NPDES GENERAL PERMIT
FACT SHEET
FOR
SMALL MUNICIPAL SEPARATE STORM SEWERS
in WESTERN WASHINGTON

MARCH 24, 2006

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I. INTRODUCTION

This Fact Sheet accompanies the final draft *NPDES and State Waste Discharge Permit for Discharges from small Municipal Separate Storm Sewers in Western Washington* (the Phase II Permit for Western Washington). The Fact Sheet serves as the documentation of the legal, technical, and administrative decisions the Department of Ecology (Ecology) has made in the process of developing and issuing this permit.

When issued, this permit will authorize the discharge of stormwater to waters of the State of Washington from municipal separate storm sewers that are owned or operated by the Permittees. As required by paragraph 402(p)(3) of the Clean Water Act, discharges covered under this permit must effectively prohibit non-stormwater discharges into storm sewers that discharge to surface waters and must apply controls to reduce the discharge of pollutants to the Maximum Extent Practicable (MEP). As authorized by RCW 90.48.030 and RCW 90.48.162, Ecology is also taking action through the issuance of this permit to control impacts of stormwater discharges to all waters of Washington State, including ground waters, unless the discharges are authorized by another regulatory program.

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

The federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System permit program (NPDES permits), which is administered by the Environmental Protection Agency (EPA). The EPA delegated responsibility to administer the NPDES permit program to the State of Washington under Chapter 90.48 RCW, which defines the Department of Ecology's authority and obligations in administering the wastewater discharge permit program.

In 1987 Congress amended the federal Clean Water Act (CWA) to address stormwater discharge. The CWA established two phases for the stormwater permit program that required controls to reduce stormwater pollutant discharges to the maximum extent practicable. Phase I covered larger and medium-sized municipalities; later, phase II covered smaller jurisdictions.

In 2000, EPA finalized NPDES Phase II rules regulating municipally-owned separate storm sewer systems within census-defined urban areas. The Phase II rule extends coverage of the National Pollutant Discharge Elimination System (NPDES) program to certain "small" municipal separate stormwater sewer systems (MS4s) and requires

Ecology to expand its stormwater program by issuing permits to additional operators of MS4s that discharge to surface waters.

The regulations adopted by the State include procedures for issuing general permits (Chapter 173-226 WAC), water quality criteria for surface and ground waters (Chapters 173-201A and 200 WAC), and sediment management standards (Chapter 173-204 WAC). These regulations require that a permit be issued before discharge of wastewater to waters of the state is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the proposed permit. One of the requirements (WAC 173-226-110) for issuing a general permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet.

Public notice of the availability of the draft permit is required at least thirty days before the proposed permit is issued (WAC 173-226-130). After the public comment period has closed, Ecology will summarize the substantive comments and prepare a response. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of Ecology's response. Comments and the resultant changes to the proposed permit will be summarized in Appendix A of this Fact Sheet - Response to Comments.

II. PUBLIC INVOLVEMENT OPPORTUNITIES

Public Comment Period

Ecology is soliciting public comment on the Draft Permit, Fact Sheet, and Notice of Intent until 5:00 p.m. on May 19, 2006. Ecology welcomes all comments on these formal draft documents. If possible, the following information should be included with your comments:

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

Ecology will issue the final permit after it considers all public comments and makes final changes to the draft permit.

Written comments should be sent to WesternComments@ecy.wa.gov or to:

Department of Ecology
Water Quality Program
Municipal Stormwater Permits
P.O. Box 47696
Olympia WA 98504-7696

Oral comments can be made by attending and testifying at the public hearing on Tuesday, May 2, 2006 ay 1:00 pm. The hearing will be held at:

Pierce County Library,
Administrative Services Center,

3005 112th Street East
Tacoma.

The hearing will provide the public with an opportunity to give formal comments on the proposed permit. A short workshop with a question and answer session will precede the hearing. The hearing will immediately follow the workshop, which will begin at 1:00 p.m.

Ecology will host four general public workshops on the draft permit during the public comment period. The purpose of the workshops is to explain the permit, to inform participants of how this draft of the permit has changed from the previous draft of the permit, and to answer questions. Ecology will not accept formal oral testimony or comments on the Draft Permit, Fact Sheet, or Notice of Intent at the public workshops. The public workshops on the Draft Permit will be held at the following locations, dates and times:

Phase I and Phase II Western Washington General Workshops	
Date & Time:	**Location:**
Friday, March 31, 2006 10 am – 4 pm	**Mount Vernon** Skagit PUD #1 1415 Freeway Drive
Tuesday, April 4, 2006 10 am – 4 pm	**Tacoma** Pierce County Library Admin. Center 3005 112 Street E
Tuesday, April 11, 2006 10 am – 4 pm	**Vancouver** Water Resources Education Center Bruce Hagensen Community Room 4600 SE Columbia Way
Tuesday, April 18, 2006 10 am – 3:30 pm	**Bellevue** Lewis Creek Park Visitor Center 5808 Lakemont Blvd

Ecology will also hold two public workshops specifically for the public entities who are not cities, towns, or counties that may also be required to obtain coverage under this permit. Ecology will not accept formal oral testimony or comments on the Draft Permit, Fact Sheet, or Notice of Intent at these workshops. The purpose of the workshops is to explain the general permit, to go through the stormwater management program requirements for these entities, and to answer questions. The public workshops for these entities will be held at the following locations, dates, and times:

Secondary Permittee Workshops	
Date & Time	**Location**
Tuesday, March 14, 2006 1 pm – 5 pm	**Ellensburg** Hal Holmes Community Center 209 North Ruby Street
Tuesday, March 28, 2006 1 pm – 5 pm	**Lacey** Lacey Community Center 6729 Pacific Ave SE

Ecology will issue the final permit after receiving and considering all public comments. If public comments cause a substantial change in the permit conditions from the final draft permit, another public notice of draft and comment period may ensue. Ecology expects to issue the final permits in the fall of 2006 and they will become effective 30 days after issuance. A copy of the Notice of Issuance will be sent to all persons who submitted written comment or gave public testimony at the public hearings.

When Ecology issues the final permit, the summary and response to comments will become part of the file on the permit and parties submitting comments will receive a notice on how to obtain copies of the final permit and Ecology's response to comments. Comments and the resultant changes to the proposed permit will be summarized in Appendix A of this Fact Sheet - Response to Comments.

You may download copies of the draft permit documents and submit comments online at: http://www.ecy.wa.gov/programs/wq/stormwater/municipal/issue_permits.html. Direct questions about the **workshops** and requests for printed copies of the Draft Permit, Fact Sheet, and Notice of Intent to Water Quality Program's section secretaries Melinda Wilson at mewi461@ecy.wa.gov or Julie Robertson at jrob461@ecy.wa.gov or telephone either of them at (360) 407-6401.

Questions about the **Notice of Intent** should be directed to Steve Hood at (360) 738-6254 or shoo461@ecy.wa.gov for Whatcom and Skagit Counties; to Ed Abbasi (425) 649-7227 or eabb461@ecy.wa.gov for King, Kitsap and Snohomish counties; or to Garin Schrieve (360) 407-6272 or gasc461@ecy.wa.gov for Clallam, Clark, Cowlitz, Grays Harbor, Lewis, Mason, Pierce and Thurston counties. Questions about the **Draft Permit** or **Fact Sheet** should be directed to Kathleen Emmett (360) 407-7386 or kemm461@ecy.wa.gov.

Public Involvement Opportunities To-Date

Federal regulations required local jurisdictions located within census-defined urban areas to apply for coverage under a federal Clean Water Act permit by March 10, 2003. Ecology did not have a Phase II municipal stormwater general permit developed before the Phase II rule went into effect in March 2003, but collaborated with the American

Public Works Association stormwater managers to develop an application form to assist municipalities in meeting the federal requirement. In December 2002, Ecology, the Association of Washington Cities and the Washington State Association of Counties sponsored five municipal stormwater NPDES permit workshops throughout the state. The workshops provided information on the federal NPDES Phase II stormwater regulations and requirements, who must obtain a Phase II permit, the Phase II permit application and contact information of Ecology staff working on the municipal permits.

During the 2003 state legislative session, considerable interest and debate occurred on the new federal requirements for municipal stormwater permits. The requirements imposed broad responsibilities on municipalities and other public entities to manage their stormwater discharges and extended stormwater permit requirements to urbanized areas as defined by the US Census Bureau. The new requirements affected approximately 100 new municipalities and numerous other public entities, many of whom expressed concerns to the legislature that the new permit requirements:

1. Would be fiscally and operationally burdensome,
2. Needed to provide meaningful environmental benefits,
3. Compliance should be reasonable to attain, and
4. Should not expose municipalities to undue risk of lawsuits.

Although the legislature did not adopt a bill during session, the House and Senate each passed bills that contained a list of issues related to municipal stormwater permits and directed Ecology to convene stakeholder committees to frame policy issues and identify alternatives for addressing each issue. In the spirit of that legislation, Ecology convened the Eastside and Westside stormwater advisory groups during the summer of 2003 to advise and assist the development of the municipal stormwater permits.

The Westside Stormwater Group (WSG) included representatives from local governments, state agencies, the environmental community, business, agriculture and the shellfish industry. The WSG met seven times from August to November 2003 and submitted a report on its findings to Ecology in early December, 2003. The WSG did not reach consensus on any specific issue but recommended a variety of administrative, legal, financial, and environmental considerations associated with alternative approaches to permitting.

The standing Eastern Washington Stormwater Management Steering Committee served as Ecology's advisory group for issues related to stormwater management and Phase II permits in Eastern Washington. The Steering Committee formed in June 2001 to assist the Department in developing a stormwater manual for best management practices tailored to the distinct climatic and geologic conditions in eastern Washington. The Steering Committee also developed a model stormwater management program for Phase II municipalities on the eastside. Ecology invited this group to participate in the review of stormwater issues raised in the 2003 Legislature. The eastern Washington stormwater group met five times, from August through November 2003 and recommended Ecology issue separate permits for western and eastern Washington phase II communities. Ecology acted on the recommendation and issued the Preliminary Draft Phase II

Stormwater Permit for Eastern Washington for public review from July 13, 2005 through October 14, 2005.

Ecology filed a Notice of Intent to issue the Western Washington Phase I and Phase II and the Washington Department of Transportation (WSDOT) municipal stormwater general NPDES permits in the State Register on June 22, 2004 (WSR 04-13-126). In accordance with Washington's Waste Discharge General Permit regulation, WAC 173-226-130, the announcement:

1. Provided notice of a preliminary determination to develop general permits,
2. Requested comments as to whether a general permit or individual permits would be more appropriate for such discharges, and
3. Provided an opportunity for interested or potentially affected parties to submit information on dischargers and discharges proposed to be covered under the permit as well as any other relevant information.

Ecology began work on the permits in the fall of 2004 and posted preliminary drafts of the Phase I and Phase II Municipal Stormwater Permits for Western Washington for public comment on May 16, 2005 and the preliminary draft of the WSDOT permit on December 19, 2005. The phase I and II preliminary drafts invited comment on several topics in anticipation that the drafts would change. Ecology provided workshops in Tacoma, Everett, Bothell and Vancouver during this period to explain and compare the permits and answer questions. Ecology officially accepted comments on the preliminary drafts through August 19, 2005. However, Ecology reviewed and considered comments received as late as November 14, 2005 in the development of the draft permits.

Ecology received over a thousand pages of comments on the Western Washington Phase I and Phase II Stormwater Preliminary Draft Permits from associations, cities, counties, private organizations, ports, drainage districts and state, federal and tribal governments. All public comments received by Ecology on the Preliminary Drafts have been made available online. In general, the comments echoed the concerns raised by the stakeholders in the 2003 legislative session, but included specific comments on compliance with standards, municipal stormwater management program requirements and monitoring. Ecology has considered those comments and made multiple changes to the Final Draft Permits.

III. BACKGROUND

The Stormwater Problem

Stormwater is the leading contributor to water quality pollution in our urban waterways. As urban areas grow, stormwater is also Washington's fastest growing water quality problem. Pollutants in or resulting from stormwater can cause a wide range of impacts. Untreated stormwater is not safe for people to drink and is not recommended for swimming because it contains toxic metals, organic compounds and bacteria. Some pollutants such as metals, oil and grease, and organic toxins are toxic to aquatic

organisms if concentrations are high enough. Sediments cause tissue abrasion and gill clogging in fish, they reduce light and impair algal growth, they smother fish spawning habitat and are transporters of other pollutants. Nutrients accelerate eutrophication of lakes and ponds resulting in nuisance algal blooms, reduced clarity, odors and reduced drinking water quality. Temperature sensitive fish and invertebrates cannot survive in overly warm water bodies.

In addition, the large impervious surfaces in urban areas increase the quantity and peak flows of runoff, which in turn cause hydrologic impacts such as scoured streambed channels, in-stream sedimentation and loss of habitat. Furthermore, because of the enormous volume of runoff discharges, mass loads of pollutants in stormwater can be significant, causing water quality problems such as fish and benthos disease and mortality, swimming beach and shellfish bed closures and contamination of wells.

Impacts from stormwater are highly site-specific and vary geographically due to differences in local land use conditions, hydrologic conditions, and the type of receiving water. In western Washington urban stormwater impairs streams that provide salmon habitat. Paved surfaces cause higher winter stormwater flows that erode stream channels, destroying spawning beds. Also, because more water flows away during the wet season, streams can lose summertime base flows, drying out habitat needed for salmon rearing. Over the past few years surveys of spawning adult Coho salmon in Seattle and Bellevue found that very high percentages of adult females (up to 90 percent) are dying before they spawn. Coho rely on runoff from the first significant rainfall events in the fall to move upstream. Although the precise causes of these acute die-offs are not yet known, stormwater pollution is likely to be involved. The problem is under active scientific investigation, and it appears to be widespread throughout urban streams in Puget Sound.[2]

There are a number of pollution sources that contaminate stormwater, including land use activities, operation and maintenance activities, illicit discharges and spills, atmospheric deposition, and vehicular traffic conditions. Many of these sources are not under the direct control of the permittees that own or operate the storm sewers.

[2] Personal communication: Jamie Glasgow, Washington Trout, and Nathaniel Scholz, NOAA Fisheries, 2003.

Table 2: Common Pollutants in Stormwater and Some Potential Sources[3]

Pollutant	Potential Sources
Lead	Motor Oil, Transmission Bearings, Gasoline[4]
Zinc	Motor Oil, Galvanized Roofing, Tire Wear, Down Spouts
Cadmium	Tire Wear, Metal Plating, Batteries
Copper	Brake Linings, Thrust Bearings, Bushings
Chromium	Metal Plating, Rocker Arms, Crank Shafts, Brake Linings, Yellow Lane Strip Paint
Arsenic	ASARCO Smelter, Fossil Fuel Combustion
Bacterial/Viral Agents	Domestic Animals, Septic Systems, Animal & Manure Transport
Oil & Grease	Motor Vehicles, Illegal Disposal of Used Oil
Organic Toxins	Pesticides, Combustion Products, Petroleum Products, Paints & Preservatives, Plasticizers, Solvents
Sediments	Construction Sites, Stream Channel Erosion, Poorly Vegetated Lands, Slope Failure, Vehicular Deposition
Nutrients	Sediments, Fertilizers, Domestic Animals, Septic Systems, Vegetative Matter
Heat	Pavement Runoff, Loss of Shading Along Streams
Oxygen Demanding Organics	Vegetative Matter, Petroleum Products

Characterization of Stormwater for Western Washington

Even though runoff from urban areas varies due to factors such as land use and rainfall it contains the same general types of pollutants found in untreated wastewater and industrial discharges. Bacteria are present, but typically in far smaller concentrations, as are nutrients such as phosphorus and nitrogen. There may be more petroleum hydrocarbons, dust, sediments, and settled air pollutants in runoff, but total organic content in runoff is usually much lower than in wastewater.

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

[4] Although lead is no longer an additive to gasoline, it is still present in trace amounts and remaining lead on the ground is picked up by stormwater runoff.

The pollutant load of stormwater varies greatly with location. Stormwater contains pollutants that wash off rooftops, parking lots, rural areas, industrial facilities and streets. For example, water flowing in the streets picks up trash, dust, dirt and other materials that have been deposited on the pavement. The dust includes fine particles of rubber and metals from tire wear, settled air pollutants, trace metals from brake pads and other mechanical sources, and pet feces. Cars drip motor oil onto the pavement and flows often carry petroleum sheens. Many of these sources are not under the direct control of the permittees that own or operate the storm sewers. Pollutants may also be discharged illegally, for example, when individuals pour motor oil into the storm drains or industries release toxic pollutants. Pollutants include heavy metals (e.g., chromium, cadmium, copper, lead, mercury, nickel, zinc), pesticides, herbicides, nutrients, bacteria, and synthetic organic compounds such as fuels, waste oils, solvents, lubricants and grease.

Hydraulic impacts and the characterization of pollutants vary but can be generalized by land uses such as residential, commercial, industrial and open space.[5] In general, the wet season's first flush rains carry the most pollutants to receiving waters and the wettest months are October through May. For the geographic areas covered by the permit, data taken from 1948 to 1986 show an average range between 80 and 100 storm events per year with storm events defined as precipitation greater than .1 inches/day[6]. In addition, the following 18-year (1980 – 1997) average annual precipitation rates are noted:

Table 3: Average annual precipitation for permitted areas in western Washington

Urban Area of Coverage	Average Annual Precipitation*
Bellingham Urban Area	36 inches
Bremerton Urban Area	52 inches
Longview/Kelso Urban Area	46 inches
Marysville Urban Area (Everett data used)	37 inches
Mount Vernon Urban Area	32 inches
Olympia/Lacey Urban Area	51 inches
Seattle Urban Area	35 – 39 inches
Everett Urban Area	37 inches
Tacoma Urban Area	37 – 39 inches
Vancouver Urban Area	39 inches

*Source: Western Regional Climate Center, wrcc@dri.edu

Data characterizing the quality of stormwater discharges has been collected and analyzed in Oregon. The rainfall patterns and land cover characteristics in Oregon are sufficiently similar to Washington to provide an indication of the general quality of stormwater discharges in Washington. The following table shows the mean of the "event mean concentrations" (EMCs) of common stormwater pollutants for different land use categories.[7] The EMC is defined as the total constituent mass discharge divided by the total runoff volume. EMCs are typically based on flow weighted composite samples. Total phosphorus is presented for comparative purposes only, since phosphorous

[5] Pitt et al 2004, *The National Stormwater Quality Database*, http://www.cwp.org
[6] Perrich, Jerry P.E. 1992. *ESE National Precipitation Databook*, Cahners Pub.
[7] Strecker et al. 1997. A*nalysis of Oregon Urban Runoff Water Quality Monitoring Data Collected from 1990 to 1996*, prepared for the Oregon Association of Clean Water Agencies, Table 3-2.

concentrations were not found to be consistent among similar land use stations. Total phosphorous concentrations may be more affected by soil type than by land use.

Table 4: Oregon Urban Runoff Water Quality Data Land Uses Mean Concentrations for Selected Pollutants					
Land Use	**TSS mg/l**	**Total Cu mg/l**	**Total Zn mg/l**	**Dissolved Cu mg/l**	**Total P mg/l**
In-pipe Industrial	194	0.053	0.629	0.009	0.633
Instream Industrial	102	0.024	0.274	0.007	0.509
Transportation	169	0.035	0.236	0.008	0.376
Commercial	92	0.032	0.168	0.009	0.391
Residential	64	0.014	0.108	0.006	0.365
Open	58	0.004	0.025	0.004	0.166

Another important source of information about stormwater quality is the National Stormwater Quality Database (NSQD).[8] The NSQD collected and evaluated data from a representative number of municipal stormwater permit holders. To date it is the largest urban stormwater database ever developed.

Notable observations from the NSQD include the following:
• Preliminary statistical analyses found significant differences among land use categories for all pollutants. This is notable because National Urban Runoff Program (NURP) findings showed no significant differences in urban runoff concentrations as a function of common urban land uses (EPA, 1983).
• Freeway locations generally had the highest median values, except for phosphorus, nitrates, fecal coliforms, and zinc.
• The industrial sites had the highest reported zinc concentrations.
• The Total Kjeldahl Nitrogen (TKN), copper, lead, and zinc observations are lowest for open space areas.
• Lead concentrations, as expected, have dropped by an order of magnitude over the last 20 years, largely assumed to be the result of instituting unleaded gasoline regulations.
• Sediment and heavy metal concentrations appear to have declined across all land uses. Further analysis required to determine whether the decline is statistically significant. Reasons for the decline maybe related to sample collection locations.
• Nutrient concentrations are relatively similar between the two data sets (NSQD and NURP).

The following tables from the NSQD are provided to give an indication of the general quality of stormwater discharges for a broader range of parameters than the Oregon data set.

[8] Pitt et al 2004, *The National Stormwater Quality Database*, http://www.cwp.org/NPDES_research_report.pdf

Table 5: Median Values & EMCs for Selected Parameters in the NSQD, Version 1.0						
Parameter	**Overall**	**Residential**	**Commercial**	**Industrial**	**Freeways**	**Open Space**
Area (acres)	56	57.3	38.8	39	1.6	73.5
% Imperv.	54.3	37	83	75	80	2
Precip. Depth (in)	0.47	0.46	0.39	0.49	0.54	0.48
TSS (mg/L)	58	48	43	77	99	51
BOD5 (mg/L)	8.6	9	11.9	9	8	4.2
COD (mg/L)	53	55	63	60	100	21
Fecal Coliform (mpn/100 mL)	5081	7750	4500	2500	1700	3100
NH3 (mg/L)	0.44	0.31	0.5	0.5	1.07	0.3
N02+NO3 (mg/L)	0.6	0.6	0.6	0.7	0.3	0.6
Nitrogen, Total Kjeldahl (mg/L)	1.4	1.4	1.6	1.4	2	0.6
Phos. filtered (mg/L)	0.12	0.17	0.11	0.11	0.2	0.08
Phos., total (mg/L)	0.27	0.3	0.22	0.26	0.25	0.25
Cd, total (ug/L)	1	0.5	0.9	2	1	0.5
Cd, filtered (ug/L)	0.5	ND	0.3	0.6	0.68	ND
Cu, total (ug/L)	16	12	17	22	35	5.3
Cu, filtered (ug/L)	8	7	7.6	8	10.9	ND
Pb, total (ug/L)	16	12	18	25	25	5
Pb, filtered (ug/L)	3	3	5	5	1.8	ND
Ni, total (ug/l)	8	5.4	7	16	9	ND
Ni, filtered (ug/L)	4	2	3	5	4	ND
Zn, total (ug/L)	116	73	150	210	200	39
Zn, filtered (ug/L)	52	33	59	112	51	ND
ND = not detected, or insufficient data to present as a median value.						

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

Controlling Stormwater Discharges

Stormwater quality is difficult to manage because discharges are highly unpredictable and non-continuous events. Rather, discharges are intermittent and weather-dependent in nature (i.e., rainfall and snowmelt). There is a wide range of pollutants in stormwater, and concentrations vary depending on storm events. Further difficulty in controlling municipal stormwater discharges comes from the large number of outfalls where stormwater is being discharged (hundreds or even thousands of outfalls within a city are typical). These features of stormwater runoff make it difficult to apply conventional end-of-pipe treatment and monitoring options to existing discharges.

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

Source control BMPs include activities as diverse as changing vehicle and equipment maintenance activities to prevent the leaking of oil or other fluids; landscape design, installation, and maintenance to minimize stormwater runoff; product replacement or substitution (e.g., replace galvanized downspouts that are sources of zinc contamination with downspouts that are coated with non-polluting materials); land use zoning to reduce the intensity or character of urbanization in sensitive watersheds; minimizing the removal of forests and native vegetation; covering up materials that are stored outside

and exposed to rainfall and runoff; and prohibiting or restricting the use of certain chemicals that are causing a pollution problem (e.g., pesticides or phosphorus in watersheds that drain to lakes). Source control BMPs can be very effective in preventing stormwater contamination.

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

Flow control BMPs are usually detention (controlled release rates) or retention (infiltration to the ground) ponds. Flow control is necessary to prevent accelerated stream channel erosion or to protect wetlands from changes in water elevations.

The complexity inherent in stormwater discharges and the difficulty of controlling such discharges means that it may take many years to fully implement a program which adequately mitigates or prevents their adverse environmental impacts.

This permit implements the "six plus two" minimum requirements for a stormwater management program that the EPA phase II rules require municipalities to have in place:

1. Public education and outreach,
2. Public involvement/participation,
3. Illicit discharge detection and elimination,
4. Construction site stormwater runoff control,
5. Post construction stormwater management in new development and re-development, and
6. Pollution prevention/good housekeeping for municipal operations.

In addition to the above six minimum measures the phase II rules also require:

1) Compliance with approved total maximum daily load (TMDL or water cleanup plan) or equivalent analysis, where appropriate, and
2) Evaluation and assessment of program compliance.

In addition, based on state law and for more efficient implementation, this permit includes protection of groundwater where not covered by existing programs and areas of cities and counties that are slated for future growth.

To implement the regulations, Ecology 1) uses a narrative Best Management Practice (BMP) approach to stormwater control rather than numeric effluent limitations, 2) defines the level of effort required for each of the "six plus two" requirements as part of the permit development and issuance process, 3) bases requirements on recognized practices from existing programs, 4) uses compliance schedules where appropriate, 5) focuses efforts on development of local programs that protect existing water quality rather than restoring degraded areas, except where mandated by TMDLs, and 6) requires each permittee to evaluate of the effectiveness of the entity's Stormwater Management Program (SWMP).

Ecology's decisions to extend certain permit requirements beyond what is required by the federal rules are detailed in the *Municipal Stormwater NPDES Program Report to the Legislature January 2004* (Ecology Publication Number 04-10-010). This publication is available at www.ecy.wa.gov/biblio/0410010.html. Two stakeholder advisory committees, one for eastern Washington and another for western Washington, were convened to address a range of stormwater permitting issues identified by the legislature. Included in the report are the recommendations of both advisory committees and Ecology's proposed approach to resolve each of the issues.

Limitations of the Permit in Protecting Water Quality

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

Ecology is required to implement the federal Clean Water Act and state Water Pollution Control Act. Ecology has developed this draft permit within the framework created by these statutes and has described a Stormwater Management Program designed to meet state and federal requirements. In this Fact Sheet, Ecology documents the rationale for many of the proposed permit requirements. The permit does not address all urban stormwater management needs and will not prevent all stormwater impacts. Citizens and state and local governments will need to work together to implement other actions to protect our water bodies.

The Federal Clean Water Act

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

In 1987 Congress amended the CWA to control industrial and municipal stormwater discharges to waters of the United States. Under the federal Clean Water Act the permit requirements for discharges from municipal separate storm sewer systems:

(i) May be issued on a system- or jurisdiction-wide basis;
(ii) Shall include a requirement to effectively prohibit non-stormwater discharges into the storm sewers; and
(iii) Shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the

> Administrator or the State determines appropriate for the control of such pollutants (33 U.S.C. §1342 (p)(3)(B)).

For municipal stormwater discharges, Congress phased in the NPDES permitting requirements. Phase I included medium and large municipalities. Municipalities with populations of 250,000 or more are defined as "large" while those with populations between 100,000 and 250,000 are defined as "medium" municipalities. In 1990 the EPA promulgated the phase I regulations.

In the 1987 CWA amendments Congress directed EPA to study remaining sources of stormwater discharges and propose regulations, based on the study, to designate and control other stormwater sources. These regulations, commonly known as the phase II stormwater regulations, were adopted by the EPA in December 1999. The phase II rule extends coverage of the (NPDES) program to certain “small” municipal separate stormwater sewer systems (MS4s).

EPA Regulations

EPA regulations define the term "municipality" to mean incorporated cities and unincorporated counties. In addition, other public entities that own and operate storm sewer systems located within the municipalities that meet the population thresholds are required to be covered under the permit program. Examples of other publicly-owned storm sewer systems include state highway systems, ports, drainage districts and flood control districts located within permitted municipalities.

Recognizing the complexity of controlling stormwater, Congress and the U.S. EPA have established a regulatory framework for municipal stormwater discharges that is different from traditional NPDES permit programs. The EPA phase II rules require the development, implementation, and enforcement of stormwater management programs designed to reduce the discharge of pollutants from MS4s to the maximum extent practicable (MEP), protect water quality, and satisfy the appropriate water quality requirements of the Clean Water Act.

<u>Chapter 90.48 Revised Code of Washington (RCW) - The Water Pollution Control Act and Implementing Regulations</u>

Along with requirements in federal law, there are state law requirements for the control of pollution. RCW 90.48.010 establishes

> …the public policy of the state of Washington (is) to maintain the highest possible standards to insure the purity of all waters of the state consistent with public health and public enjoyment thereof, the propagation and protection of wild life, birds, game, fish and other aquatic life, and the industrial development of the state, and to that end require the use of all known available and reasonable methods by industries and others to prevent and control the pollution of the waters of the state of Washington.

Both “pollution” and “waters of the state” are defined in RCW 90.48.020. The term “all known available and reasonable methods” is not defined in state law and has been left up to Ecology to define.

Under State law, a permit is required to discharge pollutants or waste materials to waters of the state (RCW 90.48.162). An application is required to obtain a discharge permit, and Ecology has an obligation to investigate the application and determine whether the use of public waters for the waste disposal will pollute state waters in violation of the public policy of the state (RCW 90.48.170). A discharge permit must be issued unless Ecology finds the disposal of waste materials will pollute the waters of the state in violation of the public policy (RCW 90.48.180).

In 1987 the State Legislature passed into law RCW 90.48.520. When issuing or renewing state and federal wastewater discharge permits Ecology is required to review the applicant's operations and incorporate permit conditions which require all known, available, and reasonable methods to control toxicants in the applicant's wastewater. The discharge of toxicants which would violate any water quality standard, including toxicant standards, sediment criteria, and dilution zone criteria shall not be allowed. (RCW 90.48.520)

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

The Waste Discharge General Permit Program regulation, Chapter 173-226 WAC, establishes a general permit program applicable to the discharge of pollutants, wastes, and other materials to waters of the state. One of the requirements (WAC 173-226-110) for issuing a general permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet.

IV. RELATIONSHIP TO OTHER STORMWATER PERMITS

In addition to requiring permits for discharges from small municipal separate storm sewers (phase II) EPA stormwater regulations establish permit requirements for industrial stormwater, construction sites and large and medium municipal separate storm sewers.

Industrial Stormwater General Permit

The federal stormwater regulations envision that Ecology and the municipal permittees will cooperate to develop programs to monitor and control pollutants in stormwater discharges from industrial facilities to municipal storm sewers. A wide range of industrial facilities listed at 40 CFR 122.26(b)(14) must obtain NPDES permit coverage

from Ecology if they discharge to surface waters or to municipal separate storm sewers which drain to surface waters.

Under 40 CFR 122.26(d)(2)(iv)(C), municipal permittees are to establish a program to monitor and control discharges from industrial facilities that the permittees determine are contributing a substantial pollutant loading to municipal separate storm sewers. In the preamble to the federal phase I stormwater regulations EPA clearly states its position on the dual responsibility for controlling stormwater discharges associated with industrial activity:

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

Construction Stormwater General Permit

Under this permit, permittees must adopt and implement discharge controls from construction sites into their MS4, including sites regulated under the construction stormwater general permit. Construction site operators that are covered under and operating in compliance with the construction stormwater general permit will be in compliance with the requirements of this permit. Local jurisdictions may add additional requirements for construction site operators.

The General WSDOT Stormwater Permit

Instead of separate coverages under this permit and the Phase I Municipal NPDES permit, WSDOT and Ecology decided to cover discharges from state highways and other WSDOT facilities under a single stormwater permit written specifically for WSDOT.

The proposed WSDOT permit will include provisions requiring control of runoff from new development, redevelopment and construction sites that are consistent with the requirement in this permit, although tailored to highway construction. Ecology has worked with WSDOT during the development of the Highway Runoff Manual (HRM) to ensure that the HRM, together with conditions in the WSDOT permit, will provide a level of control equivalent to the Ecology Stormwater Management Manual for Western Washington.

WSDOT stormwater conveyances frequently interconnect with municipal MS4s covered under this permit. It will be necessary for WSDOT and permittees covered under this permit to work together to control illicit discharges and respond to spills and dumping.

Municipal Stormwater (Phase I) Permit

The phase I regulations identified the first municipal stormwater permit holders in this state: Seattle, Tacoma, the unincorporated portions of King, Pierce and Snohomish counties, and the Washington State Department of Transportation (WSDOT) where WSDOT has stormwater discharges located in any of the listed municipalities. Permits were issued to these dischargers in 1995. In 1999, a phase I permit was issued to Clark County. The Phase I permit is being re-issued at the same issuance time as the Phase II Western and Eastern Washington permits.

Under federal law, the phase I communities have slightly different requirements than do the phase II communities. Both phase I and phase II entities are required to develop and implement a stormwater management program. However, while the phase II rules include minimum requirements for a stormwater program that must be included in the permit, the federal phase I rules only specify application requirements.

Many of the phase II municipalities are located in the counties regulated under the Phase I Permit. They share basins with the permittees covered under the Phase I Permit, have interconnected conveyance systems and discharge into many of the same water bodies. The Western Washington Phase II stormwater program covers approximately 61% of the State's population and Phase I covers approximately 19% of the population. However, more than 90% of phase II jurisdictions are located in phase I counties, illustrating the importance of coordination between all jurisdictions that results in cost savings and more effective water quality protection for all jurisdictions.

Wherever possible, the requirements of this permit have been coordinated with the requirements of both the Western Washington Phase I permit and the Eastern Washington phase II permit. All permits include similar approaches to compliance with standards, TMDL implementation and implementation of Ecology's applicable regional Stormwater Management Manual. Many elements of the stormwater management programs for the permits are similar. Successful implementation of stormwater management programs in areas where conveyance systems are interconnected or discharges go to the same water body will require coordination. Ecology has established expectations in this permit and the Phase I permit for future coordination of monitoring efforts. Ecology recommends that all municipal stormwater permittees, large, medium and small municipalities, jointly engage in basin planning in shared basins.

V: EXPLANATION OF PERMIT CONDITIONS

The permitting model envisioned by the EPA for phase II established a general outline of a stormwater program (the six minimum measures) and required permit holders to

develop and implement program components to fill in the outline. EPA's original approach did not require that the permitting authority review and approve the locally developed municipal stormwater programs. The U.S. Ninth Circuit Court invalidated that portion of the EPA phase II rules because the lack of review by the permitting authority did not provide assurance that permittees met the federal "maximum extent practicable" (MEP) standard. The decision also cited the lack of an opportunity for public review and comment on the approval or disapproval of local stormwater programs as grounds for invalidating that portion of the EPA phase II rules. [9]

Ecology does not have sufficient staff resources to individually review and approve every phase II municipal stormwater program. Based on experience with the first round of phase I permit coverages, Ecology estimates it would take between twenty-five and thirty staff to review and approve all the phase II municipal stormwater programs individually. As a consequence, Ecology is not proposing to follow the EPA general outline approach. Instead, Ecology established explicit requirements, or best management practices, that represent the reduction of pollutants to the maximum extent practicable when implemented. This approach defines up front, as part of the permit development and issuance process, the minimum acceptable elements of a stormwater program. The advantages of this approach are that it satisfies the public involvement requirements of both the federal and state clean water acts and ensures that the federal requirement to control pollutants to the maximum extent practicable is met. It also requires considerably fewer staff resources for Ecology to administer. An advantage for permittees and the public of this approach is the permit requirements are known at the time of permit issuance and not left to be determined later through iterative review and approval of individual stormwater management programs. A disadvantage to this approach is that it provides less flexibility to tailor local stormwater programs to reflect local priorities and needs.

S1. Permit Coverage Area and Permittees

This section defines the area covered under this permit, defines the entities that are to be covered under the permit, and explains how to obtain permit coverage. The permit covers discharges from regulated small municipal separate storm sewer systems (small MS4s). A small MS4 is defined by EPA as:

- Owned or operated by the United States, a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United States.

[9] *Environmental Defense Center v. EPA,* 319 F.3d 398 (9th Cir. Jan 14, 2003), vacated and replaced by *Environmental Defense Center v. EPA,* 9th Cir. Sept 15, 2003.

- Not defined as "large" or "medium" municipal separate storm sewer systems pursuant to paragraphs (b)(4) and (b)(7) of this section, or designated under paragraph (a)(1)(v) of this section.
- This term includes systems similar to separate storm sewer systems in municipalities, such as systems at military bases, large hospital or prison complexes, and highways and other thoroughfares. The term does not include separate storm sewers in very discrete areas, such as individual buildings.

Under the federal EPA rules, a regulated small MS4 is a small MS4 located within, or partially within, a census-defined Urbanized Area or otherwise designated by Ecology, that discharges stormwater either directly or indirectly to a surface water of Washington State, and is not eligible for an exemption.

Urbanized Areas are population centers with greater than 50,000 people and densities of at least 1,000 people per square mile, with surrounding areas having densities of at least 500 people per square mile. The urbanized areas in this permit are based on the 2000 population census. For future permits, the urbanized area will be based on the most recent federal census. In Washington State, urbanized areas do not line up with city and county boundaries and Urban Growth Areas established by the States Growth Management Act.

S1.A - Geographic Area of Permit Coverage

This NPDES general phase II municipal stormwater permit applies to operators of regulated small municipal separate storm sewer systems (MS4s) that discharge stormwater to waters of Washington State located west of the crest of the Cascade Range (west of the eastern boundaries of Whatcom, Skagit, Snohomish, King, Pierce, Lewis and Skamania counties).

Ecology's decision to extend the boundaries of the geographic area of permit coverage beyond what is required by the federal rules is detailed in the *Municipal Stormwater NPDES Program Report to the Legislature January 2004* (ECY Pub. No. 04-10-010) on pp. 10-13. The boundaries of the Urbanized Areas created by strict application of the federal rules do not follow either jurisdictional or GMA planning boundaries. Ecology believes that it makes programmatic and environmental sense to apply the requirements of this permit to the areas targeted for growth by these entities. This means that for cities, the permit requirements extend to the entire incorporated city (S1.A.1), and for counties, the permit requirements extend to the Urban Growth Areas associated with the cities in each Urbanized Area (S1.A.2). Ecology recommends that counties apply their Stormwater Management Programs to all urbanizing areas and industrial and commercial districts.

For Skagit County the requirements of this permit are applicable and shall be implemented, at a minimum, throughout the urbanized areas and the urban growth areas associated with the cities of Mount Vernon, Burlington, and Sedro Woolley that are under the jurisdictional control of the county.

Ecology recommends that Clallam, Island, Skagit, Grays Harbor and Lewis counties begin and/or continue to implement stormwater management activities in the growth management areas associated with the cities of Port Angeles, Oak Harbor, Anacortes, Aberdeen, and Centralia.

For Secondary Permittees, S1.A.3 requires the stormwater management program to be applied throughout the land areas served by and under the effective control of the entity, regardless of the jurisdictional boundaries crossed.

S1.B - Regulated Small MS4s (Permittees)

This section describes the entities that must obtain coverage under the permit.

S1.B.1 - Regulated Small MS4s

A map showing the cities, towns and counties covered by this permit is available on Ecology's website at: www.ecy.wa.gov/programs/wq/stormwater/municipal/maps/wwa-msw.pdf . The map shows the regulated small MS4s located within the Urbanized Areas in western Washington: Bellingham, Bremerton, Longview/Kelso, Marysville, Mount Vernon, Olympia/Lacey, Seattle (which includes Seattle and vicinity, Everett and vicinity, Tacoma and vicinity) and Vancouver. The jurisdictions shown within the boundaries of the Urbanized Areas on these maps were automatically designated by EPA for inclusion in the NPDES Phase II stormwater permitting program if they operate a regulated small MS4. This map also shows five cities as "Potential Phase II jurisdictions." See the discussion under S1.B.3 below for an explanation of the process for Ecology's determination to include these cities.

S1.B.1 - Secondary Permittees

There are dozens of types of special purpose districts in Washington State. Special purpose districts likely regulated by the permit are ports, diking and drainage districts, flood control districts, universities, school districts, parks and prisons. The entity must be publicly owned or operated to be required to have permit coverage and otherwise meet the requirements of a regulated small MS4, and not be eligible for a waiver.

Ecology encourages each special purpose district to consider applying for permit coverage as a co-permittee with the jurisdiction(s) in which the district is located. The district can then rely on the jurisdiction to meet most of the permit requirements and implement only the permit requirements that make the most sense for the district.

In February 2006, the Department notified following categories of entities of their potential obligation to obtain coverage under the permit: diking and drainage districts, flood control districts, public ports, sewer districts, public colleges and universities, Department of Corrections, parks and recreation districts, and public school districts.

The complete list of entities that received this notification is included in Appendix B to this Fact Sheet.

S1.B.3 - Additional Permittees

Ecology can designate additional permittees. Federal regulations required Ecology to develop criteria to determine whether stormwater discharges from other MS4s are causing or contributing to, or have the potential to cause or contribute to, violations of water quality standards, including impairment of designated uses and/or adverse habitat or biological impacts(40 CFR 123.35(b). In particular, Ecology was required to apply the designation criteria to small MS4s that are located outside of Urbanized Areas and have a population of 10,000 or more.

The purpose of the evaluation was to determine whether these areas, which were not automatically designated, should be designated as "regulated small MS4s" for inclusion in the NPDES Phase II stormwater permitting program. In western Washington, Ecology evaluated the cities of Aberdeen, Anacortes, Centralia, Oak Harbor and Port Angeles. Based on recommendations made by EPA in the phase II rule proposal, Ecology considered discharge to sensitive waters, high population density, high growth or growth potential, contiguity to an urbanized area, significant contribution of pollutants to waters of the US, or ineffective protection of water quality by other programs.

Ecology involved these cities in developing designation criteria and tentatively determined that all of the cities should be designated as regulated small MS4s. Ecology will consider all information submitted before the close of the public comment period prior to making a final designation decision when the final permit is issued. In particular, each jurisdiction may choose to provide information about: actual discharge points of the MS4, estimated populations served by the MS4 versus UIC facilities or other stormwater disposal methods not discharging to surface waters, and/or a description of the jurisdiction's current stormwater management program.

During the public comment period on the preliminary draft version of this permit, Ecology received requests to include the following areas under this permit: the City of Blaine, the City of Port Townsend, the City of Shelton, the City of Sequim, and the urban growth areas of Hoodsport and Belfair in Mason County.

In accordance with 40 CFR 122.26(f) any interested party may petition Ecology to include additional municipalities or other entities under this permit.

S1.C - Waivers from coverage under this permit

S1.C.1 - MS4s operated by tribes or by federal entities such as military bases and national parks must be covered under separate permits issued by EPA; Ecology does not have the authority to regulate these entities. MS4s operated by WSDOT will be covered under a separate permit issued by Ecology.

S1.C.2 - Pursuant to 40 CFR 122.32 (c) the requirement to apply for coverage under this permit may be waived when portions of a public entity located within the Urbanized Areas serve a population of less than 1,000 and the following all apply:

1. The small MS4 is not contributing substantially to the pollutant loadings of a physically interconnected MS4 that is regulated by the NPDES stormwater program,
2. The discharge of pollutants from the small MS4 have not been identified as a cause of impairment of any water body to which the MS4 discharges, and
3. In areas where an EPA approved TMDL has been completed, stormwater controls on the MS4 have not been identified as being necessary.

In determining the total population served Ecology is including both resident and commuter populations. For example:

- For publicly operated school complexes including universities and colleges the total population served would include the sum of the average annual student enrollment plus staff.
- For flood control, diking, and drainage districts the total population served would include residential population and any non-residents regularly employed in the areas served by the small MS4.

Ecology granted the cities of Beaux Arts Village, Hunts Point, Ruston, South Prairie, Wilkeson and Woodway tentative waivers from inclusion in this permit based on a preliminary determination that the portions of their MS4s located within the 2000 census-defined Urbanized Areas each serve a populations of less than 1,000.

Some secondary permittees, notified by Ecology that they might be subject to this permit, may also qualify for a waiver from coverage pursuant to the requirements of this section.

S1.D - Obtaining Coverage Under This Permit

This section provides specific application instructions for various types of permittees, whether applying individually or jointly. This section also provides information for otherwise regulated small MS4s to opt out of this permit.

S2: Authorized Discharges

This section of the permit authorizes the discharge of stormwater from municipal separate storm sewers, owned or operated by the permittees, to waters of the state subject to certain limitations. Consistent with the federal rules, direct discharges to surface waters from privately owned or operated storm drains are not regulated by this permit.

S2.A.1 – Discharges into and from municipal separate storm sewers owned or operated by permittees must be in compliance with the terms and conditions of the permit.

S2.A.2 – Discharges from new municipal separate storm sewers, constructed by the permittee after the issuance date of this permit, are authorized, provided those discharges have received all applicable state and local permits, including compliance with the State Environmental Policy Act (SEPA). The control measures required under the permits are area-wide and will apply to any future discharges from the municipal storm sewer systems regulated under this permit.

S2.A.3 – Ecology is issuing this permit under joint federal and state authorities. Under the federal Clean Water Act permits are required for point source discharges of pollutants to waters of the United States. Under that State Water Pollution Control Act (Chapter 90.48 RCW) permits are required for the disposal of waste materials into waters of the State. Under chapter 90.48 RCW the definition of 'waters of the state' includes underground waters whereas the definition of waters of the United States does not.

In accordance with state law Ecology is regulating both discharges to surface waters and discharges to ground waters. Discharges to ground water are covered under the permit because portions of the areas regulated under these permits may include discharges of stormwater to the ground from municipal separate storm sewers. It is appropriate that the stormwater management programs that are required under these permits should apply area-wide, regardless of where water is discharged, and that measures are taken to reduce the discharge of pollutants to ground waters as well as surface waters. However, as stated in paragraph S2.A.3 of the permit, discharges to ground water that are covered under the Underground Injection Control (UIC) program are not covered under this permit to avoid overlapping regulation of these discharges.

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

S2.A.4 – Clarifies that stormwater discharges to ground waters not subject to federal regulation are regulated only by state authority. According to U.S. EPA policy and case law, where hydrologic connectivity exists between a discharge to groundwater and surface water, discharges to ground water may be regulated under the federal NPDES permit program. Stormwater discharges to ground waters may be subject to this permit under federal regulations if site-specific information demonstrates that they are in hydraulic continuity with surface waters. (See e.q., Exxon Corp. v. Train, 554 F.2d 1310, 1312, n.1 (5th Cir. 1977); McClellan Ecological Seepage Situation v. Weinberger, 707 F.Supp. 1182, 1195-96 (E.D. Cal. 1988); and Washington Wilderness Coalition v. Hecla Mining, case # CS 94-233 FVS). Ecology believes the best guidance on this issue comes from the United States District Court Eastern District of Washington (Washington Wilderness Coalition v. Hecla Mining, 870 F. Supp 983, 990). The court held that "since

the goal of the CWA is to protect the quality of surface waters, any pollutant which enters such waters, whether directly or through groundwater, is subject to regulation by NPDES permit." The court went on to hold, "[I]t is not sufficient to allege groundwater pollution, and then to assert a general hydrological connection between all waters. Rather, pollutants must be traced from their source to surface waters, in order to come within the purview of the CWA." The decision on hydraulic continuity is dependent upon the pollutant (type and mobility in soils), the pollutant loading, the soils at the site, and the hydrology of the site.

S2.B – Discharges of stormwater associated with industrial activities through municipal separate storm sewers are authorized by this permit and are also required to have separate NPDES permit coverage under U.S. EPA regulations. For further explanation of the reasons for the separate permit requirement, see the preamble to the amendments to 40 CFR parts 122, 123, and 124 published in the Federal Register, Friday, November 16, 1990.

Since municipal separate storm sewers carry stormwater and other flows, this permit authorizes the discharge of stormwater commingled with other flows, under certain circumstances. Section 402(p)(3)(B)(ii) of the federal Clean Water Act clearly states that municipal permits are to effectively prohibit non-stormwater discharges to the municipal separate storm sewer system. However, such discharges to municipal separate storm sewers can be authorized if they receive a NPDES permit (other than this municipal stormwater permit). Industrial process wastewater and non-process wastewater are non-stormwater discharges and cannot be authorized under this permit without a separate NPDES permit.

All other non-stormwater discharges are to be addressed through the program to detect and remove illicit discharges and improper disposal as required by the illicit discharge detection and elimination requirements of the stormwater management program required under S5 and S6 of this permit.

S2.C – In accordance with 40 CFR 122.34(b)(3)(iii) this permit authorizes discharges from emergency fire fighting activities unless they are identified by either Ecology or the permittee as significant sources of pollutants to the permittees MS4. Training is not considered an emergency fire fighting activity and discharges from fire fighting training activities into the permittees MS4 are not authorized by this permit.

S2.D – Illicit discharges and other non-stormwater discharges are not authorized by this permit except as allowed under the illicit discharge detection and elimination requirements of the stormwater management program required under S5 and S6 of this permit. Coverage under and compliance with this permit does not relieve permittees from compliance with other state and federal laws including but not limited to CERCLA (Superfund), and OPA (Oil Pollution Act).

S3: Responsibilities of Permittees

Not all parts of the permit apply to all permittees. This section is included to explain the responsibilities of each permittee.

This section allows a permittee to rely on another entity to meet permit requirements. EPA phase II regulations for small MS4s explicitly allow such an arrangement. In the preliminary draft version of this permit, all co-permittees would have been required to implement the Stormwater Management Program (SWMP) described in S5; in this revised formal draft permit, co-permittees are responsible for implementing the SWMP in either S5 or S6. Ecology considers co-application and cooperative implementation of the SWMP by any permittee with another permittee to be beneficial in maximizing efficiency and reducing overall costs. Ecology encourages secondary permittees to co-apply with their local jurisdictions and utilize shared resources to implement the SWMP described in S6.

S4: Compliance with Standards

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

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

This section of the permit has been significantly revised from the preliminary draft version of the permit. Ecology received numerous comments regarding this section of the permit during the public comment period on the preliminary draft permit, in which this section made a distinction between compliance requirements for new and existing discharges. Consistent with Ecology’s priority of preventing future impacts to water quality from municipal stormwater discharges, the preliminary draft permit held new discharges to a higher standard than existing discharges: existing discharges were to meet the MEP standard by implementing the SWMP in S5 or S6 plus any TMDL requirements, and new discharges were not to cause or contribute to a violation of water quality standards. Some jurisdictions complained that the distinction between new and existing municipal stormwater discharges is often difficult to make, and the requirements might make otherwise beneficial projects impossible to implement. Ecology agreed with the comments and removed the distinction between new and existing discharges in this formal draft permit. Explicit references to state law are also included in this revised section. The revised section clarifies that compliance with all of the permit conditions meets MEP and AKART requirements.

Condition S4.A of the permit prohibits the discharge of toxicants to waters of the State of Washington which would violate any water quality standard, including toxicant standards, sediment criteria, and dilution zone criteria. The basis for this permit condition is RCW 90.48.520 which states:

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

The term “toxicants” is not defined in chapter 90.48 RCW and there is no readily available legislative history which would help define which specific pollutants would be considered toxicants. The state water quality standards in existence at the time RCW 90.48.520 was adopted also did not include a definition for either toxicant or toxic pollutant.

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

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

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

Condition S4.B of the permit does not authorize a violation of Washington State surface water quality standards (Chapter 173-201A WAC), ground water quality standards (Chapter 173-200 WAC), sediment management standards (chapter 173-204 WAC), or

human health-based criteria in the national Toxics Rule (Federal Register, Vol. 57, No. 246, Dec. 22, 1992, pages 60848-60923).

While the permit does not require monitoring to ensure strict compliance with water quality standards for municipal stormwater discharges, Ecology does not provide a categorical exemption from compliance with state water quality standards. Ecology has decided that the best measure of the protection of water quality is development and implementation of stormwater management programs. The water quality standards are a measure of the effectiveness of the permittees SWMP and may help permittees in identifying priorities.

Strict compliance with water quality standards for municipal stormwater discharges is not required by § 1342(p)(3)(B) of the federal Clean Water Act. The maximum extent practicable permitting standard for municipal stormwater permits is separate and distinct from the requirement under 33 U.S.C. § 1311(b)(1)(C) that permits include any more stringent limitation, including those necessary to meet water quality standards. In Defenders of Wildlife v. Browner, the ninth circuit court determined:

> …the text of 33 U.S.C. § 1342(p)(3)(B), the structure of the Water Quality Act as a whole, and this court's precedent all demonstrate that Congress did not require municipal storm-sewer discharges to comply strictly with 33 U.S.C. § 1311(b)(1)(C).
>
> *(Note to readers: 33 U.S.C. § 1311(b)(1)(C) is the part of the federal Clean Water Act requiring any more stringent effluent limitations necessary to meet water quality standards.)*

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

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

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

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

> The interim permitting approach uses best management practices (BMPs) in first-round storm water permits, and expanded or better-tailored BMPs in subsequent permits, where necessary, to provide for the attainment of water quality standards. In cases where adequate information exists to develop more specific conditions or limitations to meet water quality standards, these conditions or limitations are to be incorporated into storm water permits, as necessary and appropriate (EPA policy, Interim Permitting Approach for Water-Quality Based Effluent limits in Storm Water Permits, 9/01/96).

While the permit does not require strict compliance with state water quality standards for municipal stormwater discharges (except where compliance may be required by RCW 90.48.520), neither does Ecology intend the permit provide a categorical exemption from compliance with state water quality standards for municipal stormwater discharges.

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

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

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

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

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

prevention control and treatment to prevent and control pollution of waters of the state of Washington.

S5: Stormwater Management Program for Permittees and Co-Permittees

This section of the permit applies only to cities, towns and counties which are covered under the permit. The Stormwater Management Program (SWMP) described in this section implements the first six of the federal "six plus two" minimum requirements.

The federal phase II municipal stormwater regulations require the development, implementation, and enforcement of a storm water management program designed to:

- Reduce the discharge of pollutants from municipal separate storm sewer systems to the maximum extent practicable (MEP),
- Protect water quality, and
- Satisfy the appropriate water quality requirements of the Clean Water Act.

In accordance with 40 CFR 122.34 the stormwater management program for small MS4s must include the six minimum control measures outlined in the federal regulations. The six minimum control measures include:

- Public education and outreach on storm water impacts,
- Public involvement/participation,
- Illicit discharge detection and elimination,
- Construction site storm water runoff control,
- Post-construction storm water management in new development and redevelopment, and
- Pollution prevention/good housekeeping for municipal operations.

The EPA phase II rules also require compliance with any additional more stringent permit requirements necessary based on an approved total maximum daily load (TMDL) or equivalent analysis (40 CFR 122.34(e)(1)).

The following program components contain minimum control measures required in the stormwater management program. Permittees are required to track, evaluate and document the actions and associated costs of the minimum control measures. Tracking of expenditures is necessary to evaluate the MEP standard established in this permit. Cost data are also needed to make practicability determinations, compare effectiveness of programs and gauge budget and assistance needs. Ecology's expectations for cost tracking are listed in the annual report instructions in Appendix 3 of the permit.

Permittees must evaluate program compliance, the appropriateness of best management practices and progress toward achieving identified measurable goals. This information is required to be reported as stipulated in S9 in the phase II MS4's annual report to the Department. Compliance dates are specified within the program component, but all components must be implemented no later than 180 days prior to the expiration date of this permit. The annual report forms, located in Appendix 3, summarize program compliance dates. Assistance for program components is available online at: http://www.ecy.wa.gov/programs/wq/stormwater/municipal/resources_municipalities.html

Public Education and Outreach

Permittees must implement a public education program to reduce or eliminate behaviors and practices that cause or contribute to adverse impacts of stormwater discharges on water bodies. To do this they must identify the steps that the public can take to reduce pollutants in storm water runoff. Permittees are encouraged to target all audiences, however, the minimum measures require:

1) *Targeting a minimum of two subsets* of listed audiences and actions no later than two years after the effective date of the permit, and
2) *Increased adoption of all listed behaviors* in target audiences within four years.

Permittees may use storm water educational materials provided by Ecology, Tribes, EPA, environmental, public interest or trade organizations, or other MS4s. Many materials are available from Ecology online at:
http://www.ecy.wa.gov/programs/wq/stormwater/index.html

The subsets are grouped by audience and targeted subject areas. Areas of overlap with outreach requirements found in other SWMP components are noted. Briefly, the subsets include:

Audience	**Targeted Subject Area(s)**
General public	Water quality, impervious surfaces and reducing stormwater impacts though use of source control BMPs
Homeowners, landscapers and property managers	Yard care techniques protective of water quality
Homeowners, landscapers and property managers	BMPs for use and storage of pesticides and fertilizers
General public and businesses	BMPs for use and storage of automotive chemicals, hazardous cleaning supplies, carwash soaps and other hazardous materials
Engineers, contractors, developers, review staff and land use planners	Technical standards for stormwater site and erosion control plans
Engineers, contactors, developers, architects, landscapers, realtors and home buyers	Low Impact Development techniques, including site design, pervious paving, retention of forests and mature trees.
General public and small businesses	Impacts of illicit discharges (this overlaps with IDD&E requirement in S5.C.3(d).)
General public	Involvement with environmental stewardship activities

Permittees are encouraged to tailor outreach programs to address the viewpoints and concerns of the communities they serve, particularly minority and disadvantaged communities, as well as any special concerns relating to children.

Public Involvement and Participation

The EPA Phase II regulations require public involvement and participation as part of the development of the permittees SWMP. The permittees public participation process must comply with State, Tribal and local public notice requirements.

Public participation opportunities could include inviting citizen representatives to serve on local storm water management panels or committees, providing public hearings, recruiting citizen volunteers to educate other individuals about the program or assist in program coordination with other pre-existing programs, or participate in volunteer monitoring efforts. (Citizens should obtain approval where necessary for lawful access to monitoring sites.)

The minimum measures are:

1) *Compliance with State, tribal and local public notice requirements*. The permit does not require a certain number of meetings or notices but instead requires the permittee to create opportunities for public involvement developing and soliciting comments on the SWMP.
2) *Web posting* of annual reports, other submittals required by the permit and the current SWMP on the jurisdiction's website. If a jurisdiction does not maintain a website they may send the documents to Ecology for posting on Ecology's website.

Illicit Discharge Detection and Elimination

Federal rules require permittees to develop, implement and enforce a program to detect and eliminate illicit discharges (as defined at 40CFR122.26(b)(2)) into their small MS4. Federal regulations define an illicit discharge as "any discharge to a municipal separate storm sewer that is not composed entirely of storm water except discharges pursuant to a NPDES permit and discharges resulting from fire fighting activities" (40 CFR 122.26 (b)(2)). Non-stormwater discharges are illicit because MS4s are not designed to accept, process, or discharge such wastes. Illicit discharges enter the MS4 through deliberate or mistaken, direct or indirect, illicit connections or illegal dumping.

S5.C.3.a – Detailed instructions and a link to assistance are provided in the permit. Progress toward mapping the MS4 must be reported annually.

S5.C.3.b – Prohibiting, non-stormwater discharges to the MS4
The federal phase II rules require municipalities to "effectively prohibit, through ordinance, or other regulatory mechanism, all non-stormwater discharges into the MS4 and implement appropriate enforcement procedures and actions" (40 CFR 122.34(b)(3)(ii)(B)). The section of the federal rules for the Illicit Detection and Elimination component of the SWMP also states:

> You need address the following categories of non-stormwater discharges or flows (i.e., illicit discharges) only if you identify them as significant contributors of pollutants to your small MS4: water line flushing, landscape irrigation, diverted streamflows, rising ground waters, uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20)), uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, and street wash water (discharges or flows from fire fighting activities are excluded from the effective prohibition against non-storm water and need to be addressed only where they are identified as significant contributors of pollutants to waters of the United States) (40 CFR 122.34(b)(3)(iii)).

Ecology has concluded the following types of non-stormwater discharges are not likely significant sources of pollutants and therefore need not be addressed by either the ordinances or the permittees SWMP: diverted stream flows, rising ground waters, uncontaminated ground water infiltration, uncontaminated pumped ground water, foundation drains, footing drains, air conditioning condensation, springs, water from crawl space pumps, footing drains, and flows from riparian habitats and wetlands. Ecology decided to also include in this list of non-stormwater discharges (that do not need to be addressed either by the ordinance or in the SWMP) irrigation water from agricultural sources that is commingled with urban stormwater, because in some areas of Washington, agricultural irrigation infrastructure has become part of the MS4 and it would be unreasonably burdensome (and not beneficial to water quality) to separate out these discharges.

Water line flushing and hydrant testing are common, required practices in all municipalities. Ecology met with water purveyors to better understand common practices and methods available for containment and reuse of water and for dechlorination of released water. For this permit Ecology established a required concentration of less than or equal to 0.1 ppm chlorine for these discharges and for chlorinated swimming pool discharges. This concentration is the detection limit for simple, easy-to-use field test kits. Ecology believes that this level of dechlorination is achievable through the use of widely accepted industry practices for dechlorination. Ecology also believes that this level of pretreatment will prevent these discharges from becoming significant contributors of pollutants.

This section specifies that as long as the municipality is reducing such discharges through public education efforts, water conservation efforts, and minimization of municipal use, the ordinances do not need to prohibit discharges from lawn watering, landscape irrigation, street wash water, dust control water and building wash down that does not use detergents.

Ecology has maintained the prohibition of individual residential car washing. Ecology believes that the prohibition is appropriate. The requirement to prohibit these discharges does not establish a local priority or define a required approach to addressing these discharges; it merely prevents individual residential car washing from being considered

an insignificant discharge. Ecology generally expects municipalities to emphasize public education rather than punitive enforcement to reduce these discharges. Best management practices, such as directing runoff to vegetated areas where it can infiltrate, are easy to implement in order to reduce the environmental impact of these discharges.

The list of non-stormwater discharges in the federal phase II rule is used differently in this permit from the way it is applied in the industrial and construction stormwater general permits issued by Ecology. The entire list is conditionally approved at construction and industrial sites (and therefore NPDES permitted).

S5.C.3.c – This section requires the development and implementation of an on-going Illicit Discharge Detection & Elimination program. The program must include procedures for identifying and responding to illicit discharges. The program must include field assessment procedures to detect, locate and remove non-stormwater discharges into the permittees MS4.

The Center for Watershed Protection has researched cost effective and efficient discharge detection techniques currently in use around the country. Their findings are synthesized into specific guidelines on illicit discharge identification and removal in a comprehensive manual that outlines practical, low cost, and effective techniques. Field assessments should be conducted using *Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments*, Center for Watershed Protection, October 2004, or an equivalent methodology. The final version of the manual can be downloaded for free at: Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments.

This section of the permit also specifies timeframes for responses to illicit discharges. The timeframes are based on experience of Ecology field staff in conducting similar investigation and enforcement actions. Permittees are encouraged to communicate and coordinate with Ecology regional office staff when investigating or taking enforcement on illicit discharges. However, permittees are expected make a good faith to enforce local rules and ordinances before referring a violation to Ecology.

S5.C.3.d – This section requires the permittee inform public employees, businesses and the general public of the hazards associated with illegal discharges and improper disposal of wastes to the permittees MS4. This section of the permit also requires the permittee establish a hot line or other local telephone number where the public can report spills and other instances of improper waste disposal into the permittees MS4.

S5.C.3.f – this section requires the permittee train their staff on identification and reporting of illicit discharges. Training may be done in-house or by outside consultants, depending on the size of staff, area served and expertise available. The training must be on-going as needed and reported in the annual report. Ecology and EPA both provide links to training materials and information on their websites. Training for the IDDE program may be combined with other training required by the permit.

S5.C.4 – Controlling Runoff from New Development, Redevelopment and Constructions Sites

Federal rule summary. EPA phase II regulations require permit holders to develop, implement, and enforce a program to reduce pollutants in stormwater runoff from construction activities. Phase II permit holders are also required to develop, implement and enforce a program and reduce pollutants in stormwater runoff from new development and redevelopment projects. These requirements are limited to projects which disturb one acre or more. Permit holders are not required under the EPA phase II rules to regulate projects which disturb less than one acre unless the smaller project is part of a common plan of development or sale which disturbs more than one acre.
The local program for construction site control must include the following features:

- An ordinance to require erosion and sediment control and sanctions,
- Requirements to use appropriate best management practices,
- Requirements to control waste, concrete truck washout, chemicals, litter, and sanitary wastes,
- Procedures for site plan review which consider potential water quality impacts,
- Procedures for receipt and consideration of information submitted by the public, and
- Procedures for site inspection and enforcement of control measures.

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

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

The federal rules continue with recommendations for municipalities to consider in the development of their post-construction stormwater management program.

Permit consistency with federal rules. Ecology has determined that the most effective way to minimize the impacts of stormwater discharges from all new development and redevelopment is to design developments using techniques that:

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

The 2005 *Stormwater Management Manual for Western Washington* (the western Washington manual), address items 2 through 4 above. Item 1 is partially addressed through the application of "on-site stormwater management BMP's" as specified by Minimum Requirement #4 in the western Washington manual. However, it should be more fully addressed through local governments' adoption of 1) site development standards that are far less disruptive of the natural hydrology (i.e., low impact

development standards); and 2) comprehensive land use plans that consider the cumulative hydrologic and pollutant impacts of potential land development on the aquatic natural resources. Those actions go beyond the scope of this NPDES permit.

The USEPA federal phase II regulations also require Ecology to "make available a menu of BMP's to assist regulated small MS4s in the design and implementation of municipal storm water management programs to implement the minimum measures specified in (40 CFR) 122.34(b) of this chapter." The manuals published by Ecology meet this requirement in regard to construction site stormwater control and post-construction stormwater management in new development and re-development.

The permit encourages permittees to implement low-impact development and preserve more undisturbed areas. Washington's population is projected to increase by twenty-two percent from 2000 to 2010. Urban land area in the United States has quadrupled since 1954. In most large metropolitan areas, urban land area rose more than twice as fast as population did between 1950 and 1990. Passage of the Growth Management Act in this state was spurred, in part, by this disparity between urban land area and population growth rates. Compact-style development, with a smaller footprint, reduced impervious surfaces, natural areas within the urban core, and improved water detention can help local communities meet the Growth Management Act's goals of accommodating growth while protecting the environment.

This permit adopts the federal phase II threshold of one acre or more of disturbed land for new and re-development. This is the regulatory threshold. When this threshold is triggered, the technical thresholds and requirements in Appendix 1 of the permit apply to the development. Ecology's decision to apply the one-acre regulatory threshold in this permit is detailed in the Municipal Stormwater NPDES Permit Program Report to the Legislature (ECY Pub 04-10-010). Ecology sees the one-acre threshold as a practical starting point for local jurisdictions starting a SWMP from scratch; it is a reasonable threshold for requiring plan reviews. Ecology encourages permittees to apply the technically-based thresholds in the manual to all development projects in their jurisdiction, regardless of the land area disturbed by the project.

The western Washington stormwater manual, consistent with federal stormwater regulations, represents a generic, presumptive approach to meeting federal and state water quality requirements. The presumption is the procedures and best management practices outlined in the manual will generally result in compliance with the statutes.

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

stormwater manuals that provide an established process for identifying appropriate prevention, treatment, and flow management practices.

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

The permit allows the permittees to adopt alternative minimum requirements, thresholds, definitions, adjustment and variance criteria as compared to those in Appendix 1, if they have been approved by Ecology as equivalent under implementation of the Phase I permit. The permittee is obligated to demonstrate to Ecology's satisfaction that their site planning processes, BMP selection and design criteria will protect water quality, meet the "maximum extent practicable" requirement of federal statutes, and meet the all known, available and reasonable methods of prevention, control, and treatment requirements of the state's Water Pollution Control Act. Permittees that choose to use the guidance in the western Washington stormwater manual can rely on Ecology's determination that the manual meets the federal and state statutory requirements.

Background for the Thresholds, Source Control, Treatment, and Flow Control Requirements of the Manuals. The 2005 edition of the western Washington manual is the latest version of guidance published by Ecology for areas of western Washington is the latest technical guidance from Ecology on measures to control the quantity and quality of stormwater runoff from new development and redevelopment projects. (Ecology also published a manual in 1992 for the Puget Sound Basin, and a 2001 manual for all of western Washington). A similar Eastern Washington manual was published in 2004. These manuals are intended to provide developers, local governments and others with the most up-to-date information on how to properly manage stormwater to prevent adverse water quality impacts. These manuals represent Ecology's best available guidance on proper stormwater management at the time of their publication.

Ecology has adopted the EPA phase II one acre regulatory threshold for this permit. This permit requires permittees apply the project size thresholds in the stormwater manual only in instances where projects exceed the one acre disturbance threshold. For example, if a project will disturb more than one acre then the project will need to evaluate whether the technical thresholds in appendix one apply. If the 1-acre disturbance threshold is not exceeded, the permittee is not required to apply the project-size thresholds in Appendix 1 of the permit to determine stormwater requirements.

Ecology recommends that all municipalities in western Washington use the project size thresholds in the 2005 *Stormwater Management Manual for Western Washington,* to trigger the appropriate stormwater minimum requirements for all projects – not just those disturbing over 1 acre. However, it will not be a permit violation if a Phase II municipality chooses not to follow this recommendation.

Procedures to Implement Construction Site Requirements and Post-Construction Requirements. Within two years of the permit's effective date, local governments need to develop and demonstrate the capability to: 1) properly apply those requirements to projects through design reviews and project inspections; and 2) take proper enforcement actions to ensure compliance with those requirements.

Ecology has established minimum performance measures for the permittees to demonstrate capability to implement stormwater requirements. Those measures include review of all stormwater site plans submitted prior to construction and records of performance of 95% of the required pre-project, active project, and completed project inspections. Pre-project inspections are required only for projects that have a high potential for sediment transport as identified by use of the criteria in Appendix 6 of the permit. The Appendix was developed in conjunction with local government stormwater managers.

The permit does not include any specific minimum measures for the permitttees' enforcement strategies, however, Ecology's expectation is that permittees will establish clear thresholds for escalating levels of enforcement action in response to violations.

At sites that qualify for the "erosivity waiver" under the NPDES General Permit for Construction Activities, permittees are not required to do plan review or perform construction site sediment and erosion control inspections. This is consistent with provisions in the phase II rules allowing the erosivity waiver for local governments if the States construction stormwater program contains the waiver (40 CFR 122.34(b)(4)(i). The erosivity waiver in Ecology's Construction Stormwater General Permit is based upon a very gross level assumption of soil types and rainfall patterns, and may be inappropriate for some sites. It applies only to sites which disturb less than 5 acres and then only applies to construction projects that begin and end within the time windows allowed by the general permit. Small construction sites which are eligible for the erosivity waiver must comply with local requirements and implement all applicable stormwater BMP's. Finally, note that local governments cannot waive all of the inspections required under S5C.4.b. for these sites.

Provisions for Adequate Operation and Maintenance. The permit also includes requirements to achieve adequate long-term operation and maintenance of stormwater facilities. Permittees must meet the requirements within two years of the permit's effective date.

Western Washington phase II permittees are to adopt ordinance and maintenance standards that are at least as protective as those in the western Washington manual. All permittees must perform inspections annually, unless sufficient data exist to justify a different frequency for ensuring compliance with the maintenance standards, and inspect new facilities every 6 months. The inspection program should be designed to inspect all sites and achieve at least a 95% inspection ratio.

The maintenance schedules for stormwater facilities included in the permit were originally drafted with the participation of local government stormwater managers during the effort to develop the "Tri-County" stormwater proposal as part of a response to the Endangered Species Act listing of Chinook salmon.

Provisions for Adequate Recordkeeping and Training of Stormwater Staff. To help organize, track, and document achievement of stormwater program implementation, the permit includes a requirement for recordkeeping of reviews, inspections, enforcement actions, training, and the staff trained. These records may be used to evaluate the permittees' compliance with permit requirements.

S5.C.5 – Pollution Prevention and Operation and Maintenance for Municipal Operations

Federal regulations require pollution prevention/good housekeeping for municipal operations (40CFR122.34(6)). Within three years of the effective date of the permit, permittees must develop and implement an operations and maintenance (O&M) program that prevents or reduces pollutant runoff from municipal operations and includes training for staff.

S5.C.a requires the adoption of maintenance standards as protective as those specified in Chapter 4 of Volume V of the 2005 *Stormwater Management Manual for Western Washington.*

S5.C.b requires annual inspections of permanent stormwater treatment and flow control facilities. Inspections associated with the O&M plan are intended to be conducted for all stormwater treatment and flow control facilities owned, operated or maintained by the permittee. However, Ecology recognizes that, due to unforeseen circumstances, a permittee's staff may not meet this goal. Therefore a level of 95% of the required inspections being performed was established as the benchmark for measuring compliance with this requirement. The permit does specify a procedure for permittees to propose a less frequent inspection schedule than prescribed when appropriate.

S5.C.c requires spot checks of stormwater treatment and flow control facilities after major storm events. Major storm events are defined as 24-hour-10-year recurrence interval rainfalls or snowmelts but could include any major, potentially damaging, storm event.

S.5.C.d requires inspection of all catch basins and inlets before the end of the permit term. Cleaning is required if maintenance standards are not met. Catch basin maintenance standards are found in the *2005 Stormwater Management Manual*, Volume V, Chap. 4, on pages 4-36 & 37.

Decant waters generated as part of catch basin cleaning must be disposed of in accordance with the requirements of Appendix 5 of the permit. The street waste liquids (decant waters) are generated in the process of maintaining stormwater BMPS such as catch basins. The BMPs capture settleable solids from stormwater runoff and may also minimize the discharge of oily runoff by retaining floatable oils in the BMP. The settled solids typically have high concentrations of adsorbed metals, oils and grease. The agitation involved in removing the solids from the catch basin results in the resuspension

of the fine fraction of the sediments. The pretreatment and treatment requirements are designed to remove the fine sediment and sheen causing oils (if any), from the decant water before it reaches the receiving water.

S.5.C.f requires the establishment and implementation of practices to reduce runoff impacts from streets and roads and open spaces, road right-of-ways, maintenance yards, and stormwater facilities owned or operated by the permittee. As land owners permittees have the ability to directly control the quality of stormwater runoff from their own practices. The section of the permit requires each permittee to establish and implement policies and procedures to reduce pollutants from lands they own or maintain.

S.5.C.g requires the establishment and implementation of practices to reduce pollutants in discharges from lands owned or maintained by the permittee, including parks, open spaces, road right-of ways, maintenance yards, and at stormwater facilities. Of particular concern are the selection and application of pesticides and herbicides. Insecticides and herbicides (collectively termed pesticides) have been detected in all rivers, lakes and streams sampled across the United States by the US Geological Survey (USGS). In King County twenty-three pesticides were detected in water from urban streams during rainstorms and the concentrations of five of these pesticides were at levels that pose danger to aquatic life. [22 20 U.S. EPA. November 2000. *Our Built and Natural Environments: A Technical Review of the Interactions between Land Use, Transportation and Environmental Quality* 21 May, Christopher W. 1996. *Assessment of Cumulative Effects of Urbanization on Small Streams in the Puget Sound Lowland Ecoregion: Implications for Salmonid Resource Management*. PhD Dissertation, University of Washington. 22 USGS Fact Sheet 097-99. April 1999.] Since it is difficult or impossible to remove pesticides from water, Ecology is focusing on the use of integrated pest management plans as a way to reduce both the need and use of pesticides.

The definition for Integrated Pest Management is given in RCW 17.15 as:

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

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

Reducing the use of pesticides will reduce the risk of the chemicals being carried to streams by stormwater. The methodology has been adopted by many sectors of

agriculture. These are reasonable and prudent steps to use when applying chemicals designed to kill plant or animal life. Following them will minimize the risk of discharging pesticides into the MS4.

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

Landscape maintenance, trash management and building cleaning are routine practices that can also affect stormwater quality. They are also practices that are relatively simple to manage such that pollutants are avoided or minimized. BMPs for these activities are included in Volume IV of the *2005 Stormwater Management Manual for Western Washington.*

S5.C.h requires the development and implementation of an on-going training program for appropriate employees of the permittee whose job functions may impact stormwater quality.

S5.C.i requires the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) for all heavy equipment maintenance or storage yards, and material storage facilities owned or operated by the Permittee that are not covered under the Industrial Stormwater General Permit. A SWPPP is a documented plan to implement measures to identify, prevent, and control the contamination of discharges of stormwater to surface or ground water. Guidance is available at:
http://www.ecy.wa.gov/pubs/0410030.pdf

S6: Stormwater Management Program for Secondary Permittees

This section of the permit applies to public entities other than cities, towns and counties such as ports, prison complexes, parks and recreation districts, public schools including universities, irrigation districts, flood control districts, or diking and drainage districts that own or operate a regulated municipal separate storm sewer system.

This section of the permit describes a Stormwater Management Program (SWMP) for a wide range of entities that are not cities, towns, or counties, but that are subject to coverage under this permit. These permittees, referred to as secondary permittees, generally do not have the same legal authority as cities, towns and counties. The populations served by secondary permittees at least partly coincide with the populations of the permitted cities, towns and counties. Ecology encourages secondary permittees to seek cooperative agreements with their local jurisdiction(s) to assist in implementation of the complete SWMP. Ecology believes the SWMP for secondary permittees should focus on:

- The non-enforcement aspects of illicit detection and elimination (and rely on the local jurisdiction for the enforcement aspects),

- Construction and post-construction stormwater management for the secondary permittee's projects, and
- Pollution prevention and good housekeeping for the municipal operations of the secondary permittee.

Permittees are required to track, evaluate and document the actions associated with the SWMP required by the permit. Pursuant to S9 this information is required to be tracked and compiled in an annual report to Ecology. Annual report forms for secondary permittees are located in Appendix 3 of the permit.

S6.A – Coordination

The permit encourages secondary permittees to coordinate their SWMPs with other entities within or adjacent to their MS4. The permit requires coordination among departments of the secondary permittee to ensure compliance with the permit.

S6.B – Legal Authority

Legal authority to control discharges into a permittee's storm sewer system is critical for compliance. To the extent allowable under state and federal law, the permit requires each secondary permittee to operate with sufficient legal authority to authorize the secondary permittee to control discharges into and from their MS4. The legal authority may be demonstrated by a combination of statutes, ordinances, permits, contracts, orders, and interagency agreements. The legal authority must be sufficient to allow the secondary permittee do all of the activities listed in S6.B.1 through 6 of the permit.

S6.C – SWMP Components

S6.C.1 Public education and outreach

Because the population served by most secondary permittees will generally be served by the public education and outreach efforts of the local jurisdiction, Ecology determined that the most useful supplement to those education and outreach efforts would be to label the secondary permittee's storm drain inlets. Ecology believes that ports and universities have tenants and residents that may not be as effectively served by the local jurisdiction's public education and outreach program, therefore condition S6.C.1.b is included. Where local jurisdictions' public education and outreach efforts do effectively target and reach these tenant and residential populations, ports and universities are not expected to duplicate those efforts.

S6.C.2 Public involvement and participation
Secondary permittees have the same responsibilities as cities, towns and counties to make their SWMPs available to the public and to involve the population they serve in the development of the SWMP. The public must be included in developing, implementing, and reviewing your storm water management program and the public participation process must comply with State, Tribal and local public notice requirements. Copies of the public notice published to comply with S.6.C.2.a must be provided to Ecology.

The latest updated version of the SWMP must be made available online to the public if the secondary permittee maintains a website, or the secondary permittee may choose to post the SWMP on the local jurisdiction's website.

S6.C.3 Illicit discharge detection and elimination (IDDE)

IDDE is one of the most important components of the SWMP for any permittee to reduce pollutants in discharges from their MS4. This section describes the necessary elements of an IDDE program for secondary permittees. Federal regulations define an illicit discharge as "any discharge to an MS4 that is not composed entirely of stormwater runoff" with some exceptions. Non-stormwater discharges are illicit because MS4s are not designed to accept, process, or discharge such wastes. Illicit discharges enter the MS4 through deliberate or mistaken, direct or indirect, illicit connections or illegal dumping. Progress toward developing and implement the program must be reported in the annual report.

The Center for Watershed Protection has researched cost effective and efficient discharge detection techniques currently in use around the country. Their findings are synthesized into specific guidelines on illicit discharge identification and removal in *Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments*, a comprehensive manual that outlines practical, low cost, and effective IDDE techniques. This manual is available for free at http://www.cwp.org/idde_verify.htm.

Secondary permittees should focus their efforts on mapping their stormwater systems, developing and implementing appropriate IDDE policies and procedures, and training their staffs. Some secondary permittees will be able to rely on the local jurisdiction for enforcement actions; others will have to develop enforcement programs and implement appropriate enforcement actions to the extent that they have legal authority.

S6.C.4 Construction site stormwater runoff control

The purpose of this SWMP component is to prevent sediment and other pollutants from entering the MS4 during the construction phase of development projects. In general, this section relies on secondary permittees obtaining coverage under, and complying with, the *Construction Stormwater General Permit* administered by Ecology for their own construction projects. To the extent that they have the legal authority, secondary permittees must also require other entities discharging to their MS4 to obtain and comply with the Minimum Technical Requirements in Appendix 1, Core Element #2 during the construction phase of their projects.

S6.C.5 Post-construction stormwater management for new development and redevelopment

The purpose of this SWMP component is to prevent and reduce the amount of pollutants entering the MS4 following the construction phase of development projects. The Minimum Technical Requirements in Appendix 1 provide a basis for selecting and implementing appropriate best management practices (BMPs) to accomplish this through design approaches, structural treatment technologies, and operation and maintenance practices.

S6.C.6 Pollution prevention and good housekeeping for municipal operations
The municipal operation and maintenance (O&M) plan required to be developed under this component of the SWMP is one of the most important programmatic activities for any permittee to reduce pollutants in discharges from their MS4. This section of the permit requires secondary permittees to evaluate their day-to-day activities and evaluate what BMPs they can implement to reduce stormwater pollution from those activities. Employee training is a critical aspect of this SWMP component. Training can be done in-house or by outside consultants, depending on the size of staff, area served and expertise available. The training must be on-going as needed and reported in the annual report. Ecology and EPA both provide links to training materials and information on their websites.

S7: Total Maximum Daily Load Allocations

Under some circumstances, when the water quality of a water body is impaired, the federal Clean Water Act requires States to set limits on the amount of pollutants that the water body receives from all sources. States may also set limits on pollutant loads when water bodies are threatened. These limits are known as Total Maximum Daily Loads (TMDLs). TMDLs differ from commonly used technology-based or water quality-based numeric limits for individual discharges. A TMDL is developed through a defined process through which the maximum amount of a pollutant that may be discharged from all sources to a water body without causing violations of water quality standards is identified. Then pollutant control strategies are developed to keep the pollutant loading below that level. The strategies include numeric Waste Load Allocations (WLAs) for NPDES permitted dischargers and Load Allocations (LAs) to control the loads from nonpoint sources.

Stormwater discharges covered under this permit are required to implement actions necessary to achieve the pollutant reductions called for in applicable TMDLs. Applicable TMDLs are TMDLs which have been approved by the EPA before the issuance date of the permit or which have been approved by the EPA prior to the date the permittees application is received by Ecology. A list of all applicable TMDLs is included in Appendix C to this Fact Sheet. Information on Ecology's TMDL program is available on Ecology's website at www.ecy.wa.gov/programs/wq/tmdl.

All TMDLs approved by EPA before February 15, 2006, were reviewed by Ecology to determine whether stormwater including municipal stormwater sources were identified in the TMDL. When most of these TMDLs were developed, municipal stormwater was

considered a subset of non-point dischargers, rather than a permitted discharge. As a result, very few TMDLs statewide contain requirements for municipal stormwater sources. Few TMDLs completed to date have established load allocations or waste load allocations for municipal stormwater discharges covered under this permit.
Ecology is interpreting TMDL requirements as follows:

- For TMDLs where stormwater was not identified as a source of the pollutants of concern, or if all of the sources were defined in the TMDL, Ecology considers the MS4 not to be a significant contributor of pollutants.
- Where stormwater was identified as a source of pollutants and the TMDL or implementation plans developed to support the TMDL identified control measures were less than or equivalent to the requirements of this permit, Ecology sets a narrative effluent limit: "compliance with the permit compliance constitutes compliance with the TMDL."
- If stormwater was identified as a source of pollutants and specific WLAs, LAs or control measures were established, Ecology must develop effluent limits in addition to the other requirements of the permit. These effluent limits may be narrative or numeric depending on the control measures set by the TMDL or implementation plans.

Where a TMDL or the detailed implementation plan developed for the TMDL identifies actions or activities beyond what is required by this permit, Ecology has identified the additional requirements in Appendix 2 of the permit for all TMDLs approved by EPA prior to February 15, 2006. Appendix 2 of the permit lists the cities and counties affected by the TMDL. Secondary permittees that are subject to additional TMDL related requirements will be notified at the time of permit coverage.

When TMDL related monitoring is required, permittees are required to develop a quality assurance project plan. Quality assurance project plans (QAPPs) must be submitted to Ecology for review and approval. For detailed guidance on writing QAPPs, see *Guidelines for Preparing Quality Assurance Project Plans for Environmental Studies* (ECY Pub. No. 04-03-030) available on Ecology's website at http://www.ecy.wa.gov/biblio/0403030.html.

Implementation of all TMDLs approved by EPA prior to the date of issuance of this permit, or prior to the date of application, is required by all permittees. Appendix 2 will be updated in the final permit. Ecology did not require automatic implementation of TMDLs completed after a permittee is covered under this permit because doing so would deny the opportunity to appeal additional permit requirements based on the new TMDL. For TMDLs that are approved by EPA after the permit is issued, Ecology may establish TMDL-related permit requirements through a formal permit modification or through the issuance of an administrative order. Ecology's decision to enforce requirements of TMDLs completed after the issuance of the permit will be based on the determination that implementation of actions, monitoring or reporting necessary to demonstrate reasonable further progress toward achieving TMDL waste load allocations, and other targets, are not occurring and must be implemented during the term of the permit. For

this reason, Permittees are encouraged to participate in development of TMDLs within their jurisdiction and to begin implementation where appropriate.

S8: Monitoring

Federal rules require permittees to have a monitoring program to detect illicit discharges and to evaluate program compliance, appropriateness of BMPs, and progress toward achieving measurable goals. The rules intend monitoring to influence changes in SWMPs to better protect water quality. The types of monitoring needed may be broken down into two major categories, compliance monitoring and environmental effectiveness monitoring. Compliance monitoring, including documentation of achieving measurable goals and qualitative assessment of the effectiveness of BMPs, is required as part of this permit.

S8.A – Stormwater monitoring is not required by this section of the permit. Monitoring may be required for implementing the illicit detection and elimination program in S5.C.3 or in S6.C.3 for a particular permittee, or for implementing approved TMDLs pursuant to section S7 Compliance with Total Maximum Daily Load (TMDL) Allocations and Appendix 2.

S8.B – Although stormwater monitoring information is not required to be collected, Ecology is requiring that a summary of any stormwater monitoring done by the permittee or on behalf of the permittee be submitted to Ecology. Ecology needs to know what information is being gathered in order to coordinate monitoring efforts, avoid duplication, and keep abreast of the latest findings. Stormwater monitoring information will be helpful in developing and making decisions on future permits and to consider whether revisions and updates to the *Stormwater Management Manual for Western Washington* (2005) may be necessary.

S8.C – Preparation for future, long-term monitoring

The primary objective of the monitoring program is to provide a feedback loop for "adaptive management" of the permittees' stormwater management programs and Ecology's municipal stormwater permitting program. In future permits, all permittees will be expected to use or modify their stormwater management programs to implement practices that eliminate or reduce sources of toxicity and other water quality problems in stormwater. Adaptive management means constantly looking at what we are doing, finding what works and what doesn't, and changing what we are doing based on what we learn. Stormwater management programs require a substantial expenditure of funds at both the local and state levels, and by private development. Knowing that these funds are being spent effectively is a serious concern. It is also extremely important that we answer whether our stormwater programs are adequate to protect our aquatic resources and uses, and whether we are making progress toward reduction of existing impacts. For these reasons, Ecology recommends that environmental monitoring be conducted not to

determine permit compliance, but in order to revise permits and stormwater programs as more is learned about the best ways to manage stormwater.

Ecology will determine, through information gathering and in the process of developing the next permit, what, if any, environmental effectiveness monitoring will be required in the next five-year permit cycle. This permit's fourth year requirement for permittees to identify priority areas for future evaluation will provide Ecology with some of the information that will be used in making that determination. Ecology will also solicit ideas about the extent to which the permit is the vehicle to collect this information; what are the most efficient methods by which this monitoring can be accomplished; and what entities are most appropriate to conduct the monitoring.

In the first round of municipal stormwater (phase I) permits issued in 1995, Ecology established four monitoring objectives:

a. Estimate concentrations and loads from representative areas or basins to be used in evaluating overall program effectiveness.
b. Evaluate the effectiveness of selected Best Management Practices.
c. Identify specific sources of pollution; and
d. Identify the degree to which stormwater discharges are impacting selected receiving waters and sediments.

At that time, it was thought that a monitoring program to adequately cover all the objectives in the first permit would be overwhelming. Therefore, Ecology allowed the phase I permittees to propose monitoring programs intended to achieve one or more of these objectives based upon priorities that they established for their programs. Now, Ecology finds that all the above monitoring objectives remain applicable in the long run, regardless of the permittees' initial priorities, and despite the results of permittees' monitoring to date.

For the second phase I permit cycle, Ecology is requiring phase I permittees to develop monitoring programs that focus on the first two objectives. Accomplishment of the third objective is partially met in this permit by the illicit detection and removal program, which is covered by S5.C.3.c and for which necessary monitoring is referenced in S8.A.2. Ecology will rely on its own monitoring programs, as may be coordinated and supplemented by local government monitoring, to accomplish the fourth objective.

The Phase I and WSDOT municipal stormwater permittees are being required to develop and implement an integrated, long-term water quality monitoring plan during this permit cycle. The framework proposed below for monitoring in this phase II permit is intended to be integrated with the requirements for the Phase I and WSDOT permits and implemented during the next permit cycle.

The monitoring program includes three components:

1. Stormwater monitoring, (limited to qualifying counties and cities)

2. Stormwater Management Program (SWMP) effectiveness monitoring, (required for all) and
3. Runoff treatment Best Management Practice (BMP) effectiveness monitoring (limited to qualifying counties and cities).

The monitoring program could include long-term monitoring and/or short-term studies. The results of the monitoring program would be used to support the adaptive management process and lead to refinements of the SWMP.

S8.C.1.a Stormwater monitoring
Knowledge of pollutant loads and of average event mean concentrations from representative areas drained by the municipal storm sewer systems are necessary to gauge whether the comprehensive SWMPs are making progress towards the goal of reducing the amount of pollutants discharged and protecting water quality. Such data may also prove useful for establishing Water Clean-up Plans for waters not achieving water quality standards. Ecology is requiring phase I permittees to conduct this type of monitoring and expects the monitoring to continue well beyond this permit term. Ecology is not requiring phase II permittees to conduct this type of monitoring during this permit term, but selection of appropriate sites will provide a necessary starting point for conducting such monitoring in the future, whether by the permittees, Ecology, or a third party.

S8.C.1.b SWMP Effectiveness Monitoring
This part of the monitoring requirements allows permittees to select two specific aspects of their SWMP for evaluation. For each aspect, permittees are asked to prepare to evaluate the effectiveness of a specific action and/or success at achieving a targeted environmental outcome. In both cases, monitoring of stormwater or receiving water characteristics will be necessary. Monitoring of indirect measures of success such as improvements in regulatory processes, quality or timing or programmatic actions, or changes in behavior may also be accomplished as an indirect indicator of effectiveness.

The permit lists five major components to a SWMP. To implement any single component requires an administrative structure and an implementation strategy of multiple parts. Monitoring of a “specific action” is aimed at having the permittees establish a feedback loop for a specific component or part of a component. The intent is to do sufficient investigation to determine if a specific action is making an effective contribution to achieving the overall stormwater program and permit goals. Examples could include improvements in stormwater quality or quality of sediments in stormwater discharges, reduction in frequency of high flows and reduction in frequency of spills.

Monitoring of a “targeted outcome” is intended to establish a feedback loop concerning the effectiveness of all or a subset of the SWMP in achieving a specific environmental outcome. Examples of a targeted outcome include reducing discharge of certain pollutants by a targeted percentage, below a certain concentration, or below a targeted annual load amount, or re-establishment of a sustaining native fish population.
In either or both of the “actions” and “targeted outcomes” categories, all permittees are required to select issues for study that have significance for them.

S8.C.1.c Runoff Treatment Best Management Practice (BMP) Effectiveness Monitoring
On a smaller scale, permittees and Ecology also need to determine the effectiveness of specific treatment BMPs in reducing pollutant discharges in stormwater runoff. The state and local stormwater manuals include lists of treatment BMPs that are to be applied in new development and re-development projects. Though most of these treatment types have been recommended and in common use for many years, only incomplete information is available about their pollutant removal capabilities. We have some confidence that they are based on sound engineering concepts, but we do not know how well they perform in relation to one another. Without a feedback loop of performance, we cannot confirm which BMPs perform best for certain pollutants. This also makes it difficult to estimate pollutant loadings and expected pollutant reductions that are necessary to implement TMDLs. Without the feedback loop, there is not a good basis for altering design criteria in order to improve BMP performance.

There is little BMP performance data from western Washington. General performance information on categories of treatment BMP's (*e.g.*, wet ponds, dry ponds, biofiltration swales) from data collected around the country are available. But the collectors of that data acknowledge its limited usefulness because of the broad range of designs and design criteria used around the country, also because of regional variations in rainfall patterns and soil types. Studies must be performed to improve our knowledge of the capabilities and limitations of the BMPs that we have been using to reduce the pollutant impacts of our developments.

This section of the permit requires that each permittee, depending on its size, select one or two BMPs that are standard technologies in the *Stormwater Management Manual for Wastern Washington* (2005) for detailed performance monitoring. The permit lists 16 BMPs of interest, and Ecology hopes that many different types of BMPs will be selected for monitoring by local jurisdictions. Ecology encourages local jurisdictions located in the same Urban Areas to work together to identify sites from which data would support future development and updates of regional stormwater manuals.

S9: Reporting and Record Keeping Requirements

Permittee must submit an annual report to the Department no later than March 31 each year beginning in the year 2008. The reporting period for the first Annual Report shall be from the effective date of the permit through December 31, 2007. The reporting period for all subsequent annual reports shall be the previous calendar year.

The reporting forms provided in Appendix 3 of the permit must be used to provide consistency. Ecology is working toward making electronic reporting forms available. Separate forms are provided for Secondary Permittees in Appendix 3. Forms must be fully completed by each permittee and mailed according to the permit instructions.

If permit deadlines are not met, or may not be met in the future, permittees must notify Ecology as required in permit condition G20 and include reasons why, corrective steps taken, corrective steps propose and expected dates that the deadlines will be met.

Notifications must be made of any annexations or incorporations resulting in an increase or decrease in the permittee's geographic area of permit coverage during the reporting period, and implications for the SWMP.

If applicable, notice Ecology that you are relying on another governmental entity to satisfy any of your obligations under this permit.

Permittees are required to keep all records related to this permit and the SWMP for at least five years. Records must be submitted to the Department only upon request, except for the requirements of the annual reports described in this permit. Permittees must make all records related to this permit and their SWMP available to the public at reasonable times during business hours. A reasonable charge may be assessed by the permittee for making photocopies of records for entities other than Ecology. The Permittee may require reasonable advance notice of intent to review records related to this permit.

General Conditions

General Conditions are based directly on state and federal law and regulations have been standardized for all municipal stormwater NPDES permits issued by the Department.

G1. Prohibits discharges that violate terms and conditions of this Permit.

G2. Requires the permittee to operate and maintain all stormwater pollution control facilities and system with terms and condition of the permit.

G3. Requires the permittee notify Ecology immediately of all spills that may threat human health and environment within no later than 24 hours. In addition, spills that may cause bacterial contamination of shell fish must also reported to the State, Department of Health shellfish program.

G4. The permit prohibits bypass unless certain conditions exist in accordance with 40 CFR 122.41(m).

G5. Requires the permittee to allow Ecology to access the facilities and conduct inspections of the facilities and records related to this Permit in accordance with 40 CFR 122.41(i), Chapter 90.48.090 RCW, and WAC 173-220-150(1)(e).

G6. For discharges with reasonable likelihood of adversely affecting human health or the environment, this Permit requires the Permittee to take all reasonable steps to minimize or prevent any discharge in violation of this Permit.

G7. Specifies that the Permit does not convey property rights in accordance with 40 CFR 122.41(g).

G8. Prohibits the Permittee from using the Permit as a basis for violating any laws, statutes or regulations in accordance with 40 CFR 122.5(c).

G9. This Permit contains certain sets of monitoring requirements to insure compliance. The monitoring shall be based on representative samples of the discharge that must also include the actual flow. The samples shall be tested by an accredited laboratory based on certain pre-prescribed procedures and the results shall be retained by the Permittee for five years, or longer in case of enforcement or other litigations.

G10. Prohibits the reintroduction of removed substances back into the storm sewer system or to waters of the state in accordance with 40 CFR 125.3(g), Chapter 90.48.010 RCW, Chapter 90.48.080 RCW, WAC 173-220-130, and WAC 173-201A-040.

G11. Invokes severability of permit provisions in accordance with Chapter 90.48.904 RCW.

G12. Identifies conditions for revoking coverage under the general permit in accordance with 40 CFR 122.62, 40 CFR 124.5, WAC 173-226-240, WAC 173-220-150(1)(d), and WAC 173-220-190.

G13. Identifies the requirements for transfer of permit coverage in accordance with 40 CFR 122.41(l)(3) and WAC 173-220-200.

G14. Identifies conditions for modifying or revoking coverage under the general permit in accordance with 40 CFR 122.62, 40 CFR 124.5, WAC 173-226-240, WAC 173-220-150(1)(d), and WAC 173-220-190.

G15. Requires 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).

G16. Defines appeal options for the terms and conditions of the general permit and of coverage under the Permit by an individual discharger in accordance with Chapter 43.21B RCW and WAC 173-226-190.

G17. Any person who is found guilty of willfully violating the terms and conditions of this Permit shall be deemed guilty of a crime, and upon conviction thereof shall be punished by a fine of up to ten thousand dollars ($10,000) and costs of prosecution, or by imprisonment in the discretion of the court. Each day upon which a willful violation occurs may be deemed a separate and additional

violation. Any person who violates the terms and conditions of a waste discharge permit shall incur, in addition to any other penalty as provided by law, a civil penalty in the amount of up to ten thousand dollars ($10,000) for every such violation. Each and every such violation shall be a separate and distinct offense, and in case of a continuing violation, every day's continuance shall be deemed to be a separate and distinct violation. Describes the penalties for violating permit conditions in accordance with 40 CFR 122.41(a)(2).

G18. Requires the Permittee to reapply for coverage 180 prior to the expiration date of this General Permit in accordance with 40 CFR 122.21(d), 40 CFR 122.41(b), and WAC 183-220-180(2). An expired permit continues in force and effect until a new permit is issued or until Ecology cancels the Permit. Only Permittees who have reapplied for coverage under this Permit are covered under the continued permit. This section is derived from Chapter 90.48.170 RCW.

G19. Requires responsible officials or their designated representatives to sign submittals to Ecology in accordance with 40 CFR 122.22, 40 CFR 122.22(d), WAC 173-220-210(3)(b), and WAC 173-220-040(5).

G20. Requires the permittee take actions to correct or minimize the threat to human health or the environment and notify Ecology.

G21. Requires the permittee to notify Ecology in the event that the permittee is unable to comply with the permit or is out of compliance with the permit.