;
- (ii) Monitoring;
- (iii) Review and revisions to the storm water pollution prevention plan;
- (iv) Documentation of remedial actions taken; and
- (v) Reporting to the department.”

RCW 90.48.555(8)(b) requires the permit to include the “timing and mechanisms for implementation of treatment best management practices”.

To comply with these statutory requirements, the permit continues the previous permits’ adaptive management approach that requires facilities to monitor stormwater quality against several water quality-based benchmarks (indicator values). The rationale for the selection and derivation of benchmark values for specific pollutant parameters is described in Special Condition S5 of this fact sheet.

If the benchmark for a particular pollutant parameter is met, the discharge is presumed to not cause or contribute to a violation of water quality standards for that parameter. If a (water quality-based) benchmark is exceeded numerous times, the potential for a violation of water quality standards increases, and the facility is required to implement escalating levels of SWPPP review and the implementation of additional BMPs. With emphasis on pollution prevention rather than treatment, the adaptive management system directs facilities who exceed one or more benchmark begins with Level 1 operational source control BMPs. If a benchmark is exceed 4 more quarters, Level 2 requires additional structural source control BMPs. If a benchmark is exceeded 4 more times, then Level 3 requires treatment BMPs.

Since benchmark values are not numeric effluent limitations, discharges that exceed a benchmark value are not automatically considered a permit violation or a violation of water quality standards. However, if a permittee exceeds benchmarks that trigger a corrective action, but does not comply with the specific corrective action requirements in Special Condition S8, it would be a permit violation.

The rationale for the benchmark values is provided in Special Condition S5, and the rationale for the adaptive management mechanism is provided in Special Condition S8.

#### **Condition S10.A. Water Quality Standards**

Condition S10.A prohibits discharges that cause or contribute to violations of Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Quality Standards (Chapter 173-200 WAC), and Sediment Management Standards (Chapter 173-204 WAC), and human health-based criteria in the National Toxics Rule (40 CFR 131.36).

Each permittee is required to control its discharge as necessary to meet applicable water quality standards. Ecology expects that compliance with the other conditions in this permit (e.g., the technology-based limits, Stormwater Pollution Prevention Plan (SWPPP), monitoring, corrective actions, etc.) will result in discharges that are controlled as necessary to meet applicable water quality standards. This “presumptive approach” is consistent with RCW 90.48.555(6), which states:

*(6) Compliance with water quality standards shall be presumed, unless discharge monitoring data or other site specific information demonstrates that a discharge causes or contributes to violation of water quality standards, when the permittee is:*

*(a) In full compliance with all permit conditions, including planning, sampling, monitoring, reporting, and recordkeeping conditions; and*

*(b)(i) Fully implementing storm water best management practices contained in storm water technical manuals approved by the department, or practices that are demonstrably equivalent to practices contained in storm water technical manuals approved by the department, including the proper selection, implementation, and maintenance of all applicable and appropriate best management practices for on-site pollution control.*

*(ii) For the purposes of this section, "demonstrably equivalent" means that the technical basis for the selection of all storm water best management practices are*

*documented within a storm water pollution prevention plan. The storm water pollution prevention plan must document:*

*(A) The method and reasons for choosing the storm water best management practices selected;*

*(B) The pollutant removal performance expected from the practices selected;*

*(C) The technical basis supporting the performance claims for the practices selected, including any available existing data concerning field performance of the practices selected;*

*(D) An assessment of how the selected practices will comply with state water quality standards; and*

*(E) An assessment of how the selected practices will satisfy both applicable federal technology-based treatment requirements and state requirements to use all known, available, and reasonable methods of prevention, control, and treatment.*

In addition, if the permittee becomes aware, or Ecology determines, that the discharge causes or contributes to a water quality standards exceedance, corrective actions and Ecology non-compliance notification is required. In addition, at any time Ecology may require additional monitoring or an individual permit, if information suggests that the discharge is not controlled as necessary to meet applicable water quality standards.

Ecology has determined that, in general, the effluent limits contained in this permit, combined with the other requirements concerning corrective actions, inspections, and monitoring, will control discharges as necessary to meet applicable water quality standards. Condition S8 requires each facility to implement an enforceable adaptive management program with monitoring and benchmarks that may trigger escalating levels of corrective actions (SWPPP revisions), to ensure that best management practices (BMPs) are adequate to prevent violations of water quality standards.

The permit also requires that permittees modify their SWPPP, if during inspections or investigations by the permittee (Condition S7) or Ecology (Condition G3), it is determined that the SWPPP is, or would be, ineffective in eliminating or significantly minimizing pollutants in stormwater discharges from the facility. In this way, the permittee may improve upon the initial selection, design, installation, or implementation of BMPs to further ensure that its discharges are controlled as necessary to meet applicable water quality standards.

Other information that may identify discharges that may cause or contribute to a violation of water quality standards and trigger a need for corrective actions include:

- Monthly visual inspections of the facility (Condition S7);
- Additional water quality sampling (Condition G12);
- Required monitoring for numeric effluent limitations guidelines for sectors subject to effluent limitation guidelines, or for discharges to 303(d) listed waters; or
- Information provided to Ecology or the operator by the public (including State or local authorities) suggestive that the control measures are not stringent enough meet the water quality standards.

## **Sediment Quality**

Ecology has promulgated Sediment Management Standards (Chapter 173-204 WAC) to protect aquatic biota and human health. These standards state that Ecology may require Permittees to evaluate the potential for the discharge to cause a violation of applicable standards (WAC 173-204-400). The permit requires BMPs to limit contamination of stormwater. Source control BMPs can reduce or eliminate contamination of stormwater and help comply with the sediment management standards. However, if Ecology determines that BMPs are ineffective in protecting sediment quality, Ecology may require the Permittee to implement additional measures to assure compliance with the sediment standards or to apply for an individual permit.

## **GROUND WATER QUALITY LIMITATIONS**

Ecology has promulgated Ground Water Quality Standards (Chapter 173-200 WAC) to protect beneficial uses of ground water. Permits issued by Ecology prohibit violations of those standards (WAC 173-200-100). The permit requires BMPs to limit contamination of stormwater. Source control BMPs can eliminate/minimize the potential contamination of stormwater and protect ground water quality. However, if Ecology determines that BMPs are ineffective in protecting ground water quality, Ecology may require the Permittee to implement additional measures to protect ground water quality or to apply for an individual permit.

## **DISCUSSION OF SPECIAL CONDITIONS**

Ecology has significantly reorganized the draft permit compared to the current permit to streamline it, remove repetitive language, and make it more easily understandable. The draft permit is in an outline format so that specific permit requirements can be more easily found. In addition, Ecology's revisions in the draft permit comply with the governor's "Plain Talk" policy for clearly written documents.

The following narrative describes the main requirements in the draft permit and the rationale behind the requirements.

### **S1. Permit Coverage**

#### Facilities Required to Seek Coverage Under the Permit

The draft ISWGP is a statewide permit that provides coverage for discharges of stormwater associated with 29 categories of industrial activities within the State of Washington. Condition S1.A defines which industrial sectors are required to seek coverage under the general permit. Table 1 provides a list of industrial activities and Standard Industrial Classification (SIC) codes that are categorically required to apply for coverage, if there is a discharge of stormwater from industrial activity to surface waters of the state, or a conveyance system that discharges to surface waters of the state. The sector descriptions are based on Standard Industrial Classification (SIC) Codes and Industrial Activity Codes consistent with the definition of stormwater discharge associated with industrial activity at 40 CFR 122.26(b)(14)(i-ix, xi).

Consistent with EPA's Multi-Sector General Permit (MSGP) and 40 CFR 122.26(b)(14) (iv), the draft permit required hazardous waste treatment, storage, or disposal facilities (TSDs), including those that are operating under interim status or a permit under subtitle C of RCRA, to apply for

permit coverage. This requirement was unclear in the previous permit, although approximately 10 facilities in this sector were covered under the previous ISWGP.

#### Significant Contributors of Pollutants

Condition S1.B of the draft permit retains ability for Ecology to require permit coverage for certain facilities that would otherwise be categorically exempt. The federal Clean Water Act at Section 402(p)(2)(E) gives the state of Washington this authority, as does the state mandate in Chapter 90.48 RCW to protect waters of the state.

Specifically, Ecology may require any facility to obtain permit coverage if the facility:

1. Is a "significant contributors of pollutants" to waters of the state, which includes surface water and groundwater; or
2. May reasonably be expected to cause a violation of any water quality standard; or
3. Conducts industrial activity, or has a SIC code, with stormwater characteristics similar to any industrial activity or SIC code listed in S1.A.

#### Facilities Not Required to Obtain Coverage

Condition S1.C contains an annotated list of industries not required to apply for coverage under this permit. Generally, facilities are exempted by federal regulation. For example, 40 CFR 122.26(a)(2) provides broad exemptions from permit coverage for the mining and oil and gas exploration industries. 40 CFR 122.26(a)(14) exempts "office buildings and accompanying parking lots." Land application sites used for the beneficial use of municipal or industrial sludge (or biosolids) are exempt under subsection 122.26(a)(14)(ix).

Facilities discharging stormwater to combined sewers are not required to obtain coverage under this permit. Combined sewers convey both sanitary wastewater and stormwater to sewage treatment plants. Combined sewers are owned and operated by municipalities. These wastewaters receive some treatment by the municipality and combined sewer discharges are regulated by the NPDES permit held by the municipality. If a facility is required by Condition S1.A of the permit to apply for coverage, Ecology may require a facility to provide documentation that it discharges to a combined sewer.

Facilities Excluded from Coverage under this Permit

Condition S1.D. Identifies categories of facilities and activities that are excluded (precluded) from coverage under the draft general permit and may require coverage under an individual permit.

The exclusion in S1.D.1 applies to 10 categories of industrial facilities subject to stormwater effluent limitation guidelines or new source performance standards, as specified by the code of federal regulations at 40 CFR Subchapter N or Toxic Pollutant Effluent Standards at 40 CFR Subchapter D Part 129:

40 CFR 411 Cement manufacturing	40 CFR 423 Steam electric power generating
40 CFR 412 Feedlots	40 CFR 434 Coal mining
40 CFR 418 Fertilizer manufacturing	40 CFR 436 Mineral mining and processing
40 CFR 419 Petroleum refining	40 CFR 440 Ore mining and dressing
40 CFR 422 Phosphate manufacturing	40 CFR 443 Paving and roofing materials (tars & asphalt)

The exclusion in S1.D.2 for nonpoint source silvicultural activities is based on 40 CFR Subpart 122.27.

S1.D.3 excludes facilities located on federal land or are federally owned or operated, based on Ecology’s NPDES delegation agreement with the US Environmental Protection Agency.

S1.D.4 excludes facilities on Tribal lands or facilities that discharge stormwater to receiving waters subject to water quality standards of Indian Tribes, including portions of the Puyallup River and other waters on trust or restricted lands within the 1873 Survey Area of the Puyallup Tribe of Indians Reservation.

S1.D.5 excludes facilities authorized to discharge stormwater associated with industrial activity under an existing NPDES individual or other general permit. This exclusion does not apply to stormwater discharged under the authority of a Phase I or Phase I municipal stormwater permit, except the Washington State Department of Transportation (WSDOT) municipal stormwater permit, which authorizes the discharge of stormwater associated with industrial activity from WSDOT vehicle maintenance facilities.

S1.D.6 excludes coverage for stormwater discharges associated with construction activity. Permittees planning construction activities with a disturbed area greater than or equal to 1 acre must apply for the Construction Stormwater General Permit (CSWGP). Ecology determined that the requirements of the construction permit are more specific and extensive than what can be accommodated in the ISWGP. These more specific requirements formed the rationale for creating a separate permit for construction activity in the mid-1990s. For example, the SWPPP requirements in the CSWGP are more extensive than those in the ISWGP. In addition, the sampling frequency for turbidity in the CSWGP is weekly compared to the four samples per year in the draft ISWGP.

Conditions S1.D.7 excludes coverage of facilities where the general permit is not sufficient to assure compliance with other regulations governing water quality protection. This could include special protections for ground water recharge zones or limitations established through watershed management agreements.

Conditions S1.D.8 excludes coverage for new discharges to a waterbody listed pursuant to Section 303(d) of the Clean Water Act, unless the permittee meets the requirements of Condition S6.B. This exclusion is based on 40 CFR 122.4(i) (prohibiting the issuance of permits to new dischargers that will cause or contribute to the violation of water quality standards) prior to coverage under the permit. To satisfy the requirements of 40 CFR 122.4(i), an operator must (a) eliminate all exposure to stormwater of the pollutant(s) for which the waterbody is impaired, and document no exposure and retain such documentation with the SWPPP; or (b) demonstrate that the pollutant for which the waterbody is impaired is not present at the site, and retain documentation of this finding with the SWPPP; or (c) submit data to Ecology documenting that the pollutant discharge will not cause or contribute to an excursion of water quality standards because the discharge will meet in-stream water quality standards at the point of discharge or because there are sufficient remaining wasteload allocations in an approved TMDL and the discharge is controlled at least as stringently as similar discharges subject to that TMDL.

#### Discharges to Groundwater

Special Condition S1.E is intended to protect groundwater from stormwater discharged or infiltrated to ground water, under the authority of Chapter 90.48 RCW. In RCW 90.48.020, the definition of “waters of the state” includes “underground waters”, i.e., ground water. For sites that discharge to both surface water and ground water, the terms and conditions of this permit shall apply to all ground water discharges. *However, this does not mean that discharges to ground are subject to stormwater sampling and monitoring.* Only point source discharges from the facility to surface water of the state are subject to sampling and benchmarks, unless Ecology specifically requires additional sampling for discharges to ground water (General Condition G12).

Facilities that discharge or infiltrate stormwater to ground water shall ensure that the state AKART requirements are met to ensure that polluting matter is not discharged to ground water (RCW 90.48.080).

Facilities that discharge to ground water through an *underground injection control well* shall comply with any applicable requirements of the Underground Injection Control (UIC) regulations, Chapter 173-218 WAC.

#### Certificate of No Exposure

Condition S1.F allows the Permittee to apply for a conditional “no exposure” certificate, as provided for in the federal regulation (40 CFR 122.26(g)). Any facility that qualifies may submit a request for “no exposure” exemption from permit coverage. “No exposure” means that all industrial activities are conducted under cover so that there is no reasonable probability that pollutants from industrial activities will come in contact with stormwater.

Some facilities that are subject to permit coverage may be able to apply for and receive a “no exposure” exemption. Ecology posts a listing of facilities receiving “no exposure” exemption on

an Ecology web page for public review. The “no exposure” certificate conveys to Ecology the right to enter and inspect the facility and, according to EPA Rules, facilities must re-apply every five years.

## **S2. Application Requirements**

40 CFR 122.21(a)(1) requires any facility that “discharges or proposes to discharge pollutants” to surface waters to apply for permit coverage. 40 CFR 122.22 specifies the person or persons within the applicant's organization who may sign the application. WAC 173-226-200 describes the application process to obtain coverage, as required in Condition S2, Coverage Requirements. The regulation explains public notice requirements, SEPA compliance, and the effective date of coverage. There are some differences in application requirements for new facilities versus existing facilities. WAC 173-226-130 requires facilities under permit that are increasing or altering their discharge, to notify the public of this intent in a newspaper of general circulation within the geographical area of the draft discharge or change in discharge. Existing facilities (except those modifying their permit coverage) are not subject to that requirement. Chapter 173-226 WAC defines “new operation” as one that begins activities on or after the effective date of the permit. For purposes of this permit, “new operation”, “new discharge(r)”, and “new facility” have the same meaning. The draft permit defines existing facilities as those that were in operation prior to the permit effective date so, under the draft permit, these facilities would not be subject to public notice requirements.

### Continuity of Permit Coverage

Condition S2.A.1 of the draft permit states that on the effective date of the draft permit, permittees with coverage under the existing industrial stormwater general permit (effective date Nov 15, 2008) are automatically covered under this permit unless otherwise notified by Ecology.

### Timing of Application

Condition S2.A.3 and A.4 of the draft permit requires new facilities or existing facilities not previously under permit coverage to submit their application for coverage at least 60 days before beginning operation or implementing a significant process change. This is the minimum amount of time that is legally required to issue coverage. The minimum amount of time is only possible when the applicant has submitted all the necessary paperwork, completed the public notice process, submitted a SWPPP, and there are no factors that require additional time such as a request for public hearing. In addition, a new or newly established facility must complete the SEPA process, in accordance with Chapter 197-11 WAC. Since the applicant is required to have permit coverage before they are authorized to discharge stormwater from an operating site, applicants should allow more time than 60 days prior to discharging stormwater from the facility. Issues such as discharging to impaired waters or environmentally sensitive waters likely require additional time to process the application for coverage.

## **S3. Stormwater Pollution Prevention Plan (SWPPP)**

### SWPPP Requirement

In accordance with 40 CFR 122.44(k) and 40 CFR 122.44 (s), the draft general permit includes requirements for the development and implementation of SWPPPs along with BMPs to minimize or prevent the discharge of pollutants to waters of the state. BMPs constitute Best Conventional

Pollutant Control Technology (BCT) and Best Available Technology Economically Achievable (BAT) for stormwater discharges. Ecology has determined that development of a SWPPP and implementation of adequate BMPs in accordance with this permit constitutes “all known, available, and reasonable methods of prevention, control, and treatment” (AKART).

The SWPPP is a vital element of the ISWGP. A site-specific SWPPP requires implementation of actions necessary to manage stormwater to comply with the state’s requirement under Chapter 90.48 RCW to protect the beneficial uses of waters of the state. The permit identifies a few situations such as existing facilities coming under permit for the first time, where time is allowed to fully develop and implement the SWPPP. For those facilities currently under permit coverage and for all new facilities, the permit requires a fully developed and implemented SWPPP prior to application for coverage.

The SWPPP must identify potential sources of stormwater contamination from industrial activities and how those sources of contamination are managed to prevent or minimize contamination of stormwater. If contamination of stormwater is unavoidable, the SWPPP will quantify the environmental risk and determine if treatment of the stormwater is necessary to prevent a violation of water quality standards and loss of beneficial uses in waters of the state. The SWPPP must be a “living” document that the Permittee continuously reviews and revises as necessary to assure that stormwater discharges do not degrade water quality. Pollution prevention requires constant vigilance and full participation if it is to be effective. Like maintaining safety at the site, the SWPPP will only be successful when it becomes part of the way all employees at the site perform activities that could affect stormwater quality. The SWPPP must be retained on-site or within reasonable access to the site and available for review by Ecology.

Ecology does not review a SWPPP for formal approval or denial for several reasons. The development and implementation of the SWPPP are the responsibility of the Permittee. Ecology feels the existing and draft permits clearly specify the required minimum elements of the SWPPP. With the aid of Ecology-approved stormwater management manuals, the permit allows the Permittee the flexibility to select and implement those BMPs that fit the characteristics of the site, stormwater pollutant concentrations, and the Permittee's resources. Ecology intends the SWPPP to be used together with sampling results and the corrective action program to allow the Permittee to design the most effective stormwater management plan for the site.

#### SWPPP Signature and Certification Requirements

The draft permit requires the permittee to sign and date the SWPPP consistent with procedures detailed in General Condition G2 (Signatory Requirements). Specifically, S3.A.6 states:

The Permittee shall sign and certify all SWPPPs, inspection reports, and Level 1, 2, and 3 SWPPP Certification Forms in accordance with General Condition G2.

This requirement is consistent with standard NPDES permit conditions described in 40 CFR 122.22 and is intended to ensure that the permittee understands its responsibility to create and maintain a complete and accurate SWPPP. Permittees are allowed to appoint delegate an authorized representative consistent with the regulations. Therefore, if a facility feels it is more appropriate for a member of the stormwater pollution prevention plan team to sign the documentation, that option is

available under the permit. The signature requirement includes an acknowledgment that there are significant penalties for submitting false information.

### Best Management Practices (BMPs)

BMPs are the actions identified in the SWPPP to manage, prevent contamination of, and treat stormwater. BMPs include schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the state. BMPs also include treatment systems, operating procedures, and practices used to control plant site runoff, spillage or leaks, sludge or waste disposal, and drainage from raw material storage. In Condition S3.B.3, BMPs are categorized as *operational source control*, *structural source control*, and *treatment BMPs*. Under each category, specific (mandatory) BMPs are required to be included in the SWPPP and implemented, unless site conditions render the BMP unnecessary, and the exception is clearly justified in the SWPPP. In addition to the specific BMPs listed in S3.B.3, (e.g., vacuum sweep paved surfaces, etc.) , the permittee must ensure that their SWPPP includes the operational and structural source control BMPs listed as “applicable” in Ecology’s stormwater management manuals. Many of these “applicable” BMPs are sector-specific or activity-specific, and are not required at facilities engaged in other industrial sectors or activities.

### Ecology-Approved Stormwater Management Manuals

Consistent with RCW 90.48.555 (5) and (6), the permit contains a narrative effluent limitation which requires the implementation of BMPs that are contained in stormwater technical manuals approved by Ecology, or practices that are demonstrably equivalent to practices contained in stormwater technical manuals approved by Ecology. This is intended to ensure that BMPs will prevent violations of state water quality standards, and satisfy the state AKART requirements and the federal technology-based treatment requirements under 40 CFR part 125.3. Specifically, Condition S.3.A.3 states that BMPs shall be consistent with:

- a. Stormwater Management Manual for Western Washington (2005 edition), for sites west of the crest of the Cascade Mountains; or
- b. Stormwater Management Manual for Eastern Washington (2004 edition), for sites east of the crest of the Cascade Mountains; or
- c. Revisions to the manuals in S3.A.3. a & b., or other stormwater management guidance documents or manuals which provide an equivalent level of pollution prevention, that are approved by Ecology and incorporated into this permit in accordance with the permit modification requirements of WAC 173-220-190; or
- d. Documentation in the SWPPP that the BMPs selected provide an equivalent level of pollution prevention, compared to the applicable Stormwater Management Manuals, including:
  - i. The technical basis for the selection for all stormwater BMPs (scientific, technical studies, and/or modeling) which support the performance claims for the BMPs selected; and

- ii. An assessment of how the BMPs will satisfy AKART requirements and the applicable technology-based treatment requirements under 40 CFR part 125.3.

#### Western Washington

The *Stormwater Management Manual for Western Washington* (SWMM) is the current standard for minimum technical requirements addressing water quality of stormwater through treatment BMPs for facilities in western Washington. Ecology released the original *Western Washington* SWMM in September 2001. The *Western Washington* SWMM was revised in February 2005. Many facilities already under permit based their BMPs on the previous version. The draft permit does not require current Permittees to revise their SWPPP and implement all changes found in the revised SWMM. Although the revisions may be applicable to existing facilities, new and revised BMPs in the updated SWMM were evaluated within the context of new and redevelopment projects. Wholesale updating to the new manual may provide little gain for the expense. Therefore, current Permittees need only apply BMPs from the new manual if their stormwater discharge fails to achieve compliance with water quality standards or where redevelopment at the site fits the manual definition.

Under the SWMM for western Washington, the design basis for volume-based treatment systems is the 6-month, 24-hour storm event. For flow rate-based treatment systems, the design basis is the flow rate at, or below which, 91% of the runoff volume, as estimated by an approved continuous runoff model, will be effectively treated. This design storm was derived to assure that stormwater treatment facilities were sized to treat 91% of the stormwater.

#### Eastern Washington

The *Eastern Washington* SWMM is the current standard for minimum technical requirements addressing water quality of stormwater through treatment BMPs for facilities in eastern Washington. Ecology released the *Eastern Washington* SWMM in September 2004.

The design basis for volume based treatment systems in eastern Washington is defined in several ways:

1. A six-month regional storm,
2. A six-month, 24-hour U. S. Department of Agriculture Soil Conservation Service (SCS) Type IA storm,
3. A six-month, 24-hour SCS Type II storm, or,
4. 0.5 inch of predicted runoff from the site.

Although the storm event differs from the 6-month 24-hour event defined for western Washington, it meets the same type of standard, 91% of stormwater treated, as western Washington. Treatment systems must be fully functional for all storm events that do not exceed the design storm.

## Alternative Manuals and BMPs

Condition S3.A.3 has provisions for the use of BMPs other than those contained in Ecology's Stormwater Management Manuals (SWMM). Specifically, permittees may use BMPs consistent with:

- Revisions to the manuals in S3.A.3. a & b., or other stormwater management guidance documents or manuals which provide an equivalent level of pollution prevention, that are approved by Ecology and incorporated into this permit in accordance with the permit modification requirements of WAC 173-220-190; or
- Documentation in the SWPPP that the BMPs selected provide an equivalent level of pollution prevention, compared to the applicable Stormwater Management Manuals, including:
  - The technical basis for the selection for all stormwater BMPs (scientific, technical studies, and/or modeling) which support the performance claims for the BMPs selected; and
  - An assessment of how the BMPs will satisfy AKART requirements and the applicable technology-based treatment requirements under 40 CFR part 125.3.

## Operational Source Control BMPs

Operational source control BMPs include a schedule of activities, prohibition of practices, maintenance procedures, employee training, good housekeeping, and other managerial practices to prevent or reduce the pollution of waters of the state. These activities do not require construction of pollution control devices but are very important components of a successful SWPPP. Employee training, for instance, is critical to achieving timely and consistent spill response. Pollution prevention is likely to fail if the employees do not understand the importance and objectives of BMPs. Prohibitions might include eliminating outdoor repair work on equipment and certainly would include the elimination of intentional draining of crankcase oil on the ground. Good housekeeping and maintenance schedules help prevent incidents that could result in the release of pollutants. Operational BMPs represent a cost-effective way to control pollutants and protect the environment. The SWPPP must identify all the operational BMPs and how and where they are implemented. For example, the SWPPP must identify what training will consist of, when training will take place, and who is responsible to assure that employee training happens.

Chapter 2 of volume 4 in the *Western Washington SWMM* and Chapter 8 of the *Eastern Washington SWMM* provides detailed lists of operational source control measures that apply to virtually all industrial activities. These chapters provide the required BMPs for each major category listed in the permit and include "recommended additional... BMPs" for good housekeeping, preventative maintenance, and spill prevention and cleanup. Specific BMPs are not required, but a suite of BMPs is likely necessary to achieve compliance with water quality standards.

### Structural Source Control BMPs

Structural source control BMPs include physical, structural, or mechanical devices or facilities intended to prevent pollutants from entering stormwater. Examples of source control BMPs include erosion control practices, maintenance of stormwater facilities (e.g., cleaning out sediment traps), construction of roofs over storage and working areas, and direction of equipment wash water and similar discharges to the sanitary sewer or a dead end sump. Structural source control BMPs likely include a capital investment but are cost effective compared to cleaning up pollutants after they have entered stormwater. Structural source control BMPs are also identified in Chapter 2 of volume 4 in the *Stormwater Management Manual for Western Washington* and Chapter 8 of the *Eastern Washington SWMM*. Some of the control measures are specific to an industrial group such as “Commercial Composting” while others apply to general industrial activities such as “Mobil Fueling of Vehicles and Heavy Equipment.”

### Treatment BMPs

The previously described BMPs are designed to prevent pollutants from entering stormwater. However, even with an aggressive and successful program, stormwater may still require treatment to achieve compliance with water quality standards. Treatment BMPs are intended to remove pollutants from stormwater. Examples of treatment BMPs are detention ponds, oil/water separators, biofiltration, and constructed wetlands<sup>3</sup>. Volume 5 of the *Western Washington SWMM* and Chapter 5 of the *Eastern Washington SWMM* provides information on treatment BMPs including guidance on selecting appropriate treatment BMPs. All facilities are encouraged to review these *SWMM* chapters and select and implement appropriate treatment BMPs. Facilities that are unable to achieve discharge compliance through source control BMPs must implement appropriate treatment BMPs. If treatment BMPs are not required, the facility must still include in their SWPPP a description of how they arrived at that conclusion.

### Volume/Flow Control BMPs

Ecology recognizes the need to include specific BMP requirements for stormwater runoff quantity control to protect beneficial water uses, including fish habitat. New facilities and existing facilities undergoing redevelopment must implement the requirements for peak runoff rate and volume control identified by volume 1 of the *Western Washington SWMM* and Chapter 2 in the *Eastern Washington SWMM* as applicable to their development. Chapter 3 of volume 3 *Western Washington SWMM* and Chapter 6 in the *Eastern Washington SWMM* lists BMPs to accomplish rate and volume control. Existing facilities in western Washington should also review the requirements of volumes 1 (Minimum Technical Requirements) and Chapter 3 of volume 3 in the *Western Washington SWMM*. Chapter 2 (Core Elements for New Development and Redevelopment) in the *Eastern Washington SWMM* contains the minimum technical requirements for facilities east of the Cascades. Although not required to implement these

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<sup>3</sup>Developing a constructed wetland can be an effective way to treat stormwater. However, wetlands constructed for treatment of stormwater are not eligible for use as compensatory mitigation for authorized impacts to regulated wetland systems.

BMPs, controlling rate and volume of stormwater discharge maintains the health of the watershed. Existing facilities should identify control measures that they can implement over time to reduce the impact of uncontrolled release of stormwater.

#### **S4. Sampling**

WAC 173-220-210 and 40 CFR 122.41 require sampling, recording, and reporting for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act. RCW 90.48.555(8), requires an enforceable adaptive management mechanism with monitoring, evaluation, and reporting requirements to ensure that stormwater discharges are controlled by adequate best management practices (BMPs) that prevent violations of water quality standards. 90.48.555(8)(a) states that "...the adaptive management mechanism shall include elements designed to result in permit compliance and shall include, at a minimum, the following elements:

- (i) An adaptive management indicator, such as monitoring benchmarks;
- (ii) Monitoring;
- (iii) Review and revisions to the storm water pollution prevention plan;
- (iv) Documentation of remedial actions taken; and
- (iv) Reporting to the department."

The draft permit requires Permittees to conduct stormwater sampling and analysis as well as visual inspections of the facility. The Permittee is required to report sampling results to Ecology on a quarterly basis.

Sampling data, when compared to benchmark indicator values, provides tangible evidence of the effectiveness of the permit to control pollutants in stormwater, both at specific sites and statewide. The permit requires that all Permittees conduct sampling for a core set of pollutant parameters. The core set of parameters required in the permit should be adequate under most conditions to identify sites that are most likely to pose a risk to water quality. In addition to core sampling requirements, certain industrial sectors are subject to additional sampling parameters and benchmarks, based on the stormwater pollutants that are typically associated with the industrial activity in these sectors.

#### Sample Timing

The previous permit required that Permittees sample stormwater discharges within the first hour after a discharge begins from a qualifying storm event (first flush). A qualifying storm is defined as a storm with at least 0.1 inches of precipitation within a 24-hour period (intensity) which is preceded by at least 24 hours of no measurable precipitation. The previous permit required the collection, analysis, and submission of stormwater sampling results even when Permittees did not fully meet these conditions. Many Permittees found these criteria difficult to meet. Ecology has concluded that complex criteria for sample timing resulted in many facilities failure to collect stormwater samples, even during the wet season in Western Washington.

During the 11-quarter data characterization period from 2003 through 2005, the *6415 Data Analysis Report* counted 22,794 entries in the Ecology's database with no value reported for various reasons. The *6415 Final Data Analysis Report* states that "No Qualifying Storm Event" accounted for 72 percent or 16,434 entries as the primary reason for Permittees non-reported sample results.

One of the recommendations in *Evaluation of Washington's Industrial Stormwater General Permit* (2006 Herrera Evaluation), is to remove the storm event size target (i.e., at least 0.1 inches of precipitation within a 24-hour period). The basis for this recommendation is that the size of the storm event that causes a discharge is inconsequential; "any storm event that results in a discharge from the site should be appropriate for sampling." Another recommendation from the Herrera Evaluation was to extend the sample collection period from 1 hour of discharge to within the first 12 hours of discharge. The rationale for the recommendation is that the "one-hour after discharge" criteria was "very difficult to meet; it essentially means that all storms that begin outside regular working hours will not qualify and an almost immediate response would be needed for [sampling] a storm event."

Based on these recommendations in the Herrera Evaluation, input from the 2008/2009 Industrial Stormwater Stakeholder Workgroup, and Ecology's best professional judgment; the draft permit contains considerably less complex criteria for sample timing. All criteria for when samples may be collected have been eliminated (i.e., 24-hour antecedent dry period, minimum storm intensity, and the timing of sample collection relative to the beginning of the storm).

The Herrera Evaluation also recommended that sampling only be required during the season of highest precipitation, i.e., 5 samples collected from September through March. This recommendation was intended to provide a better assessment of each facilities stormwater characteristics compared to collecting only 4 samples spread out throughout the year (1/quarter). The recommendation also included the use of median values of the wet season sampling, in recognition of the "highly variable nature of stormwater data and the inherent uncertainty in their interpretation." However, the draft permit does not incorporate these recommendations for several reasons, including:

- A change from "1 sample/quarter" to "5 samples/wet season" has the potential to cause confusion among permittees, many of whom have received site-specific training from inspectors, and have gotten used to sampling and reporting at quarterly intervals.
- Quarterly sampling would capture stormwater runoff during dry-season storm events which, in some cases, may have a considerable impact on receiving waters with seasonal low flows (e.g., in summer and early fall).
- For dry quarters where no stormwater discharge or sampling occurs, it is easy to accommodate "no discharge" events on Discharge Monitoring Reports and in Ecology's WPLCS database.

The quarterly sampling frequency in the draft permit reflects a consideration of the certainty, risk, and cost associated with sampling stormwater and the adaptive management objectives of the permit. Certainty has to do with how much sampling is required to achieve a level of confidence that the data represent the pollutants in the discharge. The risk is an assessment of the environmental impacts from pollutants and how well the data represent any environmental concern in discharges from a site. Cost considers all associated sampling expenses: time to sample, expense of shipping and analysis, training, and equipment requirements. The objectives define the purpose of the sampling, which in the case of the ISWGP, is to ensure that source control and treatment BMPs are functioning to prevent discharges that could cause or contribute to violations of water quality standards.

The draft permit streamlines the sampling requirements by allowing the Permittee to sample whenever stormwater discharges from the site. Samples from the same discharge point must be collected at least 24 hours apart to help ensure that sample collection times are reasonably representative of stormwater discharge characteristics.

### Sample Locations

To help ensure that permittees obtain representative samples, the draft permit requires sampling and analysis from each distinct point of discharge off-site if activities and site conditions that may pollute the stormwater are likely to result in discharges that will significantly vary in the concentration or type of pollutants. Except for discharge points that are subject to numeric effluent limitations, the Permittee may limit sampling and analysis to the discharge most likely to have the highest concentration of pollutants, as long as this will not misrepresent the presence of different pollutants in discharges and will not underestimate the pollutant loading from the site. The draft permit requires the Permittee to document sample locations, and the rationale for those locations, in the sampling plan portion of the SWPPP (Condition S3.B.5).

Specifically, Special Condition S4.B.2 requires:

#### Sample Location(s)

1. Consistent with Condition S3.B.5, the Permittee shall designate representative sampling location(s) at the point(s) where stormwater associated with industrial activity is discharged off-site.
2. On-site discharges to ground (e.g., infiltration, etc.) are not sampled, unless specifically required by Ecology (Condition G12).
3. The Permittee shall sample each distinct point of discharge off-site and shall analyze each sample separately; except where pollutant types, at one or more distinct point of discharge off-site, do not vary (based on industrial activities and site conditions), the Permittee may sample only the discharge point with the highest concentration of pollutants.
4. The exception to sampling each point of discharge in S4.B.2.c does not apply to any point of discharge subject to numeric effluent limitations (Conditions S5.C, S6.C & S6.D).
5. The Permittee shall take all samples after the stormwater passes through on-site BMPs, as close to the point of discharge off-site that can be achieved safely.

Unless specifically required by Ecology via administrative order or permit modification (General Condition G12 Sampling), permittees are not required to sample on-site discharges to ground water (e.g., discharge to on-site infiltration pond).

### Suspension of Sampling Due to Consistent Attainment

After eight consecutive sampling events Permittees with sampling results at or below benchmark values for any parameter may suspend sampling for that parameter for the remainder of the

permit term. Consecutive means all samples for a parameter at a specific sampling location. Ecology will also authorize suspension of sampling for a TMDL or 303(d)-listed parameter of concern if eight consecutive samples fail to detect the presence of the listed parameter. Suspension of sampling for consistent attainment does not apply to sampling at facilities with numeric effluent limitations based on federal Effluent Limitation Guidelines.

Specifically, Special Conditions S4.B requires:

6. After the effective date of this permit, the Permittee may suspend sampling for one or more parameters based on consistent attainment of benchmark values when:
  - a. Eight consecutive samples in which the reported value for the listed parameter, other than pH, is equal to or less than the benchmark value.
  - b. For pH, the eight consecutive samples shall be within the range of 6.5 to 8.5 (freshwater) or 7.0 to 8.5 (marine).
  - c. For discharges to 303(d)-listed water bodies, eight consecutive samples fail to detect the presence of the listed parameter when analytical detection levels are lower than the pollutant criteria.
7. A Permittee who has a significant process change shall not use previous sampling results to demonstrate consistent attainment.
8. Suspension of sampling for consistent attainment does not apply to sampling at non-hazardous waste landfills subject to numeric effluent limitations (S5.C).

Suspension of sampling for consistent attainment of benchmarks is based on a similar condition in EPA's MSGP (section 4.2.1.2). The MSGP allows suspension of sampling if the average of four samples collected during the first year of the permit does not exceed the benchmark. Ecology considered using the same criteria, but concluded four samples are not sufficient to adequately characterize the discharge from a facility.

Facilities who successfully suspended sampling for one or more parameters under the previous permit (due to "consistent attainment") must resume sampling for any applicable parameters (including core, sector-specific, and TMDL/303(d)-related parameters), but may re-qualify for consistent attainment after 8 consecutive sampling events conducted after the effective date of the new permit.

#### Reduction/Waiving of Sampling for Extreme Hardship

The previous permit contained a provision to reduce or waive sampling requirements for facilities that have difficulties conducting the required sampling due to economic hardship. Permittees that qualify for and receive an extreme hardship fee reduction under the Wastewater Discharge Permit Fee Rule (Chapter 173-224 WAC) may have sampling requirements reduced or waived. Extreme hardship applies only if the gross annual revenue of goods and services produced using the processes regulated under the permit is \$100,000 or less and the fee poses an extreme hardship to the business.

During the previous permit cycle only one out of 1,100+ permittees applied for, and was granted, a reduced sampling schedule. Therefore, the extreme hardship reduction/waiver provision is being dropped from the draft permit, to reduce complexity of the general permit.

### **S5. Benchmarks, Action Levels, and Discharge Limitations**

RCW 90.48.555(8)(a) requires Ecology to establish an enforceable adaptive management mechanism in the permit. Adaptive management includes the establishment of benchmarks and action levels for selected parameters, sampling for these parameters, and a corrective action program to reduce and eliminate exceedances of benchmarks and action levels.

The draft permit contains benchmarks and action levels for selected pollutant parameters likely to be present in stormwater discharges. Benchmarks are not water quality criteria or numeric effluent limitations; benchmarks are numeric indicator values used to assess compliance with a water quality-based narrative effluent limitation. Benchmarks are intended to identify discharges that are at low risk of violating water quality standards. Discharges that do not exceed a benchmark are typically not likely to cause a violation of water quality standards. Discharges that exceed one or more benchmarks represent a higher risk of violating water quality standards. An actual water quality standards violation can only be confirmed after site-specific conditions of the discharge and receiving water body are evaluated.

The following narrative describes Ecology's rationale in establishing benchmarks. Section 1 explains Ecology's rationale for selecting the core benchmark parameters in the draft permit. Sections 2 and 3 describe the methodology Ecology used to derive core and sector-specific benchmark values. Section 4 provides Ecology's rationale for requirement for permittees to use specified analytical methods and comply with associated laboratory quantitation levels. Section 5 describes benchmarks and sampling requirements applicable to Permittees in specific industries. Section 6 discusses permit requirements for facilities subject to federal effluent limits (non-hazardous waste landfills). Section 8 addresses stormwater discharges that are conditionally approved or prohibited by the draft permit.

#### 1. Core Benchmark Parameters and Sampling Rationale

Condition S5.A requires all Permittees with stormwater discharges to surface water to conduct base level sampling for five core pollutant parameters. Ecology does not attempt to address all the possible pollutants from each industrial facility. Instead, a basic set of parameters was selected to provide an indication of how well the facilities BMPs are functioning to prevent violations of the state surface water quality standards. The representative parameters are pH, turbidity, total zinc, and oil and grease. Ecology selected these parameters to reasonably indicate the overall effectiveness of each facility's BMPs to reduce and prevent stormwater discharges that could cause a violation of water quality standards. A secondary objective was to minimize the level of laboratory expenses to what is necessary to reasonably ensure compliance with permit conditions.

The draft permit retains the requirement for all facilities to conduct quarterly sampling for four core parameters. These include: turbidity, pH, zinc, and oil and grease. However, oil and grease sampling/analysis is being replaced by a visual assessment for the presence of “visible oil sheen”.

**Turbidity** of water is related to the amount of suspended and colloidal matter contained in the water. Increasing turbidity reduces the clarity and penetration of light, negatively impacting aquatic organisms. Suspended solids can settle out, covering up gravel beds and suffocating or driving off benthic organisms. Fish may be harmed by suspended particles which can irritate the gills. In addition, many of the pollutants that are found in stormwater are attached to the small particles that become suspended in the stormwater, increasing their potential toxicity. Turbidity is an indirect measure of total suspended solids. For these reasons, high turbidity is a useful indicator of stormwater contamination. Turbidity was also chosen as a core parameter, in part, because Chapter 173-201A WAC includes a turbidity standard, and Ecology studies have demonstrated a poor statistical correlation between turbidity and TSS. Turbidity sampling provides a more direct basis for determining compliance with water quality standards. Turbidity sampling can be conducted on-site if the Permittee purchases a turbidity meter. Ecology also believes turbidity is an indicator of good “housekeeping” practices.

The permit requires all Permittees to sample for **pH** to determine the acidity/alkalinity of the discharge. Extremes in pH are toxic to fish and unsuitable for ground water used as a drinking water source. Rainfall is typically slightly acidic as it hits the ground, but buffers quickly, achieving near neutral pH. Stormwater discharges with significantly higher or lower pH values strongly indicate that the stormwater has been contaminated. The permit authorizes the use of paper or a calibrated pH meter for measuring pH, unless the discharge is subject to a pH effluent limitation (Condition S5.C). Permittees subject to a pH effluent limitation must use a pH meter.

The Herrera Evaluation recommended that **oil and grease** sampling and analysis be eliminated from the permit, because only seven percent of the samples for oil and grease exceeded the benchmark. Furthermore, oil and grease concentrations in the majority of samples were below applicable detection limits. Ecology does not interpret these data to mean that stormwater discharges from industrial facilities have insignificant levels of petroleum contamination. The Herrera Evaluation stated “The reason there are few excursions of the oil and grease benchmark is more likely related to how and when the samples are collected, rather than providing evidence of well controlled site conditions. Oil and grease problems are more appropriately addressed with visual assessments; by the time the laboratory results are available, the event causing the problem will likely have ended.” Therefore, Ecology has decided to eliminate analytical oil and grease sampling, replacing it with a visible assessment of petroleum contamination using **visible oil sheen**. If visible oil sheen is observed by the permittee at a sampling location during a stormwater discharge event, it is considered an excursion of the benchmark.

**Zinc** can be toxic to aquatic organisms and is a common constituent of contaminated stormwater. A number of metals may be found in stormwater discharges; but a review of data supplied by the state of Connecticut showed that zinc was more commonly associated with stormwater than copper and lead. Where either copper or lead tended to be significant in the stormwater, zinc would also be found at significant levels. The use of zinc as a surrogate for copper and lead is based on 40 CFR 122.44(d)(1), which authorizes the establishment of effluent limitations on an indicator parameter for a pollutant of concern. Therefore, total zinc was chosen as the representative metal for core sampling, applicable to all facilities.

## 2. Basis of Core Benchmark Values

The previous permit contained both benchmarks and action levels. To reduce confusion, the draft permit contains benchmarks, but has eliminated the action levels, so that corrective actions are triggered by excursions of the benchmarks (Condition S5.A). In essence, the benchmarks in the draft permit will serve the same function as action levels in the previous permit.

The draft permit retains the previous permits' benchmark values for discharges of conventional pollutants (i.e., Turbidity and pH) but has revised benchmarks for toxic pollutants (i.e., Total Zinc and Petroleum/Oil & Grease).

**Table 46: Basis of Draft ISWGP Benchmarks**

<b>Parameter</b>	<b>Benchmark Value</b>	<b>Basis</b>
pH	Between 6.0 and 9.0 standard units	State water quality standards
Turbidity	25 NTU	Ecology best professional judgment
Petroleum/Oil & Grease	No visible oil sheen	Ecology best professional judgment
Total Zinc	Western WA: 200 µg/L Eastern WA: 255 µg/L	Monte Carlo Simulation <sup>4</sup>

### pH

Ecology retained the pH benchmark of between 6.0 and 9.0 from the existing permit. This benchmark reflects the federal technology-based secondary treatment standards applied to discharges from wastewater treatment plants. In addition, this benchmark corresponds to the water quality criterion applied to many water bodies that specifies: pH shall be in the range of 6.5 to 8.5, with a human-caused variation within the above range of less than 0.5 units. [WAC 173-201A-200(1)(g)]

### Turbidity

Ecology retained the turbidity benchmark of 25 NTU from the existing permit. Based on field experience, Ecology staff determined that a stormwater discharge of 25 NTU or less will typically cause no water quality violation. (2002 ISWGP Fact Sheet, p. 34)

### Petroleum/Oil & Grease

The Herrera Evaluation recommended that oil and grease sampling and analysis be eliminated from the permit, because only seven percent of the samples for oil and grease exceeded the 15 mg/L benchmark from the existing permit. They also found that oil and grease concentrations in the majority of samples were below applicable detection limits. According to Herrera's 2006

<sup>4</sup> Based upon *Water Quality Risk Evaluation for Proposed Benchmarks/Action Levels in the Industrial Stormwater General Permit*, Herrera Environmental Consultants, dated February 9, 2009.

*Evaluation of Washington's Industrial Stormwater General Permit*, "The reason there are few excursions of the oil and grease benchmark is more likely related to how and when the samples are collected, rather than providing evidence of well controlled site conditions". Ecology has decided to eliminate analytical oil and grease sampling, replacing it with a visible assessment of petroleum contamination using **visible oil sheen**. If visible oil sheen is observed by the permittee at a sampling location during a stormwater discharge event, it is considered an excursion of the benchmark. This benchmark is based on Ecology's best professional judgment that stormwater associated with industrial activity with a visible petroleum oil sheen is likely to discharge cancer causing pollutants including, but not limited to, benzene, metals, and polycyclic aromatic hydrocarbons (PAH).

## Zinc

The 117 µg/L zinc benchmark in the previous ISWGP for was taken from the previous EPA Multi Sector General Permit (MSGP). EPA's new (2008) MSGP requires certain industrial sectors to monitor stormwater against water quality-based benchmarks for total zinc. Each facilities benchmark is calculated by the permittee using site-specific receiving water hardness.

Ecology worked with an external stakeholder workgroup who explored a number of permit issues, including the derivation of metals benchmarks. During the stakeholder process, Ecology hired Herrera Environmental Consultants (Herrera) to perform analyses to determine the risk of exceeding acute water quality standards given a range of benchmarks. Because this analysis must take into account the broad range of facility types and receiving waters that would be covered under the ISWGP, compliance with water quality standards cannot be evaluated based solely on site-specific information. Therefore, this analysis utilized simple dilution models to evaluate the potential for exceeding water quality standards given the following model inputs:

- representative receiving water data for western and eastern Washington,
- representative dilution factors, and
- the proposed permit targets.

To provide some basis for assessing uncertainty in these analyses, a Monte Carlo simulation was employed in running the dilution models to determine the probability of exceeding water quality standards based on the receiving water conditions having the highest potential for occurrence. This methodology is similar to the Monte Carlo simulation described in the U. S. Environmental Protection Agency's *Technical Support Document for Water Quality-based Toxics Control* (1991), which was adapted from similar analyses performed by Herrera in association with the "6415 report" (EnviroVision and Herrera 2006) that examined an alternative suite of proposed metals benchmarks. The results of the 2009 Herrera analysis, hereby incorporated into this fact sheet by reference, were submitted to Ecology and titled: *Water Quality Risk Evaluation for Proposed Benchmarks/Action Levels in the Industrial Stormwater General Permit*, dated February 9, 2009.

Based on the 2009 Herrera Evaluation, Ecology based the benchmark values for zinc on values that correspond to a 90% probably of meeting water quality standards in the receiving water, with an assumed dilution factor of 5. The use of a dilution factor in deriving the benchmark is not considered the authorization of a mixing zone, but Ecology has determined that a modest

dilution factor 5 is consistent with WAC 173-201A-400. Based upon Ecology’s best professional judgment and experience under the previous permit cycle, Ecology has determined that in order to meet the proposed zinc benchmarks, permittees will be required to fully apply AKART, and many will be required to install active stormwater treatment systems.

**Table 47: Zinc Benchmarks Based Upon 2009 Herrera Evaluation**

Parameter	Units	Benchmark Value	Analytical Method <sup>a</sup>	Laboratory Quantitation Level <sup>b</sup>	Minimum Sampling Frequency <sup>c</sup>
Zinc, Total <sup>5</sup>	µg/L	Western WA: 200 Eastern WA: 255	EPA 200.8	2.5	1/quarter

Under the previous permit, zinc was used as a surrogate for the presence of copper and lead. Specifically, if a facility exceeded the zinc benchmark value (117 ug/L) for two consecutive quarters, the permittee was required to begin sampling for copper, lead, and hardness each quarter, unless consistent attainment was achieved. Ecology has eliminated this requirement, and the draft permit applies copper and lead monitoring to the following sectors: Primary Metals, Metals Mining, Automobile Salvage, Scrap Recycling, and Metals Fabricating. Hazardous Waste TSDs are also subject to lead sampling and benchmark. These industrial sectors have a high risk of stormwater contamination from copper and lead. The other sectors not subject to copper and lead sampling are expected to control these pollutants with:

- new mandatory BMPs (e.g., monthly vacuum sweeping, clear catch basin maintenance requirements),
- more frequent (monthly) visual inspections conducted by qualified personnel,
- zinc sampling, and
- targeted adaptive management to install additional source control and treatment BMPs to address excursions of the four core benchmark parameters.

A number of metals may be found in stormwater discharges; but a review of data supplied by the state of Connecticut showed that zinc was more commonly associated with stormwater than copper and lead. Where either copper or lead tended to be significant in the stormwater, zinc would also be found at significant levels. In the state of Washington, very few water bodies are 303(d)-listed for copper, zinc or lead. Based upon these finding and best professional judgment, Ecology has determined that source control and treatment BMPs used to control zinc and turbidity will also control copper, lead and other particulate-bound pollutants and prevent violations of water quality standards. If these control measures are not adequate, Ecology will require additional copper and lead monitoring on a case by case basis, per General Condition G12 or require an individual permit. The use of zinc as a surrogate for copper and lead is based on 40 CFR 122.44(d)(1), which authorizes the establishment of effluent limitations on an indicator parameter for a pollutant of concern, provided:

(1) The permit identifies which pollutants are intended to be controlled by the use of the effluent limitation;

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<sup>5</sup> Western WA means facilities located west of the Cascade Mountains crest; Eastern WA means facilities located east of the Cascade Mountains crest.

(2) The fact sheet required by §124.56 sets forth the basis for the limit, including a finding that compliance with the effluent limit on the indicator parameter will result in controls on the pollutant of concern which are sufficient to attain and maintain applicable water quality standards;

(3) The permit requires all effluent and ambient monitoring necessary to show that during the term of the permit the limit on the indicator parameter continues to attain and maintain applicable water quality standards; and

(4) The permit contains a reopener clause allowing the permitting authority to modify or revoke and reissue the permit if the limits on the indicator parameter no longer attain and maintain applicable water quality standards.

### 3. Basis of Sector-Specific Benchmark Values

The draft permit retains the concept of requiring certain industrial sectors to perform additional monitoring against benchmark values which, if exceeded a number of times, triggers escalating levels of adaptive management. Sectors subject to additional sampling and benchmarks fall into the 5 categories:

1. Chemical and Allied Products (28xx), Food and Kindred Products (20xx)
2. Primary Metals(33xx), Metals Mining (10xx), Automobile Salvage and Scrap Recycling (5015 and 5093), Metals Fabricating (34xx)
3. Hazardous Waste Treatment, Storage and Disposal Facilities and Dangerous Waste Recyclers subject to the provisions of Resource Conservation and Recovery Act (RCRA) Subtitle C
4. Air Transportation (45xx)
5. Timber Product Industry (24xx), Paper and Allied Products (26xx)

Special Conditions S5.B requires facilities in the categories above to sample for specific pollutants likely to be in their stormwater discharges. These industries' typical activities, their benchmarks, and associated sampling requirements are described below:

**Chemical and Allied Products, and Food and Kindred Products:** Activities that typically occur at these industries risk contaminating stormwater with nutrients and organic chemicals. Phosphorus and nitrogen (nutrients) contamination can artificially stimulate plant growth resulting in decaying matter that depletes oxygen in the water causing toxic conditions. Organic chemicals can also cause a depletion of oxygen. The core parameters will not predict the potential environmental risk from these chemicals. Therefore, the draft permit requires this group of industrial activities to conduct additional stormwater analysis for nitrogen from nitrates and nitrites, total phosphorus, and BOD<sub>5</sub>.

**Table 48: Additional Benchmarks and Sampling Requirements Applicable Facilities in the Chemical and Allied Products, and Food and Kindred Products Category**

Parameter	Units	Benchmark Value	Analytical Method <sup>a</sup>	Laboratory Quantitation Level <sup>b</sup>	Minimum Sampling Frequency <sup>c</sup>
BOD <sub>5</sub>	mg/L	30	EPA 405.1 or SM 5210B	2	1/quarter
Nitrate/Nitrite, as N	mg/L	0.68	EPA 4500-NO <sub>3</sub> -E/F/H	0.10	1/quarter
Phosphorus, Total	mg/L	2.0	4500-PE/PF	0.10	1/quarter

BOD<sub>5</sub>

The draft permit retains the 30 mg/L BOD<sub>5</sub> benchmark value from the existing ISWGP. This benchmark is based on the federal secondary treatment standards applied to municipal wastewater treatment plants discharges.

Nitrate/Nitrite, as Nitrogen

The 0.68 mg/L nitrate/nitrite benchmark is retained from the existing ISWGP, based on the 2008 EPA MSGP.

Phosphorus

The 2.0 total phosphorus benchmark is retained from the existing ISWGP, based on the 2008 EPA MSGP.

**Primary Metals, Metals Mining, Automobile Salvage, Scrap Recycling, and Metals**

**Fabricating:** These industrial activities have a high risk of stormwater contamination from metals and petroleum. Because metals toxicity is a significant environmental risk, sampling for these industries will include copper, lead and total petroleum hydrocarbons (TPH-D<sub>x</sub>) in addition to the core sampling parameters.

**Table 49: Additional Benchmarks and Sampling Requirements Applicable Facilities in Primary Metals(33xx), Metals Mining (10xx), Automobile Salvage and Scrap Recycling (5015 and 5093), Metals Fabricating (34xx)**

Parameter	Units	Benchmark Value	Analytical Method <sup>a</sup>	Laboratory Quantitation Level	Minimum Sampling Frequency
Copper, Total <sup>6</sup>	µg/L	Western WA: 14 Eastern WA: 32	EPA 200.8	2.0	1/quarter
Lead, Total	µg/L	81.6	EPA 200.8	0.5	1/quarter
Total Petroleum Hydrocarbons (TPH)	mg/L	10	NWTPH-Dx <sup>1</sup>	0.1	1/quarter

1. Manchester Environmental Laboratory Lab Users Manual Eighth Edition July 2005

The total copper benchmark was based upon the 2009 Herrera Evaluation, Ecology based the benchmark values for copper on values that correspond to a 90% probably of meeting water quality standards in the receiving water, with an assumed dilution factor of 5. The use of a dilution factor in deriving the benchmark is not considered the authorization of a mixing zone, but Ecology has determined that a modest dilution factor 5 is consistent with WAC 173-201A-400. Based upon available science, Ecology has determined that in order to meet the proposed copper benchmarks, permittees will be required to meet AKART, and many will be required to install active stormwater treatment systems. This is based upon *Boatyard Stormwater Treatment Study – Final Report*, March 2008 (Taylor Associates, Inc.), and Noling 2009, comments on preliminary draft ISWGP, via email May 8, 2009.

The total lead benchmark was also reconsidered in the 2009 Herrera Evaluation using the same methodology as total copper and total zinc. The report concluded that numerical values for total lead that correspond to a 90% probably of meeting water quality standards in the receiving water, with an assumed dilution factor of 5, would be 310 µg/L in western Washington, and 640 µg/L in eastern Washington. Ecology compared these values against the previous permits' total lead benchmark of 81.6 µg/L (statewide). To avoid conflict with the anti-backsliding provisions of the CWA, Ecology has decided to retain the previous permit total lead benchmark of 81.6 µg/L.

Ecology added sampling requirements total petroleum hydrocarbons (NWTPH-Dx). Ecology based the requirements to sample for these parameters on its best professional judgment that these pollutants are reasonably likely to be present in stormwater discharges from facilities in this industrial sector. The 10 mg/L benchmark for TPH has based upon the TPH-Dx effluent limitation used in individual industrial stormwater permits in Washington State.

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<sup>6</sup> Copper benchmarks based upon *Water Quality Risk Evaluation for Proposed Benchmarks/Action Levels in the Industrial Stormwater General Permit*, dated February 9, 2009 (2009 Herrera Evaluation)

**Hazardous Waste Treatment, Storage, and Disposal (TSD) Facilities, and Dangerous Waste Recyclers:** These facilities handle liquid, solid, gaseous, or sludge wastes that are classified by EPA as harmful to human health or the environment. Hazardous waste is regulated under the federal Resource Conservation and Recovery Act (RCRA) Subtitle C and in Washington under Chapter 173-303 WAC. State and federal regulations address the management, storage, and treatment of these hazardous wastes. However, state and federal hazardous waste regulations do not regulate wastes that may be released to stormwater.

The EPA MSGP includes this sector and establishes benchmarks. The draft permit bases the TSD benchmarks on the requirements of EPA's MSGP; except for the total lead benchmark of 81.6 µg/L, which is based on the previous ISWGP; and the total petroleum hydrocarbon (TPH-Dx) benchmark of 10 mg/L which is based on individual industrial stormwater permits issued in Washington State. The additional benchmarks and sampling requirements for Hazardous Waste TSDs are listed in Table 52.

**Table 52: Additional Benchmarks and Sampling Requirements Applicable to Hazardous Waste Treatment, Storage and Disposal Facilities and Dangerous Waste Recyclers subject to the provisions of Resource Conservation and Recovery Act (RCRA) Subtitle C**

Parameter	Units	Benchmark Value	Analytical Method <sup>a</sup>	Laboratory Quantitation Level <sup>b</sup>	Minimum Sampling Frequency <sup>c</sup>
Chemical Oxygen Demand (COD)	mg/L	120	SM5220-D	10	1/quarter
Ammonia, Total, as N	mg/L	2.1	EPA 350.2 Nessler.	0.05	1/quarter
TSS	mg/L	100	SM2540-D	5	1/quarter
Arsenic, Total Recoverable	µg/L	150	EPA 200.8	0.5	1/quarter
Cadmium, Total Recoverable	µg/L	2.1	EPA 200.8	0.25	1/quarter
Cyanide, Total	µg/L	22	EPA 335.4	10	1/quarter
Lead, Total	µg/L	178	EPA 200.8	0.5	1/quarter
Magnesium, Total	µg/L	64	EPA 200.7	80	1/quarter
Mercury, Total	µg/L	1.4	EPA 1631E	0.0005	1/quarter
Selenium, Total	µg/L	5.0	EPA 200.8	1.0	1/quarter
Silver, Total	µg/L	3.8	EPA 200.8	0.2	1/quarter
Total Petroleum Hydrocarbons (TPH-Dx)	mg/L	10	NWTPH-Dx	0.1	1/quarter

**Air Transportation:** This industrial activity typically uses deicing/anti-icing chemicals on runways and aircraft during the winter months. These chemicals can be toxic to aquatic organisms, cause a depletion of oxygen in the receiving water, and contaminate ground water. These are serious environmental concerns, and the core parameters are not adequate to indicate whether or not a problem exists.

For airports where a single permittee, or a combination of permitted facilities use more than 100,000 gallons of glycol-based deicing chemicals and/or 100 tons or more of urea on an average annual basis, permittees must these additional four parameters in those outfalls that collect runoff from areas where deicing activities occur (SIC 4512-4581):

**Table 53: Additional Benchmarks and Sampling Requirements Applicable to Air Transportation<sup>c</sup> (45xx)**

Parameter	Units	Benchmark Value	Analytical Method <sup>a</sup>	Laboratory Quantitation Level <sup>b</sup>	Minimum Sampling Frequency <sup>c</sup>
Ammonia	mg/L	2.1	EPA 350.2 Nessler.	0.05	1/quarter
BOD <sub>5</sub>	mg/L	30	EPA 405.1 or SM 5210B	2	1/quarter
COD	mg/L	120	EPA 410.2	5	1/quarter
Nitrate/Nitrite, as N	mg/L	0.68	EPA 4500-NO3-E/F/H	0.10	1/quarter

<sup>a</sup> Or other equivalent EPA-approved method with the same or lower reporting level.

<sup>b</sup> The Permittee shall ensure laboratory results comply with the quantitation level specified in the table.

<sup>c</sup> 1/quarter means 1 sample taken each quarter, year-round.

<sup>d</sup> Permittees may use any analytical method in the indicated series provided the laboratory quantitation level is equivalent.

<sup>e</sup> For airports where a single permittee, or a combination of permitted facilities use more than 100,000 gallons of glycol-based deicing chemicals and/or 100 tons or more of urea on an average annual basis, monitor these additional four parameters in those outfalls that collect runoff from areas where deicing activities occur (SIC 4512-4581).

### Ammonia

The existing ISWGP's ammonia benchmark of 2.1 mg/L was adopted from EPA's 2008 MSGP.

This water quality-based benchmark is based on a receiving water pH of 8.5 and a temperature of 21°C. (EPA, Personal Communication, 12/26/06)

### BOD<sub>5</sub>

The draft permit retains the 30 mg/L BOD<sub>5</sub> benchmark value from the existing ISWGP. This benchmark is based on the federal secondary treatment standards applied to municipal wastewater treatment plants discharges.

### COD

The existing Chemical Oxygen Demand (COD) benchmark of 120 mg/L was adopted from EPA's 2008 MSGP.

Nitrate/Nitrite, as Nitrogen

The 0.68 mg/L nitrate/nitrite benchmark is retained from the existing ISWGP, based on the 2008 EPA MSGP.

**Timber Products Industry, and Paper and Allied Products:** These industries often have piles of bark, wood, wood debris, wood chips, and sawdust exposed to stormwater. This exposure is likely to add organic material to the stormwater that can result in the depletion of oxygen in the receiving water. This represents a significant environmental risk and one not addressed by the core parameters. Therefore the draft permit includes a benchmark and sampling for BOD<sub>5</sub>. Facilities with eight consecutive quarters of sampling at or below the benchmark value can suspend sampling for BOD<sub>5</sub> for the remainder of the permit cycle.

The timber products and paper industries believe that the use of BOD<sub>5</sub> and turbidity (a core parameter) as benchmarks and sampling parameters is inappropriate as indicators of BMP effectiveness for their facilities. In place of these two parameters, one representative of this sector proposes substituting COD and TSS, respectively. In addition, they have proposed that the draft permit incorporate the COD and TSS benchmarks established in EPA's Draft 2005 Multi-Sector General Permit or the TSS benchmark in Oregon's 2006 Industrial Stormwater General Permit, 1200-Z. The COD and TSS benchmarks and their bases are presented in Table 54.

**Table 54: Additional Benchmarks and Sampling Requirements Applicable to Timber Product Industry (24xx), Paper and Allied Products (26xx)**

Parameter	Units	Benchmark Value	Analytical Method <sup>a</sup>	Laboratory Quantitation Level <sup>b</sup>	Minimum Sampling Frequency <sup>c</sup>
BOD <sub>5</sub>	mg/L	30	EPA 405.1 or SM 5210B	2	1/quarter
COD	mg/L	120	SM5220-D	10	1/quarter
TSS	mg/L	30	SM2540-D	5	1/quarter

- <sup>a</sup> Or other equivalent EPA-approved method with the same or lower reporting level.
- <sup>b</sup> The Permittee shall ensure laboratory results comply with the quantitation level specified in the table.
- <sup>c</sup> 1/quarter means 1 sample taken each quarter, year-round.
- <sup>d</sup> Permittees may use any analytical method in the indicated series provided the laboratory quantitation level is equivalent.

**Table 55: Timber Industry Benchmarks Used by EPA and the State of Oregon**

Permit	Parameter	Concentration	Basis
EPA Draft Multi-Sector General Permit (2005)	COD	120 mg/L	Four times the BOD secondary treatment standard of 30 mg/L. COD at 120 mg/L not observed to cause stream impairment. <sup>a</sup>
	TSS	100 mg/L	Median value from National Urban Runoff Program and timber products industry group application. <sup>a</sup>
Oregon Industrial Stormwater General Permit (2006)	TSS	130 mg/L	Based on 80% reduction to the 95 <sup>th</sup> percentile of TSS data (640 mg/L) submitted by Permittees. <sup>b</sup>
Sources:			
<p><sup>a</sup> 60 Federal Register 50825, September 29, 1995.</p> <p><sup>b</sup> Oregon Department of Environmental Quality, Memorandum, NPDES General Permits 1200-A, 1200-Z, and 1200-COLS Renewal Evaluation Report, p. 10.</p>			

EPA has applied the COD and TSS benchmarks to most categories of the timber products industry since the 1995 MSGP. Oregon established the TSS benchmark value in its 1997 permit, based on data collected during the previous permit cycle.

The 6415 study assessed the feasibility of replacing the existing BOD<sub>5</sub> and turbidity benchmark parameters with COD and TSS (*6415 Final Report*). The study found that turbidity can be related to the presence of colloidal solids associated with these industrial activities that may not be removed by standard treatment processes. The contractor reported that TSS provides a better reflection of BMP performance, especially for BMPs that rely on settling and/or filtration processes. The contractor also suggested that COD may better represent the long-term oxygen demand on the receiving water body than BOD. The *6415 Final Report* recommended the following COD and TSS benchmarks and action levels in Table 56:

**Table 56: COD and TSS Benchmarks and Actions Levels Recommended by the 6415 Report for the Timber Industry**

Parameter	Benchmark	Action Level
COD	17.1	41.9
TSS	18	49

The contractor-recommended COD benchmark and action level were developed from the 50<sup>th</sup> and 75<sup>th</sup> percentile values of the existing ISWGP data for BOD<sub>5</sub> and a conversion factor. The conversion factor assumes BOD<sub>5</sub> represents 70 percent of the total chemical oxygen demand based on the theoretical demand curve at day 5. Thus, BOD<sub>5</sub> should be 70 percent of the COD for typical waters.

The recommended TSS benchmark and action level were developed from the 50<sup>th</sup> and 75<sup>th</sup> percentile values of the existing ISWGP data for TSS. However, the existing ISWGP requires few industries to sample for TSS, which resulted in a sample size of only 150 data points. The

6415 Final Report recommends the TSS benchmarks and action levels be reevaluated when more data become available.

Ecology considered replacing BOD<sub>5</sub> with COD and turbidity with TSS as regulated parameters in the draft permit, but decided to retain the existing parameters for the following reasons. First, facilities in most industries can already comply with the existing BOD<sub>5</sub> and turbidity benchmarks. The median BOD<sub>5</sub> reported for all facilities that sample for this parameter is 10 mg/L, which indicates to Ecology that the benchmark of 30 mg/L is a reasonable goal. Second, as will be discussed in subsequent paragraphs, the correlation between BOD<sub>5</sub> and COD, or turbidity and TSS is not fully developed for stormwater. Third, those facilities that exceed the benchmark may have not fully implemented BMPs. The median turbidity reported for all permitted facilities is 15 NTU. This value indicates to Ecology that the benchmark of 25 NTU is a reasonable and feasible goal. Further, the 25 NTU benchmark likely complies with water quality standards.

EPA established its COD benchmark value of 120 mg/L in its 1995 MSGP. The benchmark value "is based upon the state of North Carolina benchmark value for stormwater discharges, and is four times the BOD<sub>5</sub> benchmark concentration. EPA has concluded that COD is generally discharged in domestic wastewater at four times the concentration of BOD<sub>5</sub> without causing adverse impacts on aquatic life" (60 Federal Register 50825). Ecology is skeptical of the applicability of a COD benchmark value of 120 mg/L to Washington State for several reasons. First, North Carolina rivers are chemically and physically different from Washington rivers. For example, eastern rivers tend to have more organic matter present in their waters that may buffer the impacts of additional pollutants. Second, the ratio of COD to BOD<sub>5</sub> in domestic wastewater that EPA used does not agree with the *6415 Final Report*. The *6415 Final Report* states that "BOD<sub>5</sub> represents 70 percent of the total chemical oxygen demand based on the theoretical demand curve at day 5. Thus, BOD<sub>5</sub> should be 70 percent of the COD for typical waters." Third, wastewater ratios may not apply to stormwater.

In its formal comment letter to EPA's MSGP, the National Oceanic and Atmospheric Administration-Fisheries Service (NOAA-Fisheries) stated "discharges that reach [the] MSGP TSS benchmark value (100 mg/L) may result in adverse effects as severe as death of exposed individuals to temporary changes in behavioral and physiological responses. The duration of the exposure, among other factors will influence the severity of the responses of aquatic species of national importance." (NOAA-Fisheries Letter) The comment letter states that a survey of 80 studies of the effect of sediment on fish, including Pacific and Atlantic salmon, found acute mortality is likely after a few days of exposure at the proposed benchmark level of 100 mg/L, while sublethal effects are like after only a few hours of exposure at this level. One study observed reduced growth in juvenile coho salmon at turbidity levels of only 25 NTU.

For the above stated reasons, Ecology has determined that replacing the BOD<sub>5</sub> or turbidity benchmark with a COD or TSS benchmark is not appropriate or protective of water quality. Given the ability of most facilities to comply with the existing BOD<sub>5</sub> and turbidity benchmarks and the lack of BMP implementation that many Ecology field inspectors observe at permitted facilities, Ecology believes the proposal to adopt the less stringent EPA or Oregon COD and TSS benchmarks is unwarranted at this time. Furthermore, Ecology is not convinced that the EPA or Oregon TSS benchmarks would protect water quality or endangered species.

Currently, Ecology does not have the data from which COD or TSS benchmarks can be established that reflects the effectiveness of BMPs and is protective of water quality. In response to the timber industry's proposal and to gather needed data, the draft permit requires the timber industry to sample for COD and TSS, in addition to BOD<sub>5</sub> and turbidity. Appropriate alternative benchmarks may be established for the next permit renewal. Alternatively, the timber industry could conduct an engineering study to determine AKART for its facilities, with the goal of developing benchmarks and action levels that reflect good operation and maintenance of BMPs and protection of water quality.

#### 4. Analytical Methods and Quantitation Levels

The draft permit updates the analytical methods required in the existing permit and establishes quantitation levels that Permittees must ensure that their laboratories meet. Ecology's *Permit Writers Manual* defines the practical quantitation level as the lowest level [concentration] that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions.

Ecology revised the list of required analytical methods in response to the large number of non-detect entries on DMRs submitted by Permittees. These Permittees had not prescribed quantitation levels to their laboratories. This draft permit will ensure that Permittees have a better basis for their contracts with laboratories. The *6415 Final Data Analysis Report* states approximately 13 percent of all unreported data points (2,834 of 22,794) were reported as non-detects to Ecology in the 2003 – 2005 data set. In some cases, laboratories conducted analysis of samples using older or less sensitive analytical methods with quantitation levels above the benchmark. The revised analytical methods have lower quantitation levels that are expected to reduce the number of reported non-detects and yield better quality data on which Ecology can base its permitting decisions. Table 57 lists analytical methods required in the existing and draft permits, and explains the basis of the quantitation level.

**Table 57: Comparison of Existing and Draft Analytical Methods**

Parameter	2002 Analytical Method	2007 Analytical Method	Quantitation Level	Source/Basis of Quantitation Level
Turbidity	Meter	Meter	0.05 NTU	<sup>a</sup>
pH	Meter/litmus paper	Meter/indicator paper	±0.5 SU	<sup>b</sup>
Oil and Grease	EPA 1664/1664A	EPA 1664	4.5 mg/L	<sup>c</sup>
BOD <sub>5</sub>	EPA 405.1 or SM 5210B	EPA 405.1 or SM 5210B	5 mg/L	<sup>d</sup>
COD	Not required	EPA 410.2	5 mg/L	<sup>a</sup>
Fecal Coliform Bacteria	Not required	SM 9222D	20 CFU/100 mL	<sup>?</sup>
TSS	EPA 160.2	EPA 160.2	4 mg/L	<sup>a</sup>
Nitrate/Nitrite, as N	EPA 353.1	EPA 353.1	0.03 mg/L	<sup>c</sup>
Total Phosphorus	EPA 365.1	EPA 365.1	0.01 mg/L	<sup>a</sup>
Ammonia	EPA	EPA 350.2	0.05 mg/L	<sup>a</sup>

	350.1/350.2/350.3	Nessler		
Total Copper	EPA 200.7	EPA 200.8	1.6 µg/L	<sup>a</sup>
Total Cyanide	Not required	EPA 335.3	5 µg/L	<sup>a</sup>
Total Lead	EPA 200.7	EPA 200.8	1.9 µg/L	<sup>a</sup>
Total Zinc	EPA 200.7	EPA 200.8	5.7 µg/L	<sup>a</sup>
Total Recoverable Arsenic	Not required	EPA 200.8	0.5 µg/L	<sup>e</sup>
Total Cadmium	Not required	EPA 200.8	0.25µg/L	<sup>e</sup>
Total Lead	Not required	EPA 200.8	0.5 µg/L	<sup>e</sup>
Total Recoverable Magnesium	Not required	EPA 200.8	50 µg/L	<sup>e</sup>
Total Mercury	Not required	1631E	0.0005 µg/L	<sup>e</sup>
Total Selenium	Not required	EPA 200.8	1.0 µg/L	<sup>e</sup>
Total Silver	Not required	EPA 200.8	0.2 µg/L	<sup>e</sup>
Alpha Terpineol	EPA 8270	EPA 625	5 µg/L	<sup>f</sup>
Benzoic Acid	EPA 8270	EPA 625	50 µg/L	<sup>f</sup>
p-Cresol	EPA 8270	EPA 8270D	Not established	
Phenol	D4763	EPA 625	4.8 µg/L	<sup>a</sup>
BTEX (benzene, toluene, ethylbenzene, xylene)	Not required	SW 846 Method 8260B	1 µg/L	<sup>g</sup>
TPH (total petroleum hydrocarbons)	Not required	NWTPH-Dx	0.1 µg/L	<sup>h</sup>
TOX (total organic halides)	Not required	SW 846 Method 9020B	30 µg/L	<sup>i</sup>
Basis/source of Quantitation Level:				
<sup>a</sup> Ecology Permit Writers Manual, Table VI-2, column labeled as ML (minimum level).				
<sup>b</sup> Quantitation level for paper determined through internet survey of commercially available pH paper.				
<sup>c</sup> National Environmental Methods Index (NEMI) method detection level X 3.18.				
<sup>d</sup> Best professional judgement.				
<sup>e</sup> Ecology Manchester Environmental Laboratory <i>Lab Users Manual</i> , Eighth Edition (2005), pp. 129-130.				
<sup>f</sup> From lab report submitted with DMR to Ecology.				
<sup>g</sup> Ecology Manchester Environmental Laboratory <i>Lab Users Manual</i> , Eighth Edition (2005), p. 141.				
<sup>h</sup> Ecology Manchester Environmental Laboratory <i>Lab Users Manual</i> , Eighth Edition (2005), p. 168.				
<sup>i</sup> US EPA webpage: 846 On-line @ <a href="http://www.epa.gov/epaoswer/hazwaste/test/pdfs/9020b.pdf">http://www.epa.gov/epaoswer/hazwaste/test/pdfs/9020b.pdf</a>				

Ecology selected analytical methods for each parameter based on its sensitivity (quantitation level) and the associated benchmark. The rule-of-thumb for specifying an analytical method is that the quantitation level should be at least one order of magnitude (or 10 times) below the benchmark.

The permit requires the use of the specified analytical method or an equivalent method. An equivalent analytical method must have a quantitation level at, or below, the concentration specified in the ISWGP and be EPA-approved. Approved analytical methods are contained in the latest revision of the *Guidelines Establishing Test Procedures for the Analysis of Pollutants* (40 CFR Part 136).

Required analytical methods for the conventional parameters, including BOD<sub>5</sub>, TSS, fecal coliform bacteria and turbidity, remain unchanged from the existing permit. Similarly, specified analytical methods for nutrients (nitrates and phosphorus), oil and grease, have not been changed. The draft permit requires Permittees to analyze samples for metals are required to use EPA 200.8, or an equally sensitive method.

The permit allows the use of either a pH meter or narrow range pH indicator paper, unless the Permittee is a non-hazardous waste landfill or has an onsite coal pile. Permittees using pH indicator paper must use high resolution paper that will measure pH within 0.5 SU.

With the exception of certain parameters, the permit requires all sampling data to be prepared by a laboratory accredited under the provisions of Chapter 173-50 WAC, *Accreditation of Environmental Laboratories*. The Permittee may sample pH and turbidity and report without lab accreditation.

#### 5. Sampling Requirements for Permittees Subject to Federal Effluent Limitations

In addition to sampling for the core parameters required in Condition S5.A, Permittees with either non-hazardous waste landfills or coal piles at their at their site must comply with the effluent limitations in Condition S5.C and sample their stormwater discharges for the specified parameters. The effluent limitations in the draft permit are taken verbatim from the CFRs and are unchanged from the current permit.

**Non-hazardous Landfills:** The EPA has recently adopted technology-based requirements that are applicable to landfills. The effluent limits for non-hazardous waste landfills in the draft permit are taken from 40 CFR Part 445 Subpart B. Non-hazardous waste facilities include those landfills or land application sites that receive or have received industrial waste, including sites subject to regulation under Subtitle D of RCRA. 40 CFR 445.1 lists exceptions that may apply. Landfill operations with coverage under the general permit should review the exceptions, particularly any facility where the landfill is operated by and limited to wastes generated by the permitted facility. Because EPA has established effluent limits, there is no option to suspend sampling.

#### 6. Conditionally Approved and Prohibited Discharges

Condition S5.D authorizes the Permittee to discharge specific non-stormwater discharges, such as cooling tower mist and fire hydrant flush water, if certain conditions are met. Ecology based this permit condition on an identical condition in the MSGP. Ecology included this authorization in the existing permit as a result of the 2004 settlement.

Condition S5.E prohibits the discharge of process wastewater or illicit discharges under this permit. Discharges of process wastewater or illicit discharges are excluded from coverage under this permit based on the definition of “storm water discharges associated with industrial activity” contained in 40 CFR 122.26(b)(14). The Permittee must obtain coverage under an individual NPDES or state waste discharge permit for these types of discharges.

## **S6. Discharges to 303(d)-listed Waters and TMDLs**

The draft permit contains several changes from the current permit for Permittees with discharges to 303(d)-listed water bodies that do not have an EPA-approved TMDL. The basis for water quality based effluent limitations for certain discharges 303(d)-listed waters is discussed previously in the fact sheet: “CONSIDERATION OF SURFACE WATER QUALITY-BASED LIMITS FOR NUMERIC CRITERIA - Condition S6.C. Water Quality-Based Effluent Limitations for Certain Discharges to 303(d)-Listed Waters”.

### Discharges to Water Bodies with Applicable TMDLs

Consistent with EPA’s 2008 MSGP, Condition S6.D requires a Permittee discharging to water bodies with applicable TMDLs to comply with any additional requirements listed on the coverage sheet attached to its permit. Specifically, S6.D requires the following:

1. The Permittee shall comply with applicable TMDL determinations. Applicable TMDLs or TMDL determinations are TMDLs which have been completed by the issuance date of this permit, or which have been completed prior to the date that the Permittee's application is received by Ecology, whichever is later. The Permittee’s requirements to comply with this condition will be listed on the letter of permit coverage.
2. TMDL requirements associated with TMDLs completed after the issuance date of this permit only become effective if they are imposed through an administrative order issued by Ecology.
3. Where Ecology has established a TMDL *wasteload allocation* and sampling requirements for the Permittee's discharge, the Permittee shall comply with all requirements of the TMDL as listed in Appendix 5.
4. Where Ecology has established a TMDL general wasteload allocation for industrial stormwater discharges for a parameter present in the Permittee's discharge, but has not identified specific requirements, Ecology will assume the Permittee's compliance with the terms and conditions of the permit complies with the approved TMDL.
5. Where Ecology has not established a TMDL wasteload allocation for industrial stormwater discharges for a parameter present in the Permittee's discharge, but has not excluded these discharges, Ecology will assume the Permittee's compliance with the terms and conditions of this permit complies with the approved TMDL.
6. Where a TMDL for a parameter present in the Permittee's discharge specifically precludes or prohibits discharges of stormwater associated with industrial activity, the Permittee is not eligible for coverage under this permit.

## **S7. Inspections**

WAC 173-220-210(1)(b) and 40 CFR 122.48(b) establish the general requirements for monitoring in NPDES permits. RCW 90.48.555(8)(a)(ii) specifically requires this permit to include monitoring of stormwater discharges as part of the adaptive management program.

Visual inspections are an important part of the discharge monitoring schedule, verification of BMP effectiveness, and the adaptive management program.

The previous permit required quarterly inspections. However, the Condition S7.A of the draft permit requires all Permittees to conduct monthly visual inspections. This is intended, in part, to simplify the requirements 2008 MSGP, which requires permittees to conduct three types of inspections: routine facility inspections, quarterly visual assessments, and comprehensive site inspections. In an effort to reduce complexity, the draft ISWGP incorporates the elements of these three types of inspections into the routine monthly inspections. Ecology determined that monthly visual inspections are a reasonable and cost-effective measure to prevent stormwater contamination.

EPA requires that “qualified personnel” conduct inspections. According to EPA’s 2008 MSGP Fact Sheet “Qualified personnel are those who possess the knowledge and skills to assess conditions and activities that could impact stormwater quality at the facility, and who can also evaluate the effectiveness of controls selected.” Ecology has found that many permittees lack the knowledge and skills to recognize problems with pollution prevention, monitoring and other permit compliance issues. Therefore, Ecology has added a new requirement for inspectors to receive training and certification.

Specifically, S7.A.2 states:

2. Beginning January 1, 2012, visual inspections shall be conducted by a Certified Industrial Stormwater Manager (CISM), Certified Professional in Stormwater Quality (CPSWQ), or Professional Engineer.
  - a. This requirement does not apply to *small businesses* until January 1, 2013.

Ecology plans to develop Washington-specific training program, tentatively called “Certified Industrial Stormwater Manager (CISM)”, which would be similar to the Certified Erosion and Sediment Control Lead (CESCL) program for construction operators in Washington State. The program would need to be up and running well in advance so that industrial stormwater permittees could receive certifications by January 2012, and permittees defined as “small businesses” (defined as businesses with fewer than 50 employees) could receive training and certification by January 2013. Personnel who have received national certification as a “Certified Professional in Stormwater Quality (CPSWQ)”, or licensed Professional Engineer, would receive reciprocity, and not need to become trained or certified as a “Certified Industrial Stormwater Manager (CISM)” in order to perform inspections at industrial sites under the ISWGP.

## **S8. Corrective Actions**

The draft permit contains stormwater sampling, benchmarks, and corrective actions. Together, these elements comprise an adaptive management program as required by the RCW 90.48.555(8)(a). Facilities that exceed water quality-based numeric benchmark values (Special Condition S5.A&B) trigger incremental revisions to the facilities Stormwater Pollution Prevention Plan (SWPPP) to include additional Best Management Practices (BMPs).

In accordance with RCW 90.48.555(8), the adaptive management mechanism requires monitoring, evaluation, and reporting requirements to ensure that stormwater discharges are

controlled by adequate best management practices (BMPs) that prevent violations of water quality standards.

90.48.555(8)(a) states that "...the adaptive management mechanism shall include elements designed to result in permit compliance and shall include, at a minimum, the following elements:

- (i) An adaptive management indicator, such as monitoring benchmarks;
- (ii) Monitoring;
- (iii) Review and revisions to the storm water pollution prevention plan;
- (iv) Documentation of remedial actions taken; and
- (v) Reporting to the department."

90.48.555(8)(b) states that the permit must include the "timing and mechanisms for implementation of treatment best management practices".

To comply with these statutory requirements, the permit continues the previous permits' adaptive management approach that requires facilities to monitor stormwater quality against several water quality-based benchmarks (indicator values). The rationale for the selection and derivation of benchmark values for specific pollutant parameters is described in Special Condition S5.

This adaptive management program constitutes a water quality-based non-numeric (narrative) effluent limitation, as provided for in WAC 173-226-070(1)(d) and 40 CFR 122.44(k).

If the benchmark for a particular pollutant parameter is met, the discharge is presumed to not cause or contribute to a violation of water quality standards for that parameter. If a (water quality-based) benchmark is exceeded numerous times, the potential for a violation of water quality standards increases, and the facility is required to implement escalating levels of SWPPP review and the implementation of additional BMPs. With emphasis on pollution prevention rather than treatment, the adaptive management system directs facilities who exceed one or more benchmark begins with Level 1 operational source control BMPs. If a benchmark is exceed 4 more quarters, Level 2 requires additional structural source control BMPs. If a benchmark is exceeded 4 more times Level 3 requires treatment BMPs.

Since benchmark values are not numeric effluent limitations, discharges that exceed a benchmark value are not automatically considered a permit violation or a violation of water quality standards. However, if a permittee exceeds benchmarks that trigger a corrective action, but does not comply with the specific corrective action requirements in S8, it would be considered a permit violation. The rationale for the derivation of benchmark values is provided in Special Condition S5

If a benchmark is exceeded in a stormwater discharge, the draft permit requires the Permittee to take appropriate actions to identify and correct the problem(s) causing the benchmark exceedance. Compliance with these adaptive management actions ensures that:

1. Aquatic life and the other beneficial uses of state waters are likely protected by minimizing the concentrations and volumes of stormwater pollutants discharged into surface waters;

2. Permittees meet AKART; and
3. Permittees who discharge stormwater meet the intent of the Clean Water Act and Chapter 90.48 RCW.

The corrective action requirements and timelines were developed in consideration of Ecology's best professional judgment and experience with the success and failure of adaptive management requirements in the previous permit cycle.

Ecology also incorporated input from the 2008/2009 Industrial Stormwater Stakeholder Workgroup (ISSW), who reviewed examples of Level 2 and 3 Source Control Reports under the previous permit, and expressed concern that the adaptive management scheme lacked clarity, certainty and a well-defined compliance end-point. Several stakeholders requested that the new permit eliminate the "endless do-loop" that occurred when a Level 2 or 3 Corrective Action did not result in discharges below the action level, or was between the benchmark and action level. The ISSW also recommended that the new permit:

- Not trigger capital expenditures on a single benchmark exceedance, in recognition of the highly variable nature of stormwater discharges and limited value of quarterly grab samples to characterize facilities stormwater characteristics.
- Have an adaptive management scheme include mechanisms for that allow for flexibility and "off-ramps" for certain facilities, including the ability for facilities to obtain individual permits or other site-specific permitting actions.
- Transition existing facilities from the previous permit to the new one in a way that maintains forward progress through the adaptive management scheme.

To address internal and external objectives of a more effective adaptive management within the context of 90.48.555(8)(a), the draft permit has more clearly defined corrective actions requirements, performance expectations, and timelines.

#### Level 1, 2 and 3 SWPPP Review and Certification

S8 requires permittees who trigger a Level 1, 2 or 3 corrective action to review their SWPPP and ensure it is in full compliance with S3 (SWPPP), and contains the correct BMPs from the applicable Stormwater Management Manuals. This requirement is consistent with standard NPDES permit conditions described in 40 CFR 122.22 and is intended to ensure that the permittee understands its responsibility to create and maintain a complete and accurate SWPPP. Permittees are allowed to appoint an authorized representative consistent with the regulations. Therefore, if a facility feels it is more appropriate for a member of the stormwater pollution prevention plan team to sign the documentation, that option is available under the permit. The signature requirement includes an acknowledgment that there are significant penalties for submitting false information.

#### Level 1

Similar to the previous permit, the draft permit requires permittees to complete a Level 1 corrective action for any facility that exceeds a benchmark one time. Specifically, S8.A states:

Facilities not listed in Appendix 6 (at Level 2 or 3), that exceed any benchmark value [in tables (2-6)] during a single monitoring period (quarter) after January 1, 2010, shall complete a Level 1 Corrective Action in accordance with S8.A.1-4:

1. Review the SWPPP and ensure that it is in full compliance with Permit Condition S3, and contains the correct BMPs from the applicable Stormwater Management Manual.
2. Make appropriate revisions to the SWPPP to include additional *Operational Source Control BMPs* with the goal of achieving all benchmark values in future discharges.
3. Complete a Level 1 SWPPP Certification Form (Appendix 3) and attach to SWPPP.
4. **Level One Deadline:** Fully implement the revised SWPPP according to Permit Condition S3 and the applicable Stormwater Management Manual immediately, but no later than the deadline specified in Table 6.

**Operational Source Control BMPs** means schedule of activities, prohibition of practices, maintenance procedures, employee training, good housekeeping, and other managerial practices to prevent or reduce the pollution of waters of the state. Not included are BMPs that require construction of pollution control devices.

\* = **Operational source control** BMPs for Western Washington that may apply are on Ecology's web site at: <http://www.ecy.wa.gov/biblio/0510032.html>

\* = **Operational source control** BMPs for Eastern Washington that may apply are on Ecology's web site at: <http://www.ecy.wa.gov/biblio/0410076.html>

## Level 2

The previous permit required a Level 2 Response whenever “two out of the previous four quarterly sampling results... are above the action level.” Ecology has decided to revise the trigger for Level 2, based on internal and external concerns that the “two out of the previous four” criteria created unnecessary confusion, tracking problems, and caused some facilities repeat a Level 2 response numerous times. In order to make sure the adaptive management scheme progresses facilities in a linear matter (from Level 1 to 2, etc.), without repeating corrective action levels; and also transition existing facilities who reached Level 2 or 3 from the old permit into the new permit at Level 2, Condition S8.B requires the following:

### **Level Two Corrective Actions – Structural Source Control BMPs**

The following facilities shall complete a Level 2 Corrective Action in accordance with S8.B.1-4:

- Facilities not listed in Appendix 6 that exceed any benchmark value [in tables (2-6)] during any 4 separate quarterly monitoring periods after January 1, 2010; and
  - Facilities listed in Appendix 6 (Level 2).
1. Review the SWPPP and ensure that it is in full compliance with Permit Condition S3, and contains the correct BMPs from the applicable Stormwater Management Manual.

2. Make appropriate revisions to the SWPPP to include additional *Structural Source Control BMPs* with the goal of achieving all benchmark values in future discharges.
3. Complete a Level 2 SWPPP Certification Form (Appendix 3) and attach to SWPPP.
4. **Level 2 Deadline:** Fully implement the revised SWPPP according to Permit Condition S3 and the applicable Stormwater Management Manual immediately, but no later than the deadline specified in Table 6.
  - a. If installation of necessary *Structural Source Control BMPs* is not feasible within applicable *Corrective Action Deadline*; Ecology may approve additional time, by approving a *Modification of Permit Coverage*.
  - b. If installation of *Structural Source Control BMPs* is not feasible or not necessary to prevent discharges that may cause or contribute to a violation of a water quality standard, Ecology may waive the requirement for *Structural Source Control BMPs* by approving a *Modification of Permit Coverage*.
  - c. To request a time extension or waiver, a permittee shall submit an *Application for Coverage* form to Ecology in accordance with Condition S2.B, at least 90 days prior to the applicable Corrective Action Deadline, requesting “Modification of Coverage”. Within 60 days of receipt of a complete *Modification of Coverage* request, Ecology will approve or deny the request.

**Structural Source Control BMPs** means physical, structural, or mechanical devices or facilities that are intended to prevent pollutants from entering stormwater.

Examples of Structural Source Control BMPs include, but are not limited to:

- Enclosing and/or covering the pollutant sources (e.g., within a building or other enclosure, a roof over storage and/or working areas, temporary tarps, etc).
- Physically separating the pollutant source to prevent run-on of uncontaminated stormwater (e.g., preventing clean stormwater from getting contaminated).
- Devices that direct contaminated stormwater to appropriate treatment BMPs (e.g., discharge to sanitary sewer if allowed by local sewer authority).

**Structural Source Control BMPs** for Western Washington that may apply are on Ecology’s web site at: <http://www.ecy.wa.gov/biblio/0510032.html>.

**Structural Source Control BMPs** for Eastern Washington that may apply are on Ecology’s web site at: <http://www.ecy.wa.gov/biblio/0410076.html>.

The draft permit requires permittees to revise their SWPPP to include additional structural source control BMPs, and certify that the SWPPP is consistent with the permit and applicable stormwater management manual. This requirement is consistent with standard NPDES permit conditions described in 40 CFR 122.22 and is intended to ensure that the permittee understands its responsibility to create and maintain a complete and accurate SWPPP.

The deadline for completing Level 2 is approximately? 135 days following the DMR deadline for the monitoring period (quarter) that triggered the Level 2 response. In the case of facilities that enter the permit at Level 2, the Level 2 deadline is 135 days after the effective date of the permit. This timeframe was based upon Ecology best professional judgment with a recognition that in some cases, it will be infeasible for the permittee to meet the Level 2 deadline (e.g., due to local permitting delays, fish-windows, weather, etc.) so an extension of time may be requested and approved through a modification of permit coverage.

The draft permit includes a mechanism for permittees to request a waiver from installing additional structural source control BMPs, if it is infeasible or not necessary to prevent violations of water quality standards. If approved, this waiver would be authorized through a modification of permit coverage.

### Level 3

The draft permit continues the previous permits' emphasis on the installation of Treatment BMPs. However, Ecology has decided to refine and clarify the substance of Level 3, and clearly articulate the performance goal of Level 3 is attainment of the benchmark in future discharges. To ensure that the Level 3 response is effective, the portion of the SWPPP that deals with stormwater treatment structures or processes needs to be stamped by a professional Engineer, and the SWPPP needs to be submitted by the applicable Level 3 deadline.

Specifically, Condition S8.C states:

### **Level Three Corrective Actions – Treatment BMPs**

The following facilities shall complete a Level 3 Corrective Action in accordance with S8.C.1-4:

- Facilities not listed in Appendix 6 that exceed any benchmark value [in tables (2-6)] during any 8 separate quarterly monitoring periods after January 1, 2010; and
  - Facilities listed in Appendix 6 (Level 2) that exceed any benchmark value [in tables (2-6)] during any 4 separate quarterly monitoring periods after January 1, 2010; and
1. Review the SWPPP and ensure that it is in full compliance with Permit Condition S3, and contains the correct BMPs from the applicable Stormwater Management Manual.
  2. Make appropriate revisions to the SWPPP to include additional *Treatment BMPs* with the goal of achieving all benchmark values in future discharges.
  3. Complete a Level 3 SWPPP Certification Form (Appendix 3) and attach to SWPPP. The portion of the SWPPP that addresses stormwater treatment structures or processes shall be designed and stamped by a professional Engineer, with certification that the SWPPP is consistent with Condition S3.A. Submit the revised SWPPP to Ecology by the Level 3 Deadline.

4. **Level 3 Deadline:** Fully implement the revised SWPPP according to Permit Condition S3 and the applicable Stormwater Management Manual immediately, but no later than the deadline specified in Table 6.
  - a. If installation of necessary *Treatment BMPs* is not feasible within applicable *Corrective Action Deadline*; Ecology may approve additional time by approving a *Modification of Permit Coverage*.
  - b. If installation of *Treatment BMPs* is not feasible or not necessary to prevent discharges that may cause or contribute to violation of a water quality standard, Ecology may waive the requirement for *Treatment BMPs* by approving a *Modification of Permit Coverage*.
  - c. To request a time extension or waiver, a permittee shall submit an Application for Coverage form to Ecology in accordance with Condition S2.B, at least 90 days prior to the applicable Corrective Action Deadline, requesting “Modification of Coverage”. Within 60 days of receipt of a complete *Modification of Coverage* request, Ecology will approve or deny the request.

***Treatment BMPs*** are defined in Appendix 2. Treatment BMPs include, but are not limited to detention ponds, oil/water separators, biofiltration, sand filtration, constructed wetlands, etc.

Treatment ***BMPs*** for Western Washington that may apply are on Ecology’s web site at: <http://www.ecy.wa.gov/biblio/0510033.html>

Treatment ***BMPs*** for Eastern Washington that may apply are on Ecology’s web site at: <http://www.ecy.wa.gov/biblio/0410076.html>

The draft permit requires permittees to revise their SWPPP to include treatment BMPs, and certify that the SWPPP is consistent with the permit and applicable stormwater management manual. This requirement is consistent with standard NPDES permit conditions described in 40 CFR 122.22 and is intended to ensure that the permittee understands its responsibility to create and maintain a complete and accurate SWPPP.

RCW 90.48.555(8)(b) states that the permit must include the “timing and mechanisms for implementation of treatment best management practices”. The deadline for completing Level 3 Treatment BMPs is 135 days following the DMR deadline for the monitoring period (quarter) that triggered the Level 3 response. In the case of facilities that enter the permit at Level 3, the Level 3 deadline is 135 days after the effective date of the permit. This timeframe was based upon Ecology best professional judgment with a recognition that in some cases, it will be infeasible for the permittee to meet the Level 3 deadline (e.g., due to local permitting delays, fish-windows, weather, etc.) so an extension of time may be requested and approved through a modification of permit coverage.

The draft permit includes a mechanism for permittees to request a waiver from installing additional structural source control BMPs, if it is infeasible or not necessary to prevent violations of water quality standards. If approved, this waiver would be authorized through a modification of permit coverage.

#### Level 4

To address ongoing benchmark exceedances after Level 3 treatment is installed, the draft permit contains a new Level 4 Corrective Action. To address concerns about the previous permits' "endless do-loop", Level 4 is intended to provide an endpoint to the facilities adaptive management process, and ensure that Ecology considers site-specific conditions before taking regulatory action, such as issuing an administrative order for additional monitoring, active stormwater treatment, or an engineering report; or notifying the permittee to obtain an individual permit.

Specifically, S8.D states:

#### **Level Four Corrective Action**

The following facilities shall submit a Level 4 Notification Form to Ecology no later than 45 days after the applicable DMR deadline. See Table 6 for additional information:

- Facilities not listed in Appendix 6 that exceed any benchmark value [in tables (2-6)] during any 12 separate quarterly monitoring periods after January 1, 2010; and
  - Facilities listed in Appendix 6 (Level 2) that exceed any benchmark value [in tables (2-6)] during any 8 separate quarterly monitoring periods after January 1, 2010; and
1. When a facility triggers a Level 4 Corrective Action, Ecology will take one or more the following actions:
    - a. Issue an administrative order, requiring the permittee to:
      - i. Submit a receiving water study;
      - ii. Submit an engineering report in accordance with WAC 173-240-130;
      - iii. Perform additional water quality monitoring per Condition G12; or
      - iv. Perform additional pollution prevention and/or treatment measures at the facility, including but not limited to the installation of an *Active Stormwater Treatment System*.
    - b. Notify the permittee in writing to apply for a *Modification of Permit Coverage* in accordance with WAC 173-226-200(3)(f); or
      - i. Ecology may issue modified permit coverage based upon a site specific assessment that no additional pollution prevention and/or treatment measures are necessary to comply with AKART and the discharge is not causing or contributing to a violation of water quality standards.

- c. Notify the permittee in writing to apply for and obtain an individual permit or obtain coverage another more specific general permit, in accordance with WAC 173-226-240(2); or
- d. Notify the discharger in accordance with WAC 173-226-240(5) that coverage under the permit is no longer appropriate, and any actions required by the permittee in order for coverage under the permit to remain effective. The discharger shall have 30 days to respond to any notification provided by WAC 173-226-240(5) before coverage under the permit shall be automatically revoked.
- e. Terminate coverage under a general permit, in accordance with WAC 173-226-240(1).

*Active Stormwater Treatment Systems* include, but are not limited to, chemical treatment, enhanced media filtration, electro-coagulation and ion exchange.

### **S9. Reporting and Recordkeeping Requirements**

The reporting and recordkeeping requirements of Special Conditions S9. are based on Ecology's authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges. Reporting of monitoring results are specified in 40 CFR 122.44(i)(3 and 4) and WAC 173-226-090(3). Discharge Monitoring Reports must be submitted to Ecology even if there was no discharge or if sampling was suspended based on consistent attainment of benchmark values. Recordkeeping requirements in the draft permit are specified in 40 CFR 122.41(j)(2) and WAC 173-220-210(2)(b). The requirements of Condition S9 will assure that Ecology records are maintained and demonstrate compliance with sampling requirements by the facility.

### **S10. Compliance With Standards**

Condition S10 requires that discharges associated with industrial activity comply with all applicable state water quality and sediment management standards. Compliance with water quality standards is required in 40 CFR 122.44(d) and WAC 173-226-070(3)(a). Discharges that are not in compliance with these standards are not authorized by the permit and are subject to enforcement action.

In recognition of the difficulty stormwater presents in determining when a discharge is causing a water quality violation, the draft permit emphasizes BMPs and monitoring to prevent stormwater discharges from causing or contributing to violations of water quality standards. All Permittees are required to apply AKART, including the preparation and implementation of an adequate SWPPP, and the installation and maintenance of BMPs in accordance with the SWPPP and the terms and conditions of this permit.

RCW 90.48.555 directs Ecology's determination of compliance with water quality standards in this general permit. RCW 90.48.555(6) provides:

“Compliance with water quality standards shall be presumed, unless discharge monitoring data or other site specific information demonstrates that a discharge causes or contributes to violation of water quality standards, when the Permittee is:

1. In full compliance with all permit conditions, including planning, sampling, monitoring, reporting, and recordkeeping conditions; and
2. Fully implementing stormwater BMPs contained in stormwater technical manuals approved by Ecology, or practices that are “demonstrably equivalent” to practices contained in stormwater technical manuals approved by Ecology, including the proper selection, implementation, and maintenance of all applicable and appropriate BMPs for on-site pollution control. "Demonstrably equivalent" means that the technical basis for the selection of all stormwater BMPs is documented within a SWPPP, including:
  - a. The method and reasons for choosing the stormwater BMPs selected;
  - b. The pollutant removal performance expected from the BMPs selected;
  - c. The technical basis supporting the performance claims for the BMPs selected, including any available existing data concerning field performance of the BMPs selected;
  - d. An assessment of how the selected BMPs will comply with state water quality standards; and
  - e. An assessment of how the selected BMPs will satisfy both applicable federal technology-based treatment requirements and state requirements to use AKART.

To ensure compliance with the Clean Water Act, stormwater treatment systems must be properly designed, constructed, maintained, and operated to:

1. Prevent pollution of state waters and protect water quality, including compliance with state water quality standards;
2. Satisfy state requirements for all known available and reasonable methods of prevention, control and treatment (AKART) of wastes (including construction stormwater runoff) prior to discharge to waters of the state; and
3. Satisfy the federal technology based treatment requirements under 40 CFR part 125.3.

Permittees must implement all the BMPs as identified in Special Condition S3, Stormwater Pollution Prevention Plan. Permittees must ensure that all BMPs are in place, operational, and routinely maintained. Treatment BMPs are also required for industrial activities that unavoidably lead to stormwater contamination. The SWMMs identify BMPs necessary to limit the exposure of stormwater to pollutants and in some cases to apply treatment. Ecology presumes that implementation of these BMPs will typically result in discharges of stormwater that will not violate water quality standards. If the prescribed BMPs fail to be protective, the Permittee must add additional BMPs to achieve compliance. Sampling and analysis provide an indication of when water quality violations may be a concern and additional BMPs required.

### **S11. Permit Fees**

The Permittee must pay the permit fees assessed by Ecology, as established by Chapter 173-224 WAC and RCW 90.48.465(1), unless coverage is terminated or revoked.

### **S12. Solid and Liquid Waste Management**

RCW 90.48.080 requires appropriate disposal of any organic or inorganic waste. This includes any wastes that are collected as a result of stormwater treatment. Maintenance of stormwater treatment facilities must include appropriate disposal of collected wastes. They must not be allowed to resuspended and discharged. The plan for appropriate collection and disposal of solid waste must be included in the stormwater pollution prevention plan.

### **S13. Notice of Termination (NOT)**

The Permittee of record must comply with the terms and conditions of the permit unless the Permittee terminates coverage under the permit or transfers coverage to a new Permittee. A Permittee may terminate coverage by submitting the official Ecology form for termination of coverage.

## **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.

Condition 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.

Condition G2 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).

Condition G3 requires the Permittee to allow Ecology to access the facility and conduct inspections of the facility and records related to the permit in accordance with 40 CFR 122.41(i), RCW 90.48.090, and WAC 173-220-150(1)(e).

Condition G4 identifies conditions that may result in modifying or revoking the general permit in accordance with 40 CFR 122.62, 40 CFR 124.5, and WAC 173-226-230.

Condition G5 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.

Condition G6 requires the Permittee 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).

Condition G7 prohibits the Permittee from using the permit as a basis for violating any laws, statutes or regulations in accordance with 40 CFR 122.5(c).

Condition G8 requires the Permittee to reapply for coverage 180 days 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) (Note: This would only apply to long term projects or to sites with permit coverage near the time of permit expiration).

Condition G9 identifies the requirements for transfer of permit coverage in accordance with 40 CFR 122.41(l)(3) and WAC 173-220-200.

Condition G10 prohibits the reintroduction of removed substances back into the effluent in accordance with 40 CFR 125.3(g), RCW 90.48.010, RCW 90.48.080, WAC 173-220-130, and WAC 173-201A-040.

Condition G11 requires Permittees to submit additional information or records to Ecology when necessary in accordance with 40 CFR 122.41(h).

Condition G12 incorporates all other requirements of 40 CFR 122.41 and 122.42 by reference.

Condition G13 notifies the Permittee that additional monitoring requirements may be established by Ecology in accordance with 40 CFR 122.41(h).

Condition G14 describes the penalties for violating permit conditions in accordance with 40 CFR 122.41(a)(2).

Condition G15 provides the regulatory context and definition of “Upset” in accordance with 40 CFR 122.41(n).

Condition G16 specifies that the permit does not convey property rights in accordance with 40 CFR 122.41(g).

Condition G17 requires the Permittee to comply with all conditions of the permit in accordance with 40 CFR 122.41(a).

Condition G18 requires the Permittee to comply with more stringent toxic effluent standards or prohibitions established under Section 307(a) of the Clean Water Act in accordance with 40 CFR 122.41(a)(1), WAC 173-220-120(5), and WAC 173-201A-040.

Condition G19 describes the penalties associated with falsifying or tampering with monitoring devices or methods in accordance with 40 CFR 122.41(j)(5).

Condition G20 requires Permittees to report planned changes in accordance with 40 CFR 122.41(l)(1).

Condition G21 requires Permittees to report any relevant information omitted from the permit application in accordance with 40 CFR 122.41(l)(8).

Condition G22 requires Permittees to report anticipated non-compliances in accordance with 40 CFR 122.41(l)(2).

Condition G23 specifies that Permittees may request their general permit coverage be replaced by an individual permit in accordance with 40 CFR 122.62, 40 CFR 124.5, and WAC 173-220-040.

Condition G24 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 RCW 43.21B and WAC 173-226-190.

Condition G25 invokes severability of permit provisions in accordance with RCW 90.48.904.

Condition G26 prohibits bypass unless certain conditions exist in accordance with 40 CFR 122.41(m).

## **PERMIT ISSUANCE PROCEDURES**

### **PERMIT MODIFICATIONS**

Ecology may modify this permit to impose numerical limitations, if necessary to meet Water Quality Standards for Surface Waters, Sediment Quality Standards, or Water Quality Standards for Ground Waters, based on new information obtained from sources such as inspections, effluent sampling, and outfall studies.

Ecology may also modify this permit as a result of new or amended state or federal regulations.

### **RECOMMENDATION FOR PERMIT ISSUANCE**

This draft permit meets all statutory requirements for authorizing a stormwater discharge, including those limitations and conditions believed necessary to control toxics, protect human health, aquatic life, and the beneficial uses of waters of the State of Washington. Ecology proposes that this draft permit be issued for five (5) years.

## REFERENCES FOR TEXT AND APPENDICES

### Environmental Protection Agency (EPA)

- SW 846 On-line. <<http://www.epa.gov/epaoswer/hazwaste/test/main.htm>> (February 1, 2007)
2006. Final Draft NPDES Storm Water Multi-Sector General Permit. December 4, 2006.
2005. Proposed NPDES Storm Water Multi-Sector General Permit and Fact Sheet.
2000. NPDES Storm Water Multi-Sector General Permit. Federal Register, V. 65, No. 210, Monday, October 30, 2000.
1992. National Toxics Rule. 40 CFR 131.36.
1991. Technical Support Document for Water Quality-based Toxics Control. EPA/505/2-90-001.
1988. Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. USEPA Office of Water, Washington, D.C.
1985. Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water. EPA/600/6-85/002a.
1983. Water Quality Standards Handbook. USEPA Office of Water, Washington, D.C.

### EnviroVision and Herrera Environmental Consultants.

2006. Data Analysis Report: Evaluation of Monitoring Data from General NPDES Permits for Industrial and Construction Stormwater.
2006. Evaluation of Washington's Industrial Stormwater General Permit.

### Herrera Environmental Consultants.

2009. Water Quality Risk Evaluation for Proposed Benchmarks/Action Levels in the Industrial Stormwater General Permit, February 9, 2009  
<http://www.ecy.wa.gov/programs/wq/stormwater/industrial/workgroupdocs/analysisreportwqrisk.pdf>

### National Oceanic and Atmospheric Administration.

2006. Comment letter to EPA's Multi-Sector General Permit. EPA Docket ID No. OW-2005-0007.

Noling, P.E., Calvin. Written comments on preliminary draft ISWGP, sent to Ecology via email communication May 9, 2009

### Office of Management and Budget

1987. Standard Industrial Classification Manual.

Stenstrom, M. K. and H. Lee.

2005. Industrial Storm Water Monitoring Program – Existing Statewide Permit Utility and Proposed Modifications. Final Report.

Tsivoglou, E.C., and J.R. Wallace.

1972. Characterization of Stream Reaeration Capacity. EPA-R3-72-012. (Cited in EPA 1985 op.cit.)

Washington State Department of Ecology.

2005. Stormwater Management Manual for Western Washington. Publication Numbers 05-10-029 through 05-10-033.
2004. Stormwater Management Manual for Eastern Washington. Publication Number 04-10-076.
2001. Stormwater Management Manual for Western Washington. Publication Numbers 99-11 through 99-15.
1994. Permit Writer's Manual. Publication Number 92-109

Wright, R.M., and A.J. McDonnell.

1979. In-stream Deoxygenation Rate Prediction. Journal Environmental Engineering Division, ASCE. 105(E2). (Cited in EPA 1985 op.cit.)

## APPENDIX A - PUBLIC INVOLVEMENT INFORMATION

Ecology has tentatively determined to reissue the Industrial Stormwater General Permit to industrial activities as identified in Special Condition S1., Permit Coverage. The proposed permit will replace the current permit.

The draft Industrial Stormwater General Permit (ISWGP), fact sheet, and application are available for review and public comment from **June 3, 2009 through July 15, 2009**. Ecology will host informational workshops and a public hearing on the draft permit. Ecology will accept written comments on the draft permit, fact sheet, and application or oral comments can be given at the public hearing.

### Requesting Copies of the Permit

You may download copies of the draft permit, fact sheet, and application from the website: [www.ecy.wa.gov/programs/wq/stormwater/industrial/index.html](http://www.ecy.wa.gov/programs/wq/stormwater/industrial/index.html).

Or you may request copies from: Julie Robertson at (360) 407-6575 or by email at [jrob461@ecy.wa.gov](mailto:jrob461@ecy.wa.gov).

### Submitting Written and Oral Comments

Ecology will accept written and oral comments on the draft Industrial Stormwater General Permit, fact sheet, and application. Comments should reference specific text when possible. Comments may address the following:

- technical issues,
- accuracy and completeness of information,
- the scope of facilities proposed for coverage,
- adequacy of environmental protection and permit conditions, or
- any other concern that would result from issuance of the revised permit.

### Ecology prefers comments be submitted by email to

**industrialstormwatercomments@ecy.wa.gov**. Written comments must be postmarked or received via email no later than **5pm, July 15, 2009**.

Submit written, hard copy comments to:

Jeff Killelea  
Department of Ecology  
PO Box 47600  
Olympia, WA 98504-7600

You may also provide oral comments by testifying at the public hearing.

### Public Hearing and Workshops

The public hearing and workshops on the draft general permit will be held at the below locations. The purpose of the hearing is to provide an opportunity for people to give formal oral testimony and comments on the draft permit. The purpose of the workshops is to explain the proposed changes to the new permit.

## **WORKSHOPS**

### **June 19, 2009 (1 p.m.) - Vancouver**

Vancouver City Council Chambers, 210 East 13<sup>th</sup> St, Vancouver, WA (360) 487-8600

### **June 24, 2009 (1 p.m.) - Moses Lake**

Moses Lake Fire Station, 701 E Third St, Moses Lake, WA (509) 765-2204

### **June 26, 2009 (9 a.m.) - Mount Vernon**

PUD No. 1 of Skagit County, 1415 Freeway Drive, Mount Vernon, WA (360) 424-7104

## **HEARING AND WORKSHOP**

### **July 13, 2009 (1 p.m.) – Tacoma**

Pierce County Library System, Room C, 3005 112<sup>th</sup> St E, Tacoma, Washington, (253) 536-6500

### **Issuing the Final Permit**

The final permit will be issued after Ecology receives and considers all public comments.

Ecology expects to issue the new general permit on October 21, 2009. It will be effective January 1, 2010.

Further information may be obtained by contacting Lead Permit Writer Jeff Killelea, at Ecology, by phone at (360) 407-6127, by email at [jkil461@ecy.wa.gov](mailto:jkil461@ecy.wa.gov), or by writing to Ecology's Olympia address listed above.

## APPENDIX B - DEFINITIONS

303(d) Listed Waters – see Water body segments listed as Impaired - 303(d)

Action level means a pollutant concentration that can potentially cause a violation of the applicable water quality standard. A site-specific water quality evaluation must be conducted to determine if an actual water quality violation exists.

Air Emission means a release of air contaminants into the ambient air.

AKART is an acronym for “all known, available, and reasonable methods of prevention, control, and treatment.” AKART represents the most current methodology that can be reasonably required for preventing, controlling, or abating the pollutants and controlling pollution associated with a discharge.

Applicable TMDL means any TMDL which has been completed either before the issuance date of this permit or the date the Permittee first obtains coverage under this permit, which ever is later.

Best Management Practices (BMPs - general definition) means schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the state. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. In this permit BMPs are further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

Benchmark means a pollutant concentration used by the permit as a threshold, below which a pollutant is considered unlikely to cause a water quality violation. Benchmark values are not water quality criteria and site-specific conditions must still be considered to determine if an actual water quality violation exists.

Bypass means the intentional diversion of waste streams from any portion of a treatment facility.

Capital BMPs/Improvements means the following improvements which will require capital expenditures:

1. Treatment BMPs, including but not limited to: biofiltration systems including constructed wetlands; settling basins, oil/water separation equipment, and detention and retention basins.
2. Manufacturing modifications, including process changes for source reduction, if capital expenditures for such modifications are incurred.
3. Concrete pads and dikes and appropriate pumping for collection of stormwater and transfer to control systems, from manufacturing areas such as loading,

unloading, outside processing, fueling and storage of chemicals, equipment, and wastes.

4. Roofs and appropriate covers for manufacturing areas.

Clean Water Act (CWA) means the Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, and 97-117; USC 1251 et seq.

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

Constructed Wetland means wetlands intentionally created, on sites that are not natural wetlands, for the primary purpose of wastewater or stormwater treatment and managed as such. Constructed wetlands are normally considered as part of the stormwater collection and treatment system.

Construction Activity means clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, industrial buildings, and demolition activity.

Control plan means a total maximum daily load (TMDL) determination, restrictions for the protection of endangered species, a ground water management plan, or other limitations that regulate or set limits on discharges to a specific water body or ground water recharge area.

Demonstrative approach means stormwater BMPs that must be individually reviewed and approved by Ecology before they can be used by the Permittee. The demonstrative approach requires the Permittee to provide documentation (e. g., an engineering report) that the resulting discharge will be protective of receiving water quality.

Design Storm means the precipitation event that is used to design stormwater facilities. Refer to Ecology's Stormwater Management Manual for specific information on requirements for determining design storm volume and flow rate appropriate for designing stormwater treatment systems.

Design Storm Volume means the volume of runoff predicted to occur from a specified storm event. The storm event includes a time interval (e.g. 24-hours) and frequency (e.g. 6-month). Volume-based treatment BMPs use the design storm volume as their design basis. Refer to the Ecology Stormwater Management Manual for storm event and additional information.

Design Flow Rate means the flow rate at or below which a specified amount of the runoff volume will be treated. Flow rate-based treatment BMPs use the design flow rate (e.g. as estimated using an approved continuous runoff model) as their design basis. Refer to the Ecology Stormwater Management Manual to determine the appropriate flow rate and for additional information.

Detention means the temporary storage of stormwater to improve quality and/or to reduce the mass flow rate of discharge.

Discharge [of a pollutant] means any addition of any pollutant or combination of pollutants to waters of the United States from any point source. This definition includes additions of pollutants into waters of the United States from: surface runoff which is collected or channeled by man; discharges through pipes, sewers, or other conveyances owned by a State, municipality, or other person which do not lead to a treatment works; and discharges through pipes, sewers, or other conveyances, leading into privately owned treatment works. [from 40 CFR 122 Definitions--not yet italicized in text]

Discharger means an owner or operator of any facility or activity subject to regulation under Chapter 90.48 RCW or the Federal Clean Water Act.

Domestic Wastewater means water carrying human wastes, including kitchen, bath, and laundry wastes from residences, buildings, industrial establishments, or other places, together with such ground water infiltration or surface waters as may be present.

Ecology means the Washington State Department of Ecology.

EPA means the United States Environmental Protection Agency.

Equivalent BMPs means operational, source control, treatment, or innovative BMPs which result in equal or better quality of stormwater discharge to surface water or to ground water than BMPs selected from the SWMM.

Equivalent Stormwater Management Manual means a manual that has been determined by Ecology as being equivalent to the SWMM.

Erosion means the wearing away of the land surface by running water, wind, ice, or other geological agents, including such processes as gravitational creep.

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

Erosion and Sediment Control Plan means a document which describes the potential for erosion and sedimentation problems, and explains and illustrates the measures which are to be taken to control those problems.

Existing Facility means a facility that was in operation prior to the effective date of this permit. It also includes any facility in that is not categorically included for coverage but is in operation when identified by Ecology as a significant contributor of pollutants.

Facility means any NPDES point source or any other facility or activity (including associated land or appurtenances) subject to regulation under the NPDES program.

Final Stabilization means the completion of all soil disturbing activities at the site and the establishment of a permanent vegetative cover, or equivalent permanent stabilization measures (such as riprap, gabions or geotextiles) which will prevent erosion.

"40 CFR" means Title 40 of the Code of Federal Regulations, which is the codification of the general and permanent rules published in the Federal Register by the executive departments and agencies of the federal government.

General Permit means a permit which covers multiple dischargers of a point source category within a designated geographical area, in lieu of individual permits being issued to each discharger.

Ground Water means water in a saturated zone or stratum beneath the land surface or a surface water body.

Illicit Discharge means any discharge that is not composed entirely of stormwater except discharges pursuant to a separate NPDES permit and discharges resulting from fire fighting activities.

Inactive and Unstaffed Site means a facility at which no industrial activity, production, or any auxiliary operation occurs and the facility has no assigned staff. A site may be “unstaffed” even when security personnel are present, provided that pollutant generating activities are not included in their duties.

Industrial Activity means (1) the 11 categories of industrial activities identified in 40 CFR 122.26(b)(14)(i-xi) that must apply for either coverage under this permit or no exposure certification, or (2) any facility identified by Ecology as a significant contributor of pollutants. Table 1 lists the 11 categories of industrial activities identified in 40 CFR 122.26(b)(14)(i-xi) in a different format.

Landfill means an area of land or an excavation in which wastes are placed for permanent disposal, and which is not a land application site, surface impoundment, injection well, or waste pile.

Land Application Site means an area where wastes are applied onto or incorporated into the soil surface (excluding manure spreading operations) for treatment or disposal.

Leachate means water or other liquid that has percolated through raw material, product or waste and contains substances in solution or suspension as a result of the contact with these materials.

Listed Waters – see Water body segments listed as Impaired - 303(d)

Local Government means any county, city, or town having its own government for local affairs.

Municipality means a political unit such as a city, town or county; incorporated for local self-government.

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

New Facility means a facility that begins activities that result in a discharge or a potential discharge to waters of the state on or after the effective date of this general permit.

Noncontact Cooling Water means water used for cooling which does not come into direct contact with any raw material, intermediate product, waste product, or finished product.

Notice of Termination (NOT) means a request for termination of coverage under this general permit as specified by Special Condition S11 of this permit.

Operational BMPs means schedule of activities, prohibition of practices, maintenance procedures, employee training, good housekeeping, and other managerial practices to prevent or reduce the pollution of waters of the state. Not included are BMPs that require construction of pollution control devices.

Point Source means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure and container from which pollutants are or may be discharged to surface waters of the state. This term does not include return flows from irrigated agriculture. (See Fact Sheet for further explanation.)

Pollutant means the discharge of any of the following to waters of the state: dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, domestic sewage sludge (biosolids), munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste. This term does not include sewage from vessels within the meaning of section 312 of the FWPCA nor does it include dredged or fill material discharged in accordance with a permit issued under section 404 of the FWPCA.

Pollution means contamination or other alteration of the physical, chemical, or biological properties of waters of the state; including change in temperature, taste, color, turbidity, or odor of the waters; or such discharge of any liquid, gaseous, solid, radioactive or other substance into any waters of the state as will or is likely to create a nuisance or render such waters harmful, detrimental or injurious to the public health, safety or welfare; or to domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses; or to livestock, wild animals, birds, fish or other aquatic life.

Presumptive Approach means the use of stormwater BMPs, pre-approved by Ecology, that are based on current science and are assumed to be protective of receiving water quality. Approved BMPs may be found in the Eastern Washington SWMM and Western Washington SWMM.

Process Wastewater means any water which, during manufacturing or processing, comes into direct contact or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product.

Reasonable potential means the probability for pollutants in the discharge to exceed the applicable water quality criteria in the receiving water body.

Receiving water or water body means the water body at the point of discharge. If the discharge is to a storm sewer system, either surface or subsurface, the receiving water is the water body that the storm sewer system discharges to. Systems designed primarily for other purposes such as for ground water drainage, redirecting stream natural flows, or for conveyance of irrigation water/return flows that coincidentally convey stormwater are considered the receiving water.

Regular Business Hours means those time frames when the facility is engaged in its primary production process, but does not include additional shifts or weekends when partial staffing is at the site primarily for maintenance and incidental production activities. Regular business hours do not include periods of time that the facility is inactive and unstaffed.

Representative [sample] means a sample of the discharge that accurately characterizes stormwater runoff generated in the designated drainage area of the facility.

Runoff means that portion of rainfall not absorbed into the ground that becomes surface flow.

Sanitary Sewer means a sewer which is designed to convey domestic wastewater.

Sediment means the fragmented material that originates from the weathering and erosion of rocks or unconsolidated deposits, and is transported by, suspended in, or deposited by water.

Sedimentation means the depositing or formation of sediment.

Severe Property Damage means substantial physical damage to property, damage to the treatment facilities which would cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

Significant Amount means an amount of a pollutant in a discharge that is amenable to available and reasonable methods of prevention, control, or treatment; or an amount of a pollutant that has a reasonable potential to cause a violation of surface or ground water quality standards or sediment management standards.

Significant Contributor of Pollutant(s) means a facility determined by Ecology to be a contributor of a significant amount(s) of a pollutant(s) to waters of the state.

Significant Materials includes, but is not limited to: raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw

materials used in food processing or production; hazardous substances designated under section 101(14) of CERCLA; any chemical the facility is required to report pursuant to section 313 of title III of SARA; fertilizers; pesticides; and waste products such as ashes, slag and sludge that have the potential to be released with stormwater discharges.

Significant Process Change means any modification of the facility that would result in any of the following:

1. Add different pollutants in a significant amount to the discharge.
2. Increase the pollutants in the stormwater discharge by a significant amount.
3. Add a new industrial activity (SIC) that was not previously covered.
4. Add additional impervious surface or acreage such that stormwater discharge would be increased by 25% or more.

Site means the land or water area where any "facility or activity" is physically located or conducted.

Source Control BMPs means physical, structural or mechanical devices or facilities that are intended to prevent pollutants from entering stormwater. A few examples of source control BMPs are erosion control practices, maintenance of stormwater facilities, constructing roofs over storage and working areas, and directing wash water and similar discharges to the sanitary sewer or a dead end sump.

Standard Industrial Classification (SIC) is the statistical classification standard underlying all establishment-based federal economic statistics classified by industry as reported in the 1987 SIC Manual by the Office of Management and Budget.

Stabilization means the application of appropriate BMPs to prevent the erosion of soils, such as, temporary and permanent seeding, vegetative covers, mulching and matting, plastic covering and sodding. See also the definition of Erosion and Sediment Control BMPs.

State Environmental Policy Act (SEPA) means the Washington State Law, RCW 43.21C.020, intended to prevent or eliminate damage to the environment.

Storm Sewer means a sewer that is specifically designed to carry stormwater. Also called a storm drain.

Stormwater means that portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a stormwater drainage system into a defined surface water body, or a constructed infiltration facility. (from the CSWGP)

Stormwater Discharge Associated with Industrial Activity means the discharge from any conveyance that is used for collecting and conveying stormwater and that is directly related to manufacturing, processing or raw materials storage areas at an industrial plant (see 40 CFR

122(b)(14). It may also, on a case-by-case basis, include stormwater from any portion of an industrial site subject to pollutants of a significant amount.

Stormwater Drainage System means constructed and natural features which function together as a system to collect, convey, channel, hold, inhibit, retain, detain, infiltrate or divert stormwater.

Stormwater Management Manual (SWMM) or Manual means the technical manuals prepared by Ecology for stormwater management in western and eastern Washington. (As of August 1, 2001, the Stormwater Management Manual for Western Washington replaced the 1992 Stormwater Management Manual for the Puget Sound Basin, which is no longer an approved manual.)

Stormwater Pollution Prevention Plan (SWPPP) means a documented plan to implement measures to identify, prevent, and control the contamination of point source discharges of stormwater.

Surface Waters of the State includes lakes, rivers, ponds, streams, inland waters, salt waters, and all other surface waters and water courses within the jurisdiction of the state.

Total Maximum Daily Load (TMDL) means a calculation of the maximum amount of a *pollutant* that a water body can receive and still meet state *water quality standards*. Percentages of the total maximum daily load are allocated to the various pollutant sources. A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. The TMDL calculations include a "margin of safety" to ensure that the water body can be protected in case there are unforeseen events or unknown sources of the pollutant. The calculation also accounts for seasonable variation in water quality. (from the CSWGP)

Treatment BMPs means BMPs that are intended to remove pollutants from stormwater. A few examples of treatment BMPs are detention ponds, oil/water separators, biofiltration, media filtration, and constructed wetlands.

Turbidity means the clarity of water expressed as nephelometric turbidity units (NTU) and measured with a calibrated turbidimeter.

Uncontrolled Sanitary Landfill means a landfill or open dump, whether in operation or closed, that does not meet the requirements for runoff and runoff controls established pursuant to subtitle D of the Solid Waste Disposal Act.

Underground Injection Control Well means a well that is used to discharge fluids into the subsurface. An underground injection control well is one of the following:

1. A bored, drilled, or driven shaft,
2. An improved sinkhole, or
3. A subsurface fluid distribution system.

Unstaffed means the facility has no assigned staff. A site may be “unstaffed” even when security personnel are present, provided that pollutant generating activities are not included in their duties.

Vehicle means a motor-driven conveyance that transports people or freight, such as an automobile, truck, train or airplane.

Wasteload allocation means the portion of a receiving water’s loading capacity that is allocated to one of its existing or future point sources of pollution. WLAs constitute a type of water quality based effluent limitation (40 CFR 130.2(h)). [from the CSWGP-not yet italicized in text]

Water Quality Standards means the Water Quality Standards for Surface Waters of the State of Washington, Chapter 173-201A WAC. Water quality means the chemical, physical, and biological characteristics of water, usually with respect to its suitability for a particular purpose.

Water body segments listed as Impaired - 303(d) means the specific segment or grid of a water body that was listed by the State as required under Section 303(d) of the Clean Water Act. The most current list of impaired waters is the applicable list.

Waters of the State includes those waters defined as "waters of the United States" in 40 CFR Subpart 122.2 within the geographic boundaries of Washington State. State statute defines "waters of the state" to include lakes, rivers, ponds, streams, wetlands, inland waters, underground waters, salt waters and all other surface waters and water courses within the jurisdiction of the state of Washington (Chapter 90.48 RCW).

**APPENDIX C - RESPONSE TO COMMENTS**