FACT SHEET FOR
CONSTRUCTION STORMWATER GENERAL PERMIT

SUMMARY

This fact sheet is a companion document to the revised National Pollutant Discharge Elimination System (NPDES) and State Waste Discharge General Permit for Stormwater Discharges Associated with Construction Activity (Construction Stormwater General Permit). The proposed permit authorizes the discharge of stormwater and non-stormwater associated with construction activity. Construction activity refers to the clearing, grading, excavation, and other land disturbing activities which result in the disturbance of one or more acres, as well as disturbance of less than one acre of total land area that is part of a larger common plan of development or sale, if the larger common plan will ultimately disturb one acre or more. The proposed general permit limits the discharge of pollutants to surface waters under the authority of the Federal Water Pollution Control Act (U.S.C.S. 1251) and limits the discharge of pollutants to surface and ground water under the authority of Chapter 90.48 RCW.

In 1990, the federal Phase I Stormwater regulations addressed construction activities that disturbed five or more acres of land as Category (x) of the definition of "stormwater discharges associated with industrial activity" (40 CFR 122.26(b)(14)(x)). Ecology issued its first stormwater general permit on November 18, 1992, covering both industrial and construction activities. When reissued in 1995, Ecology decided to move construction activities into a separate permit. The 1995 construction stormwater general permit was reissued by Ecology on October 4, 2000 with an expiration date of November 18, 2005. A Notice of Appeal was filed on November 17, 2000 by Puget Soundkeeper Alliance, Waste Action Project, Washington Public Employees for Environmental Responsibility, Resources for Sustainable Communities, and Citizens for a Healthy Bay. Revising and reissuing this permit was a condition of settling the appeal.

The proposed permit includes some significant changes. The most significant change is implementing the U.S. Environmental Protection Agency's Phase II stormwater rule, which drops the permitting threshold from five acres down to one acre of soil disturbance. Also, the proposed permit includes basic monitoring and reporting requirements to comply with RCW 90.48.555. In addition, construction sites discharging to waterbodies with TMDLs or on the 303(d) list for turbidity, fine sediment, high pH, phosphorus, or other applicable water quality parameters are required to verify, through sampling and analysis, that discharges are not causing or contributing to violations of water quality standards. The permit also clearly states that stormwater discharges must comply with water quality standards and provides for the presumption that discharges are in compliance with water quality standards if permittees are in compliance with permit conditions, unless site specific information shows otherwise.

This fact sheet explains the nature of discharges from construction activities, Ecology's decisions on limiting pollutants in stormwater and non-stormwater from construction activities, and the regulatory and technical basis for those decisions.

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INTRODUCTION

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 has delegated responsibility to administer the NPDES permit program to the State of Washington on the basis of Chapter 90.48 of the Revised Code of Washington (RCW) which defines the Department of Ecology's authority and obligations in administering the wastewater discharge permit program.

The regulations adopted by the State include procedures for issuing general permits [Chapter 173-226 of the Washington Administrative Code (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. The regulations also require public notice of the draft permit for at least 30 days before the proposed permit is issued (WAC 173-226-130). The fact sheet and draft permit are available for review (see Appendix A--Public Involvement of the fact sheet for more detail on the Public Notice procedures).

After the public comment period has closed, Ecology will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit. 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 C--Response to Comments.

BACKGROUND INFORMATION

DESCRIPTION OF PERMIT COVERAGE

HISTORY

In 1990, the Phase I Stormwater regulations addressed construction activities that disturbed five or more acres of land as Category (x) of the definition of "stormwater discharges associated with industrial activity" (40 CFR 122.26(b)(14)(x)). On November 18, 1992, Ecology issued its first stormwater general permit, which covered discharges from both industrial and construction activities. When this permit was reissued in 1995, Ecology issued separate general permits for industrial and construction activities and increased the permit cycle to five years.

Ecology reissued the construction stormwater general permit on October 4, 2000. The permit, which became effective on November 18, 2000, had no substantive changes. Only changes that made the permit consistent with the revised timeframe were made. The reissued permit became effective on November 18, 2000 with an expiration date of November 18, 2005. A Notice of Appeal was filed on November 17, 2000 by Puget Soundkeeper Alliance, Waste Action Project, Washington Public Employees for Environmental Responsibility, Resources for Sustainable Communities, and Citizens for a Healthy Bay. The Association of Washington Business and Washington State Department of Transportation filed motions to intervene and became parties to the case. The parties to the case entered into a settlement agreement that required Ecology to rewrite and reissue the permit with assistance from a public advisory committee. The advisory committee was comprised of business representatives, environmental organizations, and state, local, and tribal agencies and met to discuss permit development six times between June 2002 and May 2005. The draft construction stormwater general permit under review was developed with input from the advisory committee.

GENERAL PERMIT APPROACH

A general permit for construction activities is an appropriate permitting approach for the following reasons:

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

A general permit is designed to provide coverage for a group of related facilities or operations of a specific industry type or group of industries. It is appropriate when the discharge

characteristics are sufficiently similar, and a standard set of permit requirements can effectively provide environmental protection and comply with water quality standards for discharges. In most cases, the proposed general permit will provide sufficient and appropriate stormwater management requirements for discharges of stormwater from construction sites.

This approach recognizes that there may be instances where the General Permit is not appropriate for a specific construction project. The Director of Ecology may require any discharger under the General Permit to apply for and obtain an individual permit or a more specific General Permit if the Department determines that this General Permit does not provide adequate assurance that water quality will be protected, or there is a reasonable potential for the project to cause or contribute to a violation of water quality standards.

WASTEWATER CHARACTERIZATION

Due to the inherent variability in construction sites, management practices, and weather, it is not possible to characterize the stormwater from construction activities in terms of the average rate or frequency of discharges, or the average or estimated range in pounds per day, of pollutants. Pollutants expected in the discharge from construction activity include sediment (i.e., suspended solids, turbidity), pH, phosphorus, and petroleum products. These pollutants are described in the subsequent paragraphs.

A. Sediment. Construction activity involves land disturbing operations such as clearing, grading, and excavation. Disturbed soils that are exposed to precipitation are subject to erosion resulting in runoff contaminated with suspended sediment. Suspended sediment is the primary constituent in construction stormwater and is commonly measured as total suspended solids (TSS) and/or turbidity:

1. Total suspended solids (TSS) is a measure of the suspended material in water. The measure of TSS in stormwater allows for an estimation of sediment transport, which can have significant effects in downstream receiving waters.

2. Turbidity, expressed as Nephelometric Turbidity Units (NTU), is a measure of the ability of light to penetrate the water. Turbidity is a function of the suspended solids in water. It has been demonstrated to exhibit control over biological functions, such as the ability of submerged aquatic vegetation to receive light and the ability of fish gills to absorb dissolved oxygen.

The surface water quality standards (Chapter 173-201A-030) state that turbidity shall not exceed 5 NTU over background turbidity when the background turbidity is 50 NTU or less, or have more than a 10 percent increase in turbidity when the background turbidity is more than 50 NTU (Class AA and A).

B. pH. Construction stormwater may become contaminated from alkaline construction materials resulting in high pH (greater than pH 7). Alkaline construction materials include concrete, mortar, lime, cement kiln dust (CKD), Portland cement treated base (CTB), fly ash, recycled concrete, and masonry work.

The surface water quality standard for pH is: pH shall be within the range of 6.5 to 8.5 (freshwater) or 7.0 to 8.5 (marine water) with a human-caused variation within a range of less than 0.2 units for Class AA waters and 0.5 for Class A and C waters.

C. Phosphorus. Phosphorus is a potential constituent of construction stormwater because it occurs naturally in soils. If erosion and sediment control measures are inadequate to prevent the discharge of suspended sediment, phosphorus is likely to contaminate the stormwater. Generally, if turbidity and TSS are controlled with best management practices (BMPs), phosphorus will not be discharged in a significant amount.

Total Phosphorus (TP) criteria are dependant on the trophic state and ambient TP of the water body (Lake Class waters). See Chapter 173-201A-030 WAC.

D. Petroleum Products. Oil, grease, and other petroleum products may contaminate stormwater if they are spilled or leaked from heavy equipment, diesel pumps, fuel tanks, or vehicles.

E. Other pollutants. Historical contamination or natural soil conditions may contribute other pollutants to stormwater. Examples might include pesticides, metals (arsenic, lead, etc.), PCBs, and petroleum.

SEPA COMPLIANCE

New facilities must demonstrate compliance with the State Environmental Policy Act (SEPA, Chapter 43.21C RCW), before permit coverage can be authorized. A modification of permit coverage for physical alterations, modifications, or additions to the construction site also requires SEPA compliance. Additional SEPA review may be necessary if the modification is outside of the scope of the initial SEPA evaluation.

PROPOSED PERMIT LIMITATIONS

Federal and State regulations require that effluent limitations set forth in an NPDES permit be either technology-based or water quality-based. Technology-based limitations are based on the treatment methods available to treat specific pollutants or to prevent/minimize the introduction of pollutants. Technology-based limitations are set by regulation or developed on a case-by-case basis (40 CFR 125.3, and Chapter 173-220 WAC). Water quality-based limitations are established to ensure compliance with the Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Standards (Chapter 173-200 WAC), Sediment Management Standards (Chapter 173-204 WAC) or the National Toxics Rule (40 CFR 131.36). The more stringent of these two limits must be chosen for each parameter of concern. Each of these types of limits is described in more detail below.

The draft permit establishes water quality-based numeric effluent limitations for construction activities that discharge to waters that are either listed as impaired under Section 303(d) of the Clean Water Act or with an EPA-approved total maximum daily load (TMDL) determination.

All references and permit requirements associated with Section 303(d) of the Clean Water Act pertain to the most current EPA-approved 303(d) listing of impaired waters that exists when a

complete application for coverage is submitted to Ecology. Numeric effluent limitations apply to sites that discharge to waterbodies that are impaired for the following parameters:

- suspended sediment (turbidity, fine sediment, total suspended solids, and sedimentation),
- high pH,
- phosphorus, and/or
- other applicable parameters identified by Ecology.

For these sites, the permittee is assigned a numeric effluent limitation that is equal to the applicable water quality standard at the point of discharge. For all suspended sediment parameters (turbidity, fine sediment, etc.), Ecology has determined that turbidity is the appropriate surrogate parameter. Therefore the effluent limitation will be equal to the turbidity criterion set forth in the Surface Water Quality Standards (WAC 173-201A-030).

The following example provides some clarification on how Ecology intends to apply "other applicable parameter(s)" and surrogate pollutants for 303(d) listed waterbodies in this permit:

> A lake is placed on the 303(d) list for Dissolved Oxygen (DO) or Total Phosphorus (TP). When obtaining coverage under this permit, a construction site determines that it discharges stormwater into the same lake. Instead of requiring the construction site to monitor stormwater discharges for DO or TP, Ecology designates another applicable parameter and surrogate pollutant – turbidity – for monitoring. The rationale for selecting turbidity is: (1) Soil particles contain nutrients, including phosphorus. When soil erodes, it generates turbid water that contains phosphorus. (2) Phosphorus is a nutrient that contributes to low DO or increased TP levels in lakes; (3)Turbid water is a common pollutant associated with construction site stormwater discharges that is easier and less expensive to measure than DO or TP. By preventing the discharge of turbid stormwater to the lake, the permittee will demonstrate that its discharge does not cause or contribute to a violation of the water quality standard for phosphorus.

303(d) or TMDL related numeric effluent limitations apply to both direct discharges to listed waterbodies and indirect discharges via a stormwater conveyance system. An example of an indirect discharge via a stormwater conveyance system would be a discharge from a construction site into a roadside ditch which then drains to a listed waterbody.

Permittees subject to numeric effluent limitations will be notified in writing when permit coverage is granted.

Discharges to waters for which there is an EPA-approved TMDL allocation that addresses sediment (including turbidity, fine sediment, total suspended solids, or siltation), high pH, phosphorus, and/or other applicable parameter(s) identified by Ecology must be consistent with the requirements in the approved TMDL. Permittees subject to numeric effluent limitations or waste load allocations related to a TMDL will be notified in writing when permit coverage is granted. TMDLs approved after the issuance date of this permit become applicable to the

Permittee only if they are imposed through an administrative order issued by Ecology, or through modification of permit coverage.

No other numeric effluent limitations for specific criteria are included in this General Permit. However, the permit does contain a water quality-based narrative effluent limitation which states that discharges must not cause or contribute to a violation of surface water quality standards (Chapter 173-201A WAC), ground water quality standards (Chapter 173-200 WAC), sediment management standards (Chapter 173-204 WAC), and human health based criteria in the National Toxics Rule (40 CRF 131.36). Discharges that are not in compliance with these standards are not authorized by the General Permit.

The permit also contains a technology-based narrative effluent limitation which requires permitted operations to implement all known, available, and reasonable methods of prevention, control, and treatment (AKART) in the form of appropriate BMPs for construction activity prior to the discharge of stormwater or non-stormwater to waters of the state. The narrative effluent limitation requires the permittee to prepare and implement an adequate Stormwater Pollution Prevention Plan (SWPPP), with all appropriate BMPs installed and maintained in accordance with the SWPPP and the terms and conditions of this permit.

Management practices to control construction stormwater, including stormwater treatment systems, must be properly designed, constructed, maintained, and operated to:

1. Prevent pollution of state waters and protect water quality, including compliance with state water quality standards;

2. Satisfy state requirements for application of AKART to wastes (including construction stormwater runoff) prior to discharge to waters of the state; and

3. Satisfy the federal technology-based treatment requirements under 40 CFR Part 125.3.

In accordance with ESSB 6415 (adopted in 2004), and codified as 90.48.555 RCW, compliance with water quality standards shall be presumed, unless discharge monitoring data or other site specific information demonstrates that a discharge causes or contributes to violation of water quality standards, when the Permittee is:

1. In full compliance with all application requirements and permit conditions, including planning, sampling, monitoring, reporting, and recordkeeping conditions; and

2. Fully implementing stormwater BMPs contained in stormwater technical manuals approved by Ecology, or practices that are “demonstrably equivalent” to practices contained in stormwater technical manuals approved by Ecology, including the proper selection, implementation, and maintenance of all applicable and appropriate BMPs for on-site pollution control. "Demonstrably equivalent" means that the technical basis for the selection of all stormwater BMPs is documented within a SWPPP, including:
   a. The method and reasons for choosing the stormwater BMPs selected;

b. The pollutant removal performance expected from the BMPs selected;
c. The technical basis supporting the performance claims for the BMPs selected, including any available existing data concerning field performance of the BMPs selected;
d. An assessment of how the selected BMPs will comply with state water quality standards; and
e. An assessment of how the selected BMPs will satisfy both applicable federal technology-based treatment requirements and state requirements to use all known, available, and reasonable methods of prevention, control, and treatment (AKART).

TECHNOLOGY-BASED LIMITATIONS

The permit establishes a narrative technology-based effluent limitation of AKART. AKART specifically includes the preparation and implementation of an adequate SWPPP, with all appropriate BMPs installed and maintained in accordance with the SWPPP and the terms and conditions of this permit. This technology-based requirement must be implemented regardless of potential impact of stormwater discharges on the receiving waterbody. SWPPP implementation and regular BMP evaluation are critical to ensuring BMP effectiveness at preventing soil erosion and generating discharges of pollutants off site. Stormwater discharges are difficult to predict and highly variable in both volume and concentration. Therefore, proper stormwater management is primarily a preventative activity. When a storm occurs, it is often too late to put source control BMPs in place. Once stormwater becomes polluted it is also more difficult and expensive to treat.

Permittees who choose to follow the stormwater management practices contained in approved stormwater technical manuals, including the proper selection, implementation, and maintenance of appropriate BMPs, including, but not limited to, sampling, monitoring, adaptive management mechanisms, reporting and record keeping (as defined in RCW 90.48.555) are presumed to have satisfied this demonstration requirement and do not need to include within the SWPPP the technical basis which support the performance claims for the BMPs being used. This is considered the presumptive approach.

The SWPPP must also include a reference to the manual used. Approved stormwater technical manuals include:

1. Stormwater Management Manual for Western Washington, February 2005 (or more current version that exists at the time the permittee applies for permit coverage) for sites west of the crest of the Cascade Mountains;

2. Stormwater Management Manual for Eastern Washington, September 2004, (or more current version that exists at the time the permittee applies for permit coverage) for sites east of the crest of the Cascade Mountains; or

3. Other equivalent stormwater management guidance documents approved by Ecology.

However, permittees who do not elect to follow the presumptive approach, must document the technical basis for the design criteria used to design their stormwater management BMPs. Within the SWPPP, Permittees must document BMP selection criteria, anticipated pollutant removal from the BMP selected, and the technical basis (scientific, technical studies, and/or modeling) which supports the performance claims for the BMPs selected. The SWPPP must also provide an assessment of how the selected BMP will comply with state water quality standards, satisfy the AKART requirements, and the federal technology-based treatment requirements.

SURFACE WATER QUALITY LIMITATIONS

NUMERIC CRITERIA FOR THE PROTECTION OF AQUATIC LIFE AND BENCHMARKS

"Numerical" water quality criteria are numerical values set forth in the Water Quality Standards for Surface Waters (Chapter 173-201A WAC). They specify the levels of pollutants allowed in a receiving water while protecting aquatic life. Numerical criteria set forth in the Water Quality Standards are used along with chemical and physical data for the discharge and receiving water to determine if a discharge is complying with the standards.

The draft permit includes water quality-based numeric effluent limitations for construction activities that discharge to certain waters listed as impaired according to Section 303(d) of the Clean Water Act and as necessary to be consistent with an EPA-approved TMDL determination. These limitations have been described previously in Proposed Permit Limitations.

The permit includes an enforceable adaptive management tool called a benchmark. The benchmark is included in the permit for compliance with the requirements of RCW 90.48.555. Ecology is using benchmarks in this general permit because they are effective management tools for often highly variable stormwater discharges. (Stormwater discharges vary in both pollutant concentrations and volumes, both between storms and during a single storm.) A benchmark value is not a water quality standard or a numeric effluent limit. Rather it is an indicator value used to determine the effectiveness of BMPs on site. However, meeting the benchmarks established in this draft permit in no way precludes the requirement for discharges to be in compliance with applicable permit conditions and water quality standards, including the numeric criteria for turbidity and pH in WAC 173-201A-030. (Please refer to the S4. MONITORING SECTION listed below for more detail.)

NUMERIC CRITERIA FOR THE PROTECTION OF HUMAN HEALTH

The EPA has promulgated 91 numeric water quality criteria for the protection of human health that are applicable in Washington (EPA 1992). These criteria are designed to protect humans from cancer and other diseases. The criteria were derived based on fish and shellfish consumption and drinking water. Ecology has determined that these pollutants are not expected to be present in construction stormwater runoff. In addition, most human health-based criteria are based on lifetime exposures, therefore direct comparisons with transient stormwater concentrations may be inappropriate. The high variation in stormwater pollutant concentrations makes the application of human health criteria to stormwater particularly problematic. Ecology has, therefore, placed permit emphasis on implementing and monitoring BMPs, and if necessary, adapting BMPs to limit contamination of stormwater. Proper implementation, monitoring, and

adaptation of source control and treatment BMPs are expected to minimize the potential contamination of stormwater, thereby protecting human health.

NARRATIVE CRITERIA

In addition to numeric criteria, "narrative" water quality criteria (WAC 173-201A-030) limit toxic, radioactive, or deleterious material concentrations below those which have the potential to adversely affect water uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health. Narrative criteria protect the specific beneficial uses of all fresh (WAC 173-201A-130) and marine (WAC 173-201A-140) waters in Washington. BMP implementation, monitoring and adaptation, as necessary, are required in the permit to eliminate/minimize the contamination of stormwater and protect beneficial uses of waters of the state.

ANTIDEGRADATION

Washington's Antidegradation Policy states that discharges into a receiving water shall not further degrade the existing water quality of the water body. In cases where the natural conditions of a receiving water are of lower quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. Similarly, when the natural conditions of a receiving water are of higher quality than the criteria assigned, the natural conditions shall be protected. More information on the State Antidegradation Policy can be obtained in WAC 173-201A-070.

Antidegradation by definition applies to site-specific conditions. A general permit applies to sites statewide. Discussion of antidegradation for each site covered under the draft permit is impractical. The permit requires discharges to comply with water quality standards. Complying with standards typically affords the protection necessary to prevent ongoing degradation of a waterbody from stormwater discharges. Further assurance of antidegradation compliance is provided by the use of benchmark values coupled with the adaptive management and site investigations.

Monitoring and benchmark values with adaptive management are the permittee's primary tools to evaluate the effectiveness of their BMPs in meeting antidegradation requirements. Discharges at or below the turbidity benchmark indicate that erosion and sediment control BMPs are functioning effectively to protect water quality and the beneficial uses in the receiving water. On the other hand, discharges above benchmarks indicate that BMPs need reevaluation.

CRITICAL CONDITIONS

Water quality-based effluent limitations are derived for the waterbody's critical condition. The critical condition represents the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota, human health, and existing or characteristic waterbody uses. The factors that influence the critical condition include the flow and background level of pollutants in the receiving water and the flow and concentration of pollutants in the discharge. The inherent variability of storm events and stormwater discharges add complexity to defining critical conditions. Storm events vary in intensity and duration; they

can be isolated events or part of storm event pattern. Storm events affect the characteristics of both the stormwater discharge and the receiving waterbody. All these factors affect flows and water quality.

DESCRIPTION OF THE RECEIVING WATER

This general permit applies to facilities across the state that discharge to surface water, (also called the receiving water.) Receiving waters include waterbodies such as creeks, lakes, ponds, or rivers. If the discharge is to a stormwater conveyance system, either surface or subsurface, the receiving water is the waterbody that the conveyance system discharges to. Most discharges will directly or indirectly enter waters classified as Class AA or Class A, which are the highest quality waters. These waters have beneficial uses such as domestic water supply, fish/shellfish habitat, wildlife habitat, and recreation. In highly urbanized areas the discharge will probably enter a collection system, such as a city stormwater system, and mix with other sources of stormwater before discharging to receiving water. In these urbanized locations the receiving water can be subject to a significant number of stormwater discharges. In a more suburban setting, the receiving water may not have multiple stormwater discharges, but probably will discharge to a small creek or intermittent or ephemeral stream. In both cases, the potential impact of stormwater is significant.

SURFACE WATER QUALITY CRITERIA

Washington waters are categorized according to use. A water quality criterion varies with each classification. The RCW 90.48.020 defines the term "pollution" as "…contamination or other alteration of the physical, chemical or biological properties, of any waters of the state." The applicable criteria are further defined in Chapter 173-201A WAC. In addition, EPA has promulgated human health criteria for toxic pollutants (EPA 1992).

Waters of the state are categorized into classes based on the beneficial uses identified in RCW 90.48.020. The general classifications for waters are listed in WAC 173-201A-120. Specific classifications for freshwater are listed in WAC 173-201A-130 and for marine waters in WAC 173-201A-140.

The standard criteria that apply to Class A and Lake waters, which are the majority of waters of the state, are listed in the table below. More specific criteria may be applicable for waters listed in other classes and for waters subject to 303(d) listed water bodies.

Water Quality Criteria for Class A and Lake Waters

Category	Turbidity	pH SU	Fecal Coliform*	Dissolved Oxygen	Temp. °C (°F)	Toxics
Fresh Water	Less than 5 NTU when background is 50 NTU or less OR Less than a 10% increase when background is greater than 50 NTU	6.5 to 8.5	100 colonies/ 100 mL	8 mg/L minimum	18°C (64.4°F)	No toxics in toxic amounts
Marine Water		7.0 to 8.5	14 colonies/ 100 mL	6 mg/L minimum	16°C (60.8°F)	
Lake	Less than 5 NTU over background	No measurable change	50 colonies/ 100 mL	No measurable decrease	No measurable change	

* Geometric means must be calculated per WAC 173-201A-200(2)(i)

Ecology periodically reviews surface water quality data to determine if waterbodies meet criteria. Section 303(d) of the Clean Water Act requires that waters not meeting criteria to undergo an evaluation of the cause and amount of the contaminant. Subsequent limits are placed on the amounts of pollutants allowed to be discharged and published in TMDL reports.

Construction sites that discharge to 303(d) waterbodies may have additional limits and conditions imposed upon them as previously described.

Ecology has the authority and responsibility to periodically update the water quality standards, 90.48.035 RCW. In accordance with WAC 173-226-230(1)(b), a general permit may be modified when the state water quality standards have been modified through formal process. General Condition G4.B of the permit states that this permit may be modified, revoked and reissued, or terminated when the state water quality standards are approved by EPA. All permittees will be required to meet these new standards regardless of when they received

coverage under the permit. No "grandfather" clause is available that would allow a permittee to continue under the old standards.

The latest updates of the State's water quality standards were transmitted to EPA for approval in 2003. Ecology intends to modify this permit by notifying the permittees of any new requirements of the permit when the standards have been approved by EPA. All permittees will be formally notified of these changes in accordance to the Clean Water Act and Chapter 90.48 RCW.

CONSIDERATION OF SURFACE WATER QUALITY-BASED EFFLUENT LIMITS FOR NUMERIC CRITERIA

Water quality-based effluent limits for all substances with numeric criteria are not included in the draft permit. Typically, a permit does not establish limits for all criteria. Instead Ecology reviews the wastewater data to determine the parameters of concern, either through direct sampling or comparison to data of similar facilities. Ecology establishes limits and those pollutants that have a reasonable potential to violate water quality standards. Determining reasonable potential includes a statistical determination of the maximum concentration of the pollutant likely to occur in the discharge. Reasonable potential determinations factor in available dilution, and account for receiving water background levels of the pollutant. Because these site-specific considerations are not easily applied to a general permit, Ecology has therefore placed permit emphasis on implementing BMPs to limit contamination of stormwater, as previously discussed.

The draft permit proposes a narrative requirement to comply with water quality standards. If site-specific analysis reveals that stormwater discharges are violating water quality standards, enforcement action may be taken.

WHOLE EFFLUENT TOXICITY

Whole effluent toxicity (WET) testing of stormwater discharges covered under a general permit is not appropriate at this time. 40 CFR 122.44(d), RCW 90.48.520, and Chapter 173-205 WAC have as their goal the eventual elimination of the discharge to surface water of toxics in toxic amounts. Technology-based controls, chemical-specific effluent limits, and WET testing with limits and toxicity identification evaluations, if needed, are used to ensure discharges meet the goal. These same regulatory mechanisms as generally applied in industrial wastewater discharge permits, have resulted in large improvements in effluent and receiving water quality over the years. Mixing zones and determinations of available dilution are key elements in this process because they are necessary to determine what is a "toxic amount." For reasons discussed previously, determining a mixing zone is problematic for stormwater discharges, and an even greater challenge within the context of a general permit. Mixing zone determinations for each site under the draft permit in the state are not available. Thus the draft permit does not provide for a mixing zone.

SEDIMENT QUALITY

Ecology promulgated aquatic sediment standards (Chapter 173-204 WAC) to protect aquatic biota and human health. These standards allow Ecology to require that Permittees evaluate the potential for the discharge to cause a violation of applicable standards (WAC 173-204-400). The draft permit requires BMPs to limit contamination of stormwater. Source control BMPs are expected to eliminate/minimize the potential contamination of stormwater and comply with aquatic sediment standards.

GROUND WATER QUALITY LIMITATIONS

Ecology promulgated Ground Water Quality Standards (Chapter 173-200 WAC) to protect beneficial uses of ground water. The standards states that permits issued by the Department shall be conditioned in such a manner so as not to allow violations of those standards (WAC 173-200-100). The draft permit requires BMPs to limit contamination of stormwater. Source control BMPs are expected to eliminate/minimize the potential contamination of stormwater and to protect ground water.

High pH from the use of concrete or engineered soils is the most likely ground water contaminant expected from construction sites. The proposed pH monitoring and adaptive management will protect ground water when significant concrete work or the use of engineered soils occurs.

DISCUSSION OF SPECIAL CONDITIONS

This section follows the structure of the draft Construction Stormwater General Permit, but does not restate language used in the permit. The discussion is intended to help the public understand the intent and basis of the draft permit.

S1. PERMIT COVERAGE

A. Permit Area. The draft construction stormwater general permit is a statewide permit. It provides permit coverage for discharges of stormwater associated with construction activity within Washington, except for federal land, tribal land and certain tribal waters.

B. This draft permit identifies construction activities required to seek permit coverage. "Construction activity" is defined as land disturbing operations that disturb one or more acres, as well as disturbance of less than one acre of total land area that is part of a larger common plan of development or sale, if the larger common plan will ultimately disturb one or more acres. The definition of construction activity requiring NPDES permit coverage is consistent with EPA's Phase 1 and 2 stormwater regulations (40 CFR 122.26(b)(14)(x), and 40 CFR 122.26(b)(15)).

C. Authorized Discharges. Discharges conditionally authorized by the draft permit include 1) stormwater discharges from construction activities, 2) stormwater discharges from construction support activities, and 3) allowable non-stormwater discharges, including discharges from dewatering and dust suppression. Routine maintenance performed to maintain the original line and grade (e.g., road grading), hydraulic capacity (e.g., ditch cleaning), or original purpose of the facility is excluded from the definition of "construction activity". Routine maintenance does not require permit coverage.

Since Condition S1.C of the Industrial Stormwater General Permit (ISGP) does not allow coverage for construction activities as identified by 40 CFR Subpart 122.26(b) (14)(x) and Subpart 122.26(b) (15), stormwater discharges from construction activities conducted within industrial facilities require separate coverage under the construction stormwater general permit.

D. Limitations on Coverage. This section identifies the types of discharges that are not authorized by the permit. These are:

1. post-construction discharges, after construction is complete and the site is stabilized;
2. nonpoint source silvicultural (forestry) discharges;
3. discharges from projects that are federally owned or operated or located on tribal land, or discharge to tribal waters with EPA approved water quality standards;
4. discharges from sites covered under an existing individual NPDES permit; and
5. discharges from construction sites to impaired waters, if the discharge includes a pollutant for which the water body is listed and documentation (through water quality sampling), cannot be provided to indicate that no further water quality degradation would occur due to the stormwater discharged from the site.

E. Coverage for Significant Contributors of Pollutants. The Federal Clean Water Act at Section 402(p)(2)(E) of the Clean Water Act and Chapter 90.48 RCW authorize Ecology to require permit coverage for any unpermitted construction site which Ecology determines to be a significant contributor of pollutants to surface or ground waters of the state or may reasonably be expected to cause a violation of a water quality standard. These provisions allow Ecology to issue an order to the owner of unpermitted small construction activities which disturb less than one acre of land that are deemed "significant contributors of pollutants" to obtain permit coverage.

F. Coverage for Discharges to Ground Water. In addition to the authority to issue NPDES permits, Ecology also has authority under state law to issue State Waste Discharge permits for discharges to state surface waters, ground waters and municipal sewer systems. The draft permit is issued under this authority.

This draft permit regulates operations which have a discharge to the ground only if they also have a discharge to surface water, a municipal storm drain, or a privately owned storm drain which discharges to surface water. Stormwater discharges to ground water will be regulated as part of permit coverage for all sites under this permit. The Permittee must also comply with any applicable requirements for discharges to ground under the Underground Injection Control Program (UIC) regulations, Chapter 173-218 WAC. However, this draft permit does not regulate construction activities which discharge only to groundwater.

S2. Application Requirements

A. Permit Application. In accordance with WAC 173-226-200, operators of construction activities must submit a complete permit application to obtain coverage under the construction

stormwater general permit. All of the information listed in Condition S2 is required to be submitted as part of the application for permit coverage.

On the effective date of the proposed permit, the current permit will be revoked and replaced by the reissued permit. Sites that have coverage under the existing construction stormwater general permit and have applied for continued coverage, will automatically be covered under the revised permit. These permittees will be subject to the terms and conditions of the revised permit. This procedure is authorized under General Condition G8, General Permit Modification and Revocation, of the current permit and under WAC 173-226-230.

The 9th and 2nd Circuit Courts have recently ruled that SWPPPs must be made available during the application process for a general permit. Since Washington is in the 9th Circuit, Ecology's has determined that SWPPPs must be made available if requested during the 30 day public comment period required by WAC 173-226-130(4). If Ecology receives a public request to review an applicant's SWPPP, and it is not on file with Ecology, Ecology will notify the applicant to submit the SWPPP immediately. The public comment period will be extended one additional day for each day after the applicant is notified of the need to submit the SWPPP, until Ecology receives a copy of the requested SWPPP. This approach is intended to meet the intent of the 9th Circuit Court decision while limiting the administrative burden of SWPPP submittals to only those applicants that are the subject of a specific public request.

B. Public Notice. To streamline the permitting process, applicants must satisfy the public notice requirements of WAC 173-226-130(5) prior to submitting the permit application form to Ecology. The public notices must be published one time each week for two consecutive weeks, with a seven day time span between publication dates. The public notice is required to be placed in a single newspaper which has general circulation in the county in which the construction is to take place. Because state law requires a 30 day public comment period prior to permit coverage, permit coverage will not be granted sooner than 31 days after the date of the last public notice.

C. Permit Coverage Timeline. In accordance with WAC 173-226-200, the permit application must contain a certification that the public notice requirements of WAC 173-226-130(5) have been met. The permit application cannot be submitted to Ecology prior to the date of the second public notice, and not later than seven calendar days after the date of the second public notice. The 30 day public comment period required by WAC 173-226-130(4) begins on the publication date of the second public notice.

Ecology may respond to the application in writing based on public comments or any other relevant permitting considerations, such as mixing zone requests or discharges to impaired waters. Unless Ecology responds in writing to the permit application, permit coverage under the general permit will commence on the later of the following:

1. The first day following the end of the thirty-day public comment period required by WAC 173-226-130(4);

2. The 31st day following receipt by the department of a completed application for coverage under the general permit.

D. Permit/Notice of Authorization Retained On-site. A copy of the permit, Notice of Authorization letter, and SWPPP must be retained on-site or within reasonable access to the site. These documents must be made available to Ecology upon request.

E. Permit Coverage Under a Qualified Local Program. Ecology may designate a local jurisdiction's construction stormwater management program as a Qualified Local Program for construction sites that result in the disturbance of less than 5 acres of soil. To be designated as a qualified local program, the local jurisdiction's stormwater management requirements must be equivalent to the conditions of the Construction Stormwater General Permit.

For a site with less than 5 acres of soil disturbance which is within the jurisdiction of a Qualified Local Program, the operator of the construction activity is automatically covered under this Construction Stormwater General Permit without the submittal of a notice of intent (application) to Ecology in accordance with the Construction Stormwater General Permit Condition S2.A. This is authorized by 40 CFR 122.28(b)(2)(v), which states that "Discharges other than discharges from publicly owned treatment works, combined sewer overflows, municipal separate storm sewer systems, primary industrial facilities, and storm water discharges associated with industrial activity, may, at the discretion of the Director, be authorized to discharge under a general permit without submitting a notice of intent where the Director finds that a notice of intent requirement would be inappropriate. In making such a finding, the Director shall consider: the type of discharge; the expected nature of the discharge; the potential for toxic and conventional pollutants in the discharges; the expected volume of the discharges; other means of identifying discharges covered by the permit; and the estimated number of discharges to be covered by the permit. The Director shall provide in the public notice of the general permit the reasons for not requiring a notice of intent."

"Stormwater discharge associated with small construction activity" (i.e., sites <5 acres) is not one of the discharge examples where a NOI must be required. "Stormwater discharge associated with small construction activity" is defined in 40 CFR 122.26(b)(15) and is distinct from "stormwater associated with industrial activities" which includes stormwater from construction sites greater than 5 acres (40 CFR 122.26(b)(14)(x)). This means that an NOI must be required from construction sites greater than 5 acres but are at the discretion of the permitting authority for sites less than 5 acres. Ecology has determined that it would be inappropriate to require an NOI for small construction activities, if the site has already been permitted and regulated by a Qualified Local Program. In making this determination Ecology has considered all aspects of small construction activities, including the type of discharges expected; the expected nature of the discharges; the potential for toxic and conventional pollutants in the discharges; the expected volume of the discharges; other means of identifying discharges covered by the permit; and the estimated number of discharges to be covered by the permit (40 CFR 122.28(b)(2)(v)).

Ecology reserves the right to require any owner or operator within the jurisdiction of a Qualified Local Program to apply for and obtain coverage under the full requirements of this permit in accordance with Condition S2.E.5 of the Construction Stormwater General Permit.

Qualified Local Program – Minimum Requirements

The following criteria will be used to determine if a local jurisdiction's stormwater program is a "Qualified Local Program".

1. A Qualified Local Program shall include requirements through a permit, code and/or ordinance that is at least as strict as those in this permit, including requirements to ensure that construction site operators:

    a. Provide the Qualified Local Program and Ecology the right of inspection and entry in accordance with Condition G3. SWPPP and other permit -related documentation shall be retained on-site in accordance with Condition S2.D.

    b. Implement appropriate erosion and sediment control Best Management Practices (BMPs) that prevent or control discharges of pollutants which violate or contribute to a violation of state water quality standards in accordance with Condition S3.

    c. Monitor in accordance with Condition S4, including site inspections, site log book, and water quality sampling and reporting requirements.

    d. Apply all known, available and, and reasonable methods of prevention, control, and treatment (AKART) prior to the discharge of stormwater and non-stormwater to waters of the state) and ensure that discharges do not cause or contribute to a violation of water quality standards in accordance with Condition S3. Discharges to impaired waterbodies (303(d) listed waters and waters with applicable TMDLs) shall also be regulated in accordance with S3 and S4 of this permit.

    e. Control solid and liquid waste such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste in accordance with Condition S7. Requirements for construction site operators to develop and implement an adequate Stormwater Pollution Prevention Plan (SWPPP) in accordance with Condition S9.

    f. Submit an application and SWPPP to the Qualified Local Program for review that incorporates consideration of potential water quality impacts and provides the opportunity for public review, comment, and/or appeal of the Programs approval or other decision regarding the application and SWPPP.

    g. Provide the Qualified Local Program, Ecology and the public access to SWPPPs in accordance with S5.G.

2. A qualified local program shall have an inspection and enforcement program that, at a minimum includes:

    a. Inspections of active construction sites to ensure compliance with permit, code and/or ordiance requirements. Inspections may be combined with other inspections provided it is still performed by qualified staff or consultants.

b. Inspection of all permitted sites upon completion of construction/final stabilization to ensure:
    i. Final stabilization has been achieved to prevent erosion, and
    ii. Proper installation of permanent stormwater facilities/BMPs.

    (Inspections may be combined with other inspections provided it is still performed by qualified staff or consultants.)

c. Ability to ensure that a stormwater facility maintenance plan is completed and responsibilty for maintenance is assigned.

d. Ability to enforce local permit, code, or ordinance violations based on inspection results, or identified instances of potential to cause or contribute to a violation of state water quality standards.

e. Development and implementation of a program to track construction site location and operator contact information for all construction sites covered by the permit.

3. A Qualified Local Program shall have a record keeping and reporting program. At a minimum the program shall include:

    a. A program to track:
        i. Permits issued and terminated;
        ii. Inspections conducted by number and type;
        iii. Enforcement actions taken by number and type;
        iv. DMR monitoring results by site; and
        v. Complaints received concerning construction sites; the response taken to received complaints; the number of construction site inspections completed by the program; the number and type of enforcement actions taken by the program involving construction sites.

    b. Annual reporting to Ecology to include reporting of the items listed in 3.a. above.

    c. Procedures and criteria for public access to all records maintained by the local program to show compliance with the record keeping and reporting program.

4. A Qualified Local Program shall have a training program that at a minimum the provides:

    a. Adequate training for local program staff involved in permitting, plan review, construction site inspections, operation and management, and development of enforcement actions to carry out this program.

    b. Training for inspectors shall include certification as a Certified Erosion and Sediment Control Lead (CESCL).

    c. Annual reporting of the training program results to Ecology.

5. Revocation of Qualified Local Program

    a. Ecology reserves the right to revoke the status of a Qualified Local Program if Ecology determines that the local program is not meeting the minimum program requirements.

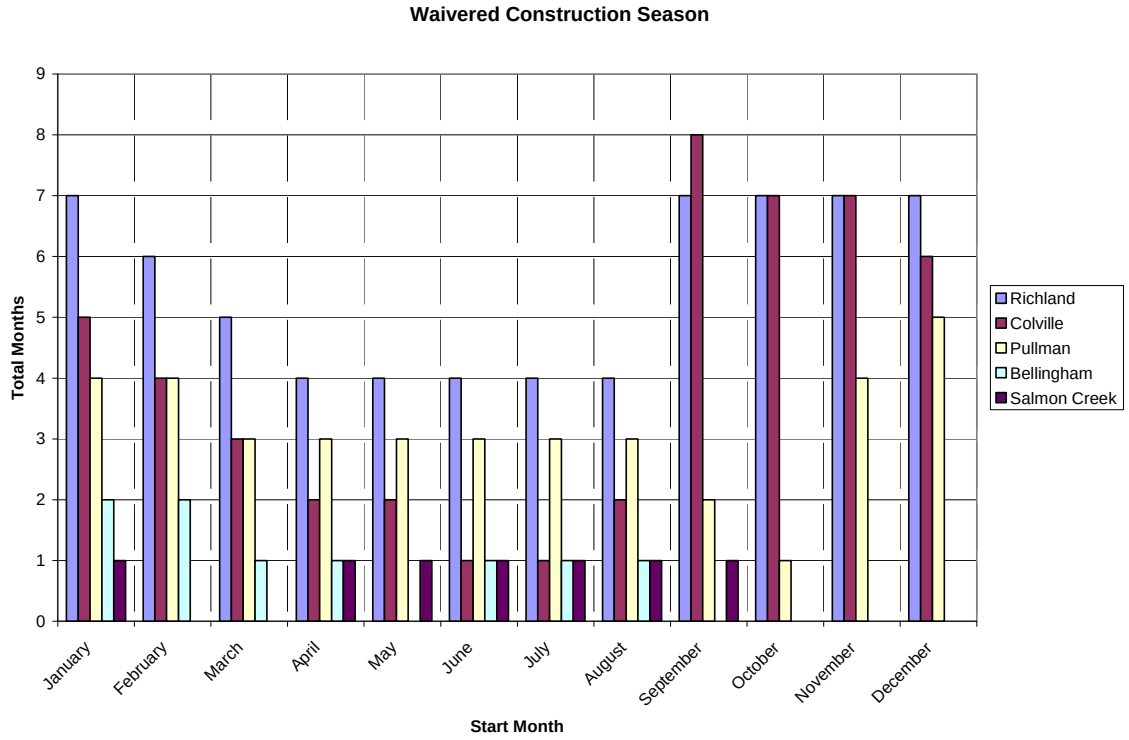
    b. If Ecology revokes a local jurisdiction's status as a Qualified Local Program, the local jurisdiction shall immediately notify in writing all construction site operators operating within the jurisdiction of the program. At a minimum, the written notice shall include:

        i. A statement that all notified construction sites shall immediately apply for coverage under the Department of Ecology's Construction Stormwater General Permit.

        ii. A description of the procedures for application for coverage under the Department of Ecology's Construction Stormwater General Permit.

F. Low Rainfall Erosivity Waiver. The EPA Phase II Stormwater rule allows, but does not require, permitting authorities to waive NPDES requirements for stormwater discharges from small (<5 acre) construction sites based on low rainfall erosivity. The waiver exempts the project proponent from the necessity to apply for and obtain coverage under the general permit. The rainfall erosivity waiver process determines the potential for soil erosion based on soil type, geology of the site, and the amount and force of precipitation expected during the time the earth will be exposed. The EPA has established an R Factor ("R" in the Revised Universal Soil Loss Equation) of less than 5 as the criteria for determining rainfall erosivity waiver eligibility as calculated using the EPA Erosivity Index Calculator for Construction sites http://ei.tamu.edu/ (per 40 CFR Part 122.26(b)(15)(i)(A)).

Ecology tested the Erosivity Index Calculator using the first day of each month as project start times for the entire year at 16 locations in Washington (nine in eastern Washington and seven in western Washington). While results were logical for some locations and timing, they were obviously flawed at other times. The most significant problem was that the EPA calculator allowed longer construction seasons during the winter at most locations. The figure below shows examples on waiver timing at five locations.



Ecology believes that the primary reason that EPA's Erosivity Index Calculator does not provide logical results in Washington is based on its use of summer thunderstorms as the critical factor affecting water quality. The relatively large number of zones used by the calculator in Washington also provides illogical results when sites are close to one another, but happen to be in different zones (counties).

Ecology recognizes that there are times and locations where small construction sites (<5 acres) will not have adverse water quality impacts and should be given a waiver. Staff considered a timing and location waiver only, but 40 CFR 122.26(B)(15)(i)(A) requires that the EPA Erosivity Index Calculator be used. Federal regulations do allow for additional timing and location restrictions and/or a lower R value threshold.

Ecology will provide for a waiver using a simple timing and location window as a first screen with the R calculator as a second screen. Although staff considered the use of multiple timing and location windows, but could not find enough benefit to make up for the increased complexity of the waiver process.

To have a practical waiver process, Ecology is proposing one timing window for all of eastern Washington. The draft permit provides a June 16 through October 15 timing window based on the soil stabilization season as described in Ecology's Eastern Washington Stormwater Manual. While this seems short for southern parts of eastern Washington, eastern Washington's heavy spring showers in May/June (which are missed by the EPA's R calculator) do not allow a project's start window to be earlier.

Only if a project will be started and completed in the above waiver use window then they can then use Texas A&M University online rainfall erosivity calculator at: http://ei.tamu.edu/ to determine their small construction project's rainfall erosivity factor. They may apply for erosivity waiver if the R factor is less than 5 (per EPA's Phase II Rule) and the proponent's project is in the waiver use window during the period of construction activity. The period of construction activity for the window and R calculation begins at initial earth disturbance and ends with final stabilization.

Ecology anticipates eventually having the waiver application as a "smart" electronic application form to speed processing. If this is not possible before this permit is issued, Ecology will use a paper version. Either way, the information required will include:

1. Name, address and telephone number of the construction site operators;
2. County, City and latitude/longitude of the construction project or site;
3. Planned construction start and completion (i.e., final stabilization) dates, and total acreage (to the nearest quarter acre) to be disturbed;
4. "R" value from online rainfall erosivity calculator;
5. Is project part of common plan of development? Project and contractors name and address, permit numbers and acreage of common plan of development are needed if the answer is yes;
6. If there is any potential for discharge through a municipal separate storm sewer system, the name of the municipal operator of the storm sewer;
7. The rainfall erosivity factor calculation that applies to the active construction phase at your project site; and
8. Signature and certification.

S3. COMPLIANCE WITH STANDARDS

This section requires that discharges associated with construction activity are subject to all applicable state water quality and sediment management standards. Discharges that are not in compliance with these standards are not authorized by the permit and are subject to enforcement action.

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

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

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

1. In full compliance with all permit conditions, including planning, sampling, monitoring, reporting, and recordkeeping conditions; and

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

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

1. Prevent pollution of state waters and protect water quality, including compliance with state water quality standards;

2. Satisfy state requirements for all known available and reasonable methods of prevention, control and treatment (AKART) of wastes (including construction stormwater runoff) prior to discharge to waters of the state; and

3. Satisfy the federal technology based treatment requirements under 40 CFR part 125.3.

To implement 40 CFR 122.44(d)(1)(i), the draft permit establishes water quality-based numeric effluent limitations for construction activities that discharge to waters that are either listed as impaired under Section 303(d) of the Clean Water Act or with an EPA-approved total maximum daily load (TMDL) determination.

All references and permit requirements associated with Section 303(d) of the Clean Water Act pertain to the most current EPA-approved 303(d) listing of impaired waters that exists when a complete application for coverage is submitted to Ecology. Numeric effluent limitations apply to sites that discharge to waterbodies that are impaired for the following parameters:

- suspended sediment (turbidity, fine sediment, total suspended solids, and sedimentation),
- high pH,
- phosphorus, and/or
- other applicable parameters identified by Ecology.

For these sites, the permittee is assigned a numeric effluent limitation that is equal to the applicable water quality standard at the point of discharge. For all suspended sediment parameters (turbidity, fine sediment, etc.), Ecology has determined that turbidity is the appropriate surrogate parameter. Therefore the effluent limitation will be equal to the turbidity criterion set forth in the Surface Water Quality Standards (WAC 173-201A-030).

303(d) or TMDL related numeric effluent limitations apply to both direct discharges to listed waterbodies and indirect discharges via a stormwater conveyance system. An example of an indirect discharge via a stormwater conveyance system would be a discharge from a construction site into a roadside ditch which then drains to a listed waterbody.

Permittees subject to numeric effluent limitations will be notified in writing when permit coverage is granted.

Discharges to waters for which there is an EPA-approved TMDL allocation that addresses sediment (including turbidity, fine sediment, total suspended solids, or siltation), high pH, phosphorus, and/or other applicable parameter(s) identified by Ecology must be consistent with the requirements in the approved TMDL. Permittees subject to numeric effluent limitations or waste load allocations related to a TMDL will be notified in writing when permit coverage is granted. TMDLs approved after the issuance date of this permit become applicable to the Permittee only if they are imposed through an administrative order issued by Ecology, or through modification of permit coverage.

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

The applicable laws and regulations include Federal Clean Water Act, RCW 90.48, WAC 173-200, WAC 173-201A, WAC 173-204, WAC 173-220-040, WAC 173-216-070 and human health based criteria in the National Toxics Rule (40 CFR 131.36).

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

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

A mixing zone will not be allowed for pollutants of concern in waters listed in Washington State pursuant to Section 303(d) of the Clean Water Act for either new or existing permit coverage. These waters have been listed because of measurements in the waterbody that exceed water quality-based standards. Where background in the receiving water is at or above water quality standards at the point of discharge, a mixing zone is not applicable. Waters subject to a TMDL also have requirements that may preclude a mixing zone. Discharge of stormwater to these waters must be consistent with the TMDL determination.

S4. Monitoring Requirements

The proposed monitoring approach is consistent with the monitoring, recording, and reporting requirements of WAC 173-220-210, RCW 90.48.555, and 40 CFR 122.41 and includes consideration of the certainty, risk, and cost associated with monitoring stormwater, and the objectives of the permit. Certainty provides a level of confidence that the data are representative of the pollutants in the discharge. The risk is an assessment of the environmental impacts of pollutants. The monitoring cost considers all associated monitoring expenses such as time to sample, expense of sampling and analysis, training and equipment requirements. The objectives define the purpose of the sampling.

Water Quality Sampling

Monitoring (i.e., sampling) requirements will not being until October 1, 2006. Ecology understands that permittees will require time to prepare for the new monitoring requirements contained in the permit. Ecology also understands that allowing time to prepare and receive appropriate training will increase the quality and utility of the collected data. Additionally, Ecology is proposing that sites smaller than 20 acres be allowed the choice between a more expensive turbidity meter (turbidimeter) versus the less expensive transparency tube.

Visual Monitoring and Inspections

Visual monitoring (i.e., site inspections and discharge observations) requirements will commence when permit coverage is granted. The permit does not require a Certified Erosion and Sediment Control Lead to conduct the site inspections at small sites (<5 acres) until October 1, 2006. These inspections may be completed by uncertified personnel until that time.

Consistent with RCW 90.48.555(8)(a) the draft general permit requires enforceable adaptive management mechanisms including the evaluation, reporting, and documentation of remedial actions taken. Ecology established the frequency of site inspections based upon three considerations. First, the nature of a construction sites is such that large scale environmental changes occur over short durations at the site. Second, rainfall and other environmental forces may cause BMPs to fail. Finally, best professional judgment indicates that sites which are inspected regularly typically tend to cause fewer water quality violations. Site inspections provide timely feedback to the operator on the effectiveness of installed BMPs. Inspections provide information on when BMP repair and maintenance is necessary to improve the quality of stormwater discharged offsite, or when additional BMPs may be required. Ecology considers site inspections a requirement of AKART.

CERTIFIED EROSION AND SEDIMENT CONTROL LEAD (CESCL)

The requirements for a CESCL are consistent with AKART, Ecology's Stormwater Management Manuals (SWMM) BMP C160: Certified Erosion and Sediment Control Lead, and Element 12 of the Twelve Elements of Construction Stormwater Pollution Prevention. Furthermore, this requirement is consistent with the EPA NPDES Construction Stormwater General Permit, which requires BMPs to be inspected by "qualified personnel". This requirement creates a basic minimal standard for the training of individuals who have the skills to assess site conditions and construction activities that could impact the quality of stormwater and individuals will be able to assess the effectiveness of erosion and sediment control measures being used to control the quality of stormwater discharges. This individual will be expected to conduct the site inspections, and associated reporting as identified in Condition S4.B of the permit, thereby providing accountability that the site operator is meeting the requirements of RCW 90.48.555 and AKART.

TURBIDITY/TRANSPARENCY BENCHMARK

RCW 90.48.555(8)(a) requires Ecology to establish an enforceable adaptive management mechanism in the permit. Adaptive management includes monitoring benchmarks. The draft permit contains a turbidity benchmark value of 25 NTU and a surrogate transparency benchmark of 32 cm. The turbidity benchmark was established for six primary reasons:

(1) Suspended sediment (typically expressed as turbidity or total suspended solids) is the most common pollutant associated with discharges from construction sites;

(2) Turbidity it is relatively inexpensive to sample;

(3) Turbidity does not require analysis at an accredited laboratory;

(4) Turbidity is an objective indicator used to determine the effectiveness of BMPs;

(5) An alternative method can be used to sample turbidity (i.e., transparency);

(6) Turbidity monitoring is an effective management tool for evaluating and adequately addressing the often highly variable construction stormwater discharges and associated impacts on the beneficial uses of the receiving water.

The benchmark value does not represent water quality criterion or a numeric effluent limit; rather it is a narrative effluent limit. Discharges from a construction site at or below the turbidity benchmark will not cause a water quality violation in the receiving water in most discharge situations. Discharges at or below the turbidity benchmark typically, but not always, indicate that erosion and sediment control BMPs are functioning effectively to protect water quality and the beneficial uses in the receiving water (e.g., stream, wetland, river, lake, etc.).

Site-specific conditions must still be considered to determine if a discharge of stormwater from a construction site is causing a water quality violation. These conditions include the background turbidity of the receiving water, and the relative volume of the discharge compared to the receiving water.

Construction sites change rapidly and have highly variable stormwater discharges (in pollutant concentrations and volumes). For this reason, Ecology purposes a weekly sampling regime for these sites when stormwater is discharged from the site.

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

1. Aquatic life and the other beneficial uses of state waters are adequately protected by minimizing the concentrations and volumes of construction stormwater pollutants discharged into surface waters. Effects of Turbidity and Suspended Solids on Salmonids (Bash, et al., 2001) was taken into consideration. Specifically, the discussion under Chapter IV., Effects of Turbidity and Suspended Solids on Salmonids, contained relevant information and research findings for establishing the benchmark turbidity levels so that they adequately protect aquatic life and the other beneficial uses of state waters;

   Web link: http://www.krisweb.com/biblio/gen_uofw_bashetal_2001.pdf

2. Permittees will meet AKART and the requirements of RCW 90.48.555;

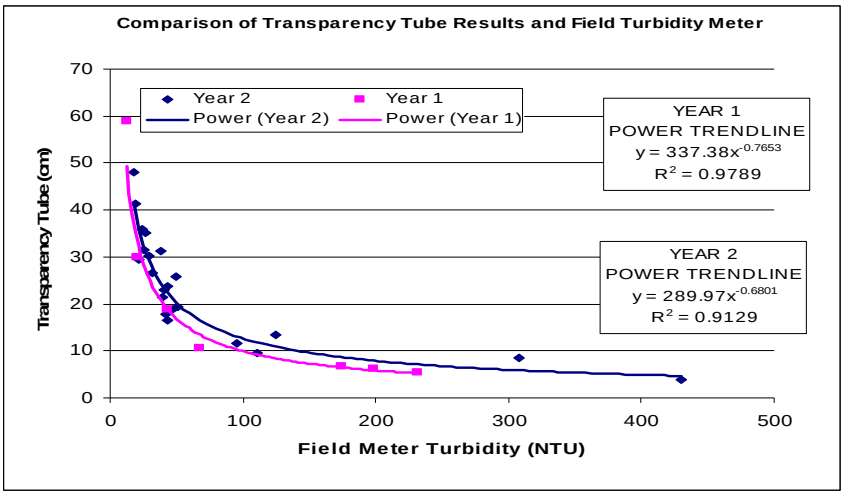
3. Permittees who discharge stormwater off site can demonstrate ongoing compliance with the Clean Water Act and Chapter 90.48 RCW;

4. Permittees who discharge stormwater off site have greater regulatory certainty in responding to Ecology inspections and citizen lawsuits filed under the Clean Water Act;

5. Equity exists between those with coverage under this permit and those with coverage under the Industrial Stormwater General Permit. The draft permit contains benchmarks and enforceable adaptive management mechanisms similar to the Industrial Stormwater General Permit.

6. The best professional judgment of Ecology's Water Quality inspection staff was taken into consideration. Collectively, these staff provide a valuable pool of experience from regular inspections of construction sites in Washington. Staff have collected numerous stormwater samples from construction sites and associated receiving waters to determine compliance with state water quality standards.

The transparency benchmark was established to reduce analytical costs to permittees at smaller sites. Ecology derived correlation coefficients from a 2 year study of construction sites. Split samples were analyzed using the turbidity meter and transparency tube. The correlation coefficient demonstrated an R^2 of 0.91 indicating a very strong correlation between transparency tube measurements and turbidity meter measurements. The comparison results are depicted in the graph below.



pH Benchmark

pH is a recognized pollutant of concern from construction activities. The pH benchmark monitoring is consistent with RCW 90.48.555(8)(a) as an appropriate adaptive management indicator.

Ecology is concerned with pH at construction sites because these sites typically use or have alkaline materials (e.g., concrete, cement, mortar, etc.). When fresh alkaline materials are exposed to stormwater runoff, they can quickly raise the pH of the stormwater. Several factors play a role in the impact of high pH on surface water quality, such as size of the receiving water and its availability to buffer high pH, quantity of fresh concrete pours (i.e. surface area of exposed concrete), volume of discharge, time of day, exposure to rain, etc. Ecology believes that use of a matrix of parameters to define a trigger for sampling is unworkable. Therefore, Ecology is proposing simple pH sampling triggers that were designed from best professional judgment and data provided by the Washington State Department of Transportation. These triggers are:

1. greater than 1000 cubic yards poured concrete;
2. greater than 1000 cubic yards recycled concrete; and
3. the use of soil amendments (engineered soils) such as Portland cement treated base, cement kiln dust, fly ash, etc.

All of these activities, if exposed to rainwater, have the potential to significantly alter the pH in runoff, and potentially in the receiving water. When one of the triggers listed above occurs, the operator must sample pH, at a frequency of at least weekly, but at a duration as determined in condition S4.F, at the location where runoff from the affected area is collected (typically a sediment pond, or other impounded body of water onsite) prior to discharge from the site. The permittee will be required to neutralize the pH if it is over 8.5 standard units, prior to discharging such waters. The first sample should be collected after the first rainfall interacts with the recently applied alkaline material, because that is when pH will be the highest and therefore has the greatest potential to adversely impact the receiving water.

SAMPLING – 303(D)/TMDLS

To meet the requirements of 40 CFR 122.4 (i) and 40 CFR 122.44(d)(1)(i) Ecology is assigning additional sampling requirements to dischargers who discharge to waters listed as impaired under Section 303(d) of the Clean Water Act for turbidity/fine sediment, high pH, phosphorus, and any other applicable parameters associated with construction activity. Such monitoring requirements will help demonstrate that Ecology is not authorizing discharges which would violate water quality standards as previously described. In addition, discharges to waters within an applicable TMDL waste load allocation will be assigned additional sampling requirements to demonstrate that the discharge is consistent with the TMDL.

MONITORING FREQUENCY

The monitoring frequency established for in this permit for turbidity/transparency, and pH are consistent with WAC 173-220-210(1)(b) and 40 CFR 122.48(b). Sampling frequencies were set to reasonably characterize the nature of the discharge. Other considerations included the cost of monitoring relative to the benefits obtained, and the environmental significance of the pollutants. The sampling frequency will yield data which are representative of discharge characteristics.

S5. REPORTING AND RECORDKEEPING REQUIREMENTS

The reporting and recordkeeping requirements of Condition S5 are based on the federal and state authorities which allow Ecology to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges. Section 308(a)(3)(A)(v) of the Clean Water Act and 40CFR 122.41(h) provide federal authority. RCW 90.48.555(8)(a)(v) and WAC 173-220-210 provide state authority. Keeping records and reporting provide practical measures that allow the Permittee and Ecology to assess compliance with the requirements of this permit. Reporting and recordkeeping assists Ecology to meet the legislative intent for accountability in RCW 90.48.555.

The Permittee is required to notify Ecology within 24 hours of any significant discharges of sediment. Reporting of benchmark values of 250 NTU or more (or transparency values of 6 cm or less) was established because they provide the operator with an indication that current erosion and sediment controls are not functioning for their intended purpose. This telephone reporting approach is intended to allow the Permittee to address these issues in a timely manner and allows Ecology to prioritize technical assistance and inspection resources. The telephone reporting requirement meets the adaptive management approach required by RCW 90.48.555(8)(a)(i).

In accordance with 40 CFR 122.44(i)(3-4), Special Condition S.4.C, S4.D and/or S.4.E. require the sampling results to be submitted to Ecology on Discharge Monitoring Report (DMR) forms approved by Ecology. DMR are required to be filed with Ecology even if there was no discharge during the monitoring period. These reports provide a certified record of when and where sampling has occurred, the results of the analysis, and documentation that required actions have taken place. All records must be retained for a 3-year period after the permit has been terminated [40 CFR 122.41(j)(2)]. Ecology plans to develop electronic DMR forms during this permit cycle.

The Permittee is required to conduct inspections, BMP maintenance, SWPPP implementation, monitoring, and reporting. The Permittee is responsible to be aware of and understand the terms and conditions of this permit. If the Permittee is unable to comply with any of the terms and conditions of this permit for any reason, and if the noncompliance causes a threat to human health or the environment, Condition S.5.F requires the permittee to notify Ecology immediately upon discovery. Exceedance of numeric effluent limits related to a 303(d) listed waterbody or applicable TMDL, or exceedance of surface water quality standards in WAC 173-201A, is cause for immediate noncompliance reporting

A summary report must be submitted to Ecology within five days after becoming aware of the permit violation. This report will detail the conditions that led to noncompliance, a description of the when, where, and the extent of any discharges that may have occurred, characterization of the discharge, and the actions taken to correct the noncompliance. If the noncompliance cannot be corrected prior to the 5-day notification requirement, then the report shall explain why the noncompliance continues, what interim steps have been taken to mitigate or stop further violations, and when corrective actions will be completed.

Concerns were raised about public access for review and comment on SWPPP adequacy. The draft permit provides public access to SWPPPs during the application process and during construction activity. This is similar to the access provided as a result of a settlement agreement between Ecology and appellants on the NPDES Industrial Stormwater General Permit. The proposed permit condition allows interested members of the public to request copies of SWPPPs directly from permittees. This condition is also similar to provisions in the EPA Multi-Sector Industrial Stormwater General Permit. This condition was placed in this draft permit in order to provide consistency between similar permits.

The draft permit does not require the Permittee to submit SWPPPs to Ecology unless specifically requested. The permit provides several options for public access to the plans. First, the Permittee may send the SWPPP directly to the requestor. Second, the permittee may allow the requestor to view the SWPPP at an agreed upon location. This option allows the public access without compromising their safety on a construction site. Third, Ecology can act as a go-between for access to the SWPPP, requesting the Permittee provide the SWPPP and providing for public access at an Ecology office.

S6. PERMIT FEES

RCW 90.48.465 requires Ecology to recover the cost of the water quality permit program. Stormwater fees are established through a rule development process that includes the input of an advisory committee. Any new fee proposal will provide public comment opportunity in amending the existing fee regulation (Chapter 173-224 WAC).

Some facilities may qualify for and receive an extreme hardship fee reduction under the Wastewater Discharge Permit Fee Rule (Chapter 173-224 WAC). Extreme hardship applies only if the annual gross revenue of goods and services produced using the processes regulated under the permit is $100,000 or less and the fee poses an extreme hardship to the business.

S7. Solid and Liquid Waste Disposal

This section is intended to ensure that handling and disposal of solid or liquid wastes do not result in a violation of applicable water quality regulations (40 CFR 122.44(k)(2), 40 CFR 125.3(g), RCW 90.48.080, and WAC 173-216-110(1)(f)).

Stormwater control activities such as containment, collection, separation and settling may result in the generation of solid and liquid wastes. Housekeeping and other site management activities may generate solid and liquid wastes such as drip traps, cleanup of process areas and removal of spill materials. Proper disposal of liquid and waste materials is required. This permit requirement is intended to prevent the discharge of trash, chemicals, and other polluting materials into waters of the state.

Local jurisdictions may have other requirements that must be met. Permittees should check with the local jurisdiction for more information.

S8. Operation and Maintenance

The Permittee must properly operate and maintain all BMPs for stormwater management. The SWPPP must include operation and maintenance (O&M) practices for the proper management of the site. By operating and maintaining appropriate BMPs, the risk of water quality pollution is minimized and the ability of the Permittee to comply with this permit is improved.

40 CFR 122.41(e) requires the Permittee to properly operate and maintain all facilities. The SWPPP must contain adequate O&M procedures to ensure that BMPs are functioning properly to control discharges [40 CFR 122.44(k)]. Authority is also provided by RCW 90.48.080, RCW 90.48.520, and WAC 173-216-110(1)(f).

S9. Stormwater Pollution Prevention Plan Requirements

In accordance with 40 CFR 122.44(k) and 40 CFR 122.44 (s), the draft general permit includes requirements for the development and implementation of SWPPPs along with BMPs to minimize or prevent the discharge of pollutants to waters of the state. BMPs constitute Best Conventional Pollutant Control Technology (BCT) and Best Available Technology Economically Achievable (BAT) for stormwater discharges. Ecology has determined that development of a SWPPP and implementation of adequate BMPs in accordance with this permit constitutes "all known and reasonable methods of prevention control and treatment" (AKART).

The objectives of the SWPPP are to:

1. Implement BMPs to prevent erosion and sedimentation, and to identify, reduce, eliminate or prevent stormwater contamination and water pollution from construction activity.

2. Prevent violations of surface water quality, ground water quality, or sediment management standards.

3. Prevent adverse water quality impacts including impacts to beneficial uses of the receiving water by controlling peak flow rates and volumes of stormwater runoff at the Permittee's outfalls and downstream of the outfalls during the construction phase of a project.

Condition S.9. outlines the specific requirements for the preparation, implementation, and modification of the SWPPP. The SWPPP, including narrative and drawings, must be prepared and fully implemented in accordance with this permit. The SWPPP must address all phases of the construction project, beginning with initial soil disturbance until final site stabilization. All BMPs utilized or planned for a project (or specific phase of a project) must be clearly referenced in the SWPPP narrative and marked on the drawings.

The SWPPP narrative must include documentation to explain and justify the pollution prevention decisions made for the project. Documentation shall include:

1. Information about existing site conditions (topography, drainage, soils, vegetation, etc.);
2. Potential erosion problem areas;
3. The 12 elements of a SWPPP in S9.D.1-12, including BMPs used to address each element;
4. Construction phasing/sequence and BMP implementation schedule;
5. The actions to be taken if BMP performance goals are not achieved;
6. Engineering calculations for ponds and any other designed structures; and
7. The Site Log Book required by condition S4.A.

Consistent with RCW 90.48.555(8)(a), condition S9.B.3 the permit contains an enforceable adaptive management mechanism to trigger SWPPP modifications when problems are noted during site inspections. Specifically, condition S9.B.3 requires the SWPPP must be modified if, during inspections or investigations conducted by the owner/operator, or the applicable local or state regulatory authority, the SWPPP is determined to be , or would be, ineffective in eliminating or significantly minimizing pollutants in stormwater discharges from the site.

The development and implementation of the SWPPP is one of the most important parts of a permit and is critical to the successful control of stormwater pollution. These plans are to be "living documents" that change during the actual construction phases in order to meet the needs of changing site conditions. The SWPPP must be modified as necessary to include additional or modified BMPs designed to correct the specific problems identified. These adaptive management requirements are designed to result in permit compliance and prevent stormwater discharges that could cause a violation of state water quality standards. Revisions to the SWPPP must be completed within seven days following the inspection and must include an updated timeline for BMP implementation this timeframe. BMP revisions must be implemented on site in a timely manner.

The SWPPP must also be modified whenever there is a change in design, construction, operation, or maintenance at the construction site that has, or could have, a significant effect on the discharge of pollutants to waters of the state. This requirement is consistent with federal technology-based requirements for Best Conventional Pollutant Control Technology (BCT) and

Best Available Technology Economically Achievable (BAT) and the state requirement for AKART (90.48.010 RCW, WAC 173-226-070(1)(d)).

Consistent with RCW 90.48.555 (5) and (6), the permit contains a narrative effluent limitation which requires the implementation of BMPs that are contained in stormwater technical manuals approved by Ecology, or practices that are demonstrably equivalent to practices contained in stormwater technical manuals approved by Ecology. This is intended to ensure that BMPs will prevent violations of state water quality standards, satisfy the state AKART requirements, and the federal technology-based treatment requirements under 40 CFR part 125.3. Specifically, condition S.9.C states that BMPs shall be consistent with:

1. Stormwater Management Manual for Western Washington (most recent edition), for sites west of the crest of the Cascade Mountains;
2. Stormwater Management Manual for Eastern Washington (most recent edition), for sites east of the crest of the Cascade Mountains; or
3. Other stormwater management guidance documents or manuals which provide an equivalent level of pollution prevention and are approved by Ecology; or
4. Documentation in the SWPPP that the BMPs selected provide an equivalent level of pollution prevention, compared to the applicable Stormwater Management Manuals, including:
    a. The technical basis for the selection of all stormwater BMPs (scientific, technical studies, and/or modeling) which support the performance claims for the BMPs being selected; and

    b. An assessment of how the selected BMP will satisfy AKART requirements and the applicable federal technology-based treatment requirements under 40 CFR part 125.3.

This section also outlines the 12 elements that must be included in the SWPPP and implemented unless site conditions render the element unnecessary and the exemption from that element is clearly justified in the SWPPP narrative. The 12 elements are:

1. Mark Clearing Limits
2. Establish Construction Access
3. Control Flow Rates
4. Install Sediment Controls
5. Protect Vegetation/Stabilize Soils
6. Protect Slopes
7. Protect Drain Inlets
8. Stabilize Channels and Outlets
9. Control Pollutants
10. Control De-Watering
11. Maintain BMPs
12. Manage the Project

The technical rationale for each of these elements is described in the subsequent sections of the fact sheet.

1. Mark Clearing Limits.

Since little soil erosion occurs on areas covered with undisturbed natural vegetation, clearing limits should be marked so that soils and vegetation outside of the immediate area of construction activity are protected. In addition, wetlands, and other types of sensitive areas that are intended to be preserved must be clearly marked so that they are not damaged inadvertently during construction activity.

Plastic, metal, or stake wire fencing material is durable and weather resistant and is ideal for marking clearing limits at construction sites.

2. Establish Construction Access.

The purpose of stabilizing entrances to construction sites is to minimize the amount of sediment and mud being tracked off-site by motorized vehicles. Installing and maintaining a pad of gravel over filter cloth where construction traffic leaves a site can help stabilize the entrance. As a vehicle drives over the gravel pad, mud and other sediments are loosened and removed from the vehicle's wheels thereby reducing the offsite transport of sediment. The gravel pad also reduces mechanical erosion and prevents the formation of muddy wheel ruts, which can be a source of "track-out". The filter fabric reduces the amount of rutting caused by vehicle tires by spreading the vehicle's weight over a larger soil area than just the tire width. The filter fabric also separates the gravel from the soil below, preventing the gravel from being ground into the soil (EPA, 2002).

Stone (rip-rap or quarry spalls) and gravel used to stabilize the construction site entrance should be large enough so that they are not carried off-site on tires, which can result in property damage. Sharp-edged stone should be avoided to reduce the possibility of puncturing tires. According to EPA (2002), stone or gravel should be installed at a depth of at least 6 inches for the entire length and width of the stabilized construction entrance.

Limiting construction site access to one point minimizes the surface area that could be affected by tracked out mud and sediment from construction traffic.

Wheel wash or tire baths should be located on-site if the stabilized construction access is not preventing sediment from being tracked off-site. Wheel wash systems remove mud from construction vehicles on-site and reduce the amount of sediment transported onto paved roads. Wastewater from wheel washing or street washing activity is typically sediment laden with very high levels of turbidity. In addition, this wastewater may contain other pollutants such as metals, phosphorus, polymers, and/or oil and grease at levels that may be harmful to aquatic life. As a result, wheel wash and street wash wastewater must be discharged to a separate on-site treatment system, such as closed-loop recirculation or land application, or to a sanitary sewer with local approval.

3. Control Flow Rates.

Construction activity may involve clearing vegetation, removing or compacting native soils, modifying slopes and drainage patterns, and installing impervious surfaces such as rooftops

or roads. Any of these activities may increase the volume, velocity, and peak flow rate of stormwater runoff from the site. These hydrologic changes can cause erosion, scouring, and down-cutting in channels located downstream of the construction site, ultimately increasing turbidity and suspended solids in affected waterbodies and damaging aquatic habitat.

Properly designed flow control facilities, such as retention or detention structures that discharge at pre-disturbance peak flow rates and durations, can protect downstream waterways from increased bank erosion, channel instability, and water quality degradation.

If the SWPPP requires stormwater detention facilities, all engineered structures must be constructed according to design. These structures must be constructed as one of the first steps in the construction sequence so that all runoff from construction activity is treated and controlled. If permanent infiltration facilities are used for flow control during construction, these facilities must be protected from siltation during the construction phase through the use of sediment traps/basins and/or other appropriate BMPs. Failure to protect infiltration facilities from siltation will typically clog the soil horizon in the structure and reduce the infiltration capacity. This performance reduction can cause downstream erosion and water quality degradation.

4. Install Sediment Controls.

Sediment control systems create conditions that allow for the settlement of soil particles that are suspended in stormwater runoff. Sediment containment systems (sediment traps, sediment basins, and sediment ponds) are hydraulic controls that function by modifying the storm-runoff hydrograph and slowing water velocities. This allows for the settling and deposition of suspended particles by gravity. Properly designed sediment containment systems function to:

- Provide containment storage volume for stormwater runoff
- Create uniform flow zones within the containment storage volume for deposition of suspended sediment
- Discharge water at a controlled rate (Fifield, 2001)

Goldman (1986) defines structures that treat the runoff from 2.0 ha (5.0 acres) or less as a "sediment trap", but when the surface area contributing to the structure exceeds 2.0 ha, the structure is defined as a "sediment basin".

Although sediment traps allow for settling of suspended sediment, their short detention periods may not remove fine particles such as silts and clays without chemical treatment. To increase overall effectiveness, sediment traps should be constructed in smaller areas with low slopes. Sediment traps are appropriate where the contributing drainage area is less than 3 acres, with no unusual drainage features, and the projected built-out time is 6 months or less; otherwise, a sediment basin must be used (Ecology, 2005).

Sediment traps are typically designed to remove only sediment from surface water, but some non-sediment pollutants (e.g., phosphorus, metals) are trapped as well (Haan, et al., 1994 as cited in EPA, 2002).

A sediment basin or sediment pond is a storm water detention structure formed by constructing a dam across a drainage course or by excavating a basin with adequate storage volume in a location that intercepts runoff from the area of construction activity. Sediment basins are generally larger and more effective in retaining sediment than temporary sediment traps and typically remain active throughout the construction period. A sediment basin must be used where the contributing drainage area is 3 acres or larger. Jurisdictions that require post-development flow rates to be less than or equal to predevelopment flow rates during construction may employ the designed detention facilities as a temporary sediment basin during construction (EPA, 2002).

5. Preserve Vegetation/Stabilize Soils.

   The duff layer, native topsoil, and natural vegetation must be retained in an undisturbed state to the maximum extent practicable. This requirement is partly based on the fundamental principle that vegetation is the most effective form of erosion control (Goldman, et al., 1986). Vegetation reduces runoff volume, reduces flow velocity, filters suspended sediment, absorbs the erosive energy of falling raindrops, and retains soil structure (WSDOT, 2000).

   In areas where soils have been disturbed or exposed during construction activity, timely permanent seeding is appropriate in areas where permanent, long-lived vegetative cover is the most practical or most effective method of stabilizing the soil. Permanent seeding can be used on roughly graded areas that will not be regraded for at least a year, while temporary seed mixtures may be more appropriate for areas to be regraded in less than one year. Vegetation controls erosion by protecting bare soil surfaces from displacement by raindrop impacts and by reducing the velocity and quantity of overland flow. The advantages of seeding over other means of establishing plants include lower initial costs and labor inputs. Seeding that produces a successful stand of grass has been shown to remove between 50 and 100 percent of total suspended solids from stormwater runoff, with an average removal of 90 percent (EPA, 2002).

   Sodding is a permanent erosion control practice that involves laying a continuous cover of grass sod on exposed soils. In addition to stabilizing soils, sodding can reduce the velocity of stormwater runoff. Sodding can provide immediate vegetative cover for critical areas and stabilize areas that cannot be vegetated by seed. It can also stabilize channels or swales that convey concentrated flows and reduce flow velocities. Sod has been shown to remove between 98 and 99 percent of total suspended solids in runoff, and is considered a highly effective best management practice (EPA, 1993, as cited in EPA, 2002).

   Mulching is a temporary erosion control practice in which materials such as grass, hay, wood chips, wood fibers, straw, or gravel are placed on exposed or recently planted soil surfaces. Mulching is highly recommended as a stabilization method and is most effective when anchored in place until vegetation is well established. Mulching can also reduce the velocity of stormwater runoff.

When used in combination with seeding or planting, mulching can aid plant growth by holding seeds, fertilizers, and topsoil in place; by preventing birds from eating seeds; by retaining soil moisture; and by insulating plant roots against extreme temperatures (EPA, 1992 and 2002). Mulching effectiveness varies with the type and amount of mulch used and local conditions such as rainfall and runoff amounts. Table 1 shows soil loss and water velocity reductions relative to bare soil for several different mulch treatments.

Mulch characteristics	Soil loss reduction (%)	Water velocity reduction (%) relative to bare soil
100% wheat straw/top net	97.5	73
100% wheat straw/two nets	98.6	56
70% wheat straw/30% coconut fiber	99.5	78
100% coconut fiber	98.4	77
Nylon monofilament/two nets	99.8	74
Nylon monofilament/rigid/bonded	53	24
Nylon monofilament/flexible/bonded	89.6	32
Curled wood fibers/top net	90.4	47
Curled wood fibers/two nets	93.5	59
Anti-wash netting (jute)	91.8	59
Interwoven paper and thread	93.0	53
Uncrimped wheat straw (2,242 kg/ha)	84.0	45
Uncrimped wheat straw (4,484 kg/ha)	89.3	59

Table 1. Measured reductions in soil loss for different mulch treatments (Sources: Harding, 1990 and EPA, 1993, as cited in EPA 2002)

Geotextiles are porous fabrics also known as filter fabrics, road rugs, synthetic fabrics, construction fabrics, or simply fabrics. Geotextiles are manufactured by weaving or bonding fibers made from synthetic materials such as polypropylene, polyester, polyethylene, nylon, polyvinyl chloride, glass, and various mixtures of these materials. As a synthetic construction material, geotextiles are used for a variety of purposes such as separators, reinforcement, filtration and drainage, and erosion control. Some geotextiles are made of biodegradable materials such as mulch matting and netting.

Mulch mattings are jute or other wood fibers that have been formed into sheets and are more stable than normal mulch. Netting is typically made from jute, wood fiber, plastic, paper, or cotton and can be used to hold the mulching and matting to the ground. Netting can also be used alone to stabilize soils while the plants are growing; however, it does not retain moisture or temperature well. Geotextiles can aid in plant growth by holding seeds, fertilizers, and topsoil in place. Fabrics are relatively inexpensive for certain applications - a wide variety of geotextiles exist to match the specific needs of the site (EPA, 1992).

6. Protect Slopes.

The SWPPP should address the steepness of cut-and-fill slopes and how the slopes will be protected from runoff, stabilized, and maintained. Berms, diversions, and other storm water practices that require excavation and filling should also be incorporated into the grading plan.

Land grading is an effective means of reducing steep slopes and stabilizing highly erodible soils when implemented with stormwater management and erosion and sediment control practices in mind. Land grading is not effective when drainage patterns are altered or when vegetated perimeter areas are damaged (EPA, 2002).

Runoff from undisturbed areas above those that have been denuded or cleared should not be allowed to drain onto exposed soils, particularly when the denuded areas are on slopes. Dikes, ditches or diversions should be used to divert upland runoff away from a disturbed area to a stable outlet (Goldman, 1986).

A dike is a temporary or permanent ridge of soil designed to channel water to a desired location. Dikes are used to divert the flow of runoff by constructing a ridge of soil that intercepts and directs the runoff to the desired outlet or alternative management practice, such as a pond. This practice serves to reduce the length of a slope for erosion control and protect downslope areas. An interceptor dike can be used to: prevent runoff from going over the top of a cut and eroding the slope, directing runoff away from a construction site or building; to divert clean water from a disturbed area; or to reduce a large drainage area into a more manageable size. Dikes should be stabilized with vegetation after construction (NAHB, n.d., as cited by EPA, 2002).

To prevent erosive velocities from occurring on long or steep slopes, terraces should be installed on the slope at regular intervals. Terraces will slow down the runoff and provide a place for small amounts of sediment to settle. Slope benches are usually constructed with ditches along them or are back-sloped at a gentle angle toward the hill. These benches and ditches intercept runoff before it can reach an erosive velocity and divert it to a stable outlet. The slopes of these cross-slope channels should be gentle, and the channels should be protected with erosion resistant linings if the velocities in the channels will exceed the tolerance of the bare soil surface (Goldman, et al., 1986).

Recently graded slopes that do not have permanent drainage measures installed should have a temporary slope drain and a temporary diversion installed. A temporary slope drain used in conjunction with a diversion conveys storm water flows and reduces erosion until permanent drainage structures are installed (EPA 2002). At the top of slopes, collect drainage in pipe slope drains or protected channels to prevent erosion using the following design standards:

- West of the Cascade Mountains Crest: Temporary pipe slope drains shall handle the expected peak flow from a 10 year, 24 hour event assuming a Type 1A rainfall distribution. Alternatively, the 10-year and 25-year, 1-hour flow rates indicated by an approved continuous runoff model, increased by a factor of 1.6, may be used (Ecology, 2005).

- East of the Cascade Mountains Crest: Temporary pipe slope drains shall handle the expected peak flow velocity from a 6-month, 3-hour storm for the developed condition, referred to as the short duration storm (Ecology, 2004).

7. Protect Drain Inlets.

Storm drain inlet protection measures are controls that help prevent soil and debris from on-site erosion from entering storm drain drop inlets. Typically, these measures are temporary controls that are implemented prior to large-scale disturbance of the surrounding site. These controls are advantageous because their implementation allows storm drains to be used during even the early stages of construction activities. The early use of storm drains during project development significantly reduces the occurrence of future erosion problems (Smolen, et al., 1988 as referenced by EPA, 2002).

According to EPA (2002), three temporary control measures to protect storm drain drop inlets are:

- Excavation around the perimeter of the drop inlet
- Fabric barriers around inlet entrances
- Block and gravel protection

Excavation around a storm drain inlet creates a settling pool to remove sediments. Weep holes protected by gravel are used to drain the shallow pool of water that accumulates around the inlet. A fabric barrier made of porous material erected around an inlet can create an effective shield to sediment while allowing water to flow into the storm drain. This type of barrier can slow runoff velocity while catching soil and other debris at the drain inlet. Block and gravel inlet protection uses standard concrete blocks and gravel to form a barrier to sediments while permitting water runoff through select blocks that are laid sideways (EPA, 2002).

In addition to the materials listed above, limited temporary storm water drop inlet protection can also be achieved with the use of straw bales or sandbags to create barriers to sediment. For permanent storm drain drop inlet protection after the surrounding area has been stabilized, sod can be installed as a barrier to slow stormwater entry to storm drain inlets and capture sediments from erosion. This final inlet protection measure can be used as an aesthetically pleasing way to slow storm water velocity near drop inlet entrances and remove sediments and other pollutants from runoff (EPA, 2002).

A technology has been developed that uses an insert trap placed into the storm drain inlet itself (Adams et al., 2000). According to EPA (2002), this technique showed good results on initial tests, trapping more than 50 percent of the incoming sediment in flows typical of those into urban storm drains. This technique is being further developed with a pending patent application.

8. Stabilize Channels and Outlets.

Lined channels convey stormwater runoff through a stable conduit. Vegetation lining the channel reduces the flow velocity of concentrated runoff. Lined channels are not usually designed to control peak runoff loads by themselves and are often used in combination with other BMPs such as subsurface drains and riprap stabilization. Where moderately steep slopes require drainage, lined channels can include excavated depressions or check dams to enhance runoff storage, decrease flow rates, and enhance pollutant removal. Peak discharges can be reduced through temporary detention in the channel. Pollutants can be removed from

storm water by filtration through vegetation, by deposition, or in some cases by infiltration of soluble nutrients into the soil. The degree of pollutant removal in a channel depends on the residence time of the water in the channel and the amount of contact with vegetation and the soil surface, but pollutant removal is not generally the major design criterion.

Construction activity often increases the velocity and volume of stormwater runoff, which causes erosion in newly constructed or existing urban runoff conveyance channels. If the runoff during or after construction will cause erosion in a channel, the channel should be lined or flow control practices should be instituted. The first choice of lining should be grass or sod since this reduces runoff velocities and provides water quality benefits through filtration and infiltration. If the velocity in the channel would erode the grass or sod; riprap, concrete, or gabions can be used (EPA, 2000). Geotextile materials can be used in conjunction with either grass or riprap linings to provide additional protection at the soil-lining interface.

Rock outlet structures placed at the outfall of channels or culverts reduce the velocity of flow in the receiving channel to non-erosive rates. This practice applies where discharge velocities and energies at the outlets of culverts are sufficient to erode the next downstream reach and is applicable to outlets of all types such as sediment basins, stormwater management ponds, and road culverts.

Temporary on-site conveyance channels shall be designed, constructed, and stabilized to prevent erosion from the following expected peak flows:

- West of the Cascade Mountains Crest: 10 minute velocity of flow from a Type 1A, 10-year, 24-hour frequency storm for the developed condition. Alternatively, the 10-year, 1-hour flow rate indicated by an approved continuous runoff model, increased by a factor of 1.6, may be used (Ecology, 2005).

- East of the Cascade Mountains Crest: velocity of flow from the 6-month, 3-hour storm for the developed condition, referred to as the short duration storm (Ecology, 2004).

9. Control Pollutants.

The most significant pollutant associated with construction activity at most sites is sediment. Total suspended solids (TSS) concentrations from uncontrolled construction sites have been found to be up to 150 times greater than concentrations from undeveloped land (EPA, 2002).

There is the potential for other pollutants to be discharged from construction sites depending on factors such as prior land uses. For example, if the prior land use was agriculture, there is the potential for discharge of pollutants such as nutrients and pesticides. Likewise, areas of redevelopment that occur on sites where previous land uses included industry could discharge pollutants such as organics and metals. In addition, pollutants such as metals and nutrients can also be present in native site soils, and can be discharged from construction sites. However, EPA was not able to identify sufficient data in the literature to warrant development of controls specific to pollutants other than sediment, TSS and turbidity in stormwater discharges from construction sites. Some literature suggests that pollutants

adhere to sediment so regulating TSS should also act as a control for other pollutants (EPA, 2002).

EPA has identified sediment, nutrients and metals as pollutants of concern for the construction and development industry. EPA also evaluated the inclusion of organics, pesticides, and bacteria as potential pollutants of concern, but the literature indicates that control of these pollutants through conventional stormwater management strategies is potentially much more difficult, and that there are little data linking their presence in stormwater discharges directly with new land development activities. Source control may factor greatly into controlling these pollutant sources (EPA, 2002).

Potential pollutant sources from building materials and processes include cement or concrete fines, fuels, solvents, paints, grinding dusts, and other wastes that generate potentially toxic heavy metals, petroleum and its by-products, and other organic chemicals. These pollutants are best controlled preventatively, by avoiding contact between pollutants and rainfall or runoff (May, 2002). On-site fueling tanks must include secondary containment to prevent the discharge of petroleum to waters of the state (Ecology, 2005).

According to EPA (2002), construction site operators utilize various practices to manage waste materials from construction activities and minimize discharges to surface waters, including:

- Neat and orderly storage of chemicals, pesticides, fertilizers, and fuels that are stored on-site;
- Regular collection and disposal of trash and sanitary waste;
- Prompt cleanup of spills of liquid or dry materials.

10. Control De-Watering.

Untreated water from construction de-watering operations may contain pollutants that, if discharged to a storm drainage system or natural water course, would violations of water quality standards in the receiving water. The intent of Federal and State regulations is to prevent discharges from dewatering operations from contributing to the violation of water quality standards (Caltrans, 2001).

Sediment is the most common pollutant associated with de-watering operations on construction sites. When water is not visibly clear of sediment or when the dewatering operation may re-suspend sediments, one or more sediment treatment options may need to be implemented. The size of particles present in the sediment is a key consideration for selecting the appropriate sediment treatment option(s).

- If the sediment consists primarily of gravel or sand, which are relatively large particles, a single treatment using a more basic technology, such as a weir tank, may be adequate.
- If the sediment consists of silt and/or clay, which are relatively small particles, the effluent will most likely need a more advanced technology, such as a sand media particulate filter or cartridge filter.

- If the sediment consists of a broad spectrum of particle sizes, the water may need primary treatment to remove larger particles, followed by secondary treatment to remove finer particles (Caltrans, 2001).

The slope and accessibility of the treatment area may impose limitations on the selection of an appropriate system. The site should be evaluated to determine the most effective system layout, access, dewatering storage, pumping requirements (flow, pressure, duration), ancillary piping, backwash tanks, a low impact discharge system, and any other site-specific requirements.

The applicability and use of de-watering devices on a construction project are specific to the individual job and treatment needs. The vendors who rent and sell these products can provide assistance to engineer a de-watering management program to meet the specific job conditions. It is possible that multiple devices and treatment techniques may be necessary to meet the treatment criteria (Caltrans, 2001).

Other de-watering pollutants, as defined in Federal and State laws and regulations, tend to be site-specific and are often associated with current or past use of the construction site or adjacent land. Pollutants may include: nitrogen and phosphate from fertilizers; organic materials from plant waste; metals such as arsenic, cadmium, copper, and lead; and constituents that affect pH or hardness. Other pollutants include oil, grease, pesticides, solvents, fuels, trash, and bacteria from human/animal wastes (Caltrans, 2001).

Depending on the pollutants present, other dewatering treatment or disposal options may include:

- infiltration
- transport offsite in a vehicle, such as a vacuum flush truck, for legal disposal in a manner that does not pollute state waters,
- Ecology-approved on-site chemical treatment or other suitable treatment technologies,
- sanitary sewer discharge with local sewer district approval, if there is no other option; or
- use of a sedimentation bag with outfall to a ditch or swale for small volumes of localized de-watering (Ecology, 2005).

11. Maintain BMPs.

Probably the most common reason for failure of construction site erosion control devices (BMPs) is inadequate maintenance. BMPs are often reluctantly installed and then ignored. If BMPs are properly constructed, but not properly or frequently maintained, very little benefit may be expected. Newly installed devices will perform as initially expected until their "capacity" is exceeded. Filter fences, for example, should be maintained before the material that accumulates behind them becomes excessive. More importantly, the integrity

of the fence needs to be checked frequently. Many filter fences at construction sites are undermined or bypassed because of large flows or large sediment accumulations. Sedimentation basins, silt traps, catch basins, etc., need to be cleaned frequently. The cleaning frequency of these devices located in areas undergoing construction should be quite high because of the very large discharges of sediment from construction sites. Rill or gully erosion must be corrected immediately when first observed. Similarly, mulched or planted areas need frequent inspections and corrections before large amounts of material are lost (Pitt, 2002).

According to Associated General Contractors of Washington Education Foundation (2003), to maintain the effectiveness of construction site storm water control BMPs, regular inspection of control measures is essential. Generally, inspection and maintenance of BMPs can be categorized into two groups: expected routine maintenance and non-routine (repair) maintenance. Routine maintenance refers to checks performed on a regular basis to keep the BMP in good working order and aesthetically pleasing. In addition, routine inspection and maintenance is an efficient way to:

- prevent potential nuisance situations (odors, mosquitoes, weeds, etc.),
- reduce the need for repair maintenance, and
- reduce the chance of polluting stormwater runoff by finding and correcting problems before the next rain.

During each inspection, the inspector should document whether the BMP is performing correctly, any damage to the BMP since the last inspection, and what should be done to repair the BMP if damage has occurred.

12. Manage the Project.

Development projects must be phased or sequenced in order to minimize the amount of exposed soil at any one time and prevent the transport of sediment from the site during construction. Construction sequencing can be an effective tool for erosion and sediment control because it ensures that management practices are installed where necessary and when appropriate. A comparison of sediment loss from a typical development and from a comparable phased project showed a 42 percent reduction in sediment export in the phased project (Claytor, 1997 as cited in EPA, 2002).

As discussed previously, the draft permit implements RCW 90.48.555(8)(a) with an enforceable adaptive management mechanism. Permittees are required to evaluate BMP performance and discharge water quality. Based on the results of inspections and monitoring, remedial actions must be implemented, documented and reported in accordance with specific timeframes.

S10. NOTICE OF TERMINATION

This section describes that a site is eligible for termination when the following conditions have been met:

1. All stormwater discharges associated with construction activity have been eliminated;
2. All temporary BMPs have been removed; and
3. The site has undergone final stabilization. Final stabilization means the completion of all soil disturbing activities, and the establishment of a permanent vegetative cover or equivalent permanent stabilization measure(s) which will prevent erosion.

When the site is eligible for termination, the Permittee submits a complete and accurate Notice of Termination (NOT) form to Ecology. The termination is effective on the date the NOT is received by Ecology, unless the permittee is notified by Ecology within 30 days that the termination request is denied because one or more of the eligibility requirements in S10.1-3 have not been met.

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

Condition G1 requires discharges and activities authorized by the draft permit to be consistent with the terms and conditions of the permit in accordance with 40 CFR 122.41.

Condition G2 requires responsible officials or their designated representatives to sign submittals to Ecology in accordance with 40 CFR 122.22, 40 CFR 122.22(d), WAC 173-220-210(3)(b), and WAC 173-220-040(5).

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

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

Condition G5 identifies conditions for revoking coverage under the general permit in accordance with 40 CFR 122.62, 40 CFR 124.5, WAC 173-226-240, WAC 173-220-150(1)(d), and WAC 173-220-190.

Condition G6 requires the Permittee to notify Ecology when facility changes may require modification or revocation of permit coverage in accordance with 40 CFR 122.62(a), 40 CFR 122.41(l), WAC 173-220-150(1)(b), and WAC 173-201A-060(5)(b).

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

Condition G8 requires the Permittee to reapply for coverage 180 prior to the expiration date of this general permit in accordance with 40 CFR 122.21(d), 40 CFR 122.41(b), and WAC 183-220-180(2) (Note: This would only apply to long term projects or to sites with permit coverage near the time of permit expiration).

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Condition G24 defines appeal options for the terms and conditions of the general permit and of coverage under the permit by an individual discharger in accordance with RCW 43.21B and WAC 173-226-190.

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

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

PERMIT ISSUANCE PROCEDURES

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

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

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

ECONOMIC IMPACT ANALYSIS

In accordance with WAC 173-226-120, Ecology prepared an Economic Impact Analysis (EIA) for the revised permit. The analysis finds that the cost of compliance with the draft general permit is disproportionate to business size. On a cost per employee basis, the costs are generally greater for small businesses than for large firms. This is because most of the costs are a function of the size and topography of the job site.

Cost minimizing features have been included in the draft general permit in order to reduce the burden on small business. Most of these features will benefit both large and small business. In each of the features listed below Ecology used the flexibility available to reduce costs. This will reduce costs for the affected small businesses but will also reduce costs for large businesses.

- Establish differing compliance or reporting requirements or time tables for small business:
  S4.C.2 - Sites <20 ac are given the option to use a lower cost transparency tube ($35) for stormwater monitoring instead of turbidity meter ($800).

S4.C; S4.D.1; S4.E1a - Water Quality Sampling (turbidity/transparency) is phased in (begins Oct 1, 2006) and thus the timetable is postponed for all sites.
S2.F - Low Rainfall Erosivity Waiver is available for certain projects smaller than 5 acres. This will only affect sites that meet the criteria, but should significantly lower costs.
S4.B.3 - Phasing in CESCL requirements will allow <5 acre operators to schedule and attend training (certification deadline Oct 1, 2006).

- Clarify, consolidate, or simplify the compliance and reporting requirements for small business:
  S2.E. – This consolidates requirements by allowing sites to work under a Qualified Local Programs (applies to projects 5 acres and smaller) if they are located within the jurisdiction of a Qualified Local Program.

- Establish performance rather than design standards:
  S9.D – This allows operators to omit aspects of the SWPPP (and not implement BMPs), if site conditions render that element unnecessary. This allows small or "uncomplex" sites to have fewer BMPs than large or complex sites. Small sites should have lower SWPPP/BMP costs.

- Exempt small businesses:
  S4.C.3 - Sites smaller than 1 ac exempt from turbidity/transparency monitoring

- Extreme hardship permit fee reduction:
  S6. - Some facilities may qualify for and receive an extreme hardship permit fee reduction under the Wastewater Discharge Permit Fee Rule (Chapter 173-224 WAC). Extreme hardship applies only if the annual gross revenue of goods and services produced using the processes regulated under the permit is $100,000 or less and the fee poses an extreme hardship to the business.

A copy of the EIA (Ecology Publication Number 05-10-063) may be obtained through the Publications Distribution at Ecology's Headquarters office (360) 407-6000 or by downloading it from Ecology's webpage: http://www.ecy.wa.gov/pubs.shtm.

REFERENCES FOR TEXT AND APPENDICES

Adams, J, J. Janatzen, D. Loudenslager.
2000. A Device to Alleviate Pollution from Urban Stormwater. Design Report, Biosystems and Agriculture Engineering, Oklahoma State University, Stillwater, OK.

Associated General Contractors of Washington Education Foundation
No Date. BMP Inspection and Maintenance. Retrieved from AGC of WA Education Foundation Web Site on June 18, 2003: http://www.agcwa.com/Public/education_foundation/env_reg/bmp_epa/bmp.asp

Claytor, R.
1997. Practical Tips for Construction Site Phasing. Article No. 54 in The Practice of Watershed Protection. Center for Watershed Protection, Ellicott City, MD. 2000. http://www.stormwatercenter.net

California Department of Transportation (Caltrans)
2001. A Field Guide To Construction Site Dewatering. Caltrans Office of Environmental Engineering. CTSW-RT-01-010

Environmental Protection Agency (EPA)
2002. Development Document for Proposed Effluent Guidelines and Standards for the Construction and Development Category. USEPA Office of Water, Washington, D.C. EPA-821-R-02-007
2002. Effluent Limitation Guidelines and New Source Performance Standards for the Construction and Development Category; Proposed Rule. Federal Register, V. 67, No. 121, Monday, June 24, 2002.
2000. NPDES Storm Water Multi-Sector General Permit. Federal Register, V. 65, No. 210, Monday, October 30, 2000.
2000. Urban Nonpoint Source Management Measure Guidance – Draft. USEPA, Office of Water, Washington, D.C.
1993. Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters. EPA 840-B-92-002. USEPA, Office of Water, Washington, D.C.
1992. Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices. EPA 832-R-92-005. USEPA, Office of Water, Washington, D.C.
1992. National Toxics Rule. Federal Register, V. 57, No. 246, Tuesday, December 22, 1992.
1991. Technical Support Document for Water Quality-based Toxics Control. EPA/505/2-90-001.
1988. Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. USEPA Office of Water, Washington, D.C.
1985. Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water. EPA/600/6-85/002a.
1983. Water Quality Standards Handbook. USEPA Office of Water, Washington, D.C.

Fifield, Gerald S.
2001. Designing For Effective Erosion and Sediment Control on Construction Sites. Forester Communications Inc., Santa Barbara, CA.

Goldman, Steven J., K. Jackson, and T.A. Bursztynsky.
1986. Erosion and Sediment Control Handbook. McGraw-Hill Book Company, New York, NY.

Haan, C.T., Barfield, B.J., and Hayes, J.C.
1994. Design Hydrology and Sedimentology for Small Catchments. Academic Press, San Diego, CA.
Harding, M.V.
1990. Erosion Control Effectiveness: Comparative Studies of Alternative Mulching Techniques. Environmental Restoration, as cited in USEPA. 1993. Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters. EPA 840-B-92-002. USEPA, Office of Water, Washington, D.C.
May, Christopher W.
2002. Construction Site Erosion and Sediment - Pollution Control (ESC) Course Manual. University of Washington Center for Urban Watershed Resources Management and Professional Engineering Practice Liaison (PEPL) Program. Seattle, Washington.
National Association of Home Builders (NAHB)
No Date. NAHB Research Center Storm Water Runoff & Nonpoint Source Pollution Control Guide for Builders and Developers. National Association of Home Builders, Washington, D.C.
Pitt, Robert.
2002. Introduction to Erosion and Sediment Control: Problems and Regulations. Retrieved June 17, 2003 from University of Alabama, College of Engineering, Erosion and Sediment Control Web Page: http://unix.eng.ua.edu/~rpitt/Class/Erosioncontrol/MainEC.html
Smolen, M.D., D.W. Miller, L.C. Wyall, J. Lichthardt, and A.L.Lanier.
1988. Erosion and Sediment Control Planning and Design Manual. North Carolina Sedimentation Control Commission and North Carolina Department of Natural Resources and Community Development, Raleigh, N.C.
Tsivoglou, E.C., and J.R. Wallace.
1972. Characterization of Stream Reaeration Capacity. EPA-R3-72-012. (Cited in EPA 1985 op.cit.)
Washington State Department of Ecology.
2005. Stormwater Management Manual for Western Washington. Water Quality Program. Publication Numbers 05-10-029 through 05-10-033.
2004. Stormwater Management Manual for Eastern Washington. Water Quality Program. Publication Number 04-10-076.
1994. Permit Writer's Manual. Water Quality Program. Publication Number 92-109
Washington State Department of Transportation.
2000. Construction Site Erosion and Sediment Control Certification Course. Presented by AGC of Washington Education Foundation.
Wright, R.M., and A.J. McDonnell.
1979. In-stream Deoxygenation Rate Prediction. Journal Environmental Engineering Division, ASCE. 105(EE2). (Cited in EPA 1985 op.cit.)

APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

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

Ecology will publish a Public Notice of Draft (PNOD) on July 6, 2005 in the Washington State Register, and in the following newspapers. The PNOD informs the public that the draft permit and fact sheet are available for review and comment.

- the Spokesman Review,
- the Seattle Daily Journal of Commerce,
- the Tacoma News Tribune,
- the Bellingham Herald,
- the Columbian (Vancouver),
- the Kenewick Tri-City Herald

The notice will also be mailed to those who currently have coverage under the construction stormwater general permit and those identified as interested parties, including the Construction Stormwater Advisory Committee.

Copies of the draft general permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at Ecology's regional offices listed below or may be obtained from Ecology's website or by contacting Ecology by mail, phone, fax or email:

Internet: http://www.ecy.wa.gov/programs/wq/stormwater/construction

Contact Ecology: Melinda Wilson
Department of Ecology
PO Box 47600
Olympia, WA 98504-7600
Telephone: (360) 407-6401
FAX: (360) 407-6426
E-Mail: mewi461@ecy.wa.gov

Southwest Regional Office
Water Quality Program
300 Desmond Drive
Lacey, Washington
Phone: (360) 407-6300

Central Regional Office
Water Quality Program
15 West Yakima Avenue, Suite 200
Yakima, Washington
Phone: (509) 457-7148

Northwest Regional Office
Water Quality Program
3190 - 160th Avenue SE
Bellevue, Washington
Phone: (425) 649-7201

Eastern Regional Office
Water Quality Program
N. 4601 Monroe, Suite 202
Spokane, Washington
Phone: (509) 456-6310

Ecology will accept written comments on the draft Construction Stormwater General Permit, Fact Sheet, and related documents from July 6, 2005 to August 26, 2005. Written comments must be postmarked or emailed no later than midnight, August 26, 2005. Comments should reference specific permit conditions or text or when possible, and may address the following topics:

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

No later than midnight, August 28, 2005, submit written comments to:

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

jkil461@ecy.wa.gov

Ecology will also conduct workshops and public hearings at the following six locations:

August 9, 2005	August 10, 2005
Country Village Courtyard Hall 720 238th St. SE, Suite H Bothell, Washington	Mount Vernon Chamber of Commerce - Skagit Station Community Meeting Rm. 105 E Kincaid Street Suite 101 Mount Vernon, Washington
August 11, 2005	**August 15, 2005**
Water Resources Education Center 4600 SE Columbia Way Vancouver, Washington	Northwest Museum of Arts 2316 West First Avenue Spokane, Washington
August 16, 2005	**August 17, 2005**
Red Lion Hotel Richland - Hanford House 802 George Washington Way Richland, Washington	King Oscars Hotel and Conference Center 8820 South Hosmer Tacoma, Washington

Public notice regarding the hearing will be circulated at least thirty (30) days in advance of the hearings. Persons expressing an interest in this permit will be mailed an individual notice of hearing (WAC 173-220-100).

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

APPENDIX B - GLOSSARY

303(d) Listed Waters – see Waters Listed as Impaired – 303(d).

40 CFR Title 40 of the Code of Federal Regulations, which is the codification of the general and permanent rules published in the Federal Register by the executive departments and agencies of the federal government.

Acute Toxicity The lethal effect of a compound on an organism that occurs in a short period of time, usually 48 to 96 hours.

AKART An acronym for "all known, available, and reasonable methods of prevention, control, and treatment." AKART represents the most current methodology that can be reasonably required for preventing, controlling, or abating the pollutants and controlling pollution associated with a discharge. The term "best management practices," typically applied to nonpoint source pollution controls is considered a subset of the AKART requirement.

Antidegradation The antidegradation policy of the state of Washington as generally guided by chapters 90.48 and 90.54 RCW, is applicable to any person's new or increased activity.

Beneficial Use Identified uses of waters of the state shall include uses for domestic water, irrigation, fish, shellfish, game, and other aquatic life, municipal, recreation, industrial water, generation of electric power, and navigation.

Best Management Practices (BMPs) Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

Benchmark An indicator value used to determine the effectiveness of best management practices on a site. Benchmarks are not water quality criteria or effluent limits but indicators of properly functioning practices.

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

Calendar Week (same as *Week*) A period of seven consecutive days starting on Sunday.

CESCL An acronym for Certified Erosion and Sediment Control Lead. Certification is obtained through an Ecology approved erosion and sediment control course.

Chronic Toxicity The effect of a compound on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

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

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

Common plan of development or sale A site where multiple separate and distinct construction activities may be taking place at different times on different schedules, but still under a single plan. Examples include: 1) phased projects and projects with multiple filings or lots, even if the separate phases or filings/lots will be constructed under separate contract or by separate owners (e.g. a development where lots are sold to separate builders); 2) a development plan that may be phased over multiple years, but is still under a consistent plan for long-term development; and 3) projects in a contiguous area that may be unrelated but still under the same contract, such as construction of a building extension and a new parking lot at the same facility. If the project is part of a common plan of development or sale, the disturbed area of the entire plan must be used in determining permit requirements.

Composite Sample A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite"(collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots.

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

Critical Condition The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

Demonstrably Equivalent means that the technical basis for the selection of all stormwater BMPs is documented within a SWPPP, including:

1. The method and reasons for choosing the stormwater BMPs selected;
2. The pollutant removal performance expected from the BMPs selected;
3. The technical basis supporting the performance claims for the BMPs selected, including any available data concerning field performance of the BMPs selected;
4. An assessment of how the selected BMPs will comply with state water quality standards; and
5. An assessment of how the selected BMPs will satisfy both applicable federal technology-based treatment requirements and state requirements to use all known, available, and reasonable methods of prevention, control, and treatment (AKART).

Department The Washington State Department of Ecology

Designated Uses Those uses specified in this chapter for each water body or segment regardless of whether or not the uses are currently attained.

Detention The temporary storage of stormwater to improve quality and/or to reduce the mass flow rate of discharge.

De-watering (same as Excavation De-watering) The act of pumping ground water or stormwater away from a construction site.

Dilution Factor A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the percent effluent fraction e.g., a dilution factor of 10 means the effluent comprises 10% by volume and the receiving water 90%.

Discharge The release of water from a site.

Discharger An owner or operator of any facility or activity subject to regulation under Chapter 90.48 RCW or the Federal Clean Water Act.

Director The Director of the Washington Department of Ecology or his/her authorized representative.

Domestic Wastewater means water carrying human wastes, including kitchen, bath, and laundry wastes from residences, buildings, industrial establishments, or other places, together with such ground water infiltration or surface waters as may be present.

Ecology The Washington State Department of Ecology.

Engineered soils Soil amendments including, but not limited, to Portland cement treated base (CTB), cement kiln dust (CKD), or fly ash to achieve certain desirable soil characteristics. This does not include fertilizer.

Equivalent BMPs The operational, source control, treatment, or innovative BMPs which result in equal or better quality of stormwater discharge to surface water or to ground water than BMPs selected from the SWMM.

Erosion The wearing away of the land surface by running water, wind, ice, or other geological agents, including such processes as gravitational creep.

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

Final Stabilization (same as fully stabilized or full stabilization) The completion of all soil disturbing activities at the site, and the establishment of a permanent vegetative cover, or equivalent permanent stabilization measures (such as riprap, gabions or geotextiles) which prevents erosion.

Forest Practices Activities related to the growing, harvesting or processing of timber, including activities such as road building that meet the requirements and definitions of RCW 76.09, the Forest Practices Act, and Title 222WAC, Forest Practices Rules.

General Permit A permit which covers multiple dischargers of a point source category within a designated geographical area, in lieu of individual permits being issued to each discharger.

Grab Sample A single sample or measurement taken at a specific time or over as short period of time as is feasible.

Ground Water A saturated zone or stratum beneath the land surface or a surface water body.

Illicit discharge Any discharge that is not composed entirely of stormwater except discharges authorized under a separate NPDES permit and discharges resulting from fire fighting activities.

Impaired Waters (303(d) listed waters) Listed waters refers to the specific segment of a waterbody listed as not meeting water quality criteria by the State as required under Section 303(d) of the Clean Water Act. The most current list of impaired waters is the applicable list.

Jurisdiction A political unit such as a city, town or county; incorporated for local self-government.

Leachate Water or other liquid that has percolated through raw material, product or waste, and contains substances in solution or suspension as a result of the contact with these materials.

Local Government Any county, city, or town having its own government for local affairs.

Operator Any party associated with a construction project that meets either of the following two criteria:
1. The party has operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications; or
2. The party has day-to-day operational control of those activities at a project which are necessary to ensure compliance with a SWPPP for the site or other permit conditions (e.g., they are authorized to direct workers at a site to carry out activities required by the SWPPP or comply with other permit conditions).

Local Government Any county, city, or town having its own government for local affairs.

Mixing Zone An area that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in state regulations (Chapter 173-201A WAC).

National Pollutant Discharge Elimination System (NPDES) means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring, and enforcing permits, and imposing and enforcing pretreatment requirements, under sections 307, 402, 318, and

405 of the Federal Clean Water Act, for the discharge of pollutants to surface waters of the state from point sources.

Notice of Intent (NOI) means the application for, or a request for coverage under this General Permit pursuant to WAC 173-226-200.

Notice of Termination (NOT) means a request for termination of coverage under this general permit as specified by Special Condition S10 of this permit.

Noncompliance The inability to comply with any of the terms and conditions of the permit which causes a threat to human health or the environment.

Outfall The location where the site's stormwater treatment and conveyance system discharges to surface water or leaves the site. It also includes the location where stormwater is discharged to surface waterbodies within a site, but does not include discharges to on-site stormwater treatment/infiltration devices or stormwater conveyance systems.

Permit An authorization, license, or equivalent control document issued by the director.

Permittee An individual or entity that receives notice of coverage under this general permit.

pH The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral. Large variations above or below this value are considered harmful to most aquatic life.

pH Monitoring Period The time period in which the pH of stormwater runoff shall be tested a minimum of once every seven days to determine if stormwater is contaminated with alkaline producing materials.

Pollution Contamination or other alteration of the physical, chemical or biological properties, of any waters of the state.

Point Source Any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, and container from which pollutants are or may be discharged to surface waters of the state. This term does not include return flows from irrigated agriculture. (See Fact Sheet for further explanation.)

Pollutant Any substance that causes contamination, or other alteration of the physical, chemical, or biological properties, of any waters of the state. Or a substance that is likely to create a nuisance or render such waters harmful, detrimental or injurious to the public health, safety or welfare; or to domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses; or to livestock, wild animals, birds, fish or other aquatic life

Pollution The contamination or other alteration of the physical, chemical, or biological properties of waters of the state; including change in temperature, taste, color, turbidity, or odor of the waters;.

Receiving Water The waterbody at the point of discharge. If the discharge is to a stormwater conveyance system, either surface or subsurface, the receiving water is the waterbody that the stormwater conveyance system discharges to. Systems designed primarily for other purposes such as for ground water drainage, redirecting stream natural flows, or for conveyance of irrigation water/return flows that coincidentally convey stormwater are considered the receiving water.

Responsible Corporate Officer A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or the manager of one or more manufacturing, production, or operating facilities if authority to sign documents has been assigned or delegated to the manager.

Sanitary Sewer A sewer which is designed to convey domestic wastewater.

Sediment The fragmented material that originates from the weathering and erosion of rocks or unconsolidated deposits, and is transported by, suspended in, or deposited by water.

Sedimentation The depositing or formation of sediment.

SEPA (State Environmental Policy Act) means the Washington State Law, RCW 43.21C.020, intended to prevent or eliminate damage to the environment.

Severe Property Damage Substantial physical damage to property, damage to the treatment facilities which would cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

Significant Amount An amount of a pollutant in a discharge that is not amenable to available and reasonable methods of prevention or treatment; or an amount of a pollutant that has a reasonable potential to cause a violation of surface or ground water quality or sediment management standards.

Significant Concrete Work: Construction work that involves over 40 cubic yards poured concrete, or recycled concrete.

Significant Contributor of Pollutant(s) A facility determined by Ecology to be a contributor of a significant amount(s) of a pollutant(s) to waters of the state of Washington.

Site The land or water area where any "facility or activity" is physically located or conducted.

Small construction activity (Small construction sites) Land disturbance of equal to or greater than one acre and less than five acres. Small construction activity also includes the disturbance of less than one acre of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb equal to or greater than one and less than five acres.

Source Control BMPs The physical, structural or mechanical devices or facilities that are intended to prevent pollutants from entering stormwater. A few examples of source control BMPs are erosion control practices, maintenance of stormwater facilities, constructing roofs over storage and working areas, and directing wash water and similar discharges to the sanitary sewer or a dead end sump.

Stabilization The application of appropriate BMPs to prevent the erosion of soils, such as, temporary and permanent seeding, vegetative covers, mulching and matting, plastic covering and sodding. See also the definition of Erosion and Sediment Control BMPs.

Storm Sewer A sewer that is designed to carry stormwater; . Also called a storm drain or stormwater conveyance system.

Stormwater The portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a stormwater drainage system into a defined surface water body, or a constructed infiltration facility.

Stormwater Drainage System Constructed and natural features which function together as a system to collect, convey, channel, hold, inhibit, retain, detain, infiltrate or divert stormwater.

Stormwater Management Manual (SWMM) or Manual A technical document published by Ecology that contain descriptions of and design criteria for BMPs to prevent, control, or treat pollutants in stormwater. The manual provides stormwater management guidance. Separate manuals have been published for Eastern Washington and Western Washington.

Stormwater Pollution Prevention Plan (SWPPP) A documented plan to implement measures to identify, prevent, and control the contamination of point source discharges of stormwater.

Surface Waters of the State Lakes, rivers, ponds, streams, inland waters, salt waters, and all other surface waters and water courses within the jurisdiction of the state of Washington.

Technology-based Effluent Limit A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Daily Maximum Load (TMDL) A calculation of the maximum amount of a pollutant that a waterbody can receive and still meet State water quality standards. A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources.

Total Suspended Solids (TSS) An analytical laboratory measurement of the concentration of solids suspended in water.

Transparency A quantitative water quality measurement of water clarity using a 60 centimeter transparency tube to estimate the relative clarity or transparency of water by noting the depth at which a black and white Secchi disc becomes visible when water is released from a value in the bottom of the tube. A transparency tube is sometimes referred to as a “turbidity tube”.

Treatment BMPs BMPs that are intended to remove pollutants from stormwater. Examples of treatment BMPs are sediment ponds, oil/water separators, sand filters, and biofiltration swales.

Turbidity The clarity of water expressed as nephelometric turbidity units (NTU) and measured with a calibrated turbidity meter (turbidimeter).

Upset An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

USEPA United States Environmental Protection Agency.

Visual Inspection Direct visual observation and evaluation of BMPs, site conditions, and discharge water quality.

Wasteload Allocation (WLA) *T*he portion of a receiving water's loading capacity that is allocated to one of its existing or future point sources of pollution. WLAs constitute a type of water quality based effluent limitation (40 CFR 130.2(h)).

Water Quality The chemical, physical, and biological characteristics of water, usually with respect to its suitability for a particular purpose.

Water Quality-based Effluent Limit A limit on the concentration of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into a receiving water.

Water quality standards The state of Washington's water quality standards for surface waters of the state, which are codified in chapter 173-201 WAC.

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

APPENDIX C – RESPONSE TO PUBLIC COMMENTS