

1                                   **FACT SHEET FOR THE STATE OF WASHINGTON**  
2                                   **DRAFT 2010 CONSTRUCTION STORMWATER GENERAL PERMIT**

3  
4                                   **SUMMARY**

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

16  
17   In 1990, the federal Phase I Stormwater regulations addressed construction activities that  
18   disturbed five or more acres of land as Category (x) of the definition of "stormwater discharges  
19   associated with industrial activity" (40 CFR 122.26(b)(14)(x)). Ecology issued its first  
20   stormwater general permit on November 18, 1992, covering both industrial and construction  
21   activities. When reissued in 1995, Ecology decided to move construction activities into a  
22   separate permit. The 1995 construction stormwater general permit was reissued by Ecology on  
23   October 4, 2000 with an expiration date of November 18, 2005. A number of organizations,  
24   including Puget Soundkeeper Alliance, Waste Action Project, Washington Public Employees for  
25   Environmental Responsibility, Resources for Sustainable Communities, and Citizens for a  
26   Healthy Bay, filed a Notice of Appeal on November 17, 2000. Ecology revised and reissued this  
27   permit as a condition of settling the appeal.

28  
29   The 2010 CSWGP includes minor changes overall. The one exception is the addition of  
30   conditions attributed to the February 1, 2010, U.S. Environmental Protection Agency (EPA)  
31   Effluent Limitation Guideline Code of Federal Regulation Part 450—Construction and  
32   Development Point Source Category Subpart B—Construction and Development Effluent  
33   Guidelines (referred to throughout the Fact Sheet as the “EPA Rule”). The EPA Rule adds a  
34   third layer to Ecology’s two-pronged approach to CSWGP compliance. In addition to the  
35   sampling measures for turbidity of 25 NTU (benchmark) and 250 NTU (reporting trigger) used  
36   for the 2005 permit, the draft 2010 permit adds EPA’s 280 NTU limit for measuring turbidity at  
37   sites with 10 or more acres of disturbed land. More detail is available in the 2010 CSWGP and  
38   in this Fact Sheet.

39  
40   The draft 2010 permit includes basic monitoring and reporting requirements to comply with  
41   RCW 90.48.555, like the 2005 permit. Also in keeping with the 2005 permit, construction sites  
42   discharging to waterbodies with TMDLs or on the 303(d) list for turbidity, fine sediment, high  
43   pH, phosphorus, or other applicable water quality parameters must verify, through sampling and

1 analysis, that discharges do not cause or contribute to violations of water quality standards. The  
2 permit also clearly states that stormwater discharges must continue to comply with water quality  
3 standards, and provides for the presumption that discharges are in compliance with water quality  
4 standards if Permittees comply with permit conditions, unless site-specific information shows  
5 this is not the case.

6

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

10

11 This Fact Sheet is a companion document to the draft of the permit only, in order to help  
12 interested parties better understand the technical issues associated with the permit. Ecology will  
13 not prepare a fact sheet to accompany the final permit but will respond to comments provided.

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1

## INTRODUCTION

2 The Federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987)  
3 established water quality goals for the navigable (surface) waters of the United States. One of  
4 the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant  
5 Discharge Elimination System permit program (NPDES permits), which is administered by the  
6 U.S. Environmental Protection Agency (EPA). The EPA has delegated responsibility to  
7 administer the NPDES permit program to the State of Washington on the basis of Chapter 90.48  
8 of the Revised Code of Washington (RCW), which defines the Department of Ecology's  
9 authority and obligations in administering the wastewater discharge permit program.

10  
11 The regulations adopted by the state include procedures for issuing general permits (Chapter  
12 173-226 of the Washington Administrative Code [WAC]), water quality criteria for surface and  
13 ground waters (Chapters 173-201A and 200 WAC), and sediment management standards  
14 (Chapter 173-204 WAC). These regulations require a permit to be issued before discharge of  
15 wastewater to waters of the state is allowed. The regulations also establish the basis for effluent  
16 limitations and other requirements, which are to be included in the proposed permit. One of the  
17 requirements (WAC 173-226-110) for issuing a general permit under the NPDES permit  
18 program is the preparation of a draft permit and an accompanying fact sheet. The regulations  
19 also require public notice of the draft permit for at least 30 days before the proposed permit is  
20 issued (WAC 173-226-130). The fact sheet and draft permit are available for review (see  
21 Appendix A--Public Involvement of the fact sheet for more detail on the Public Notice  
22 procedures).

23  
24 After the public comment period has closed, Ecology will summarize the substantive comments  
25 and prepare a response to each comment. The summary and response to comments will become  
26 part of the file on the permit. Parties submitting comments will receive a copy of Ecology's  
27 response. Comments and the resulting changes to the proposed permit will be summarized in  
28 Appendix C to the final CSWGP—Response to Comments.

1 **BACKGROUND INFORMATION**

2 In 1990, the Phase I stormwater regulations addressed construction activities that disturbed five  
3 or more acres of land as Category (x) of the definition of "stormwater discharges associated with  
4 industrial activity" (40 CFR 122.26(b)(14)(x)). On November 18, 1992, Ecology issued its first  
5 stormwater general permit, which covered discharges from both industrial and construction  
6 activities. When Ecology reissued this permit in 1995, it issued separate general permits for  
7 industrial and construction activities and increased the permit cycle to five years.  
8

9 Ecology reissued the construction stormwater general permit on October 4, 2000. The permit,  
10 which became effective on November 18, 2000, had no substantive changes. Only changes that  
11 made the permit consistent with the revised timeframe were made. The reissued permit became  
12 effective on November 18, 2000, with an expiration date of November 18, 2005.  
13

14 A Notice of Appeal filed on November 17, 2000, by Puget Soundkeeper Alliance, Waste Action  
15 Project, Washington Public Employees for Environmental Responsibility, Resources for  
16 Sustainable Communities, and Citizens for a Healthy Bay. The Association of Washington  
17 Business and Washington State Department of Transportation filed motions to intervene and  
18 became parties to the case. The parties to the case entered into a settlement agreement that  
19 required Ecology to rewrite and reissue the permit with assistance from a public advisory  
20 committee. The advisory committee was comprised of business representatives, environmental  
21 organizations, and state, local, and tribal agencies and met to discuss permit development six  
22 times between June 2002 and May 2005. Ecology developed the draft construction stormwater  
23 general permit under review with input from the advisory committee. The final permit was  
24 published and went into effect December 16, 2005.  
25

26 The Associated General Contractors of Washington/Building Industry Association of  
27 Washington, Snohomish County, and Puget Soundkeeper Alliance appealed the final 2005  
28 permit. The Pollution Control Hearings Board (PCHB) consolidated the permit conditions  
29 challenged by the three parties into PCHB Order on Summary Judgment No. 05-157, 158, and  
30 159. Several of the 36 original appeal issues identified were resolved through motion practice  
31 before the hearing; PCHB orders on partial summary judgment were issued on October 26, 2006,  
32 November 27, 2006, January 4, 2007 and January 30, 2007. The PCHB held a hearing on  
33 February 1, 2, 5, 6, 7 and March 5, 2007. On June 4, 2007, the PCHB issued its Findings of  
34 Fact, Conclusions of Law, and Order and affirmed the 2005 final permit, but ordered Ecology to  
35 reissue the permit with several specific modifications.  
36

37 Ecology has included the modifications ordered by the PCHB in the draft 2010 permit.

1 GENERAL PERMIT APPROACH

2 A general permit to address stormwater issues at construction activities is an appropriate  
3 permitting approach for the following reasons:

- 4 • A general permit is an efficient method to establish the essential regulatory requirements  
5 appropriate for a broad range of construction activities.
- 6 • A general permit allows Ecology to handle the large number of construction stormwater  
7 permit applications within the state of Washington more efficiently.
- 8 • The application requirements for coverage under a general permit are far less rigorous  
9 than individual permit application requirements and hence more cost effective.
- 10 • A general permit is consistent with EPA's four-tier permitting strategy, the purpose of  
11 which is to use the flexibility provided by the Clean Water Act in designing a workable  
12 and reasonable permitting system.

13  
14 A general permit is designed to provide coverage for a group of related facilities or operations of  
15 a specific industry type or group of industries. It is appropriate when the discharge  
16 characteristics are sufficiently similar, and a standard set of permit requirements can effectively  
17 provide environmental protection and comply with water quality standards for discharges. In  
18 most cases, the proposed general permit will provide sufficient and appropriate stormwater  
19 management requirements for discharges of stormwater from construction sites.

20  
21 This approach recognizes that there may be instances where the general permit is not appropriate  
22 for a specific construction project. Ecology may require any discharger under the general permit  
23 to apply for and obtain an individual permit or a more specific general permit if:

- 24 • It determines that the general permit does not provide adequate assurance that water  
25 quality will be protected, or
- 26 • The project has a reasonable potential to cause or contribute to a violation of water  
27 quality standards.

28 WASTEWATER CHARACTERIZATION

29 Due to the variability of construction sites, management practices, and weather, it is not possible  
30 to characterize stormwater associated with construction activities in terms of the average rate or  
31 frequency of discharges, or the average or estimated range in pounds per day of pollutants.  
32 Pollutants expected in the stormwater discharge from construction activity include sediment (that  
33 is, suspended solids, turbidity, etc.), pH, phosphorus, and petroleum products. These pollutants  
34 are described below.

35  
36 **A. Sediment.** Construction activity involves operations that disturb land, such as clearing,  
37 grading, and excavating. Disturbed soils exposed to precipitation may erode, resulting in  
38 stormwater runoff contaminated with suspended sediment. Suspended sediment is the primary  
39 constituent in construction stormwater and is commonly measured as total suspended solids  
40 (TSS) and/or turbidity:

- 41 1. The total suspended solids (TSS) laboratory method measures the quantity of material  
42 suspended in water. The measure of TSS in stormwater allows for an estimation of  
43 sediment transport, which can have significant effects in downstream receiving waters.

2. Turbidity, expressed in nephelometric turbidity units (NTU), is a measure of the ability of light to penetrate the water. Turbidity is a function of the quantity of suspended solids in water. The suspended solids may affect 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) establish turbidity standards. Table 200 (1)(e) defines the turbidity standards for different aquatic use categories in fresh water. Table 210 (1)(e) defines the turbidity standards for aquatic life in marine water. The most stringent criteria 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 .

**Summary of Turbidity Data from 2005 (Current) Permit**

Ecology staff evaluated the available “self reported” turbidity data in Ecology’s WPLCS database for sites covered by the 2005 CSWGP, which consisted of 12,658 results for samples collected from 478 construction sites between October 2006 and March 2010, inclusive. (A data point represents one discharge number at one time from one source, such as a construction site outfall.)

<b>Summary of Turbidity Data, Categorized by Disturbed Acreage</b>		
	<b>Sites (Acres)</b>	<b>Turbidity (NTU)</b>
<b>Acreage ≥ 20</b>		
N(sites) = 99; N (turbidity) = 3,594 [36.3 samples per site]		
Mean	53.9	35.3
Std Dev	52.4	178.7
95%ile	125.6	112.0
75%ile	55.5	21.7
50%ile	39.5	9.0
25%ile	25.8	3.7
<b>Acreage = 10 to 19.99</b>		
N(sites) = 91; N (turbidity) = 3,050 [33.5 samples per site]		
Mean	14.2	25.9
Std Dev	2.8	88.7
95%ile	18.9	84.5
75%ile	16.6	16.3
50%ile	14.0	7.9
25%ile	12.0	3.9
<b>Acreage = 5 to 9.99</b>		
N(sites) = 107; N (turbidity) = 3,573 [33.4 samples per site]		

Mean	7.1	24.4
Std Dev	1.4	84.3
95%ile	9.0	88.0
75%ile	8.2	16.4
50%ile	7.1	6.0
25%ile	5.9	2.9
<b>Acreage = 1 to 4.99</b>		
N(sites) = 181; N (turbidity) = 2,441 [13.5 samples per site]		
Mean	2.8	25.4
Std Dev	1.1	59.9
95%ile	4.7	70.6
75%ile	3.5	30.6
50%ile	2.7	10.5
25%ile	1.9	3.8

1  
2 **B. pH.** Alkaline construction materials may contaminate construction stormwater resulting in  
3 high pH (greater than pH 7). Alkaline construction materials include concrete, mortar, lime,  
4 cement kiln dust (CKD), Portland cement treated base (CTB), fly ash, recycled concrete, and  
5 masonry work.

6  
7 The surface water quality standard for pH is within the range of 6.5 to 8.5 (freshwater) or 7.0 to  
8 8.5 (marine water) with a human-caused variation within a range of less than 0.2 units for the  
9 aquatic use category with the most stringent pH standard. You can find the pH criteria in  
10 Chapter 173-201A WAC in Table 200 (1)(g) for fresh water and Table 210 (1)(f) for marine  
11 water.

12  
13 **C. Phosphorus.** Phosphorus is a potential constituent of construction stormwater because it  
14 occurs naturally in soils. If erosion and sediment control measures are inadequate to prevent the  
15 discharge of suspended sediment, phosphorus is likely to contaminate the stormwater.  
16 Generally, if a Permittee controls turbidity and TSS with best management practices (BMPs), it  
17 will not discharge phosphorus in a significant amount.

18  
19 Total Phosphorus (TP). This criterion depends on the trophic (or nutritional) state and ambient  
20 TP of the water body (Lake Class waters). See Chapter 173-201A-230 WAC.

21  
22 **D. Petroleum Products.** Oil, grease, and other petroleum products may contaminate stormwater  
23 if they are spilled or leaked from heavy equipment, diesel pumps, fuel tanks, or vehicles.

24  
25 **E. Other pollutants.** Historical contamination or natural soil conditions may contribute other  
26 pollutants to stormwater. Examples may include pesticides, metals (arsenic, lead, etc.),  
27 polychlorinated biphenyls (PCBs), or petroleum.

1 *SEPA COMPLIANCE*

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

7 **PROPOSED PERMIT LIMITS**

8 **Introduction to Legal Requirements for Limitations to Control Pollutants in Discharges**

9  
10 Section 502(11) of the CWA defines “effluent limitation” as *any restriction on the quantity, rate, and*  
11 *concentration of chemical, physical, biological, and other constituents which are discharged from*  
12 *point sources into navigable waters, the waters of the contiguous zone, or the ocean, including*  
13 *schedules of compliance*. Effluent limitations are among the permit conditions and limitations  
14 prescribed in NPDES permits issued under Section 402(a) of the Act, 33 U.S.C. §1342(a).  
15

16 **Types of Effluent Limitations: Technology-Based & Water-Quality Based**

17  
18 Federal and state regulations require that discharges from existing facilities, at a minimum, meet  
19 technology-based effluent limitations reflecting, among other things, the technological capability  
20 of Permittees to control pollutants in their discharges that are economically achievable.  
21 Specifically, state laws (RCW 90.48.010, 90.52.040 and 90.54.020) require the use of “all  
22 known, available and reasonable methods of prevention, control and treatment” (AKART).  
23

24 Water quality-based effluent limits (WQBELs) are required by CWA Section 301(b)(1)(C) and,  
25 in Washington State, are based on compliance with the Surface Water Quality Standards  
26 (Chapter 173-201A WAC), Ground Water Standards (Chapter 173-200 WAC), Sediment Quality  
27 Standards (Chapter 173-204 WAC) or the National Toxics Rule (40 CFR 131.36). Ecology  
28 chooses the more stringent of these two limits (technology or water quality-based) for each of the  
29 parameters of concern when drafting NPDES permits. [CWA sections 301(a) and (b)].  
30

31 Effluent limits in NPDES permits may be expressed as numeric or non-numeric standards.  
32 Under EPA’s regulations, non-numeric effluent limits are authorized in lieu of numeric limits,  
33 where “[n]umeric effluent limitations are infeasible.” [40 CFR 122.44(k)(3).] Courts have  
34 recognized that there are circumstances when numeric effluent limits are infeasible and have  
35 held that EPA may issue permits with conditions (for example, BMPs) designed to reduce the  
36 level of effluent discharges to acceptable levels:  
37

38 *Natural Res. Def. Council, Inc. v. EPA, 673 F.2d 400, 403 (D.C. Cir. 1982)* (noting that  
39 *"section 502(11) defines 'effluent limitation' as 'any restriction' on the amounts of*  
40 *pollutants discharged, not just a numerical restriction"; holding that section of CWA*  
41 *authorizing courts of appeals to review promulgation of "any effluent limitation or other*  
42 *limitation" did not confine the court's review to the EPA's establishment of numerical*

1 limitations on pollutant discharges, but instead authorized review of other limitations  
2 under the definition) (emphasis added).

3  
4 In *Natural Res. Def. Council, Inc. v. Costle*, 568 F.2d 1369 (D.C. Cir. 1977), the D.C.  
5 Circuit stressed that when numerical effluent limitations are infeasible, EPA may issue  
6 permits with conditions designed to reduce the level of effluent discharges to acceptable  
7 levels.

## 8 *TECHNOLOGY-BASED LIMITATIONS*

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

10  
11 Technology-based effluent limitations are in many cases established by EPA in regulations  
12 known as effluent limitations guidelines, or “ELGs.” EPA establishes these regulations for  
13 specific industry categories or subcategories after conducting an in-depth analysis of that  
14 industry.<sup>1</sup>

15  
16 The Act sets forth different standards for the effluent limitations based upon the type of pollutant  
17 or the type of industry involved.

18  
19 The CWA establishes two levels of pollution control for existing sources. In the first stage,  
20 existing sources that discharge pollutants directly to receiving waters were initially subject to  
21 effluent limitations based on the “best practicable control technology currently available” or  
22 “BPT.” 33 U.S.C. § 1314(b)(1)(B). BPT applies to all pollutants. In the second stage, existing  
23 sources that discharge conventional pollutants are subject to effluent limitations based on the  
24 “best conventional pollutant control technology,” or “BCT.” 33 U.S.C. §1314(b)(4)(A); see also  
25 40 C.F.R. §401.16 (list of conventional pollutants) while existing sources that discharge toxic  
26 pollutants or “nonconventional” pollutants (*i.e.*, pollutants that are neither “toxic” nor  
27 “conventional”) are subject to effluent limitations based on “best available technology  
28 economically achievable,” or “BAT.” 33 U.S.C. §1311(b)(2)(A); see also 40 C.F.R. §401.15 (list  
29 of toxic pollutants).

30  
31 The factors permit writers must consider in establishing the levels of these control technologies  
32 are specified in section 304(b) of the CWA and EPA’s regulations at 40 CFR §125.3.

33  
34 Permit writers must consider technology-based limitations (water quality-based effluent  
35 limitations may be more stringent) in all NPDES permits. 40 CFR §§122.44(a)(1) and 125.3.  
36 CWA sections 301(b)(1)(A) for (BPT); 301(b)(2)(A) for (BAT); and 301(b)(2)(E) for (BCT).  
37 Technology-based limits in this draft permit represent the BPT (for conventional, toxic, and non-  
38 conventional pollutants), BCT (for conventional pollutants), and BAT (for toxic pollutants and  
39 non-conventional) levels of control for the applicable pollutants. When EPA has not  
40 promulgated effluent limitation guidelines for an industry, or if an operator is discharging a

---

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

1 pollutant not covered by the effluent guideline, permit writers may base limitations on their best  
2 professional judgment (BPJ, sometimes also referred to as "best engineering judgment") of the  
3 permit writer. 33 U.S.C. § 1342(a)(1); 40 CFR 125.3(c). See *Student Public Interest Group v.*  
4 *Fritzsche, Dodge & Olcott*, 759 F.2d 1131, 1134 (3d Cir. 1985); *American Petroleum Inst. v.*  
5 *EPA*, 787 F.2d 965, 971 (5th Cir. 1986).

6  
7 For this permit, Ecology based most of the technology-based limits on BPJ decision-making.  
8 However, on December 1, 2009, the EPA published effluent limitation guidelines (ELGs) and  
9 new source performance standards (NSPS) to control the discharge of pollutants from  
10 construction sites. This regulation became effective on February 1, 2010. After this date, all  
11 permits issued by EPA or states must incorporate the final rule requirements. All construction  
12 sites required to obtain permit coverage must implement a range of erosion and sediment control  
13 and pollution prevention Best Management Practices (BMPs), and certain large construction sites  
14 must comply with a 280 NTU numeric effluent limitation.

### 15 16 **Authority to Include Non-Numeric Technology-Based Limits in NPDES Permits**

17  
18 Under EPA's regulations, non-numeric effluent limits are authorized in lieu of numeric limits,  
19 where "[n]umeric effluent limitations are infeasible." 40 CFR 122.44(k)(3). As far back as 1977,  
20 courts have recognized that there are circumstances when numeric effluent limitations are  
21 infeasible and have held that EPA may issue permits with conditions (e.g., Best Management  
22 Practices or "BMPs") designed to reduce the level of effluent discharges to acceptable levels.  
23 *Natural Res. Def. Council, Inc. v. Costle*, 568 F.2d 1369 (D.C.Cir.1977).

24  
25 Through the Agency's NPDES permit regulations, EPA interpreted the CWA to allow BMPs to  
26 take the place of numeric effluent limitations under certain circumstances. 40 C.F.R. §122.44(k),  
27 entitled "Establishing limitations, standards, and other permit conditions (applicable to State  
28 NPDES programs ...)," provides that permits may include BMPs to control or abate the discharge  
29 of pollutants when: (1) "[a]uthorized under section 402(p) of the CWA for the control of  
30 stormwater discharges"; or (2) "[n]umeric effluent limitations are infeasible." 40 C.F.R. §  
31 122.44(k).

32  
33 As recently as 2006, The U.S. Court of Appeals for the Sixth Circuit has once again held that the  
34 CWA does not require the EPA to set numeric limits where such limits are infeasible. *Citizens*  
35 *Coal Council v. United States Environmental Protection Agency*, 447 F.3d 879, 895-96 (6th Cir.  
36 2006). The *Citizens Coal* court cited to *Waterkeeper Alliance, Inc. v. EPA*, 399 F.3d 486, 502  
37 (2d Cir. 2005), stating "site-specific BMPs are effluent limitations under the CWA." "In sum, the  
38 EPA's inclusion of numeric and non-numeric limitations in the guideline for the coal remining  
39 subcategory was a reasonable exercise of its authority under the CWA."

40  
41 Additionally, the Sixth Circuit cited to *Natural Res. Def. Council, Inc. v. EPA*, 673 F.2d 400,  
42 403 (D.C.Cir.1982) noting that "section 502(11) [of the CWA] defines 'effluent limitation' as  
43 'any restriction' on the amounts of pollutants discharged, not just a numerical restriction."  
44 EPA has substantial discretion to impose non-quantitative permit requirements pursuant to  
45 Section 402(a)(1)), especially when the use of numeric limits is infeasible. See *NRDC v. EPA*,  
46 822 F.2d 104, 122-24 (D.C. Cir. 1987) and 40 CFR 122.44(k)(3).

1  
2 **Rationale for Non-Numeric Technology-Based Effluent Limits in This Permit**  
3

4 Numeric effluent limits are not always feasible for industrial stormwater discharges as such  
5 discharges pose challenges not presented by the vast majority of NPDES-regulated discharges.  
6 Stormwater discharges can be highly intermittent, they are usually characterized by very high  
7 flows occurring over relatively short time intervals, and they carry a variety of pollutants whose  
8 source, nature and extent varies. See 55 FR at 48,038; 53 FR at 49,443. This is in contrast to  
9 process wastewater discharges from a particular industrial or commercial facility where the  
10 effluent is more predictable and can be more effectively analyzed to develop numeric effluent  
11 limits.  
12

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

- 18
- 19 • The nature of grading, clearing and other construction activities occurring at the site.
  - 20 • The nature of precipitation in relation to phases of construction activity.
  - 21 • Site-specific conditions, including vegetation, hydrology, topography, soils, and surface  
22 imperviousness.

23 Control measures for construction stormwater discharges tend to focus on pollution prevention  
24 measures, called Best Management Practices (BMPs). In accordance with 40 CFR 122.44(k) and  
25 40 CFR 122.44 (s), this draft general permit includes requirements for the development and  
26 implementation of a Stormwater Pollution Prevention Plan (SWPPP) along with 12 categories of  
27 BMPs (called “12 Elements of Construction Stormwater Pollution Prevention”) to minimize or  
28 prevent the discharge of pollutants to waters of the state. These BMPs constitute Best  
29 Conventional Pollutant Control Technology (BCT) and Best Available Technology  
30 Economically Achievable (BAT) for stormwater discharges.  
31

32 In addition to retaining the 12 Elements of Pollution Prevention (BMPs) from the previous  
33 (2005) permit, Ecology has now incorporated applicable BMPs from EPA’s 2009 Construction  
34 and Development Effluent Guidelines (40 CFR §450.21) that represent the best practicable  
35 technology currently available (BPT). EPA published this rule in the *Federal Register* at 74 F.R.  
36 229 (Dec. 1, 2009). EPA categorized these BMPs as follows:

- 37
- 38 • Erosion and Sediment Controls
  - 39 • Soil Stabilization
  - 40 • Dewatering
  - 41 • Pollution Prevention Measures
  - 42 • Prohibited Discharges
  - 43 • Surface Outlets

1 Since Ecology’s previous permit (Condition S9) already had equivalent or more stringent  
2 pollution prevention BMPs compared to those contained EPA’s 2009 Construction and  
3 Development Effluent Guidelines (40 CFR §450.21), Ecology simply retained or modified the  
4 existing BMPs in Condition S9 to minimize redundancy and confusion. In Condition S1.D  
5 Ecology has adopted and added to EPA’s list of “prohibited discharges” (40 CFR §450.21)  
6 which will help ensure compliance with the state AKART requirements in Chapter 90.48 RCW,  
7 and prevent violations of the state water quality standards. The prohibited discharges include:

- 8 a. Wastewater from washout of concrete.
- 9 b. Wastewater from washout and cleanout of stucco, paint, form release oils, curing  
10 compounds and other construction materials.
- 11 c. Fuels, oils, or other *pollutants* used in vehicle and equipment operation and maintenance.
- 12 d. Soaps or solvents used in vehicle and equipment washing.
- 13 e. Wheel wash or tire bath wastewater unless handled according to S9.D.
- 14 f. Discharges from dewatering activities, including discharges from dewatering of trenches  
15 and excavations, unless managed according to S9.D.10.

16  
17 Ecology has determined that Permittees in full compliance with the Construction Stormwater  
18 General Permit meet the state AKART requirements in Chapter 90.48 RCW.

19  
20 **Rationale for Numeric Technology-Based Effluent Limitations in this Permit**

21  
22 Technology-based effluent limitations are in many cases established by EPA in regulations  
23 known as effluent limitations guidelines, or “ELGs.” After conducting an in-depth analysis of the  
24 construction industry, EPA published *40 CFR Part 450 - Effluent Limitation Guidelines and New*  
25 *Source Performance Standards (NSPS) for the Construction and Development Point Source*  
26 *Category* in the *Federal Register* at 74 F.R. 229 (Dec. 1, 2009). The following excerpt specifies  
27 a numeric effluent limit of 280 NTU for turbidity, as set forth in 40 CFR §450.21:

28 Except as provided in 40 CFR 125.30 through 125.32, any point source subject to this  
29 subpart must achieve, at a minimum, the following effluent limitations representing the  
30 degree of effluent reduction attainable by application of the best available technology  
31 economically achievable (BAT).

32 (a) Beginning no later than August 1, 2011 during construction activity that disturbs 20 or  
33 more acres of land at one time, including non-contiguous land disturbances that take place at  
34 the same time and are part of a larger common plan of development or sale; and no later than  
35 February 2, 2014 during construction activity that disturbs ten or more acres of land area at  
36 one time, including non-contiguous land disturbances that take place at the same time and are  
37 part of a larger common plan of development or sale, the following requirements apply:

1 (1) Except as provided by paragraph (b) of this section, the average turbidity of any discharge  
2 for any day must not exceed the value listed in the following table:

Pollutant	Daily maximum value (NTU) <sup>1</sup>
Turbidity	280

3 <sup>1</sup>Nephelometric turbidity units.

4 (2) Conduct monitoring consistent with requirements established by the permitting authority.  
5 Each sample must be analyzed for turbidity in accordance with methods specified by the  
6 permitting authority.

7 (b) If stormwater discharges in any day occur as a result of a storm event in that same day  
8 that is larger than the local 2-year, 24-hour storm, the effluent limitation in paragraph (a)(1)  
9 of this section does not apply for that day.

10 This regulation became effective on February 1, 2010. After this date, all permits issued by EPA  
11 or states must incorporate the final rule requirements. All construction sites required to obtain  
12 permit coverage must implement a range of erosion and sediment control and pollution  
13 prevention Best Management Practices (BMPs), and certain large construction sites must comply  
14 with a 280 NTU numeric effluent limitation. Ecology is proposing not to use the compliance  
15 deadlines set forth in 40 CFR §450.21 (i.e., August 1, 2011 applies to ≥20-acre sites, and  
16 February 2, 2014 applies to ≥10-acre sites); instead, Ecology proposes to require all sites  
17 disturbing 10 or more acres of land at one time to comply with the 280 NTU effluent limitation  
18 when the general permit becomes effective on January 1, 2010. Ecology made that decision  
19 based on three considerations:

- 20 1) Phasing in effluent limits mid-permit cycle would cause administrative problems and  
21 could result in confusion and non-compliance among Permittees.
- 22 2) Permittees with construction sites disturbing 5 or more acres collected water quality  
23 sampling since October 2006 and the construction industry in Washington is familiar  
24 with turbidity sampling protocols.
- 25 3) Over 99% of the turbidity samples reported to Ecology on Discharge Monitoring Reports  
26 (DMRs) had values less than 280 NTU.

## 27 SURFACE WATER QUALITY LIMITS

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

1 NUMERICAL CRITERIA FOR THE PROTECTION OF AQUATIC LIFE

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

9 NUMERICAL CRITERIA FOR THE PROTECTION OF HUMAN HEALTH

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

18 NARRATIVE CRITERIA

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

25 ANTIDegradation

26 The purpose of Washington's Antidegradation Policy (WAC 173-201A-300-330; 2006) is to:

- 27
- 28 • Restore and maintain the highest possible quality of the surface waters of Washington.
  - 29 • Describe situations under which water quality may be lowered from its current condition.
  - 30 • Apply to human activities that are likely to have an impact on the water quality of surface  
31 water.
  - 32 • Ensure that all human activities likely to contribute to a lowering of water quality, at a  
33 minimum, apply all known, available, and reasonable methods of prevention, control, and  
34 treatment (AKART).
  - 35 • Apply three Tiers of protection (described below) for surface waters of the state.

36 Tier I ensures existing and designated uses are maintained and protected and applies to all waters  
37 and all sources of pollutions. Tier II ensures that waters of a higher quality than the criteria  
38 assigned are not degraded unless such lowering of water quality is necessary and in the  
39 overriding public interest. Tier II applies only to a specific list of polluting activities. Tier III

1 prevents the degradation of waters formally listed as "outstanding resource waters," and applies  
2 to all sources of pollution.

3  
4 Ecology considered Tier I and Tier II in this permit and determined there are no discharges under  
5 this permit to "outstanding resource waters."

6  
7 Ecology always considers Tier I when it issues a permit. Applying both technology based permit  
8 limits and water quality-based limits to point source discharges meets Tier 1 requirements and  
9 the fact sheet describes how this permit meets those requirements.

10  
11 Tier II requirements for general permits are given in 173-201A-320(6) as follows:

12 *(a) Individual activities covered under these general permits or programs will not require a*  
13 *Tier II analysis.*

14 *(b) The department will describe in writing how the general permit or control program meets*  
15 *the antidegradation requirements of this section.*

16 *(c) The department recognizes that many water quality protection programs and their*  
17 *associated control technologies are in a continual state of improvement and development. As*  
18 *a result, information regarding the existence, effectiveness, or costs of control practices for*  
19 *reducing pollution and meeting the water quality standards may be incomplete. In these*  
20 *instances, the antidegradation requirements of this section can be considered met for general*  
21 *permits and programs that have a formal process to select, develop, adopt, and refine control*  
22 *practices for protecting water quality and meeting the intent of this section. This adaptive*  
23 *process must:*

24 *(i) Ensure that information is developed and used expeditiously to revise permit or program*  
25 *requirements;*

26 *(ii) Review and refine management and control programs in cycles not to exceed five years*  
27 *or the period of permit reissuance; and*

28 *(iii) Include a plan that describes how information will be obtained and used to ensure full*  
29 *compliance with this chapter. The plan must be developed and documented in advance of*  
30 *permit or program approval under this section.*

31 *(7) All authorizations under this section must still comply with the provisions of Tier I (WAC*  
32 *173-201A-310).*

33  
34 The following describes how the permit meets the antidegradation requirement.

35  
36 Ecology's formal process for updating stormwater pollutant control technology is described in a  
37 January 2008 Ecology publication entitled *Guidance for Evaluating Emerging Stormwater*  
38 *Treatment Technologies, Technology Assessment Protocol - Ecology (TAPE)*. The guidance  
39 documents primary purpose is to establish a testing protocol and process for evaluating and  
40 reporting on the performance and appropriate uses of emerging stormwater treatment  
41 technologies. This document is also intended for use in evaluating public domain practices  
42 possibly resulting in changes to the design standards for these practices in the Stormwater  
43 Management Manuals.

44  
45 In 2008, Ecology discontinued reviewing new technologies under the TAPE process due to  
46 budget reductions. However, in 2009, the Legislature passed HB 2222, codified at RCW

1 90.48.545. This statute directed Ecology to establish a Stormwater Technical Resources Center  
2 to perform the same function as TAPE. Pursuant to this legislation, Ecology has contracted with  
3 the City of Puyallup to form the advisory committee required by the statute. See Ecology's  
4 website at [www.ecy.wa.gov/programs/wq/stormwater/tech.html](http://www.ecy.wa.gov/programs/wq/stormwater/tech.html). Under the legislation, the  
5 Center will review and evaluate emerging stormwater technologies, research and develop  
6 innovative and cost-effective technical solutions to remove pollutants from runoff and to reduce  
7 or eliminate stormwater discharges, and conduct pilot projects to test technical solutions, among  
8 other things. See RCW 90.48.545(1)(a) –(c).

9  
10 Ecology anticipates that the Center will begin reviewing new technologies by the fall of 2010.  
11 The Center will likely use similar technical procedures or procedures adapted from Ecology's  
12 TAPE guidance. Ecology will post new information regarding new technologies on its website  
13 as the Center develops it. Eventually, as was anticipated in the TAPE protocol, Ecology will  
14 incorporate new technologies into its Stormwater Management Manuals.

15  
16 This process ensures, as the rule requires, that "information is developed and used  
17 expeditiously." WAC 173-201A-320(6)(c)(i). Ecology will review and revise the ISGP every  
18 five years and incorporate new information developed by the Center as appropriate, in  
19 compliance with WAC 173-27-201A(6)(c)(ii). Additionally, the process constitutes a plan for  
20 using new information "to ensure full compliance with this chapter" as stated in the rule. WAC  
21 173-201A-320(6)(c)(iii).

## 22 CRITICAL CONDITIONS

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

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

42 Chronic conditions are changes in the physical, chemical, or biological environment which are  
43 expected or demonstrated to result in injury or death to an organism as a result of repeated or

1 constant exposure over an extended period of time to a substance or detrimental environmental  
2 condition. The chronic criteria for metals are four-day averages not to be exceeded more than  
3 once every three years. Since chronic exposure is over several days, the “first flush” effect that  
4 occurs after a dry period is not as likely to be significant. Chronic exposure also requires storm  
5 events that result in stormwater discharge over a four-day period. However, the critical  
6 condition is still most likely to occur after the summer drought when water body flows are low.  
7 Much of the stormwater that falls in a drainage basin at the beginning of the wet season will be  
8 absorbed reducing the impact on flow in the receiving water body. During the same time the  
9 stormwater discharge off a developed site is likely to be in direct proportion to the storm event.

10 The variability of storm events makes the determination of critical conditions very difficult.  
11 Ecology believes that because summer storms occur infrequently in Washington, the critical  
12 period for stormwater discharge is in the fall when storms are more frequent and runoff becomes  
13 more consistent.

#### 14 MIXING ZONES

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

22  
23 RCW 90.48.555(12) applies to this permit and addresses mixing zones. It states: “The  
24 department may authorize mixing zones only in compliance with and after making  
25 determinations mandated by the procedural and substantive requirements of applicable laws and  
26 regulations.”

27  
28 The applicable laws and regulations include federal Clean Water Act, RCW 90.48, WAC 173-  
29 200, WAC 173-201A, WAC 173-204, and human health based criteria in the National Toxics  
30 Rule (40 CFR 131.36).

31  
32 No mixing zones are authorized in this permit. Since a general permit must apply to a number of  
33 different sites, precise mixing zones and the resultant dilution are not applicable to facilities  
34 covered under a general permit.

35  
36 Any discharger may request a mixing zone through an application for an individual permit in  
37 accordance with WAC 173-220-040 or WAC 173-216-070.

#### 38 DESCRIPTION OF THE RECEIVING WATER

39 The draft general permit applies to facilities statewide that discharge to many different receiving  
40 waters. Stormwater may be discharged to a municipal separate stormwater sewer system, a  
41 stormwater conveyance system such as a roadside ditch, or directly to a creek, lake, pond or

1 other surface water body. The discharge will enter waters assigned designated uses intended to  
2 protect aquatic life and human health.

3  
4 In highly urbanized areas, the discharge likely enters a collection system and commingles with  
5 other sources of stormwater before discharging to a water body. In these urbanized locations, the  
6 receiving water is likely to be more than a small creek in size but also likely to be subject to a  
7 significant number of municipal and industrial stormwater discharges. In a more suburban  
8 setting, the receiving water is not as likely to be subject to multiple municipal and industrial  
9 stormwater discharges, but is more likely to be a small creek or intermittent stream. In both  
10 cases, the potential impact of stormwater can be significant. Ecology anticipates that the diligent  
11 implementation and maintenance of BMPs identified in the Permittee's SWPPP will result in  
12 stormwater discharges that do not cause or contribute to violations of the state's Surface Water  
13 Quality Standards (Chapter 173-201A WAC).

#### 14 SURFACE WATER QUALITY CRITERIA

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

20 Application of the surface water quality criteria to a discharge requires site-specific analysis of  
21 the discharge and the receiving water. Such analysis is not possible in a statewide general permit  
22 that covers more than 2,000 construction sites at any given time. However, the criteria  
23 influenced calculation of the 25 NTU benchmark for turbidity.

#### 24 CONSIDERATION OF SURFACE WATER QUALITY-BASED LIMITS FOR NUMERICAL 25 CRITERIA

26 40 CFR Part 122.44 and RCW 90.48.555 require the permit to contain effluent limits to control  
27 all pollutants or pollutant parameters which are, or may be, discharged at a level which will  
28 cause, have the reasonable potential to cause, or contribute to an excursion above any water  
29 quality standard.

30  
31 Ecology has determined that stormwater discharges may cause a violation of surface water  
32 quality standards for turbidity. It based this determination on:

- 33 • EPA's Nationwide Urban Runoff Program (NURP).
- 34 • *Evaluation of Washington's Construction Stormwater General Permit (2007*  
35 *Envirovision/Herrera Evaluation)*,
- 36 • *Stormwater Quality Survey of Western Washington Construction Sites, 2003-2005 (2005*  
37 *Washington State Department of Ecology)*,
- 38 • Best professional judgment.

39  
40 Therefore, the draft permit includes water quality-based effluent limits (WQBELs) to control  
41 discharges as necessary to meet applicable water quality standards. The provisions of Conditions

1 S8 (303(d) and TMDLs), S8 (Corrective Actions), S3 (Compliance with Standards) and S12  
2 (Solid Waste Management) constitute the WQBELs of this permit. These WQBELs supplement  
3 the permit’s technology-based effluent limits in S9 (SWPPP), S8 (ELGs), S1.D (Prohibited  
4 Discharges), G18 (General Prohibitions), and S3.B (AKART).

5  
6 The following is a list of the permit’s WQBELs:

- 7 • Condition S8 requires discharges from construction sites that discharge to 303(d)-listed  
8 waterbodies to comply with water quality-based numeric effluent limits.
- 9 • Condition S8 requires facilities to comply with TMDLs, including any applicable  
10 wasteload allocations.
- 11 • Condition S4.C requires facilities that exceed the turbidity and/or pH benchmark values  
12 to implement source control and/or treatment BMPs to ensure that future discharges do  
13 not cause or contribute to violations of water quality standards.
- 14 • Condition S3.A prohibits discharges that cause or contribute to violations of Surface  
15 Water Quality Standards (Chapter 173-201A WAC), Ground Water Quality Standards  
16 (Chapter 173-200 WAC), and Sediment Management Standards (Chapter 173-204  
17 WAC), and human health-based criteria in the National Toxics Rule (40 CFR 131.36).
- 18 • Condition S7 requires facilities to prevent solid waste material or leachate from causing  
19 violations of the Surface Water Quality Standards (Chapter 173-201A WAC), Ground  
20 Water Quality Standards (Chapter 173-200 WAC), and Sediment Management Standards  
21 (Chapter 173-204 WAC).

22  
23 The rationale for water quality-based effluent limitations in the draft permit is discussed below.

24  
25 **Condition S8.C. Water Quality-Based Effluent Limitations for Certain Discharges to**  
26 **303(d)-Listed Waters**

27  
28 The applicable federal regulation is 122.4(i) Sec. 122.4 Prohibitions. *No permit may be issued:*  
29 *i) To a new source or a new discharger, if the discharge from its construction or operation will*  
30 *cause or contribute to the violation of water quality standards. ...*

31  
32 Ecology cannot allow a new discharge to a listed waterbody (issuance of permit is prohibited) if  
33 the discharge will cause or contribute to a violation of water quality standards. Ecology may  
34 allow a new discharge if it meets the applicable water quality criteria.

35  
36 The draft CSWGP establishes water quality-based numeric effluent limits for construction sites  
37 that discharge to certain waters that are listed as impaired under Section 303(d) of the Clean  
38 Water Act.

39  
40 All references and permit requirements associated with Section 303(d) of the Clean Water Act  
41 pertain to the most current EPA-approved 303(d) listing of impaired waters that exists when a  
42 complete application for coverage is submitted to Ecology. Ecology has determined that  
43 construction sites without adequate controls have the potential to cause or contribute to  
44 violations of water quality standards in waterbodies that are 303(d) listed for the following  
45 parameters, and must comply with the numeric effluent limit(s) described below:

- 1 • Turbidity.
- 2 • Fine sediment.
- 3 • High pH.
- 4 • Phosphorus.

5  
6 303(d)-related numeric effluent limits apply to both direct discharges to 303(d)-listed (Category  
7 5) waterbodies and indirect discharges via a stormwater conveyance system. An example of an  
8 indirect discharge via a stormwater conveyance system is a discharge from a construction site  
9 into a roadside ditch which then drains to a listed waterbody. Ecology will notify Permittees  
10 subject to numeric effluent limitations in writing when it grants permit coverage.

11  
12 The technical basis for 303(d)-related effluent limits for turbidity, fine sediment, total  
13 phosphorus and pH are described below:

#### 14 15 **Turbidity**

16  
17 For discharges to waterbodies 303(d)-listed waterbodies for turbidity, the discharger must  
18 comply with the applicable surface water quality criterion for turbidity at the point of discharge  
19 from the site (WAC 173-201A-200 & 210).

#### 20 21 **Fine Sediment**

22  
23 Since the state surface water quality standards do not have numeric criterion for “fine sediment”.  
24 Ecology has determined that, if turbidity levels do not violate the surface water quality criterion  
25 for turbidity, then the discharge should not cause or contribute to the “fine sediment” problem  
26 which caused the 303(d)- listing (impairment). Therefore, the permit uses turbidity as a  
27 surrogate parameter for discharges to fine sediment-listed waters; i.e., if the receiving water is  
28 listed for fine sediment, the discharger must demonstrate that the discharge is not violating the  
29 turbidity criterion (WAC 173-201A-200 & 210) at the point of discharge from the.

#### 30 31 **Total Phosphorus**

32  
33 In 2007, the Pollution Control Hearings Board (PCHB) concluded that the 2005 Permit’s use of  
34 “*turbidity testing as a surrogate for phosphorus is reasonable, given the relationship between*  
35 *sediment and phosphorus, and the lack of other practicable testing and treatment alternatives for*  
36 *phosphorus*”. Therefore, the draft permit uses turbidity as a surrogate parameter for discharges  
37 to total phosphorus-listed waters; i.e., if the receiving water is listed for total phosphorus, the  
38 discharger must demonstrate that the discharge is not violating the turbidity criterion (WAC 173-  
39 201A-200 & 210) at the point of discharge from the site.

#### 40 41 **High pH**

42  
43 Construction sites that discharge to surface waters on the 303(d)-list for high pH are subject to a  
44 water quality-based numeric effluent limitation of pH 6.5 – 8.5 standard units (su) (i.e., within  
45 the range of pH 6.5 to 8.5 su), applied at the point of discharge from the site. This effluent limit  
46 is based on the aquatic life pH criteria in WAC 173-201A-200(1)(g).

1 **Summary of Sampling and Numeric Effluent Limits—Discharges to 303(d)-Listed Waters**

Parameter identified in 303(d) listing	Parameter/ Units	Analytical Method	Sampling Frequency	Numeric Effluent Limit
Turbidity Fine Sediment Phosphorus	Turbidity/NTU	SM2130 or EPA180.1	Weekly, if discharging	If background is 50 NTU or less: 5 NTU over background; or If background is more than 50 NTU: 10% over background
High pH	pH/ Standard Units	pH meter	Weekly, if discharging	In the range of 6.5 – 8.5

2

3 **CONDITION S8.D. EFFLUENT LIMITS FOR DISCHARGES TO WATERBODIES WITH**  
 4 **APPROVED TMDLS**

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

15

16 Condition S8.D is intended to implement the requirements of 40 CFR 122.44(d)(1)(vii)(B),  
 17 which requires that water quality-based effluent limits “are consistent with the assumptions and  
 18 requirements of any available wasteload allocation for the discharge . . . .” Because WLAs for  
 19 stormwater discharges may be specified in many different formats, Ecology plans to ensure that  
 20 these requirements are properly interpreted and communicated to the Permittee in way that can  
 21 be implemented.

22

23 Ecology will notify Permittees subject to numeric effluent limitations or waste load allocations  
 24 related to a TMDL in writing when permit coverage Ecology grants permit coverage. TMDLs  
 25 approved after the issuance date of this permit become applicable to the Permittee only if  
 26 Ecology imposes the TMDL through an administrative order, or through modification of permit  
 27 coverage.

28 **CONDITION S4.C. BENCHMARKS AND CORRECTIVE ACTIONS**

29 Special Condition S4.C includes a narrative (non-numeric) effluent limit that requires Permittees  
 30 who exceed water quality-based numeric benchmark values (for turbidity/transparency, and/or  
 31 pH) to review and make appropriate revisions to the Stormwater Pollution Prevention Plan  
 32 (SWPPP) and implement and maintain appropriate source control and/or treatment Best  
 33 Management Practices (BMPs) within set timeframes. This limitation has an adaptive  
 34 management mechanism that requires monitoring, evaluation, and reporting requirements to

1 ensure that stormwater discharges are controlled by adequate best management practices (BMPs)  
2 that prevent violations of water quality standards.

3  
4 This limitation is based on RCW 90.48.555(8)(a) states that "...the adaptive management  
5 mechanism shall include elements designed to result in permit compliance and shall include, at a  
6 minimum, the following elements:

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

12  
13 RCW 90.48.555(8)(b) requires the permit to include the "timing and mechanisms for  
14 implementation of treatment best management practices".

15  
16 To comply with these statutory requirements, the permit continues the previous permits' adaptive  
17 management approach that requires facilities to monitor stormwater quality against water  
18 quality-based benchmarks (indicator values). In 2007, the Pollution Control Hearings Board  
19 (PCHB) concluded that the 2005 Permit's approach to benchmarks and adaptive management is  
20 reasonable.

21  
22 The rationale for the selection and derivation of benchmark values for specific pollutant  
23 parameters is described in Special Condition S5 of this fact sheet. If the benchmark for a  
24 particular pollutant parameter is met, the discharge is presumed to not cause or contribute to a  
25 violation of water quality standards for that parameter. If a (water quality-based) benchmark is  
26 exceeded, the potential for a violation of water quality standards increases, and the facility is  
27 required to implement SWPPP review and the implementation of additional BMPs.

28  
29 Since benchmark values are not numeric effluent limits, discharges that exceed a benchmark  
30 value are not automatically considered a permit violation or a violation of water quality  
31 standards. However, if a Permittee exceeds benchmarks that trigger a corrective action, but does  
32 not comply with the specific corrective action requirements in Special Condition S4.C.5, it has  
33 violated the permit.

### 34 **CONDITION S3. WATER QUALITY STANDARDS**

35 Condition S3 prohibits discharges that cause or contribute to violations of Surface Water Quality  
36 Standards (Chapter 173-201A WAC), Ground Water Quality Standards (Chapter 173-200  
37 WAC), and Sediment Management Standards (Chapter 173-204 WAC), and human health-based  
38 criteria in the National Toxics Rule (40 CFR 131.36).

39  
40 Each Permittee is required to control its discharge as necessary to meet applicable water quality  
41 standards. Ecology expects that compliance with the other conditions in this permit (e.g., the  
42 technology-based limits, Stormwater Pollution Prevention Plan (SWPPP), monitoring, corrective  
43 actions, etc.) will result in discharges that are controlled as necessary to meet applicable water

1 quality standards. This “presumptive approach” is consistent with RCW 90.48.555(6), which  
2 states:

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

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

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

13 *(ii) For the purposes of this section, "demonstrably equivalent" means that the technical*  
14 *basis for the selection of all storm water best management practices are documented within a*  
15 *storm water pollution prevention plan. The storm water pollution prevention plan must*  
16 *document:*

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

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

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

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

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

27  
28 In addition, if the Permittee becomes aware, or Ecology determines, that the discharge causes or  
29 contributes to a water quality standards exceedance, corrective actions and Ecology non-  
30 compliance notification is required. In addition, at any time Ecology may require additional  
31 monitoring or an individual permit, if information suggests that the discharge is not controlled as  
32 necessary to meet applicable water quality standards.

### 33 SEDIMENT QUALITY

34 Ecology has promulgated Sediment Management Standards (Chapter 173-204 WAC) to protect  
35 aquatic biota and human health. These standards state that Ecology may require Permittees to  
36 evaluate the potential for the discharge to cause a violation of applicable standards (WAC 173-  
37 204-400). Ecology has adopted and added to EPA’s list of “prohibited discharges” (40 CFR  
38 §450.21) which will help ensure compliance with the state AKART requirements in Chapter  
39 90.48 RCW, and prevent violations of the Sediment Management Standards.

40  
41 The permit requires BMPs to limit contamination of stormwater. Source control BMPs can  
42 reduce or eliminate contamination of stormwater and help comply with the sediment  
43 management standards. However, if Ecology determines that BMPs are ineffective in protecting  
44 sediment quality, Ecology may require the Permittee to implement additional measures to assure  
45 compliance with the sediment standards or to apply for an individual permit.

1 *GROUND WATER QUALITY LIMITATIONS*

2 Ecology has promulgated Ground Water Quality Standards (Chapter 173-200 WAC) to protect  
3 beneficial uses of ground water. Permits issued by Ecology prohibit violations of those  
4 standards (WAC 173-200-100). Ecology has adopted and added to EPA’s list of “prohibited  
5 discharges” (40 CFR §450.21) which will help ensure compliance with the state AKART  
6 requirements in Chapter 90.48 RCW, and prevent violations of the state groundwater quality  
7 standards. The following discharges are prohibited:

- 8 a. Wastewater from washout of concrete;
- 9 b. Wastewater from washout and cleanout of stucco, paint, form release oils, curing  
10 compounds and other construction materials;
- 11 c. Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance;  
12 and
- 13 d. Soaps or solvents used in vehicle and equipment washing.
- 14 e. Wheel wash or tire bath wastewater unless handled according to S9.D.
- 15 f. Discharges from dewatering activities, including discharges from dewatering of trenches  
16 and excavations, unless managed according to S9.D.10.

17  
18 The permit requires BMPs to limit contamination of stormwater. Source control BMPs can  
19 eliminate/minimize the potential contamination of stormwater and protect ground water quality.  
20 However, if Ecology determines that BMPs are ineffective in protecting ground water quality,  
21 Ecology may require the Permittee to implement additional measures to protect ground water  
22 quality or to apply for an individual permit.

23 *DESCRIPTION OF SPECIAL CONDITIONS*

24 This section follows the structure of the draft Construction Stormwater General Permit  
25 (CSWGP), but does not restate language used in the permit. The information presented below is  
26 intended to help the public understand the intent and basis of the draft permit.

27 **S1. PERMIT COVERAGE**

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

31  
32 **B.** This draft CSWGP identifies construction activities required to seek permit coverage.  
33 “Construction activity” is defined as land disturbing operations that disturb one or more acres, as  
34 well as disturbance of less than one acre of total land area that is part of a larger common plan of  
35 development or sale, if the larger common plan will ultimately disturb one or more acres. The  
36 definition of construction activity requiring NPDES permit coverage is consistent with EPA's  
37 Phase 1 and 2 stormwater regulations (40 CFR 122.26(b)(14)(x), and 40 CFR 122.26(b)(15)).  
38

39 **C. Authorized Discharges.** Discharges conditionally authorized by the draft permit include 1)  
40 stormwater discharges from construction activities; 2) stormwater discharges from construction

1 support activities; and 3) allowable non-stormwater discharges, including discharges from  
2 dewatering and dust suppression. Routine maintenance performed to maintain the original line  
3 and grade (for example, road grading), hydraulic capacity (for example, ditch cleaning), or  
4 original purpose of the facility is excluded from the definition of “construction activity.”  
5 Routine maintenance does not require permit coverage.  
6

7 Since Condition S1.C of the Industrial Stormwater General Permit (ISGP) does not allow  
8 coverage for construction activities as identified by 40 CFR Subpart 122.26(b) (14)(x) and  
9 Subpart 122.26(b) (15), stormwater discharges from construction activities conducted within  
10 industrial facilities require separate coverage under the CSWGP.  
11

12 Ecology’s draft permit contains the same list of “authorized non-stormwater discharges” from  
13 the previous permit, as there is no technical or legal basis to change it.  
14

15 D. Prohibited Discharges. Ecology has adopted and added to EPA’s list of “prohibited  
16 discharges” (40 CFR §450.21) which will help ensure compliance with the state AKART  
17 requirements in Chapter 90.48 RCW, and prevent violations of the state surface and ground  
18 water quality standards, and sediment management standards. The following discharges are  
19 prohibited:

- 20 a. Wastewater from washout of concrete.
- 21 b. Wastewater from washout and cleanout of stucco, paint, form release oils, curing  
22 compounds and other construction materials.
- 23 c. Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance.
- 24 d. Soaps or solvents used in vehicle and equipment washing.
- 25 e. Wheel wash or tire bath wastewater unless handled according to S9.D.
- 26 f. Discharges from dewatering activities, including discharges from dewatering of trenches  
27 and excavations, unless managed according to S9.D.10.

28  
29 E. Limits on Coverage. This section identifies the types of discharges that are not authorized by  
30 the permit. These include discharges from:

- 31 1. Site post-construction activities, after construction is complete and the site is stabilized.
- 32 2. Nonpoint source silvicultural (forestry) sites.
- 33 3. Projects that are federally owned or operated or located on tribal land, or discharge to  
34 tribal waters with EPA approved water quality standards.
- 35 4. Sites covered under an existing individual NPDES permit.
- 36 5. Construction sites with discharges to impaired waters, if the discharge includes a  
37 pollutant for which the water body is listed and documentation (through water quality  
38 sampling), cannot be provided to indicate that no further water quality degradation would  
39 occur due to the stormwater discharged from the site.  
40

41 Coverage for Significant Contributors of Pollutants. The Federal Clean Water Act at Section  
42 402(p)(2)(E) of the Clean Water Act and Chapter 90.48 RCW authorize Ecology to require  
43 permit coverage for any unpermitted construction site which Ecology determines to be a  
44 significant contributor of pollutants to surface or ground waters of the state or may reasonably be  
45 expected to cause a violation of a water quality standard. These provisions allow Ecology to  
46 issue an order to the owner of unpermitted small construction activities which disturb less than

1 one acre of land that are deemed “significant contributors of pollutants” to obtain permit  
2 coverage.

3  
4 F. Coverage for Discharges to Ground Water. In addition to the authority to issue NPDES  
5 permits, Ecology also has authority under state law to issue State Waste Discharge permits for  
6 discharges to state surface waters, ground waters and municipal sewer systems. The draft permit  
7 is issued under this authority.

8  
9 This draft permit regulates operations which have a discharge to the ground only if they also  
10 have a discharge to surface water, a municipal storm drain, or a privately owned storm drain  
11 which discharges to surface water. Stormwater discharges to ground water will be regulated as  
12 part of permit coverage for all sites under this permit. The Permittee must also comply with any  
13 applicable requirements for discharges to ground under the Underground Injection Control  
14 Program (UIC) regulations, Chapter 173-218 WAC. However, this draft permit does not  
15 regulate construction activities which discharge only to groundwater.

## 16 S2. APPLICATION REQUIREMENTS

17 A. Permit Application. On the effective date of the proposed permit, the current permit will be  
18 revoked and replaced by the reissued permit. Sites that have coverage under the existing  
19 CSWGP and have applied for continued coverage will be covered automatically under the  
20 revised permit. These Permittees will be subject to the terms and conditions of the revised  
21 permit. This procedure is authorized under General Condition G8, General Permit Modification  
22 and Revocation, of the current permit and under WAC 173-226-230.

23  
24 In accordance with WAC 173-226-200, operators of construction activities must submit a  
25 complete permit application to obtain coverage under the construction stormwater general  
26 permit. Applicants must submit all of the information listed in Condition S2 as part of the  
27 application for permit coverage. Applicants must submit the Notice of Intent (NOI) at least 60  
28 days before discharging stormwater and on or before the date of the first public notice.

29  
30 Ecology may respond to the permit application in writing based on public comments or any other  
31 relevant permitting considerations, such as mixing zone requests or discharges to impaired  
32 waters. Unless Ecology responds in writing to the permit application, permit coverage under the  
33 general permit will begin on the latter of the following:

- 34 1. The first day following the end of the 30-day public comment period required by WAC  
35 173-226-130(4);
- 36 2. The 31<sup>st</sup> day following receipt by Ecology of a completed application for coverage under  
37 the general permit.

38  
39 In accordance with WAC 173-226-200, the permit application must contain a certification that  
40 the public notice requirements of WAC 173-226-130(5) have been met. The permit application  
41 cannot be submitted to Ecology before the date of the second public notice, and not later than  
42 seven calendar days after the date of the second public notice. The 30-day public comment  
43 period required by WAC 173-226-130(4) begins on the publication date of the second public  
44 notice.

1  
2 If an applicant intends to use a BMP selected on the basis of Condition S9.C.4 (“demonstrably  
3 equivalent” BMPs), the applicant must notify Ecology of its selection as part of its NOI, unless  
4 the selection is made after submission of the NOI, in which case the applicant must submit notice  
5 of the selection of an equivalent BMP shall be provided no less than 60 days before intended use  
6 of the equivalent BMP). This is based on a October 26, 2006 Pollution Control Hearings Board  
7 ruling on the 2005 CSWGP.

8  
9 Permittees may request that Ecology transfer current coverage under this permit to one or more  
10 new operators by submitting a Transfer of Coverage Form in accordance with Condition G9.  
11 Transfers do not require public notice.

12  
13 B. Public Notice. To streamline the permitting process, applicants must satisfy the public notice  
14 requirements of WAC [173-226-130](#)(5) prior to submitting the permit application form to  
15 Ecology. Applicants must publish the public notices one time each week for two consecutive  
16 weeks, with seven days between publication dates. The public notice is required to be placed in  
17 a single newspaper which has general circulation in the county in which the construction is to  
18 take place. The 30-day public comment period required by WAC 173-226-130(4) begins on the  
19 publication date of the second public notice. Because state law requires a 30-day public  
20 comment period before permit coverage, Ecology will not grant permit coverage sooner than 31  
21 days after the date of the last public notice.

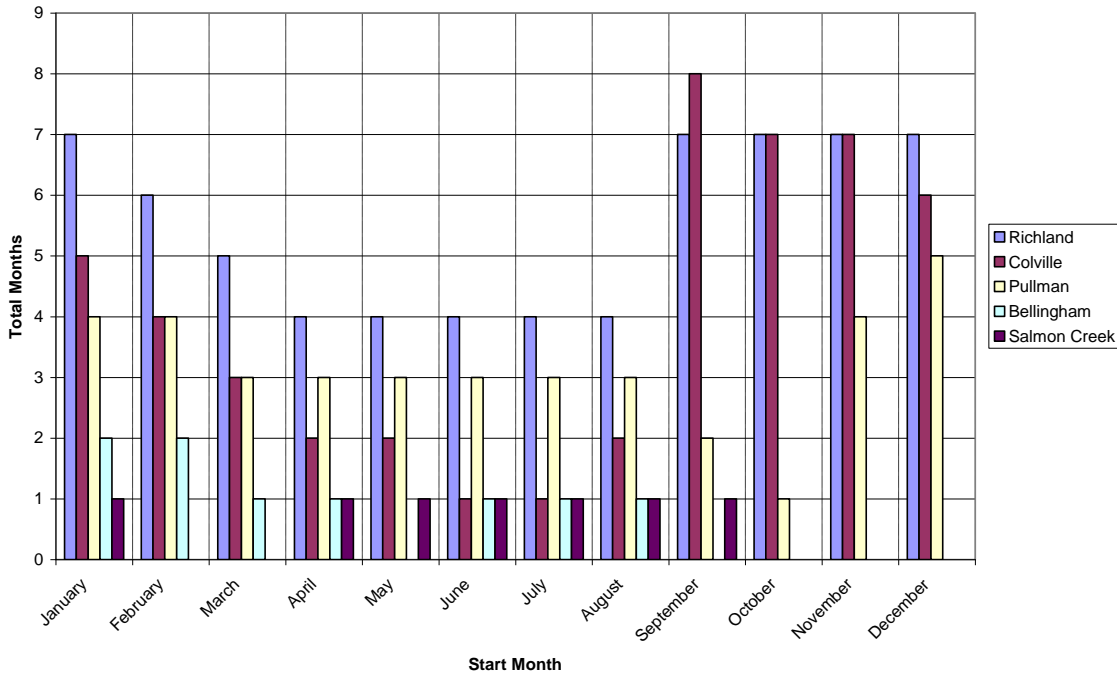
22  
23 A copy of the permit, permit coverage letter, and SWPPP must be retained on-site or within  
24 reasonable access to the site. These documents must be made available to Ecology upon request.

25  
26 C. Low Rainfall Erosivity Waiver. The EPA Phase II Stormwater rule allows, but does not  
27 require, permitting authorities to waive NPDES requirements for stormwater discharges from  
28 small (<5 acre) construction sites based on low rainfall erosivity. The waiver exempts the  
29 project proponent from applying for and obtaining coverage under the CSWGP.

30  
31 The rainfall erosivity waiver process determines the potential for soil erosion based on soil type,  
32 geology of the site, and the amount and force of precipitation expected during the time the earth  
33 will be exposed. The EPA has established an R Factor (“R” in the Revised Universal Soil Loss  
34 Equation) of less than 5 as the criterion for determining rainfall erosivity waiver eligibility as  
35 calculated using the EPA Erosivity Index Calculator for Construction sites <http://ei.tamu.edu/>  
36 (per 40 CFR Part 122.26(b)(15)(i)(A)).

37  
38 Ecology tested the Erosivity Index Calculator using the first day of each month as project start  
39 times for the entire year at 16 locations in Washington (nine in eastern Washington and seven in  
40 western Washington). While results were logical for some locations and timing, they were  
41 obviously flawed at other times. The most significant problem was that the EPA calculator  
42 allowed longer construction seasons during the winter at most locations. The figure below  
43 shows examples on waiver timing at five locations.

Waivered Construction Season



1 Ecology believes that the primary reason that EPA’s Erosivity Index Calculator does not provide  
 2 logical results in Washington is based on its use of summer thunderstorms as the critical factor  
 3 affecting water quality. The relatively large number of zones used by the calculator in  
 4 Washington also provides illogical results when sites are close to one another, but happen to be  
 5 in different zones (counties).  
 6

7  
 8 Ecology recognizes that there are times and locations where small construction sites (<5 acres)  
 9 will not have adverse water quality impacts and should be given a waiver. Staff considered a  
 10 timing and location waiver only, but 40 CFR 122.26(B)(15)(i)(A) requires that the EPA  
 11 Erosivity Index Calculator be used. Federal regulations do allow for additional timing and  
 12 location restrictions and/or a lower R value threshold.  
 13

14 Ecology proposes to continue allowing certain <5 acre sites to obtain an erosivity waiver, under  
 15 the same conditions as the previous CSWGP:  
 16

17 Calculation of Erosivity “R” Factor and Regional Timeframe:

- 18 a. The project’s rainfall erosivity factor (“R” Factor) must be less than 5 during the period  
 19 of construction activity, as calculated using the Texas A&M University online rainfall  
 20 erosivity calculator at: <http://ei.tamu.edu/>. The period of construction activity starts when  
 21 the land is first disturbed and ends with final stabilization. In addition:
- 22 b. The entire period of construction activity must fall within the following timeframes:

  - 23 i. For sites west of the Cascades Crest: June 15 – September 15.
  - 24 ii. For sites east of the Cascades Crest, excluding the Central Basin: June 15 – October  
 25 15.

- 1           iii. For sites east of the Cascades Crest, within the Central Basin\*: no additional  
2           timeframe restrictions apply. The Central Basin is defined as the portions of Eastern  
3           Washington with mean annual precipitation of less than 12 inches.

4 Ecology also proposes to carry forward the other erosivity waiver provisions from the previous  
5 permit:

- 6           1. Construction site operators must submit a complete Erosivity Waiver Certification Form  
7           at least one week before disturbing the land. Certification must include:  
8           a. A statement that the operator will comply with applicable local stormwater  
9           requirements; and  
10           b. A statement that the operator will implement appropriate erosion and sediment  
11           control BMPs to prevent violations of water quality standards.  
12           2. This waiver is not available for facilities declared significant contributors of pollutants as  
13           defined in Condition S1.B.1.b.  
14           3. This waiver does not apply to construction activity that includes non-stormwater  
15           discharges listed in S1.C.3.  
16           4. If construction activity extends beyond the certified waiver period for any reason, the  
17           operator must either:  
18           a. Recalculate the rainfall erosivity “R” factor using the original start date and a new  
19           projected ending date and, if the “R” factor is still under 5 and the entire project falls  
20           within the applicable regional timeframe in S2.C.2.b, complete and submit an  
21           amended waiver certification form before the original waiver expires; or  
22           b. Submit a complete permit application to Ecology in accordance with Condition S2.A  
23           and B before the end of the certified waiver period.  
24

### 25 S3. COMPLIANCE WITH STANDARDS

26 This section requires that discharges associated with construction activity are subject to all  
27 applicable state water quality and sediment management standards. Discharges that are not in  
28 compliance with these standards are not authorized by the permit and are subject to enforcement  
29 action.  
30

31 In recognition of the difficulty stormwater presents to determine when a discharge is causing a  
32 water quality violation, the draft permit emphasizes BMPs and monitoring to prevent stormwater  
33 discharges from causing or contributing to violations of water quality standards. All Permittees  
34 are required to apply AKART, including the preparation and implementation of an adequate  
35 SWPPP and the installation and maintenance of BMPs in accordance with the SWPPP and the  
36 terms and conditions of this permit.  
37

38 RCW 90.48.555 directs Ecology’s determination of compliance with water quality standards in  
39 this general permit. RCW 90.48.555(6) provides:  
40

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

- 1 1. In full compliance with all permit conditions, including planning, sampling, monitoring,  
2 reporting, and recordkeeping conditions; and
- 3 2. Fully implementing stormwater BMPs contained in stormwater technical manuals  
4 approved by Ecology, or practices that are “demonstrably equivalent” to practices  
5 contained in stormwater technical manuals approved by Ecology, including the proper  
6 selection, implementation, and maintenance of all applicable and appropriate BMPs for  
7 on-site pollution control.

8  
9 If an applicant intends to use a BMP selected on the basis of Condition S9.C.4. (“demonstrably  
10 equivalent” BMPs), the applicant shall notify Ecology of its selection as part of its NOI, unless  
11 the selection is made after submission of the NOI, in which case notice of the selection of an  
12 equivalent BMP shall be provided no less than 60 days before intended use of the equivalent  
13 BMP).

14  
15 To ensure compliance with the Clean Water Act, stormwater dischargers must properly design,  
16 construct, maintain, and operate treatment systems to:

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

23  
24 RCW 90.48.555(12) applies to this permit and addresses mixing zones. It states: “The  
25 department may authorize mixing zones only in compliance with and after making  
26 determinations mandated by the procedural and substantive requirements of applicable laws and  
27 regulations.”

28  
29 The applicable laws and regulations include Federal Clean Water Act, RCW 90.48, WAC 173-  
30 200, WAC 173-201A, WAC 173-204, WAC 173-220-040, WAC 173-216-070 and human health  
31 based criteria in the National Toxics Rule (40 CFR 131.36).

32  
33 No mixing zones are established in this draft permit. Since a general permit must apply to a  
34 number of different sites, precise mixing zones and available dilution are not applicable to  
35 facilities covered under a general permit.

36  
37 Any discharger may request a mixing zone through an application for an individual permit in  
38 accordance with WAC 173-220-040 or WAC 173-216-070.

#### 39 S4. MONITORING REQUIREMENTS

40 The monitoring approach outlined in S4 is consistent with the monitoring, recording, and  
41 reporting requirements of WAC 173-220-210, RCW 90.48.555, 40 CFR §450.21 and 40 CFR  
42 122.41 and includes consideration of the certainty, risk, and cost associated with monitoring  
43 stormwater, and the objectives of the permit. Certainty provides a level of confidence that the  
44 data are representative of the pollutants in the discharge. The risk is an assessment of the

1 environmental impacts of pollutants. The monitoring cost considers all associated monitoring  
2 expenses, such as time to sample, expense of sampling and analysis, training and equipment  
3 requirements. The objectives define the purpose of the sampling.  
4

5 On June 4, 2007, the Pollution Control Hearings Board Findings of Fact, Conclusions of Law,  
6 and Order affirmed the 2005 CSWGP permit conditions for sampling, inspections, benchmarks  
7 and corrective actions but ordered Ecology to modify S4. Monitoring; the permit has been  
8 modified as follows (strikeouts, bold text, and underlines are the Board's direction):

- 9 1. Modify Condition S4.C.5 to change ~~31cm~~ to 33cm.
  - 10 a. This modification is necessary to correct the transparency tube benchmark value that  
11 pertains to sites with <5 acres of soil disturbance.
  - 12 b. Ecology's proposed 2010 permit will set the transparency benchmark at 33 cm (which  
13 is approximately 25 NTU turbidity<sup>2</sup>), rather than 31 cm.
- 14 2. Modify Conditions S4.B.1.b, S4.C.5.a.ii, S4.C.5.b.iii, and S9.2.b to include:  
15 "If installation of necessary treatment BMPs is not feasible within 10 days, Ecology may  
16 approve additional time when an extension is requested by a Permittee within the initial  
17 10-day response period."
  - 18 a. This is intended to accommodate the review, approval, and installation of complex  
19 treatment BMPs, such as chitosan-enhanced sand filtration (CESF).
- 20 3. Modify S4.D.1:  
21 "For sites with significant concrete work, the *pH monitoring period* shall commence  
22 when the concrete is first **poured and** exposed to precipitation, and continue weekly  
23 **throughout and after the concrete pour and curing period**, until stormwater pH is 8.5  
24 or less".
  - 25 a. This is intended to clarify the timing and duration of pH monitoring related to  
26 concrete pouring and curing.

## 27

### 28 **Water Quality Sampling**

#### 29

30 The monitoring frequency established in this permit for turbidity/transparency and pH are  
31 consistent with WAC 173-220-210(1)(b) and 40 CFR 122.48(b). Ecology set sampling  
32 frequencies to characterize the nature of the discharge reasonably. Other considerations  
33 included the cost of monitoring relative to the benefits obtained, and the environmental  
34 significance of the pollutants. The sampling frequency will yield data representative of  
35 discharge characteristics.  
36

37 Except for the changes ordered by the PCHB and the following proposed minor changes, the  
38 proposed permit contains the substantially similar sampling requirements as the previous (2005)  
39 permit. The proposed minor changes include:

---

<sup>2</sup> Washington State Department of Ecology. 2005, Stormwater Quality Survey of Western Washington Construction Sites, 2003-2005 Environmental Assessment Program. Publication Number 05-03-028

- 1 • Condition S4.C requires that a Certified Erosion and Sediment Control Lead (CESCL)
- 2 conduct water quality sampling. The previous permit required the site inspections to be
- 3 done by a CESCL, but did not specify who was supposed to perform sampling. Ecology
- 4 believes this is reasonable and appropriate because:
- 5 a. CESCL courses provide hands-on training on transparency, turbidity and pH
- 6 sampling and analysis.
- 7 b. Most CESCLs already perform sampling when they perform site inspections.
- 8 c. Federal regulations require sampling to be performed by “qualified personnel.”
- 9 • To clear up confusion about when sampling needs to be conducted, Ecology provided the
- 10 following clarifications:
- 11 S4.C.2.d. Sampling is not required prior to initial clearing or construction activity.
- 12 • To clear up confusion about where sampling needs to be conducted, Ecology provided
- 13 the following clarifications to Condition S4.C.3 (underlined language is proposed):
- 14 3. Sampling Locations
- 15 a. Sampling is required at all discharge points where stormwater associated with
- 16 construction activity (or authorized non-stormwater) is discharged off site or
- 17 where it enters any on-site waters of the state.
- 18 b. The Permittee may discontinue sampling at discharge points that drain areas of the
- 19 project that are fully stabilized from erosion.
- 20 c. The Permittee must identify all sampling point(s) on the SWPPP site map and
- 21 clearly mark these points in the field with a flag, tape, stake or other visible
- 22 marker.
- 23 d. Sampling is not required for discharges sent directly to sanitary sewer systems;
- 24 Permittees must have prior written permission from the sewer system owner
- 25 before discharge is allowed to take place.

## 27 **Visual Monitoring and Inspections**

28  
 29 The Permittee must begin visual monitoring (that is, site inspections and discharge observations)

30 when permit coverage is granted. The permit requires a CESCL to conduct the site inspections

31 at all sites one acre or larger. The requirements for a CESCL are consistent with AKART,

32 Ecology’s Stormwater Management Manuals (SWMM) BMP C160: Certified Erosion and

33 Sediment Control Lead, and Element 12 of the Twelve Elements of Construction Stormwater

34 Pollution Prevention. Furthermore, this requirement is consistent with the EPA NPDES

35 Construction Stormwater General Permit, which requires BMPs to be inspected by “qualified

36 personnel.” This requirement creates a minimum standard for training individuals who have the

37 skills to assess site conditions and construction activities that could impact the quality of

38 stormwater. These individuals are trained to:

- 39 • Assess the effectiveness of erosion and sediment control measures being used to control
- 40 the quality of stormwater discharges.
- 41 • Properly conduct the site inspections and sampling.
- 42 • Prepare associated reporting and recordkeeping.

43  
 44 Consistent with RCW 90.48.555(8)(a), the draft CSWGP requires enforceable adaptive

45 management mechanisms including the evaluation, reporting, and documentation of remedial

46 actions taken. Ecology established the frequency of site inspections based on three

1 considerations. First, the nature of a construction site is such that large-scale environmental  
2 changes occur over short durations at the site. Second, rainfall and other natural or  
3 environmental forces may cause BMPs to fail. Finally, best professional judgment indicates that  
4 sites that are inspected regularly typically tend to cause fewer water quality violations. Site  
5 inspections provide timely feedback to the operator on the effectiveness of installed BMPs.  
6 Inspections provide information on when BMP repair and maintenance is necessary to improve  
7 the quality of stormwater discharged offsite, or when additional BMPs may be required.  
8 Ecology considers site inspections a requirement of AKART.

### 9 10 **Turbidity/Transparency Benchmark**

11  
12 RCW 90.48.555(8)(a) requires Ecology to establish an enforceable adaptive management  
13 mechanism in the permit. Adaptive management includes monitoring benchmarks. The draft  
14 permit contains a turbidity benchmark value of 25 NTU and a surrogate transparency benchmark  
15 of 33 cm. Ecology established the turbidity benchmark for six reasons:

- 16 (1) Suspended sediment (typically expressed as turbidity or total suspended solids) is the  
17 most common pollutant associated with discharges from construction sites.
- 18 (2) Turbidity is relatively inexpensive to sample.
- 19 (3) Turbidity does not require analysis at an accredited laboratory.
- 20 (4) Turbidity is an objective indicator used to determine the effectiveness of BMPs.
- 21 (5) Permittees can use an alternative method to sample turbidity (i.e., transparency).
- 22 (6) Turbidity monitoring is an effective management tool for evaluating and adequately  
23 addressing the often highly variable construction stormwater discharges and associated  
24 impacts on the beneficial uses of the receiving water.

25  
26 The benchmark value does not represent a water quality criterion or a numeric effluent limit;  
27 rather, it is a numeric threshold or “trigger” for adaptive management. Permittees who exceed  
28 the turbidity benchmark value must review and make appropriate revisions to the Stormwater  
29 Pollution Prevention Plan (SWPPP) and implement and maintain appropriate source control  
30 and/or treatment Best Management Practices (BMPs) within set timeframes. This adaptive  
31 management mechanism is consistent with RCW 90.48.555(8)(a) and constitutes a narrative  
32 effluent limit.

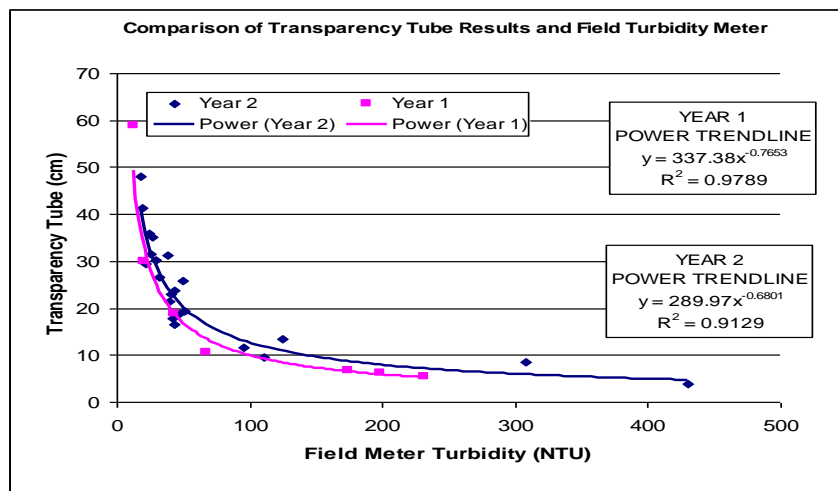
33  
34 Site-specific conditions must still be considered to determine if a discharge of stormwater from a  
35 construction site is causing a water quality violation. These conditions include the background  
36 turbidity of the receiving water, and the relative volume of the discharge compared to the  
37 receiving water.

38  
39 Construction sites change rapidly and have highly variable stormwater discharges (in pollutant  
40 concentrations and volumes). For this reason, Ecology requires a weekly sampling regime for  
41 these sites when stormwater is discharged from the site.

42  
43 If the benchmark is exceeded in a stormwater discharge, the draft permit requires the Permittee  
44 to take appropriate actions to identify and correct the problem(s) causing the turbidity benchmark  
45 exceedance. These adaptive management actions ensure that:

- 1 1. Aquatic life and the other beneficial uses of state waters are adequately protected by  
 2 minimizing the concentrations and volumes of construction stormwater pollutants  
 3 discharged into surface waters. Effects of Turbidity and Suspended Solids on Salmonids  
 4 (Bash *et al.*, 2001) was taken into consideration. Specifically, the discussion under  
 5 Chapter IV, Effects of Turbidity and Suspended Solids on Salmonids, contains relevant  
 6 information and research findings for establishing the benchmark turbidity levels so that  
 7 they adequately protect aquatic life and the other beneficial uses of state waters;  
 8 Web link: [http://www.krisweb.com/biblio/gen\\_uofw\\_bashetal\\_2001.pdf](http://www.krisweb.com/biblio/gen_uofw_bashetal_2001.pdf)  
 9
- 10 2. Permittees will meet AKART and the requirements of RCW 90.48.555;
- 11 3. Permittees who discharge stormwater off site can demonstrate ongoing compliance with  
 12 the Clean Water Act and Chapter 90.48 RCW;
- 13 4. Permittees who discharge stormwater off site have greater regulatory certainty in  
 14 responding to Ecology inspections and citizen lawsuits filed under the Clean Water Act;
- 15 5. Equity exists between those with coverage under this permit and those with coverage  
 16 under the Industrial Stormwater General Permit. The draft permit contains benchmarks  
 17 and enforceable adaptive management mechanisms similar to the Industrial Stormwater  
 18 General Permit.
- 19 6. The best professional judgment of Ecology’s Water Quality inspection staff was taken  
 20 into consideration. Collectively, these staff provide a valuable pool of experience from  
 21 regular inspections of construction sites in Washington. Staff have collected numerous  
 22 stormwater samples from construction sites and associated receiving waters to determine  
 23 compliance with state water quality standards.

24 The transparency benchmark was established to reduce analytical costs to Permittees at smaller  
 25 sites. Ecology derived correlation coefficients from a two-year study of construction sites. Split  
 26 samples were analyzed using the turbidity meter and transparency tube. The correlation  
 27 coefficient demonstrated an  $R^2$  of 0.91 indicating a very strong correlation between transparency  
 28 tube measurements and turbidity meter measurements. The comparison results are depicted in  
 29 the graph below.  
 30



31  
 32

1 On June 4, 2007, the Pollution Control Hearings Board (PCHB) Findings of Fact, Conclusions of  
2 Law, and Order affirmed the 25 NTU benchmark. The PCHB found that a preponderance of the  
3 credible scientific evidence presented at the hearing supports Ecology's best professional  
4 judgment that 25 NTU is both a protective and achievable benchmark when Permittees properly  
5 implement BMPs to control and treat construction stormwater. The PCHB also affirmed the  
6 permit's use of transparency tubes as a surrogate for turbidity for sites <5 acres, but ordered  
7 Ecology to modify S4. Monitoring; the permit now has the following changes:

- 8 1. Modify Condition S4.C.5 to change ~~31cm~~ to 33cm.
  - 9 a. This modification is necessary to correct the transparency tube benchmark value that  
10 pertains to sites with <5 acres of soil disturbance.
  - 11 b. Ecology's proposed 2010 permit will set the transparency benchmark at 33 cm (which  
12 is approximately 25 NTU turbidity<sup>3</sup>), rather than 31 cm.

### 14 **pH Benchmark**

15  
16 pH is a recognized pollutant of concern from construction activities. The pH benchmark  
17 monitoring is consistent with RCW 90.48.555(8)(a) as an appropriate adaptive management  
18 indicator.

19  
20 Ecology is concerned with pH at construction sites because these sites typically use or have  
21 alkaline materials (e.g., concrete, cement, mortar, etc.). When fresh alkaline materials are  
22 exposed to stormwater runoff, they can quickly raise the pH of the stormwater. Several factors  
23 play a role in the impact of high pH on surface water quality, such as size of the receiving water  
24 and its availability to buffer high pH, quantity of fresh concrete pours (i.e., surface area of  
25 exposed concrete), volume of discharge, time of day, exposure to rain, etc. Ecology believes that  
26 use of a matrix of parameters to define a trigger for sampling is unworkable. Therefore, Ecology  
27 is proposing simple pH sampling triggers that were designed from best professional judgment  
28 and data provided by the Washington State Department of Transportation. These triggers are:

- 29 1. Greater than 1000 cubic yards poured concrete.
- 30 2. Greater than 1000 cubic yards recycled concrete,
- 31 3. The use of soil amendments (engineered soils) such as Portland cement-treated base,  
32 cement kiln dust, fly ash, etc.

33  
34 All of these activities, if exposed to rainwater, have the potential to alter the pH in runoff  
35 significantly, and potentially in the receiving water. When one or more of the triggers listed  
36 above occurs, the operator must sample pH at least weekly, but at a duration as determined in  
37 condition S4.F, at the location where runoff from the affected area is collected (typically a  
38 sediment pond, or other impounded body of water onsite) prior to discharge from the site. The  
39 Permittee must neutralize the pH if it is over 8.5 standard units, prior to discharging such waters.  
40 The Permittee should collect the first sample after the first rainfall interacts with the recently  
41 applied alkaline material, because that is when pH will be the highest and therefore has the  
42 greatest potential to adversely impact the receiving water.

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<sup>3</sup> Washington State Department of Ecology. 2005, Stormwater Quality Survey of Western Washington Construction Sites, 2003-2005 Environmental Assessment Program. Publication Number 05-03-028

1  
2 On June 4, 2007, the Pollution Control Hearings Board (PCHB) Findings of Fact, Conclusions of  
3 Law, and Order affirmed the pH benchmark (pH 6.5 – 8.5 su). However, the PCHB ordered  
4 Ecology to modify S4. Monitoring as follows:

5 Modify S4.D.1:

6 “For sites with significant concrete work, the *pH monitoring period* shall commence when  
7 the concrete is first **poured and** exposed to precipitation, and continue weekly **throughout**  
8 **and after the concrete pour and curing period**, until stormwater pH is 8.5 or less”.

9 b. The PCHB’s intent was to clarify the timing and duration of pH monitoring related to  
10 concrete pouring and curing.

## 11 S5. REPORTING AND RECORDKEEPING REQUIREMENTS

12 The reporting and recordkeeping requirements of Condition S5 are based on the federal and state  
13 authorities, which allow Ecology to specify any appropriate reporting and recordkeeping  
14 requirements to prevent and control waste discharges. Section 308(a)(3)(A)(v) of the Clean  
15 Water Act and 40 CFR 122.41(h) provide federal authority. RCW 90.48.555(8)(a)(v) and WAC  
16 173-220-210 provide state authority. Keeping records and reporting provide practical measures  
17 that allow the Permittee and Ecology to assess compliance with the requirements of this permit.  
18 Reporting and recordkeeping assists Ecology to meet the legislative intent for accountability in  
19 RCW 90.48.555.

20  
21 The Permittee is required to notify Ecology within 24 hours of any significant discharges of  
22 sediment. Reporting benchmark values of 250 NTU or more (or transparency values of 6 cm or  
23 less) was established because these values provide the operator with an indication that current  
24 erosion and sediment controls are not functioning for their intended purpose. This telephone  
25 reporting approach is intended to allow the Permittee to address these issues in a timely manner  
26 and allows Ecology to prioritize technical assistance and inspection resources. The 250 NTU  
27 telephone reporting requirement meets the adaptive management approach required by RCW  
28 90.48.555(8)(a)(i) and was affirmed in the June 4, 2007 PCHB Findings of Fact, Conclusions of  
29 Law, and Order.

30  
31 In accordance with 40 CFR 122.44(i)(3-4), Special Condition S.4.C, S4.D and/or S.4.E require  
32 sampling results to be submitted to Ecology on Discharge Monitoring Report (DMR) forms  
33 approved by Ecology. DMRs are required to be filed with Ecology every month for the duration  
34 of permit coverage, even if there was no discharge during the monitoring period. These reports  
35 provide a certified record of when and where sampling has occurred, the results of the analysis,  
36 and documentation that required actions have taken place. All records must be retained for a 3-  
37 year period after the permit has been terminated [40 CFR 122.41(j)(2)].

38  
39 Permittees must submit monitoring data using Ecology's WebDMR program. To find out more  
40 information and to sign up for WebDMR go to:

41 <http://www.ecy.wa.gov/programs/wq/permits/paris/webdmr.html>.

42 Permittees unable to submit electronically (for example, those who do not have an internet  
43 connection) must contact Ecology to request a waiver and obtain instructions on how to obtain  
44 and file a paper copy DMR from:

Department of Ecology Water Quality Program Attn: Stormwater Compliance Specialist PO Box 47696 Olympia, WA 98504-7696	Department of Ecology Water Quality Program Attn: Stormwater Compliance Specialist 300 Desmond Drive SE Lacey, WA 98503
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Paper copy DMRs must be mailed to either address above.

Permittees must submit DMRs to Ecology within 15 days following the end of each month. If submitting paper DMRs by mail, the DMR must be postmarked or received by Ecology within 15 days following the end of each month.

If there was no discharge during a given monitoring period, the Permittee must submit the DMR indicating no discharge. If submitting the paper form, check the “no discharge” checkbox in place of entering monitoring results.

The Permittee is required to conduct inspections, BMP maintenance, SWPPP implementation, monitoring, and reporting. The Permittee is responsible for being aware of and understanding 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 the 280 NTU turbidity limit (for sites disturbing 10 or more acres), 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.

Permittees must submit a summary report to Ecology within five days after becoming aware of the permit violation. This report must detail the conditions that led to noncompliance, a description of 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 before the 5-day notification requirement, then the report must explain why the noncompliance continues, what interim steps have been taken to mitigate or stop further violations, and when corrective actions will be completed.

Interested members of the public are welcome to request copies of SWPPPs directly from Permittees. This condition is similar to provisions in the EPA Multi-Sector Industrial Stormwater General Permit.

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 requester 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.

1 Permittees must keep a copy of the permit, Permit Coverage letter, Site Log book and SWPPP  
2 on-site or within reasonable access to the site and make them available to Ecology upon request.

### 3 S6. PERMIT FEES

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

8  
9 Some facilities may qualify for and receive an extreme hardship fee reduction under the  
10 Wastewater Discharge Permit Fee Rule (Chapter 173-224 WAC). Extreme hardship applies only  
11 if the annual gross revenue of goods and services produced using the processes regulated under  
12 the permit is \$100,000 or less and the fee poses an extreme hardship to the business.

### 13 S7. SOLID AND LIQUID WASTE DISPOSAL

14 This section is intended to ensure that handling and disposal of solid or liquid wastes do not  
15 result in a violation of applicable water quality regulations (40 CFR 122.44(k)(2), 40 CFR  
16 125.3(g), RCW 90.48.080, and WAC 173-216-110(1)(f)).

17  
18 Stormwater control activities such as containment, collection, separation and settling may result  
19 in the generation of solid and liquid wastes. Housekeeping and other site management activities  
20 may generate solid and liquid wastes such as drip traps, cleanup of process areas and removal of  
21 spill materials. Proper disposal of liquid and waste materials is required. This permit  
22 requirement is intended to prevent the discharge of trash, chemicals, and other polluting  
23 materials into waters of the state.

24  
25 Local jurisdictions may have other requirements that must be met. Permittees should check with  
26 the local jurisdiction for more information.

### 27 S8. DISCHARGES TO 303(D) OR TMDL WATERBODIES

28 Condition S8 of the permit is covered in this fact sheet under Consideration of Surface Water  
29 Quality-Based Limits for Numeric Criteria, above.

### 30 S9. STORMWATER POLLUTION PREVENTION PLAN REQUIREMENTS

31 In accordance with 40 CFR 122.44(k) and 40 CFR 122.44 (s), the draft general permit includes  
32 requirements for the development and implementation of SWPPPs along with BMPs to minimize  
33 or prevent the discharge of pollutants to waters of the state. The BMPs in the proposed Permit  
34 constitute:

- 35 • Best Practicable Control Technology Currently Available (BPT), (40 CFR §450.21).
- 36 • Best Conventional Pollutant Control Technology (BCT), (40 CFR §450.22).
- 37 • Best Available Technology Economically Achievable (BAT), 40 CFR §450.23).New
- 38 Source Performance Standards representing the degree of effluent reduction attainable by

1 application of the best available demonstrated control technology (NSPS), (40 CFR  
2 §450.24).

3  
4 Ecology has determined that Permittees in full compliance with the Construction Stormwater  
5 General Permit meet the state AKART (all known and reasonable methods of prevention control  
6 and treatment) requirements in Chapter 90.48 RCW.

7  
8 The objectives of the SWPPP are to:

- 9 1. Implement BMPs to prevent erosion and sedimentation, and to identify, reduce, eliminate  
10 or prevent stormwater contamination and water pollution from construction activity.
- 11 2. Prevent violations of surface water quality, ground water quality, or sediment  
12 management standards.
- 13 3. Prevent adverse water quality impacts including impacts to beneficial uses of the  
14 receiving water by controlling peak flow rates and volumes of stormwater runoff at the  
15 Permittee's outfalls and downstream of the outfalls during the construction phase of a  
16 project.

17  
18 Condition S.9 outlines specific requirements to prepare, implement, and modify the SWPPP.  
19 Permittees must prepare and fully implement the SWPPP, including narrative and drawings, in  
20 accordance with this permit. The SWPPP must address all phases of the construction project,  
21 beginning with initial soil disturbance until final site stabilization. All BMPs used or planned for  
22 a project (or specific phase of a project) must be clearly referenced in the SWPPP narrative and  
23 marked on the drawings.

24  
25 The SWPPP narrative must include documentation to explain and justify the pollution prevention  
26 decisions made for the project. Documentation must include:

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

35  
36 Consistent with RCW 90.48.555(8)(a), condition S9.B.3 the permit contains an enforceable  
37 adaptive management mechanism to trigger SWPPP modifications when problems are noted  
38 during site inspections. Specifically, Condition S9.B.3 requires the Permittee to modify the  
39 SWPPP if, during inspections or investigations conducted by the Permittee's CESCL or the  
40 applicable local or state regulatory authority, the SWPPP is determined to be, or would be,  
41 ineffective in eliminating or significantly minimizing pollutants in stormwater discharges from  
42 the site.

43  
44 The development and implementation of the SWPPP is one of the most important parts of a  
45 permit and is critical to the successful control of stormwater pollution. These plans are to be  
46 "living documents" that change during the actual construction phases in order to meet the needs

1 of changing site conditions. The SWPPP must be modified as necessary to include additional or  
2 modified BMPs designed to correct the specific problems identified. These adaptive  
3 management requirements are designed to result in permit compliance and prevent stormwater  
4 discharges that could cause a violation of state water quality standards. Revisions to the SWPPP  
5 must be completed within seven days following the inspection and must include an updated  
6 timeline for BMP implementation this timeframe. BMP revisions must be implemented on site  
7 in a timely manner.

8  
9 The SWPPP must also be modified whenever there is a change in design, construction,  
10 operation, or maintenance at the construction site that has, or could have, a significant effect on  
11 the discharge of pollutants to waters of the state. This requirement is consistent with federal  
12 technology-based requirements for Best Conventional Pollutant Control Technology (BCT) and  
13 Best Available Technology Economically Achievable (BAT) and the state requirement for  
14 AKART (90.48.010 RCW, WAC 173-226-070(1)(d)).

15  
16 Consistent with RCW 90.48.555 (5) and (6), the permit contains a narrative effluent limitation  
17 that requires the implementation of BMPs that are contained in stormwater technical manuals  
18 approved by Ecology, or practices that are demonstrably equivalent to practices contained in  
19 stormwater technical manuals approved by Ecology. If an applicant for coverage under the  
20 CSWGP intends to use a BMP selected on the basis of Condition S9.C.4 (“demonstrably  
21 equivalent” BMPs), the applicant shall notify Ecology of its selection as part of its NOI, unless  
22 the selection is made after submission of the NOI, in which case notice of the selection of an  
23 equivalent BMP shall be provided no less than 60 days before intended use of the equivalent  
24 BMP.

25  
26 This is intended to ensure that BMPs will prevent violations of state water quality standards,  
27 satisfy the state AKART requirements, and the federal technology-based treatment requirements  
28 under 40 CFR part 125.3. Specifically, condition S.9.C states that BMPs must be consistent  
29 with:

- 30 1. Stormwater Management Manual for Western Washington (most recent edition), for sites  
31 west of the crest of the Cascade Mountains;
- 32 2. Stormwater Management Manual for Eastern Washington (most recent edition), for sites  
33 east of the crest of the Cascade Mountains; or
- 34 3. Other stormwater management guidance documents or manuals that provide an  
35 equivalent level of pollution prevention and are approved by Ecology; or
- 36 4. Documentation in the SWPPP that the BMPs selected provide an equivalent level of  
37 pollution prevention, compared to the applicable Stormwater Management Manuals,  
38 including:
  - 39 a. The technical basis for the selection of all stormwater BMPs (scientific, technical  
40 studies, and/or modeling) that support the performance claims for the BMPs being  
41 selected.
  - 42 b. An assessment of how the selected BMP will satisfy AKART requirements and the  
43 applicable federal technology-based treatment requirements under 40 CFR part 125.3.

1 OPERATION AND MAINTENANCE

2 The Permittee must properly operate and maintain all BMPs for stormwater management. The  
3 SWPPP must include operation and maintenance (O&M) practices for the proper management of  
4 the site. By operating and maintaining appropriate BMPs, the risk of water quality pollution is  
5 minimized and the ability of the Permittee to comply with this permit is improved.  
6

7 40 CFR 122.41(e) requires the Permittee to properly operate and maintain all facilities. The  
8 SWPPP must contain adequate O&M procedures to ensure that BMPs are functioning properly  
9 to control discharges [40 CFR 122.44(k)]. Authority is also provided by RCW 90.48.080, RCW  
10 90.48.520, and WAC 173-216-110(1)(f).  
11

12 This section also outlines the 12 elements that the SWPPP must include and that the Permittee  
13 must implement unless site conditions render the element unnecessary and the exemption from  
14 that element is clearly justified in the SWPPP narrative. The 12 elements are:

- 15 1. Mark Clearing Limits
- 16 2. Establish Construction Access
- 17 3. Control Flow Rates
- 18 4. Install Sediment Controls
- 19 5. Protect Vegetation/Stabilize Soils
- 20 6. Protect Slopes
- 21 7. Protect Drain Inlets
- 22 8. Stabilize Channels and Outlets
- 23 9. Control Pollutants
- 24 10. Control De-Watering
- 25 11. Maintain BMPs
- 26 12. Manage the Project

27  
28 The technical rationale for each of these elements is described in the subsequent sections of the  
29 fact sheet.  
30

31 1. Mark Clearing Limits.

32 Since little soil erosion occurs on areas covered with undisturbed vegetation, Permittees  
33 should mark clearing limits so that soils and vegetation outside of the immediate area of  
34 construction activity are protected. In addition, wetlands, and other types of sensitive areas  
35 that are intended to be preserved must be clearly marked so that they are not damaged  
36 inadvertently during construction activity.  
37

38 Plastic, metal, or stake wire fencing material is durable and weather resistant and is ideal for  
39 marking clearing limits at construction sites.  
40

41 2. Establish Construction Access.

42 The purpose of stabilizing entrances to construction sites is to minimize the amount of  
43 sediment and mud being tracked off-site by motorized vehicles. Installing and maintaining a  
44 pad of gravel over filter cloth where construction traffic leaves a site can help stabilize the  
45 entrance. As a vehicle drives over the gravel pad, mud and other sediments are loosened and  
46 removed from the vehicle's wheels thereby reducing the offsite transport of sediment. The

1 gravel pad also reduces mechanical erosion and prevents the formation of muddy wheel ruts,  
2 which can be a source of “track-out.” The filter fabric reduces the amount of rutting caused  
3 by vehicle tires by spreading the vehicle's weight over a larger soil area than just the tire  
4 width. The filter fabric also separates the gravel from the soil below, preventing the gravel  
5 from being ground into the soil (EPA 2002).  
6

7 Stone (rip-rap or quarry spalls) and gravel used to stabilize the construction site entrance  
8 should be large enough so that they are not carried off-site on tires, which can result in  
9 property damage. Site operators should avoid sharp-edged stone should be avoided to reduce  
10 the possibility of puncturing tires. According to EPA (2002), stone or gravel should be  
11 installed at a depth of at least 6 inches for the entire length and width of the stabilized  
12 construction entrance.  
13

14 WSDOT and Ecology have also seen successful application of steel plates used to provide a  
15 stabilized construction entrance; this is an acceptable substitute to traditional rip-rap entrance  
16 areas.  
17

18 Limiting construction site access to one point minimizes the surface area that could be  
19 affected by tracked out mud and sediment from construction traffic.  
20

21 If the stabilized construction access does not adequately prevent sediment from being tracked  
22 off site adequately, the site operator must locate a wheel wash or tire baths on-site. Wheel  
23 wash systems remove mud from construction vehicles on site and reduce the amount of  
24 sediment transported onto paved roads. Wastewater from wheel washing or street washing  
25 activity is typically sediment laden with very high levels of turbidity. In addition, this  
26 wastewater may contain other pollutants such as metals, phosphorus, polymers, and/or oil  
27 and grease at levels that may harm to aquatic life. As a result, site operators must discharge  
28 wheel wash and street wash wastewater to a separate on-site treatment system, such as  
29 closed-loop recirculation or land application, or to a sanitary sewer with local approval.  
30

### 31 3. Control Flow Rates.

32 Construction activity may involve clearing vegetation, removing or compacting native soils,  
33 modifying slopes and drainage patterns, and installing impervious surfaces such as rooftops  
34 or roads. Any of these activities may increase the volume, velocity, and peak flow rate of  
35 stormwater runoff from the site. These hydrologic changes can cause erosion, scouring, and  
36 down-cutting in channels located downstream of the construction site, ultimately increasing  
37 turbidity and suspended solids in affected waterbodies and damaging aquatic habitat.  
38

39 Properly designed flow control facilities, such as retention or detention structures that  
40 discharge at pre-disturbance peak flow rates and durations, can protect downstream  
41 waterways from increased bank erosion, channel instability, and water quality degradation.  
42

43 If the SWPPP requires stormwater detention facilities, all engineered structures must be  
44 constructed according to design. Site operators must construct these structures as one of the  
45 first steps in the construction sequence so that all runoff from construction activity is treated  
46 and controlled. If a site uses permanent infiltration facilities for flow control during

1 construction, the operator must protect these facilities from siltation during the construction  
2 phase through the use of sediment traps/basins and/or other appropriate BMPs. Failure to  
3 protect infiltration facilities from siltation will typically clog the soil horizon in the structure  
4 and reduce the infiltration capacity. This performance reduction can cause downstream  
5 erosion and water quality degradation.  
6

#### 7 4. Install Sediment Controls.

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

- 13 • Provide containment storage volume for stormwater runoff
- 14 • Create uniform flow zones within the containment storage volume for deposition of  
15 suspended sediment
- 16 • Discharge water at a controlled rate (Fifield, 2001)  
17

18 Goldman (1986) defines structures that treat the runoff from 2.0 hectare (or 5.0 acres) or less  
19 as a “sediment trap,” but when the surface area contributing to the structure exceeds 2.0  
20 hectare, the structure is defined as a “sediment basin.”  
21

22 Although sediment traps allow suspended sediment to settle, their short detention periods  
23 may not remove fine particles such as silts and clays without chemical treatment. To  
24 increase overall effectiveness, sediment traps should be constructed in smaller areas with low  
25 slopes. Sediment traps are appropriate where the contributing drainage area is less than 3  
26 acres, with no unusual drainage features, and the projected built-out time is 6 months or less;  
27 otherwise, a sediment basin must be used (Ecology 2005).  
28

29 Sediment traps are typically designed to remove only sediment from surface water, but some  
30 non-sediment pollutants (e.g., phosphorus, metals) are trapped as well (Haan *et al.*, 1994 as  
31 cited in EPA 2002).  
32

33 A sediment basin or sediment pond is a storm water detention structure formed by  
34 constructing a dam across a drainage course or by excavating a basin with adequate storage  
35 volume in a location that intercepts runoff from the area of construction activity. Sediment  
36 basins are generally larger and more effective in retaining sediment than temporary sediment  
37 traps and typically remain active throughout the construction period. Site operators must use  
38 a sediment basin where the contributing drainage area is 3 acres or larger. Jurisdictions that  
39 require post-development flow rates to be less than or equal to predevelopment flow rates  
40 during construction may employ the designed detention facilities as a temporary sediment  
41 basin during construction (EPA 2002).  
42

#### 43 5. Preserve Vegetation/Stabilize Soils.

44 Site operators must maintain the duff layer, native topsoil, and natural vegetation in an  
45 undisturbed state to the maximum extent practicable. This requirement is partly based on the

1 fundamental principle that vegetation is the most effective form of erosion control (Goldman  
2 et al., 1986). Vegetation reduces runoff volume, reduces flow velocity, filters suspended  
3 sediment, absorbs the erosive energy of falling raindrops, and retains soil structure (WSDOT  
4 2000).

5  
6 In areas where soils have been disturbed or exposed during construction activity, timely  
7 permanent seeding is appropriate in areas where permanent, long-lived vegetative cover is  
8 the most practical or most effective method of stabilizing the soil. Permanent seeding can be  
9 used on roughly graded areas that will not be regraded for at least a year, while temporary  
10 seed mixtures may be more appropriate for areas to be regraded in less than one year.

11 Vegetation controls erosion by protecting bare soil surfaces from displacement by raindrop  
12 impacts and by reducing the velocity and quantity of overland flow. The advantages of  
13 seeding over other means of establishing plants include lower initial costs and labor inputs.  
14 Data have shown that seeding that produces a successful stand of grass has been shown to  
15 remove between 50 and 100 percent of total suspended solids from stormwater runoff, with  
16 an average removal of 90 percent (EPA 2002).

17  
18 Sodding is a permanent erosion control practice that involves laying a continuous cover of  
19 grass sod on exposed soils. In addition to stabilizing soils, sodding can reduce the velocity of  
20 stormwater runoff. Sodding can provide immediate vegetative cover for critical areas and  
21 stabilize areas that cannot be vegetated by seed. It can also stabilize channels or swales that  
22 convey concentrated flows and reduce flow velocities. Sod has been shown to remove  
23 between 98 and 99 percent of total suspended solids in runoff, and is considered a highly  
24 effective best management practice (EPA 1993, as cited in EPA 2002).

25  
26 Mulching is a temporary erosion control practice in which materials such as grass, hay, wood  
27 chips, wood fibers, straw, or gravel are placed on exposed or recently planted soil surfaces.  
28 Mulching is highly recommended as a stabilization method and is most effective when  
29 anchored in place until vegetation is well established. Mulching can also reduce the velocity  
30 of stormwater runoff.

31  
32 When used in combination with seeding or planting, mulching can aid plant growth by  
33 holding seeds, fertilizers, and topsoil in place; by preventing birds from eating seeds; by  
34 retaining soil moisture; and by insulating plant roots against extreme temperatures (EPA,  
35 1992 and 2002). Mulching effectiveness varies with the type and amount of mulch used and  
36 local conditions such as rainfall and runoff amounts. Table 3 shows soil loss and water  
37 velocity reductions relative to bare soil for several different mulch treatments.  
38

Table 3. Measured Reductions in Soil Loss for 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	53.0	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

(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, contractors use geotextiles 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).

Erosion control blankets with photodegradable plastic netting and yarn depend on sunlight to degrade. Shade from newly established vegetation may prevent rapid degradation of netting and yarn, which could pose a trapping hazard to birds and other wildlife. To prevent detrimental impacts to wildlife, Permittees should use biodegradable nets and blankets so that no synthetic residues remain on-site after vegetation is established.

#### 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

1 soils when implemented with stormwater management and erosion and sediment control  
2 practices in mind. Land grading is not effective when drainage patterns are altered or when  
3 vegetated perimeter areas are damaged (EPA, 2002).

4  
5 Site operators should not allow runoff from undisturbed areas above those that have been  
6 denuded or cleared to drain onto exposed soils, particularly when the denuded areas are on  
7 slopes. Dikes, ditches or diversions should be used to divert upland runoff away from a  
8 disturbed area to a stable outlet (Goldman 1986).

9  
10 A dike is a temporary or permanent ridge of soil designed to channel water to a desired  
11 location. Dikes are used to divert the flow of runoff by constructing a ridge of soil that  
12 intercepts and directs the runoff to the desired outlet or alternative management practice,  
13 such as a pond. This practice serves to reduce the length of a slope for erosion control and  
14 protect down-slope areas. An interceptor dike can be used to prevent runoff from going over  
15 the top of a cut and eroding the slope, directing runoff away from a construction site or  
16 building; to divert clean water from a disturbed area, or to reduce a large drainage area into a  
17 more manageable size. Dikes should be stabilized with vegetation after construction  
18 (NAHB, no date, as cited by EPA 2002).

19  
20 To prevent erosive velocities from occurring on long or steep slopes, site operators should  
21 install terraces on the slope at regular intervals. Terraces will slow down the runoff and  
22 provide a place for small amounts of sediment to settle. Slope benches are usually  
23 constructed with ditches along them or are back-sloped at a gentle angle toward the hill.  
24 These benches and ditches intercept runoff before it can reach an erosive velocity and divert  
25 it to a stable outlet. The slopes of these cross-slope channels should be gentle, and the  
26 channels should be protected with erosion resistant linings if the velocities in the channels  
27 will exceed the tolerance of the bare soil surface (Goldman et al. 1986).

28  
29 Recently graded slopes that do not have permanent drainage measures installed should have a  
30 temporary slope drain and a temporary diversion installed. A temporary slope drain used in  
31 conjunction with a diversion conveys storm water flows and reduces erosion until permanent  
32 drainage structures are installed (EPA 2002). At the top of slopes, collect drainage in pipe  
33 slope drains or protected channels to prevent erosion using the following design standards:

- 34 • West of the Cascade Mountains Crest: Temporary pipe slope drains shall handle the  
35 expected peak flow from a 10-year, 24-hour event assuming a Type 1A rainfall  
36 distribution. Alternatively, the 10-year and 25-year, 1-hour flow rates indicated by an  
37 approved continuous runoff model, increased by a factor of 1.6, may be used  
38 (Ecology 2005).
- 39 • East of the Cascade Mountains Crest: Temporary pipe slope drains shall handle the  
40 expected peak flow velocity from a 6-month, 3-hour storm for the developed  
41 condition, referred to as the short duration storm (Ecology 2004).

#### 42 43 7. Protect Drain Inlets.

44 Storm drain inlet protection measures are controls that help prevent soil and debris from on-  
45 site erosion from entering storm drain drop inlets. Typically, these measures are temporary  
46 controls that are implemented prior to large-scale disturbance of the surrounding site. These

1 controls are advantageous because their implementation allows storm drains to be used  
2 during even the early stages of construction activities. The early use of storm drains during  
3 project development significantly reduces the occurrence of future erosion problems (Smolen  
4 et al. 1988 as referenced by EPA 2002).

5  
6 According to EPA (2002), three temporary control measures to protect storm drain drop  
7 inlets are:

- 8 • Excavation around the perimeter of the drop inlet
- 9 • Fabric barriers around inlet entrances
- 10 • Block and gravel protection

11  
12 Excavation around a storm drain inlet creates a settling pool to remove sediments. Weep  
13 holes protected by gravel are used to drain the shallow pool of water that accumulates around  
14 the inlet. A fabric barrier made of porous material erected around an inlet can create an  
15 effective shield to sediment while allowing water to flow into the storm drain. This type of  
16 barrier can slow runoff velocity while catching soil and other debris at the drain inlet. Block  
17 and gravel inlet protection uses standard concrete blocks and gravel to form a barrier to  
18 sediments while permitting water runoff through select blocks that are laid sideways (EPA  
19 2002).

20  
21 In addition to the materials listed above, limited temporary storm water drop inlet protection  
22 can also be achieved with the use of straw bales or sandbags to create barriers to sediment.  
23 For permanent storm drain drop inlet protection after the surrounding area has been  
24 stabilized, sod can be installed as a barrier to slow stormwater entry to storm drain inlets and  
25 capture sediments from erosion. This final inlet protection measure can be used as an  
26 aesthetically pleasing way to slow storm water velocity near drop inlet entrances and remove  
27 sediments and other pollutants from runoff (EPA 2002).

28  
29 A wide variety of commercial catch basin filters are available to protect storm drains from  
30 sedimentation. Filter inserts must be installed and maintained per manufacturer  
31 specifications. The limited sediment storage capacity of many commercial catch basin filters  
32 increases the amount of inspection and maintenance required, which may be daily for heavy  
33 sediment loads. The maintenance requirements can be reduced by combining a catchbasin  
34 filter with another type of inlet protection. The filter should have a high-flow bypass that  
35 will not clog under normal use. (Ecology 2005).

#### 36 37 8. Stabilize Channels and Outlets.

38 Lined channels convey stormwater runoff through a stable conduit. Vegetation lining the  
39 channel reduces the flow velocity of concentrated runoff. Lined channels are not usually  
40 designed to control peak runoff loads by themselves and are often used in combination with  
41 other BMPs such as subsurface drains and riprap stabilization. Where moderately steep  
42 slopes require drainage, lined channels can include excavated depressions or check dams to  
43 enhance runoff storage, decrease flow rates, and enhance pollutant removal. Peak discharges  
44 can be reduced through temporary detention in the channel. Pollutants can be removed from  
45 storm water by filtration through vegetation, by deposition, or in some cases by infiltration of  
46 soluble nutrients into the soil. The degree of pollutant removal in a channel depends on the

1 residence time of the water in the channel and the amount of contact with vegetation and the  
2 soil surface, but pollutant removal is not generally the major design criterion.

3  
4 Construction activity often increases the velocity and volume of stormwater runoff, which  
5 causes erosion in newly constructed or existing urban runoff conveyance channels. If the  
6 runoff during or after construction will cause erosion in a channel, the channel should be  
7 lined or flow control practices should be instituted. The first choice of lining should be grass  
8 or sod since this reduces runoff velocities and provides water quality benefits through  
9 filtration and infiltration. If the velocity in the channel would erode the grass or sod; riprap,  
10 concrete, or gabions can be used (EPA 2000). Geotextile materials can be used in  
11 conjunction with either grass or riprap linings to provide additional protection at the soil-  
12 lining interface.

13  
14 Rock outlet structures placed at the outfall of channels or culverts reduce the velocity of flow  
15 in the receiving channel to non-erosive rates. This practice applies where discharge  
16 velocities and energies at the outlets of culverts are sufficient to erode the next downstream  
17 reach and is applicable to outlets of all types such as sediment basins, stormwater  
18 management ponds, and road culverts.

19  
20 On-site conveyance channels must be designed, constructed, and stabilized to prevent erosion  
21 from the following expected peak flows:

- 22 • West of the Cascade Mountains Crest: 10-minute velocity of flow from a Type 1A,  
23 10-year, 24-hour frequency storm for the developed condition. Alternatively, the 10-  
24 year, 1-hour flow rate indicated by an approved continuous runoff model, increased  
25 by a factor of 1.6, may be used (Ecology 2005).
- 26 • East of the Cascade Mountains Crest: velocity of flow from the 6-month, 3-hour  
27 storm for the developed condition, referred to as the short duration storm (Ecology  
28 2004).

## 30 9. Control Pollutants.

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

34  
35 As early as 1990, while conducting the Phase I stormwater rulemaking EPA identified  
36 nonconventional and toxic pollutants of concern in discharges from construction sites stating  
37 “[c]onstruction sites can also generate other pollutants such as phosphorus, nitrogen, and  
38 nutrients from fertilizer, pesticides, petroleum products, construction chemicals and solid  
39 wastes.” 55 FR at 48033. The National Academy of Sciences agrees with EPA and the NRC  
40 report states “[t]he pollutant parameters of concern in stormwater discharges from  
41 construction activity are TSS, settleable solids, turbidity, and nutrients from erosion; pH from  
42 concrete and stucco; and a wide range of metallic and organic pollutants from construction  
43 materials, processes, wastes, and vehicles and other motorized equipment.” NRC at 541.

44  
45 Ecology has documented the potential for other pollutants to be discharged from construction  
46 sites depending on factors such as prior land uses. For example, if the prior land use was

1 agriculture, there is the potential for discharge of pollutants such as nutrients and pesticides.  
2 Likewise, areas of redevelopment that occur on sites where previous land uses included  
3 industry could discharge pollutants such as organics and metals.  
4

5 During the development of EPA’s Effluent Limitation Guidelines for the Construction and  
6 Development Sector, some commenter’s urged EPA to establish numeric effluent limitations  
7 for pollutants other than turbidity (such as pH). While EPA agreed there are other pollutants  
8 of concern that are discharged from construction sites the Agency determined it is not  
9 necessary to establish any other numeric effluent limitations at this time. Many of the  
10 pollutants of concern are sediment-bound pollutants, such as metals and nutrients. The non-  
11 numeric effluent limitations in the final rule [2010 ELG] will address the mobilization of  
12 sediment and the discharge of these sediment-bound pollutants. The final rule includes a  
13 non-numeric effluent limitation that prohibits the discharge of wastewater from washout of  
14 concrete, unless managed by an appropriate control. 40 CFR 450.21(3)(1). This requirement  
15 was included to specifically address concerns with pH. Additionally, the numeric effluent  
16 limitation, in addition to controlling the discharge of turbidity, will control the discharge of  
17 some of these other pollutants of concern. According to EPA, “if permitting authorities have  
18 concerns regarding the discharge of other pollutants they may be addressed with numeric  
19 effluent limitations on case-by-case basis through NPDES permits.” (EPA 2009).  
20

21 Ecology’s proposed permit prohibits the discharge of concrete process wastewater, including  
22 wastewater resulting from the wash-out of concrete trucks and pumpers. The permit requires  
23 BMPs to manage concrete and other pH modifying materials and comply with AKART. The  
24 following excerpt from S9.D.9 addresses Portland cement, concrete washout, and other pH  
25 modifying sources. Permit Condition S9.D.9 requires BMPs to manage concrete and other pH  
26 modifying materials and requires the Permittee to comply with AKART.  
27

28 Permittees must provide cover, containment, and protection from vandalism for all  
29 chemicals, liquid products, petroleum products, and other materials that have the potential to  
30 pose a threat to human health or the environment. On-site fueling tanks must include  
31 secondary containment to prevent the discharge of petroleum to waters of the state (Ecology  
32 2005).  
33

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

- 36 • Neat and orderly storage of chemicals, pesticides, fertilizers, and fuels that are stored  
37 on-site.
- 38 • Regular collection and disposal of trash and sanitary waste.
- 39 • Prompt cleanup of spills of liquid or dry materials.  
40

#### 41 10. Control De-Watering.

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

1  
2 Sediment is the most common pollutant associated with de-watering operations on  
3 construction sites. When water is not visibly clear of sediment or when the dewatering  
4 operation may re-suspend sediments, one or more sediment treatment options may need to be  
5 implemented. The size of particles present in the sediment is a key consideration for  
6 selecting the appropriate sediment treatment option(s).

- 7 • If the sediment consists primarily of gravel or sand, which are relatively large  
8 particles, a single treatment using a more basic technology, such as a weir tank, may  
9 be adequate.
- 10 • If the sediment consists of silt and/or clay, which are relatively small particles, the  
11 effluent will most likely need a more advanced technology, such as a sand media  
12 particulate filter or cartridge filter.
- 13 • If the sediment consists of a broad spectrum of particle sizes, the water may need  
14 primary treatment to remove larger particles, followed by secondary treatment to  
15 remove finer particles (Caltrans 2001).

16  
17 The slope and accessibility of the treatment area may limit the selection of an appropriate  
18 system. The Permittee should evaluate the site to determine the most effective system layout,  
19 access, dewatering storage, pumping requirements (flow, pressure, and duration), ancillary  
20 piping, backwash tanks, a low impact discharge system, and any other site-specific  
21 requirements.

22  
23 The applicability and use of de-watering devices on a construction project are specific to the  
24 individual job and treatment needs. The vendors who rent and sell these products can  
25 provide assistance to engineer a de-watering management program to meet the specific job  
26 conditions. Permittees may need multiple devices and treatment techniques may be  
27 necessary to meet the treatment criteria (Caltrans 2001).

28  
29 Other pollutants that may result from dewatering, as defined in Federal and State laws and  
30 regulations, tend to be site-specific and are often associated with current or past use of the  
31 construction site or adjacent land. Pollutants may include: nitrogen and phosphate from  
32 fertilizers; organic materials from plant waste; metals such as arsenic, cadmium, copper, and  
33 lead; and constituents that affect pH or hardness. Other pollutants include oil, grease,  
34 pesticides, solvents, fuels, trash, and bacteria from human/animal wastes (Caltrans 2001).

35  
36 EPA's 2009 Effluent Limitations Guidelines for the Construction and Development Point  
37 Source Category requires Permittees to minimize the discharge of pollutants from dewatering  
38 trenches and excavations. Discharges are prohibited unless managed by appropriate controls.  
39 40 CFR 450.21(c).

40  
41 Permittees can discharge clean (uncontaminated), non-turbid, dewatering water, such as well-  
42 point *ground water*, to systems tributary to, or directly into *surface waters of the State*, as  
43 specified in S9.D.8, provided the dewatering flow does not cause erosion or flooding of  
44 *receiving waters*. To prevent the contamination of relatively clean dewatering water, it should  
45 not be routed through *stormwater sediment* ponds. The rationale for this condition is based on

1 Ecology's experience that comingling relatively clean dewatering water with turbid stormwater  
2 creates a larger volume of turbid water. Segregating the clean dewatering water from the  
3 turbid stormwater pond minimizes the volume of turbid water that requires treatment, and  
4 preserve the storage capacity of sediment ponds.

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

- 7 • Infiltration.
- 8 • Transport offsite in a vehicle, such as a vacuum flush truck, for legal disposal in a  
9 manner that does not pollute state waters.
- 10 • Ecology-approved on-site chemical treatment or other suitable treatment  
11 technologies.
- 12 • Sanitary sewer discharge with local sewer district approval, if there is no other option.
- 13 • Use of a sedimentation bag with outfall to a ditch or swale for small volumes of  
14 localized de-watering (Ecology 2005).

#### 15 16 11. Maintain BMPs.

17 Probably the most common reason for failure of construction site erosion control devices  
18 (BMPs) is inadequate maintenance. BMPs are often reluctantly installed and then ignored.  
19 If BMPs are properly constructed, but not properly and frequently maintained, little benefit  
20 may be expected. Newly installed devices will perform as initially expected until their  
21 "capacity" is exceeded. Filter fences, for example, should be maintained before the material  
22 that accumulates behind them becomes excessive. More importantly, the integrity of the  
23 fence needs to be checked frequently. Filter fences at construction sites are often  
24 undermined or bypassed because of large flows or large sediment accumulations.  
25 Sedimentation basins, silt traps, catch basins, etc., need to be cleaned frequently. The  
26 cleaning frequency of these devices located in areas undergoing construction should be quite  
27 high because of the very large discharges of sediment from construction sites. Rill or gully  
28 erosion must be corrected immediately when first observed. Similarly, mulched or planted  
29 areas need frequent inspections and corrections before large amounts of material are lost (Pitt  
30 2002).

31  
32 According to Associated General Contractors of Washington Education Foundation (2003),  
33 to maintain the effectiveness of construction site storm water control BMPs, regular  
34 inspection of control measures is essential. Generally, inspection and maintenance of BMPs  
35 can be categorized into two groups: expected routine maintenance and non-routine (repair)  
36 maintenance. Routine maintenance refers to checks performed on a regular basis to keep the  
37 BMP in good working order and aesthetically pleasing. In addition, routine inspection and  
38 maintenance is an efficient way to:

- 39 • Prevent potential nuisance situations (odors, mosquitoes, weeds, etc.).
- 40 • Reduce the need for repair maintenance.
- 41 • Reduce the chance of polluting stormwater runoff by finding and correcting problems  
42 before the next rain.

43

1 During each inspection, the inspector should document whether the BMP is performing  
2 correctly, any damage to the BMP since the last inspection, and what repairs are necessary if  
3 damage has occurred.

#### 4 5 12. Manage the Project.

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

13  
14 As discussed previously, the proposed permit implements RCW 90.48.555(8)(a) with an  
15 enforceable adaptive management mechanism. Permittees are required to evaluate BMP  
16 performance and discharge water quality. Based on the results of inspections and  
17 monitoring, remedial actions must be implemented, documented and reported in accordance  
18 with specific timeframes.

#### 19 S10. NOTICE OF TERMINATION

20 Condition S10.A states that a site is eligible for termination when any of the following conditions  
21 have been met:

- 22 1. The site has undergone final stabilization<sup>4</sup>, all temporary BMPs have been removed, and  
23 all stormwater discharges associated with construction activity have been eliminated<sup>5</sup>; or
- 24 2. All portions of the site that have not undergone final stabilization per S10.A.1 have been  
25 sold and/or transferred (per Condition G9), and the Permittee no longer has operational  
26 control of the construction activity; or
- 27 3. For residential construction only, temporary stabilization<sup>6</sup> has been completed and the  
28 ownership of the residence has been transferred<sup>7</sup> to the homeowner.

---

<sup>4</sup> Final Stabilization (same as fully stabilized or full stabilization) means the establishment of a permanent vegetative cover, or equivalent permanent stabilization measures (such as riprap, gabions or geotextiles) which prevents erosion.

<sup>5</sup> Stormwater discharges from temporarily inactive construction sites (i.e., disturbed, but construction activity has temporarily stopped; or is shut-down, between phases, dormant, or otherwise not complete) are not considered “eliminated” and the site would not be considered “final stabilized”. Therefore temporarily inactive construction sites require permit coverage, and are not eligible for termination under Condition S10.A.1.

<sup>6</sup> Temporary Stabilization means the exposed ground surface has been covered with appropriate materials to provide temporary stabilization of the surface from water or wind erosion. Materials include, but are not limited to, mulch, riprap, erosion control mats or blankets and temporary cover crops. Seeding alone is not considered stabilization. Temporary stabilization is not a substitute for the more permanent “final stabilization.”

1  
2 The 2005 CSGWP included S10.A.1&2, which remain in the proposed permit. S10.A.3 is  
3 consistent with EPA’s CSWGP. Ecology has added it to the draft permit to address situations  
4 where a homebuilder transfers (sells) a home to a homeowner prior to the landscaping being  
5 finished. In some cases, the homeowner elects take ownership of the property and finish the  
6 landscaping and/or planting permanent vegetation. In these instances, the Permittee (typically  
7 the homebuilder) may terminate permit coverage, provided temporary stabilization has been  
8 completed and the residence has been sold or otherwise transferred to the homeowner.

9  
10 Ecology considered allowing partial terminations of permit coverage. For example, terminating  
11 permit coverage on portions of the project that meet the criteria for final stabilization, and  
12 retaining permit coverage on the other (unstabilized) portions of the site. Ecology has chosen not  
13 to allow partial terminations due to the increased administrative costs that would result and the  
14 field staff resources that would be diverted from other aspects of permit implementation.

15  
16 When permit coverage for the entire site is eligible for termination, the Permittee must submit a  
17 complete and accurate Notice of Termination (NOT) form to Ecology. The termination is  
18 effective on the date the NOT is received by Ecology, unless Ecology notifies the Permittee  
19 within 30 days that it has denied the termination request because the Permittee has not met at  
20 least one of the eligibility requirements in S10.1-3.

21 *GENERAL CONDITIONS*

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

26  
27 Condition G1 requires discharges and activities authorized by the draft permit to be consistent  
28 with the terms and conditions of the permit in accordance with 40 CFR 122.41.

29  
30 Condition G2 requires responsible officials or their designated representatives to sign submittals  
31 to Ecology in accordance with 40 CFR 122.22, 40 CFR 122.22(d), WAC 173-220-210(3)(b), and  
32 WAC 173-220-040(5).

33  
34 Condition G3 requires the Permittee to allow Ecology to access the facility and conduct  
35 inspections of the facility and records related to the permit in accordance with 40 CFR 122.41(i),  
36 RCW 90.48.090, and WAC 173-220-150(1)(e).

37  
38 Condition G4 identifies conditions that may result in modifying or revoking the general permit in  
39 accordance with 40 CFR 122.62, 40 CFR 124.5, and WAC 173-226-230.

---

40  
<sup>7</sup> In the context of S10.A.3, “transfer” typically means “sold”; it does not mean a “transfer of general permit coverage” per Condition G9.

1 Condition G5 identifies conditions for revoking coverage under the general permit in accordance  
2 with 40 CFR 122.62, 40 CFR 124.5, WAC 173-226-240, WAC 173-220-150(1)(d), and WAC  
3 173-220-190.  
4  
5 Condition G6 requires the Permittee to notify Ecology when facility changes may require  
6 modification or revocation of permit coverage in accordance with 40 CFR 122.62(a), 40 CFR  
7 122.41(l), WAC 173-220-150(1)(b), and WAC 173-201A-060(5)(b).  
8  
9 Condition G7 prohibits the Permittee from using the permit as a basis for violating any laws,  
10 statutes or regulations in accordance with 40 CFR 122.5(c).  
11  
12 Condition G8 requires the Permittee to reapply for coverage 180 prior to the expiration date of  
13 this general permit in accordance with 40 CFR 122.21(d), 40 CFR 122.41(b), and WAC 183-  
14 220-180(2) (Note: This would only apply to long term projects or to sites with permit coverage  
15 near the time of permit expiration).  
16  
17 Condition G9 identifies the requirements for transfer of permit coverage in accordance with 40  
18 CFR 122.41(l)(3) and WAC 173-220-200. Ecology proposes to continue allowing partial or  
19 complete transfers of general permit coverage. When an incomplete construction project is sold  
20 from one operator to another, the new operator must obtain permit coverage, either through a  
21 transfer of permit coverage per Condition G9, or by applying for the permit per Condition S2.  
22  
23 Condition G10 prohibits the reintroduction of removed substances back into the effluent in  
24 accordance with 40 CFR 125.3(g), RCW 90.48.010, RCW 90.48.080, WAC 173-220-130, and  
25 WAC 173-201A-040.  
26  
27 Condition G11 requires Permittees to submit additional information or records to Ecology when  
28 necessary in accordance with 40 CFR 122.41(h).  
29  
30 Condition G12 incorporates all other requirements of 40 CFR 122.41 and 122.42 by reference.  
31  
32 Condition G13 notifies the Permittee that additional monitoring requirements may be established  
33 by Ecology in accordance with 40 CFR 122.41(h).  
34  
35 Condition G14 describes the penalties for violating permit conditions in accordance with 40 CFR  
36 122.41(a)(2).  
37  
38 Condition G15 provides the regulatory context and definition of “Upset” in accordance with 40  
39 CFR 122.41(n).  
40  
41 Condition G16 specifies that the permit does not convey property rights in accordance with 40  
42 CFR 122.41(g).  
43  
44 Condition G17 requires the Permittee to comply with all conditions of the permit in accordance  
45 with 40 CFR 122.41(a).  
46

- 1 Condition G18 requires the Permittee to comply with more stringent toxic effluent standards or  
2 prohibitions established under Section 307(a) of the Clean Water Act in accordance with 40 CFR  
3 122.41(a)(1), WAC 173-220-120(5), and WAC 173-201A-040.  
4
- 5 Condition G19 describes the penalties associated with falsifying or tampering with monitoring  
6 devices or methods in accordance with 40 CFR 122.41(j)(5).  
7
- 8 Condition G20 requires Permittees to report planned changes in accordance with 40 CFR  
9 122.41(l)(1).  
10
- 11 Condition G21 requires Permittees to report any relevant information omitted from the permit  
12 application in accordance with 40 CFR 122.41(l)(8).  
13
- 14 Condition G22 requires Permittees to report anticipated non-compliances in accordance with 40  
15 CFR 122.41(l)(2).  
16
- 17 Condition G23 specifies that Permittees may request their general permit coverage be replaced  
18 by an individual permit in accordance with 40 CFR 122.62, 40 CFR 124.5, and WAC 173-220-  
19 040.  
20
- 21 Condition G24 defines appeal options for the terms and conditions of the general permit and of  
22 coverage under the permit by an individual discharger in accordance with RCW 43.21B and  
23 WAC 173-226-190.  
24
- 25 Condition G25 invokes severability of permit provisions in accordance with RCW 90.48.904.  
26
- 27 Condition G26 prohibits bypass unless certain conditions exist in accordance with 40 CFR  
28 122.41(m).  
29

1 **PERMIT ISSUANCE PROCEDURES**

2 *PERMIT MODIFICATIONS*

3 Ecology may modify the CSWGP to impose numerical limitations, if necessary to meet water  
4 quality standards for surface waters, sediment quality standards, or water quality standards for  
5 ground waters, based on new information obtained from sources such as inspections, effluent  
6 monitoring, outfall studies, and effluent mixing studies.  
7

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

9 *RECOMMENDATION FOR PERMIT ISSUANCE*

10 The draft 2010 CSWGP meets all statutory requirements for authorizing a wastewater discharge,  
11 including those limitations and conditions believed necessary to control toxics, protect human  
12 health, aquatic life, and the beneficial uses of waters of the State of Washington. Ecology  
13 proposes that this proposed permit be issued for five (5) years.

14 **ECONOMIC IMPACT ANALYSIS**

15 In accordance with WAC 173-226-120, Ecology prepared an Economic Impact Analysis (EIA)  
16 for the revised permit. The analysis finds that the cost of compliance with the draft general  
17 permit is disproportionate to business size. On a cost-per-employee basis, the costs are generally  
18 greater for small businesses than for large firms. This is because most of the costs are a function  
19 of the size and topography of the job site.  
20

21 Cost minimizing features have been extended from the 2005 CSWGP to the 2010 draft CSWGP  
22 in order to continue to reduce the burden on small business. Most of these features will benefit  
23 both large and small business.  
24

25 In each of the features listed below Ecology used the flexibility available to reduce costs. This  
26 reduces costs for the small and large businesses alike.

- 27 • Establish differing compliance or reporting requirements or time tables for small  
28 business:  
29 S4.C.2 - Sites less than 20 acres are given the option to use a lower cost transparency  
30 tube (\$40) for stormwater monitoring instead of turbidity meter (\$900).  
31 S4.C; S4.D.1; S4.E1a - Water Quality Sampling (turbidity/transparency) was phased in  
32 over the course of the 2005 permit cycle (began Oct. 1, 2006).  
33 S2.F - Low Rainfall Erosivity Waiver is available for certain projects smaller than 5  
34 acres. This affects only sites that meet the criteria, but should significantly lower costs.  
35 S4.B.3 - Phasing in CESCL requirements during the 2005 permit cycle allowed operators  
36 for sites less than 5 acres to schedule and attend training (certification requirements  
37 began Oct. 1, 2006).  
38 • Establish performance rather than design standards:

1 S9.D – This allows operators to omit aspects of the SWPPP (and not implement BMPs),  
2 if site conditions render that element unnecessary. This allows small sites or sites that are  
3 uncomplicated to have fewer BMPs than large or complex sites. Small sites should have  
4 lower SWPPP/BMP costs.

- 5 • Exempt small businesses:

6 S4.C.3 - Sites smaller than 1 ac are exempt from turbidity/transparency monitoring.

- 7 • Extreme hardship permit fee reduction:

8 S6. - Some facilities may qualify for and receive an “extreme hardship” permit fee  
9 reduction under the Wastewater Discharge Permit Fee Rule (Chapter 173-224 WAC).

10 Extreme hardship applies only if the annual gross revenue of goods and services  
11 produced using the processes regulated under the permit is \$100,000 or less and the fee  
12 poses an extreme hardship to the business.

13  
14 A copy of the EIA (Ecology Publication Number 10-10-046) may be obtained through the  
15 Publications Distribution at Ecology’s Headquarters office (360) 407-6000 or by downloading it  
16 from Ecology’s webpage: <http://www.ecy.wa.gov/pubs.shtm>.

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8

1 **APPENDIX A - PUBLIC INVOLVEMENT INFORMATION**

2 Ecology will reissue the Construction Stormwater General Permit for construction activities as  
3 identified in Special Condition S1, Permit Coverage. The proposed permit (2010) will revoke  
4 and replace the current permit (2005).

5  
6 Ecology publishes a Public Notice of Draft (PNOD) to inform the public that the draft permit and  
7 fact sheet are available for review and comment. Ecology will publish the PNOD on July 21,  
8 2010, in the Washington State Register and on the Ecology web site (below). The PNOD  
9 informs the public that the draft permit and fact sheet are available for review and comment.

10  
11 Ecology will also mail or email the notice to those who currently have coverage under the  
12 construction stormwater general permit and those identified as interested parties, including the  
13 Construction Stormwater Advisory Committee.

14  
15 Copies of the draft general permit, fact sheet, and related documents are available for inspection  
16 and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at  
17 Ecology's regional offices listed below or may be obtained from Ecology's website or by  
18 contacting Ecology by mail, phone, fax or email:

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

Contact Ecology: Julie Robertson  
Department of Ecology  
PO Box 47600  
Olympia, WA 98504-7600  
Telephone: (360) 407-6575  
FAX: (360) 407-6426  
E-Mail: Julie.Robertson@ecy.wa.gov

19  
Southwest Regional Office  
Water Quality Program  
300 Desmond Drive  
Lacey, Washington  
Phone: (360) 407-6279

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 - 160<sup>th</sup> 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

20  
21 Ecology will accept written comments on the draft Construction Stormwater General Permit,  
22 Fact Sheet, and related documents from July 21, 2010 through September 10, 2010 (midnight);  
23 written comments must be postmarked or e-mailed no later than midnight September 10, 2010.

1 Comments should reference specific permit conditions or text or when possible, and may  
2 address the following topics:

- 3 • Technical issues.
- 4 • Accuracy and completeness of information.
- 5 • The scope of proposed coverage.
- 6 • Adequacy of environmental protection and permit conditions.
- 7 • Any other concern that would result from issuance of the draft permit.

8

9 No later than midnight on September 10, 2010, submit written comments to:

10 Sharleen Bakeman  
11 Water Quality Program  
12 Department of Ecology  
13 PO Box 47600  
14 Olympia, WA 98504-7600  
15 [sharleen.bakeman@ecy.wa.gov](mailto:sharleen.bakeman@ecy.wa.gov)

16

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

18 **August 23, 2010 (1:00 pm) - Vancouver**

19 Washington State School for the Blind  
20 2214 East 13<sup>th</sup> Street  
21 Vancouver, Washington

22

23 **August 25, 2010 (1:00 pm) - Tacoma**

24 Pierce County Parks and Recreation  
25 Sprinker Recreation Center  
26 14824 C Street South  
27 Tacoma, Washington

28

29 **August 27, 2010 (1:00 pm) – Mount Vernon**

30 Skagit Public Utility District  
31 1415 Freeway Drive  
32 Mount Vernon, Washington

33

34 **August 31, 2010 (1:00 pm) - Yakima**

35 SE Yakima Community Center  
36 1211 South 7<sup>th</sup> Street  
37 Yakima, Washington

38

39 **September 1, 2010 (1:00 pm) - Spokane**

40 City of Spokane Valley - CenterPlace  
41 2426 Discovery Place  
42 Spokane Valley, Washington

43

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

4

5 Further information may be obtained by contacting Sharleen Bakeman at Ecology, by phone at  
6 (360) 407-6467, by <mailto:sharleen.bakeman@ecy.wa.gov>, or by writing to Ecology's Olympia  
7 address listed above.

8

## APPENDIX B - GLOSSARY

- 1
- 2 **303(d) Listed Waters** – see Waters Listed as Impaired – 303(d).
- 3 **40 CFR** Title 40 of the Code of Federal Regulations, which is the codification of the general  
4 and permanent rules published in the Federal Register by the executive departments and  
5 agencies of the federal government.
- 6 **Acute Toxicity** The lethal effect of a compound on an organism that occurs in a short period of  
7 time, usually 48 to 96 hours.
- 8 **AKART** An acronym for “all known, available, and reasonable methods of prevention, control,  
9 and treatment.” AKART represents the most current methodology that can be reasonably  
10 required for preventing, controlling, or abating the pollutants and controlling pollution  
11 associated with a discharge. The term "best management practices," typically applied to  
12 nonpoint source pollution controls is considered a subset of the AKART requirement.
- 13 **Antidegradation** The antidegradation policy of the state of Washington as generally guided by  
14 Chapters [90.48](#) and [90.54](#) RCW, is applicable to any person's new or increased activity.
- 15 **Beneficial Use** Identified uses of waters of the state shall include uses for domestic water,  
16 irrigation, fish, shellfish, game, and other aquatic life, municipal, recreation, industrial water,  
17 generation of electric power, and navigation.
- 18 **Best Management Practices (BMPs)** Schedules of activities, prohibitions of practices,  
19 maintenance procedures, and other physical, structural and/or managerial practices to prevent  
20 or reduce the pollution of waters of the State. BMPs include treatment systems, operating  
21 procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste  
22 disposal, or drainage from raw material storage. BMPs may be further categorized as  
23 operational, source control, erosion and sediment control, and treatment BMPs.
- 24 **Benchmark** An indicator value used to determine the effectiveness of best management  
25 practices on a site. Benchmarks are not water quality criteria or effluent limits but indicators  
26 of properly functioning practices.
- 27 **Bypass** The intentional diversion of waste streams from any portion of a treatment facility.
- 28 **Calendar Week** (same as *Week*) A period of seven consecutive days starting on Sunday.
- 29 **CESCL** An acronym for Certified Erosion and Sediment Control Lead. Certification is obtained  
30 through an Ecology approved erosion and sediment control course.
- 31 **Chronic Toxicity** The effect of a compound on an organism over a relatively long time, often  
32 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction  
33 or growth rates, or other parameters to measure the toxic effects of a compound or  
34 combination of compounds.
- 35 **Clean Water Act (CWA)** The Federal Water Pollution Control Act enacted by Public Law 92-  
36 500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

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

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

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

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

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

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

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

37  
38 If an *applicant* intends to use a BMP selected on the basis of Condition S9.C.4. (“*demonstrably*  
39 *equivalent*” BMPs), the *applicant* shall notify Ecology of its selection as part of its *NOI*, unless  
40 the selection is made after submission of the *NOI*, in which case notice of the selection of an  
41 equivalent BMP shall be provided no less than 60 days before intended use of the equivalent  
42 BMP.

- 1 **Department** The Washington State Department of Ecology
- 2 **Designated Uses** Those uses specified in this chapter for each water body or segment regardless  
3 of whether or not the uses are currently attained.
- 4 **Detention** The temporary storage of stormwater to improve quality and/or to reduce the mass  
5 flow rate of discharge.
- 6 **De-watering (same as Excavation De-watering)** The act of pumping ground water or  
7 stormwater away from a construction site.
- 8 **Dilution Factor** A measure of the amount of mixing of effluent and receiving water that occurs  
9 at the boundary of the mixing zone. Expressed as the inverse of the percent effluent fraction  
10 e.g., a dilution factor of 10 means the effluent comprises 10% by volume and the receiving  
11 water 90%.
- 12 **Discharge** The release of water from a site.
- 13 **Discharger** An owner or operator of any facility or activity subject to regulation under Chapter  
14 90.48 RCW or the Federal Clean Water Act.
- 15 **Director** The Director of the Washington Department of Ecology or his/her authorized  
16 representative.
- 17 **Domestic Wastewater** means water carrying human wastes, including kitchen, bath, and laundry  
18 wastes from residences, buildings, industrial establishments, or other places, together with  
19 such ground water infiltration or surface waters as may be present.
- 20 **Ecology** The Washington State Department of Ecology.
- 21 **Engineered soils** Soil amendments including, but not limited, to Portland cement treated base  
22 (CTB), cement kiln dust (CKD), or fly ash to achieve certain desirable soil characteristics. This  
23 does not include fertilizer.
- 24 **Equivalent BMPs** The operational, source control, treatment, or innovative BMPs which result  
25 in equal or better quality of stormwater discharge to surface water or to ground water than  
26 BMPs selected from the SWMM.
- 27 **Erosion** The wearing away of the land surface by running water, wind, ice, or other geological  
28 agents, including such processes as gravitational creep.
- 29 **Erosion and Sediment Control BMPs** BMPs that are intended to prevent erosion and  
30 sedimentation, such as preserving natural vegetation, seeding, mulching and matting, plastic  
31 covering, filter fences, sediment traps, and ponds. Erosion and sediment control BMPs are  
32 synonymous with stabilization and structural BMPs.
- 33 **Final Stabilization (same as fully stabilized or full stabilization)** The completion of all soil  
34 disturbing activities at the site, and the establishment of a permanent vegetative cover, or  
35 equivalent permanent stabilization measures (such as riprap, gabions or geotextiles) which  
36 prevents erosion.

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

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

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

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

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

12 **Impaired Waters (303(d) listed waters)** Listed waters refers to the specific segment of a  
13 waterbody listed as not meeting water quality criteria by the State as required under Section  
14 303(d) of the Clean Water Act. The most current list of impaired waters is the applicable list.

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

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

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

20 **Operator** Any party associated with a construction project that meets either of the following  
21 two criteria:

22 1. The party has operational control over construction plans and specifications, including  
23 the ability to make modifications to those plans and specifications; or  
24 2. The party has day-to-day operational control of those activities at a project which are  
25 necessary to ensure compliance with a SWPPP for the site or other permit conditions  
26 (e.g., they are authorized to direct workers at a site to carry out activities required by the  
27 SWPPP or comply with other permit conditions).

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

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

32 **National Pollutant Discharge Elimination System (NPDES)** means the national program for  
33 issuing, modifying, revoking and reissuing, terminating, monitoring, and enforcing permits,  
34 and imposing and enforcing pretreatment requirements, under sections 307, 402, 318, and  
35 405 of the Federal Clean Water Act, for the discharge of pollutants to surface waters of the  
36 state from point sources.

- 1 **Notice of Intent** (NOI) means the application for, or a request for coverage under this General  
2 Permit pursuant to WAC 173-226-200.
- 3 **Notice of Termination** (NOT) means a request for termination of coverage under this general  
4 permit as specified by Special Condition S10 of this permit.
- 5 **Noncompliance** The inability to comply with any of the terms and conditions of the permit  
6 which causes a threat to human health or the environment.
- 7 **Outfall** The location where the site's stormwater treatment and conveyance system discharges  
8 to surface water or leaves the site. It also includes the location where stormwater is  
9 discharged to surface waterbodies within a site, but does not include discharges to on-site  
10 stormwater treatment/infiltration devices or stormwater conveyance systems.
- 11 **Permit** An authorization, license, or equivalent control document issued by the director.
- 12 **Permittee** An individual or entity that receives notice of coverage under this general permit.
- 13 **pH** The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral. Large  
14 variations above or below this value are considered harmful to most aquatic life.
- 15 **pH Monitoring Period** The time period in which the pH of stormwater runoff shall be tested a  
16 minimum of once every seven days to determine if stormwater is contaminated with alkaline  
17 producing materials.
- 18 **Pollution** Contamination or other alteration of the physical, chemical or biological properties, of  
19 any waters of the state.
- 20 **Point Source** Any discernible, confined, and discrete conveyance, including but not limited to,  
21 any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, and container from which  
22 pollutants are or may be discharged to surface waters of the state. This term does not include  
23 return flows from irrigated agriculture. (See Fact Sheet for further explanation.)
- 24 **Pollutant** Any substance that causes contamination, or other alteration of the physical,  
25 chemical, or biological properties, of any waters of the state. Or a substance that is likely to  
26 create a nuisance or render such waters harmful, detrimental or injurious to the public health,  
27 safety or welfare; or to domestic, commercial, industrial, agricultural, recreational, or other  
28 legitimate beneficial uses; or to livestock, wild animals, birds, fish or other aquatic life
- 29 **Pollution** The contamination or other alteration of the physical, chemical, or biological  
30 properties of waters of the state; including change in temperature, taste, color, turbidity, or  
31 odor of the waters.
- 32 **Receiving Water** The waterbody at the point of discharge. If the discharge is to a stormwater  
33 conveyance system, either surface or subsurface, the receiving water is the waterbody that  
34 the stormwater conveyance system discharges to. Systems designed primarily for other  
35 purposes such as for ground water drainage, redirecting stream natural flows, or for  
36 conveyance of irrigation water/return flows that coincidentally convey stormwater are  
37 considered the receiving water.

- 1 **Responsible Corporate Officer** A president, secretary, treasurer, or vice-president of the  
2 corporation in charge of a principal business function, or any other person who performs  
3 similar policy- or decision-making functions for the corporation, or the manager of one or  
4 more manufacturing, production, or operating facilities if authority to sign documents has  
5 been assigned or delegated to the manager.
- 6 **Sanitary Sewer** A sewer which is designed to convey domestic wastewater.
- 7 **Sediment** The fragmented material that originates from the weathering and erosion of rocks or  
8 unconsolidated deposits, and is transported by, suspended in, or deposited by water.
- 9 **Sedimentation** The depositing or formation of sediment.
- 10 **SEPA (State Environmental Policy Act)** means the Washington State Law, RCW 43.21C.020,  
11 intended to prevent or eliminate damage to the environment.
- 12 **Severe Property Damage** Substantial physical damage to property, damage to the treatment  
13 facilities which would cause them to become inoperable, or substantial and permanent loss of  
14 natural resources which can reasonably be expected to occur in the absence of a bypass.  
15 Severe property damage does not mean economic loss caused by delays in production.
- 16 **Significant Amount** An amount of a pollutant in a discharge that is not amenable to available  
17 and reasonable methods of prevention or treatment; or an amount of a pollutant that has a  
18 reasonable potential to cause a violation of surface or ground water quality or sediment  
19 management standards.
- 20 **Significant Concrete Work** Construction work that involves over 40 cubic yards poured  
21 concrete, or recycled concrete.
- 22 **Significant Contributor of Pollutant(s)** A facility determined by Ecology to be a contributor of  
23 a significant amount(s) of a pollutant(s) to waters of the state of Washington.
- 24 **Site** The land or water area where any "facility or activity" is physically located or conducted.
- 25 **Small construction activity (Small construction sites)** Land disturbance of equal to or greater  
26 than one acre and less than five acres. Small construction activity also includes the  
27 disturbance of less than one acre of total land area that is part of a larger common plan of  
28 development or sale if the larger common plan will ultimately disturb equal to or greater than  
29 one and less than five acres.
- 30 **Source Control BMPs** The physical, structural or mechanical devices or facilities that are  
31 intended to prevent pollutants from entering stormwater. A few examples of source control  
32 BMPs are erosion control practices, maintenance of stormwater facilities, constructing roofs  
33 over storage and working areas, and directing wash water and similar discharges to the  
34 sanitary sewer or a dead end sump.
- 35 **Stabilization** The application of appropriate BMPs to prevent the erosion of soils, such as,  
36 temporary and permanent seeding, vegetative covers, mulching and matting, plastic covering  
37 and sodding. See also the definition of Erosion and Sediment Control BMPs.

- 1 **Storm Sewer** A sewer that is designed to carry stormwater. Also called a storm drain or  
2 stormwater conveyance system.
- 3 **Stormwater** The portion of precipitation that does not naturally percolate into the ground or  
4 evaporate, but flows via overland flow, interflow, pipes, and other features of a stormwater  
5 drainage system into a defined surface water body, or a constructed infiltration facility.
- 6 **Stormwater Drainage System** Constructed and natural features which function together as a  
7 system to collect, convey, channel, hold, inhibit, retain, detain, infiltrate or divert stormwater.
- 8 **Stormwater Management Manual (SWMM) or Manual** A technical document published by  
9 Ecology that contain descriptions of and design criteria for BMPs to prevent, control, or treat  
10 pollutants in stormwater. The manual provides stormwater management guidance. Separate  
11 manuals have been published for Eastern Washington and Western Washington.
- 12 **Stormwater Pollution Prevention Plan (SWPPP)** A documented plan to implement measures  
13 to identify, prevent, and control the contamination of point source discharges of stormwater.
- 14 **Surface Waters of the State** Lakes, rivers, ponds, streams, inland waters, salt waters, and all  
15 other surface waters and water courses within the jurisdiction of the state of Washington.
- 16 **Technology-based Effluent Limit** A permit limit that is based on the ability of a treatment  
17 method to reduce the pollutant.
- 18 **Total Daily Maximum Load (TMDL)** A calculation of the maximum amount of a pollutant  
19 that a waterbody can receive and still meet State water quality standards. A TMDL is the  
20 sum of the allowable loads of a single pollutant from all contributing point and nonpoint  
21 sources.
- 22 **Total Suspended Solids (TSS)** An analytical laboratory measurement of the concentration of  
23 solids suspended in water.
- 24 **Transparency** A quantitative water quality measurement of water clarity using a 60 centimeter  
25 transparency tube to estimate the relative clarity or transparency of water by noting the depth  
26 at which a black and white Secchi disc becomes visible when water is released from a value  
27 in the bottom of the tube. A transparency tube is sometimes referred to as a “turbidity tube”.
- 28 **Treatment BMPs** BMPs that are intended to remove pollutants from stormwater. Examples of  
29 treatment BMPs are sediment ponds, oil/water separators, sand filters, and biofiltration  
30 swales.
- 31 **Turbidity** The clarity of water expressed as nephelometric turbidity units (NTU) and measured  
32 with a calibrated turbidity meter (turbidimeter).
- 33 **Upset** An exceptional incident in which there is unintentional and temporary noncompliance  
34 with technology-based permit effluent limitations because of factors beyond the reasonable  
35 control of the Permittee. An upset does not include noncompliance to the extent caused by  
36 operational error, improperly designed treatment facilities, lack of preventative maintenance,  
37 or careless or improper operation.
- 38 **USEPA** United States Environmental Protection Agency.

- 1 **Visual Inspection** Direct visual observation and evaluation of BMPs, site conditions, and  
2 discharge water quality.
- 3 **Wasteload Allocation (WLA)** The portion of a receiving water's loading capacity that is  
4 allocated to one of its existing or future point sources of pollution. WLAs constitute a type  
5 of water quality based effluent limitation (40 CFR 130.2(h)).
- 6 **Water Quality** The chemical, physical, and biological characteristics of water, usually with  
7 respect to its suitability for a particular purpose.
- 8 **Water Quality-based Effluent Limit** A limit on the concentration of an effluent parameter that  
9 is intended to prevent the concentration of that parameter from exceeding its water quality  
10 criterion after it is discharged into a receiving water.
- 11 **Water quality standards** The state of Washington's water quality standards for surface waters  
12 of the state, which are codified in chapter [173-201](#) WAC.
- 13 **Waters of the State** Those waters as defined as "waters of the United States" in 40 CFR  
14 Subpart 122.2 within the geographic boundaries of Washington State and "waters of the  
15 state" as defined in Chapter 90.48 RCW which include lakes, rivers, ponds, streams, inland  
16 waters, underground waters, salt waters and all other surface waters and water courses within  
17 the jurisdiction of the state of Washington.