



State of Oregon  
Department of  
Environmental  
Quality

# NPDES Waste Discharge Permit Evaluation Report

## Industrial Stormwater General Permit No. 1200-A

January 14, 2016

Oregon Department of Environmental Quality  
811 SW 6<sup>th</sup> Avenue  
Portland OR 97204

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### Final Action

Modification of National Pollutant Discharge Elimination System (NPDES) Industrial Stormwater General Permit No. 1200-A

### Permit Writer

Erich Brandstetter, Telephone Number (503) 229-5047, email: [brandstetter.erich@deq.or.state.us](mailto:brandstetter.erich@deq.or.state.us)

### Permit Category

Industrial Stormwater General Permit No. 1200-A. The permit replaces the previous permit effective July 1, 2007 to June 30, 2012.

### Sources Affected

A general permit is designed to provide coverage for a group of related facilities or operations of a specific industry type or group of industries. DEQ issues general permits when the discharge characteristics are similar and a standard set of permit requirements can effectively provide environmental protection and comply with water quality standards for discharges to the state's surface waters.

This general permit provides coverage for discharges of stormwater and mine dewatering water associated with sand and gravel operations, rock quarries, and similar mining operations. It also provides coverage for concrete batch operations and hot mix asphalt operations. There are approximately 221 facilities throughout the state that are operating under the permit. The majority of these facilities are located in western Oregon.

Mining operations covered under this permit are authorized to discharge stormwater and mine dewatering water to waters of the state of Oregon subject to the conditions contained in the general permit. During rain events, stormwater can run off these sites and discharge to rivers and streams. Stormwater falling on a site becomes polluted by dissolving or eroding material it contacts. The stormwater may contain pollutants such as sediment that may harm aquatic life and their habitat. The permit requires facilities to implement best management practices (BMPs) to reduce pollutants in stormwater and mine dewatering water and to meet the pollutant benchmarks that measure the success of these management practices.

### Permit Issuance and Effective Date

DEQ issued the original permit for a five year term effective December 4, 2012 and expiring on December 3, 2017. The modification does not change the expiration date. The modified permit will be effective January 14, 2016, and will expire on December 3, 2017.

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## **Background**

The federal Clean Water Act (CWA) provides that discharges from point sources to waters of the United States are prohibited, unless in compliance with a national pollutant discharge elimination system permit (NPDES).<sup>1</sup> In 1987, the CWA was amended to establish a framework for regulating municipal and industrial stormwater discharges under the NPDES program.<sup>2</sup> In 1990, the U.S. Environmental Protection Agency adopted regulations requiring NPDES permits for stormwater discharges to surface waters from certain categories of industries, including sand and gravel and batch plant operations.<sup>3</sup> In 1992 and 1999, EPA issued additional stormwater regulations for industrial stormwater discharges and added regulations for mine dewatering water.<sup>4</sup>

As an EPA approved state program, the Oregon Department of Environmental Quality is responsible for implementing these regulations and issuing NPDES permits. In 1991, DEQ adopted the first NPDES general permit for stormwater discharges to surface waters from sand and gravel and batch plant operators, called the 1200-A permit. The 1200-A permit was part of a series of NPDES stormwater general permits that DEQ adopted for certain sectors of industries. In 1997, DEQ issued a statewide industrial stormwater general permit that covered a broad range of industries throughout the state, called the 1200-Z permit. The 1200-A permit remained separate from the 1200-Z permit because it applies to a subset of industries that conduct sand and gravel and batch plant operations. The 1200-A permit expires every five years. DEQ updated and re-issued the permit in 1997, 2002 and 2007.

The 1200-A permit contains conditions that are similar to Oregon's NPDES general permits for construction and industrial stormwater, Oregon's water pollution control facility general permit for sand and gravel operations discharging to the ground (WPCF 1000), and the federal NPDES multi-sector general permit for industrial stormwater discharges. DEQ updated and re-issued all three state permits since the 1200-A permit was issued in July 2007. EPA updated and re-issued the federal permit in September 2008. Changes to these permits that are relevant to the requirements for discharges from sand and gravel and batch plant operations are included in the proposed 1200-A permit.

In this version, DEQ has clarified that the permit covers discharges of both stormwater and mine dewatering water from sand and gravel operations. Such discharges were treated as the same as stormwater previously. The permit incorporates requirements (including numeric effluent limits) for the discharge of mine dewatering water from industrial sand; construction sand and gravel; and crushed rock operations.

## **Partnership with Department of Geology and Mineral Industries**

The Oregon Department of Geology and Mineral Industries assists DEQ with the implementation of the permit. Pursuant to Oregon Statute (ORS 517.860), DOGAMI is responsible for enforcing the mined land reclamation statutes in Oregon and has an existing framework for working directly with mining operations to implement the state's water pollution control practices.

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<sup>1</sup> Clean Water Act 301(a).

<sup>2</sup> Clean Water Act 402(p).

<sup>3</sup> 55 Fed. Reg. 47990; 40 C.F.R. 122.26.

<sup>4</sup> 57 Fed. Reg. 11394-01; 40 C.F.R. 122.44(i)(2), (4)-(5) and 64 Fed. Reg. 68722-52.

To streamline the use of state regulation resources, DEQ entered into an agreement with DOGAMI to act as its agent and administer the permit to mining operations under its jurisdiction. As an agent, DOGAMI reviews permit applications, stormwater plans and monitoring data, conducts inspections and evaluates permit compliance for the majority of the 1200-A permit holders (approximately 192 out of 221). Mining operations in their jurisdiction must submit application materials, discharge monitoring reports and any correspondence to DOGAMI rather than DEQ. DEQ has also entered into an agreement with the City of Portland to act as its agent for two 1200-A permit holders.

Throughout the permit, DEQ uses the language “DEQ or Agent” to reflect these partnerships.

### **Summary of Modifications Effective January 14, 2016**

When the 1200-A was issued in 2012, Schedule A, Paragraph 12 (Tier II corrective actions) incorrectly stated that Tier II should be applied to impairment parameters. That this was not the intent is clear, because in the Permit Evaluation Report discussion of Tier II, only benchmark parameters was discussed. Uncommingled mine dewatering water from construction sand and gravel and crushed stone facilities are subject to pH effluent limits, and are therefore not subject to pH benchmarks. Therefore, for this type of discharge, Tier II will be triggered based on the effluent limits for pH. Similarly, uncommingled mine dewatering water from industrial sand facilities are subject to pH and TSS effluent limits, and therefore not subject to TSS and pH benchmarks. For these discharges, Tier II will be triggered by the effluent limits for TSS and pH.

The 1200-A incorporates shorter timeframes for both preparation of Tier II plans and implementation of Tier II, compared to the similar 1200-Z and 1200-COLS permits. DEQ reviewed the records for the 1200-A permit development, and found no justification for the differences. Therefore, DEQ is proposing to modify the 1200-A to make the Tier II deadlines the same as those in the 1200-Z and 1200-COLS permits:

Tier II plans must be submitted by December 31st of the third year of permit coverage, and Tier II measures must be implemented by June 30th of the fourth year of permit coverage (unless a later date is approved in writing by DEQ or Agent)

These changes have been incorporated into this Permit Evaluation Report.

### **Summary of Key Changes in 2012**

DEQ changed the permit based on federal requirements, changes to the state’s construction and industrial stormwater permits, feedback from environmental and industry groups, and the evaluation of the permit by DEQ and DOGAMI staff. These changes include the following:

- Adding narrative technology based and water quality based effluent limit requirements that all facilities must meet. Facilities will identify in a stormwater pollution control plan (SWPCP) the BMPs that facilities will implement to meet these requirements.
- Lowering the total suspended solids benchmark, which is a target concentration rather than a numeric effluent limit.
- Incorporating federal numeric effluent guidelines for discharges of uncommingled mine dewatering water for industrial sand, construction sand and gravel, and crushed rock operations.
- Requiring facilities that consistently exceed benchmarks or effluent limits to meet Tier II corrective action requirements in the permit and install treatment BMPs. These facilities must hire a professional engineer or certified engineering geologist to design and stamp the portion of the Stormwater Pollution Control Plan addressing the treatment measures.
- Adding more pollutant monitoring for discharges to impaired waters that are not meeting the state water quality standards.
- Expanding the inspection requirements, including documenting inspection results.

More information on these requirements as well as other changes is provided in the appropriate sections of this report below.

### **Sources Covered By These Permits**

The permit provides coverage for discharges of stormwater associated with sand and gravel operations, rock quarries, and similar mining operations. It also provides coverage for concrete and asphalt batch operations, including mobile operations.

Facilities with the following primary Standard Industrial Classification codes are currently operating under the permit:

- 1400- Mining and Quarrying of Nonmetallic Minerals, Except Fuels
- 1411- Dimension Stone
- 1422- Crushed and Broken Limestone
- 1423- Crushed and Broken Granite
- 1429- Crushed and Broken Stone, Not Elsewhere Classified
- 1442- Construction Sand and Gravel
- 1499- Miscellaneous Nonmetallic Minerals, Except Fuels
- 1541- General Contractors-Industrial Buildings and Warehouses
- 1542- General Contractors-Nonresidential Buildings, Other than Industrial Buildings and Warehouses
- 1629- Heavy Construction, Not Elsewhere Classified
- 2951- Asphalt Paving Mixtures and Blocks, including recycle
- 3200- Stone, Clay, Glass and Concrete Products
- 3241- Cement, Hydraulic
- 3273- Ready-Mixed Concrete
- 3281- Cut Stone and Stone Products
- 3295- Minerals and Earths, Ground or Otherwise Treated

DEQ removed the ability for an applicant to obtain permit coverage for multiple mining and quarrying sites that are under single ownership because the information required in the SWPCP is tailored for individual sites. DEQ and DOGAMI currently require applicants to apply for coverage for each individual site.

### **Mining Activities**

The majority of mining sites in Oregon covered by this permit are aggregate mines for sand and gravel and quarry rock. Aggregate is the main ingredient in concrete and asphalt pavement and is used as a base on which roads and buildings are placed.

Mining activities typically begin by removal of the overburden to expose the desired material. Removing the vegetative cover and disturbing the soil makes the area more susceptible to erosion. Stormwater can readily suspend the exposed soil and carry it to nearby surface water. Mining activities are often in remote locations and may operate seasonally or intermittently, yet need year-round control because significant materials remain exposed to precipitation until reclamation of the site is complete. The most important best management practice is that facilities minimize the amount of stormwater which contacts exposed areas and raw materials or flows into active processing or process water storage areas. Berms, vegetative covers, settling ponds and diversion ditches are typically used to control the volume and quality of stormwater runoff from the site. It is also desirable to infiltrate all or part of the stormwater that falls on a site.

Most facilities also use water to mine, process, handle or transport mined material. This water is categorized as process wastewater and is prohibited from being discharged under this permit. Most process wastewater results from dust control or washing and screening mined gravel or rock materials. Facilities often use rock crushers in the mining process to provide material that meets job specifications. Processing the material may also include washing. The process wastewater generated from these activities is retained on site in ponds and re-circulated and reused in the mining operations.

Many sand and gravel facilities also generate mine dewatering water which is incidental to the mining operation. It includes groundwater that seeps into the mine pit and rain water that accumulates due to precipitation and flow into the mine pit. DEQ clarified in the proposed permit that mine dewatering can be discharged to surface waters under this permit. Some sand and gravel operations only manually discharge this water during the summer months when mining operations are taking place. DOGAMI generally limits dewatering during the wet season to ensure flood waters do not flow into a dewatered pit which can result in significant amounts of erosion. Such discharges of mine dewatering water from industrial sand, construction sand and gravel and crushed rock operations that does not commingle with process wastewater is subject to numeric effluent limits for certain parameters. Mine dewatering water that commingles with process wastewater becomes process waterwater and cannot be discharged under this permit.

Concrete batch plant operations are commonly associated with sand and gravel mining. Operators may add dry materials to a truck from overhead silos and mix with water in the truck or they may premix materials with water at the facility and transfer the mixture to the truck wet. The truck then delivers the load to the job site. Between loads or at the end of the day, returned concrete is discharged from the truck to a wash water collection area that drains to a pond for treatment. Many facilities reuse their process wastewater after treating it.

Asphalt batch plant operations are also associated with sand and gravel mining. Facilities dry sand and gravel in a rotary drier and then place the material in a hopper to mix it with hot asphalt cement. The asphalt concrete is then usually dumped into a truck for transport to the job site. Any wastewater associated with this process is discharged to a pond or holding tank and is not allowed to be discharged under this permit.

### **Pollutants That May be Present in Discharges**

Pollutants in stormwater and mine dewatering discharges from mining operations vary depending on the specific activities on site, the location and topography of the site and the size or age of the operation. In order to determine the pollutants that may be present in stormwater and mine dewatering discharges from these sites, DEQ has relied on analysis conducted by EPA and best professional judgment based on staff knowledge of Oregon geology, industrial processes, and conditions typically found at mining operations in Oregon.

EPA identified the pollutants that are typically associated with sand and gravel mining operations when it issued the first multi-sector industrial stormwater permit in 1995.<sup>5</sup> EPA collected monitoring data from sand and gravel facilities as part of the National Urban Runoff Program. The data included conventional pollutants such as pH, total suspended solids, biological and chemical oxygen demand, oil and grease, and nutrients. For most activities, such as site preparation, mineral extraction, mineral processing, and

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<sup>5</sup> 60 Federal Register 189, p. 50919. September 29, 1995.

reclamation, typical pollutants included dust, total suspended solids, total dissolved solids, and turbidity. Based on median data collected from sand and gravel facilities, EPA developed benchmarks in the federal permit for total suspended solids and nitrogen.<sup>6</sup> EPA also identified the potential for pollution from oil and fuel, and other toxic contaminants, such as metals, benzene, trichloroethane, tetrachloroethylene, polyaromatic hydrocarbons, and solvents from equipment and vehicle maintenance, as well as nitrogen and phosphorus from any fertilizer used in reclamation activities. In 2006, EPA issued an industrial stormwater factsheet series and identified the pollutants that may be present in stormwater discharge from sand and gravel operations and BMPs to control these pollutants.<sup>7</sup> The same pollutants identified in the 1995 study were identified in the 2006 fact sheet.

Ground-disturbing activities have the potential to mobilize certain metals that are present in soils in Oregon and for which DEQ has adopted toxics criteria for the protection of human health and aquatic life. For example, iron is the fourth most abundant element, by weight, that makes up the Earth's crust and is naturally occurring in most soils.<sup>8</sup> High arsenic concentrations in Oregon's waters are due to particular rock associations in some areas of the state and alluvial deposits in other areas, particularly in portions of southern Oregon and in the Snake River Basin.<sup>9</sup> Mercury occurs naturally in soil in much of Oregon. For example, DEQ estimates that 48% of the mercury load to Willamette Basin waters is due to erosion of native soil.<sup>10</sup> Stormwater and mine dewatering water that comes into contact with soils and rocks from sand and gravel mining operations may carry these elements into Oregon waters.

Other contaminants may also be present at sand and gravel sites. For example, brake dust from vehicle and truck traffic at sand and gravel mining sites has the potential to release toxic metals, particularly copper, lead, and zinc, which may ultimately get picked up by stormwater and discharged into Oregon waters. Batch plant operations, which may operate on industrial sites, may have PCBs from prior operations at the sites. In addition, many sand and gravel mining operations are located in floodplain areas that previously were agricultural areas. It is possible that legacy pesticides, including aldrin, DDT, dieldrin, and heptachlor, were used at one time in these areas. Ground-disturbing activities such as mining have the potential to mobilize these pollutants, which tend to bind to soil particles and become suspended in stormwater before being discharged from the site.

### **Antidegradation Review**

DEQ's antidegradation policy in OAR 340-041-0026 requires a review of discharges to surface waters to determine if existing water quality will be protected and maintained. The antidegradation review for this permit included an evaluation of the permit requirements and changes in the number of mining operations that obtained permit coverage over the past permit term.

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<sup>6</sup> 60 Federal Register 189, p. 50918-50934.

<sup>7</sup> US Environmental Protection Agency. EPA-833-F-06-025, Dec. 2006.  
[http://www.epa.gov/npdes/pubs/sector\\_j\\_mineralmining.pdf](http://www.epa.gov/npdes/pubs/sector_j_mineralmining.pdf)

<sup>8</sup> US Environmental Protection Agency. 1976. Quality criteria for water – “Red Book.” PB-263 943.  
[http://water.epa.gov/scitech/swguidance/standards/criteria/aqlife/upload/2009\\_01\\_13\\_criteria\\_redbook.pdf](http://water.epa.gov/scitech/swguidance/standards/criteria/aqlife/upload/2009_01_13_criteria_redbook.pdf).  
Accessed March 26, 2012.

<sup>9</sup> U.S. Geological Survey, 1999. “*Arsenic in Ground Water of the Willamette Basin, Oregon.*” By Stephen R. Hinkle and Daniel J. Polette. USGS Water-Resources Investigations Report 98-4205, 28 pages, 6 figures, 4 tables, 1 appendix, 1 plate. U.S. Geological Survey, Portland, Oregon. Available at:  
[http://or.water.usgs.gov/pubs\\_dir/Online/Pdf/98-4205.pdf](http://or.water.usgs.gov/pubs_dir/Online/Pdf/98-4205.pdf).

<sup>10</sup> DEQ. 2006. Willamette Basin Mercury TMDL.  
<http://www.deq.state.or.us/wq/tmdls/docs/willamettebasin/willamette/chpt3mercury.pdf>

DEQ did not relax or eliminate any permit requirements. The new permit contains more stringent technology and water quality based requirements. For example, the following requirements are more stringent than the previous permit:

- Added narrative technology based effluent limits.
- Reduced the benchmark concentrations for total suspended solids.
- Added monitoring of impairment pollutants that may be present in stormwater discharges from these mining operations.
- Added numeric effluent limits for mine dewatering discharges.
- Added tiered corrective action requirements. Certain facilities will install treatment BMPs to further protect water quality.

A review of the changing number of permit registrants has shown that there are a relatively constant number of facilities operating under the permit at any time. As of July 9, 2012, there were 221 facilities operating under the 1200-A permit. There has been an average of 221 permitted facilities, with a difference of  $\pm 5\%$  of the average, operating under the 1200-A since July 2007, the effective date of the previous 1200-A permit.<sup>11</sup> To the extent that there is any additional load from a net increase in facilities it will be offset by the implementation of additional sediment and erosion control BMPs, lower benchmarks concentrations and a higher level of corrective actions in the new permit.

Therefore, the renewal of the permit is deemed to not cause a lowering of water quality for the purpose of antidegradation review. Stormwater discharges from 1200-A mining operations are expected to have reduced pollutant concentrations entering receiving waters.

## **Permit Coverage and Exclusion from Coverage**

The “Permit Coverage and Exclusion from Coverage” section describes permit application and notification procedures. The requirements in this section did not change significantly. However, DEQ included permit eligibility requirements for new dischargers or new sources discharging to impaired waters (see below).

## **Permit Eligibility for New Discharger or New Source Discharging to Impaired Waters**

The Clean Water Act prohibits the issuance of NPDES permits to new dischargers or new sources that will cause or contribute to water quality standards violation. To be consistent with the requirements of 40 CFR 122.4(i) and EPA’s permit, the permit contains new requirements for new dischargers and new sources discharging to impaired waters that do not meet the state’s water quality standards. A new discharger is defined in the permit as a facility from which there is a discharge, that did not commence the discharge at a particular site prior to August 13, 1979, that is not a new source, and that has never received a finally effective NPDES permit for discharges at that site. A new source is defined as any building, structure, facility, or installation from which there is or may be a discharge of pollutants. The construction of the new source must commence after promulgation of standards of performance under section 306 of the CWA that are applicable to such source, or after proposal of standards of performance in accordance with section 306 of the CWA that are applicable to such source, but only if the standards are promulgated in accordance with section 306 within 120 days of their proposal.

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<sup>11</sup> There was a decrease in the number of permittees in 2008 and 2009, most likely due to the poor economy in Oregon; the number then climbed back to 2007 levels in 2010 and has remained fairly steady since.



DEQ assesses the quality of waterbodies throughout the state pursuant to federal Clean Water Act Section 305(b) and identifies impaired waterbodies needing water quality restoration plans, called Total Maximum Daily Loads, pursuant to Section 303(d). To determine if a waterbody is impaired, DEQ reviews available data and information, including data from DEQ's monitoring activities and data submitted by third parties. DEQ compares the data and information to the water quality standards that apply to each waterbody. Standards include beneficial uses, narrative criteria that may address general levels of protection for beneficial uses, and numeric criteria for specific pollutants. Numeric criteria for pollutants such as toxic substances protect general aquatic life or human health beneficial uses.<sup>12</sup> To determine if waters are impaired, DEQ applies the most stringent criteria that are appropriate to the waterbody (freshwater, estuarine, marine).

DEQ's Integrated Report describes the condition of Oregon's waters and includes the 303(d) list of impaired waterbodies needing water quality restoration plans, called Total Maximum Daily Loads (TMDLs) for certain pollutants. The current 303(d) list is based on the 2010 Integrated Report, which is located at <http://www.deq.state.or.us/wq/assessment/2010Report.htm>.<sup>13</sup>

A new discharger or a new source discharging to a 303(d) listed waterbody needing a TMDL must meet one of the following requirements to obtain coverage under this permit:

- Prevent any stormwater exposure to the impairment pollutants and document this finding in the SWPCP.
- Demonstrate that the impairment pollutants are not present at the site and document this finding in SWPCP.
- If impairment pollutants are likely to be present at the site and DEQ has not issued a TMDL for the pollutants, submit data establishing that the discharge will meet in-stream water quality standards at the point of discharge.

DEQ conducted a review on Oregon's TMDLs to determine if stormwater or mine dewatering discharges were considered in the source assessment of the TMDLs and whether stormwater was identified as a significant source.<sup>14</sup> During source assessment, the TMDL program evaluates all potentially significant sources of the impairment. Typically, stormwater is not considered a potentially significant source because of the pollutant/impairment (for example, temperature) the TMDL is addressing. Most TMDLs either do not mention stormwater or specifically state that stormwater is not considered a significant source of the impairment. If a TMDL does not mention stormwater, DEQ has determined that WLA and water quality-based effluent limitations are not necessary to attain water quality standards.

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<sup>12</sup> The water quality criteria for toxic substances can be found in OAR 340-041-0033.

<sup>13</sup> EPA has partially approved the 2010 Integrated Report and is currently proposing several additional impairment listings. DEQ does not believe that the additional listings will significantly increase the number of facilities that will be required to monitor for impairment pollutants. DEQ expects a final approval from EPA prior to the release of the final 1200-A permit. DEQ also is currently developing the 2012 Integrated Report, which will update the 2010 303(d) list. Waterbodies may be removed from the list due to changes in DEQ's water quality standards or if a TMDL is approved. Waterbodies that are not meeting water quality standards will be added to the list.

<sup>14</sup> DEQ evaluation of approved Oregon TMDLs, presented to Industrial Advisory Committee, January 2009 meeting, located at: <http://www.deq.state.or.us/wq/stormwater/docs/Advisory/ISAC6TMDLIndStormwater.pdf>.

A new discharger or a new source does not need to meet these additional eligibility requirements if it discharges to impaired waters with a TMDL that addresses the impairment pollutants, unless the TMDL establishes a wasteload allocation for authorized stormwater discharges. In this case, DEQ will evaluate whether the permit requirements are sufficient to meet the wasteload allocation or if additional requirements are necessary to ensure the discharge is consistent with the TMDL.

DEQ has also expanded the exemption to waterbodies impaired for aquatic weeds or algae, dissolved oxygen or chlorophyll a because these impairments are not associated with pollutants present at mining sites. In addition, consistent with EPA's permit, new dischargers and new sources are not required to meet the additional eligibility requirements if the waterbody is impaired for temperature, biological criteria or flow or habitat modifications. However, the temperature exception does not apply to any discharge of uncommingled mine dewatering water. Uncommingled mine dewatering water has a relatively long holding time as compared to stormwater discharges and is discharged during the dry season. As a result, such discharges have the potential to cause or contribute to violations of the water quality standard for temperature.

### **Application for Permit Coverage**

The permit contains provisions for applying for coverage under the permit, such as (1) when to submit application materials, including SWPCPs, to DEQ or DOGAMI; (2) holding a 30 calendar day public notice period; and (3) being notified that permit coverage has been granted. DEQ is not making significant changes to these requirements.

New facilities or existing facilities that are operating without permit coverage can apply for coverage under the new permit starting on December 4, 2012.

The permit requires existing facilities to submit updated SWPCPs that meet the requirements of the new permit to DEQ or DOGAMI by March 15, 2013. DEQ or DOGAMI will review this information before granting the facility coverage under the new permit.

### **Public Notice and Comment Provisions**

Under public records laws, the public has the ability to review the records related to the permit, including application forms, SWPCPs, permit assignment letters to facilities, inspection records, discharge monitoring report forms, and compliance records. Under the previous permit the public is also notified of DEQ's decision to grant a facility's coverage under the permits via DEQ's industrial stormwater website. The public had 14 calendar days to review and comment on the application and SWPCP. DEQ formally responded to any public comments received.

DEQ modified the public participation requirements in the permit. First, DEQ is providing the public 30 calendar days to review application information. In the past, the public needed more than 14 days to review these materials and DEQ granted extensions for public review. Therefore, DEQ is providing an additional two weeks for the public to have sufficient time to review the materials. Second, DEQ will formally respond to only those public comments that pertain to the SWPCPs for new facilities and existing facilities that exceeded benchmarks based on the 4<sup>th</sup> year benchmark evaluation in the current permit. This change will allow DEQ to prioritize its resources on new facilities and those facilities that have not consistently met pollutant benchmarks.

Generally, the purpose of these public notice requirements is to ensure sufficient public participation. The public notice and review of the application materials has the potential to result in environmental benefits because citizens may provide information on site conditions and considerations that are not known by DEQ or DOGAMI. However, consistent with the position taken by EPA, DEQ does not believe that the SWPCP constitutes an effluent limit for the purposes of the Waterkeeper and EDC decisions.<sup>15</sup> In the Waterkeeper case, the courts held that because the terms of the Nutrient Management Plan employed by concentrated animal feeding operations imposed restrictions on discharges, those restrictions amounted to effluent limitations that needed to be made part of the permit and to be subject to public and permit writer review. In the EDC case, the court found that under the MS4 regulations, the “notice of intents for permit application were functional equivalents of permits” and “EPA’s failure to make notice of intents available to the public or subject to public hearings contravene the express requirements of the Clean Water Act.”<sup>16</sup> Consistent with EPA’s permit, the SWPCP is not an established effluent limit, instead it documents what practices the discharger is implementing to meet the effluent limits in the permit.<sup>17</sup> The actual narrative and numeric effluent limits are established in the permit itself and are subject to public notice and comment at that time.

### **Name Change or Transfer of Permit Coverage**

This section of the permit outlines the procedures for transferring permit coverage to a new owner or when the permit registrant changes names. The requirements did not change significantly. DEQ clarified that the owner or operator must submit a new SWPCP to DEQ or DOGAMI.

### **Non-Stormwater Discharges**

This permit authorizes certain non-stormwater discharges consistent with EPA’s Multi-Sector General Permit. A separate NPDES permit is not necessary for these uncontaminated discharges, provided that appropriate management practices, if needed, are developed in the SWPCPs.

DEQ’s non-stormwater discharge provisions are more restrictive than EPA’s. For example, discharge of pavement and external building wash water are not authorized if hot water or detergent is used. DEQ also requires sweeping prior to pavement washing, which is consistent with requirements in the NPDES general permit for wash water No. 1700-A.<sup>18</sup> DEQ also prohibits discharge of vehicle wash water under this permit if detergents or hot water are used.

Consistent with EPA’s permit, DEQ added new provisions in Schedule A of the permit (technology based requirements and SWPCP requirements) related to non-stormwater discharges. Under the narrative technology based effluent limits, the permit reiterates that facilities must eliminate any unauthorized non-stormwater discharges. Facilities must also describe in the SWPCP the BMPs that are used to ensure only authorized non-stormwater discharges are occurring at the facility. These requirements reinforce that the

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<sup>15</sup> Waterkeeper Alliance, Inc. v. EPA, 399 F.3d 486 (2nd Cir. 2005), Environmental Defense Center v. EPA, 344 F.3d 832 (9th Cir. 2003).

<sup>16</sup> Environmental Defense Center v. EPA at 858

<sup>17</sup> EPA 2008 Multi-Sector General Permit Factsheet, page 7.

<sup>18</sup> Permit 1700-A is available at

<http://www.deq.state.or.us/wq/wqpermit/docs/general/npdes1700a/permit.pdf>. Facilities should consult the 1700-A permit to determine if they need to apply for that permit. For example, a business that washes more than 8 vehicles or pieces of equipment per week needs to obtain the 1700-A permit.

facilities are only allowed to discharge non-stormwater discharges that are authorized by the permit and taking necessary actions to prevent contaminated non-stormwater discharges from occurring (for example, ensuring that no detergents or hot waters are used when washing pavement or the outside of buildings).

### **Limitations on Coverage**

DEQ added language to clarify its authority to deny coverage to an applicant or revoke a facility's coverage under the permit. OAR 340-045-0033(10) provides DEQ with authority to revoke a permit registrant's coverage under a general permit under certain instances. Similarly, any interested person may petition DEQ requesting this same action.

DEQ added language specifying when the permit is not available. In practical terms, this language does not change requirements, because these discharges have always been implicitly prohibited under the permit. This section simply makes the prohibition explicit and unambiguous.

## Schedule A of the Permits

Schedule A of the permit contains the following requirements:

- Technology Based Effluent Limitations
- Limitations for Process Wastewater
- Water Quality Based Effluent Limitations
- Stormwater Pollution Control Plan
- Benchmarks, Reference Concentrations, and Numeric Effluent Limitations
- Corrective Actions
- Permit Compliance

DEQ restructured Schedule A to conform to the new requirements in EPA's permit, such as new provisions on technology based and water quality based effluent limits. EPA reorganized the federal permit to clarify for facilities and the public what constitutes an "effluent limit" and what constitutes "other permit conditions," such as, planning and documentation requirements used to demonstrate compliance with the permit. As a result, control measures or BMPs facilities use to meet the technology based effluent limits in the permit are described in the SWPCP and considered "other permit conditions", not "effluent limits" themselves.

### Technology Based Effluent Limitations

All NPDES permits are required to contain technology based effluent limitations.<sup>19</sup> The Clean Water Act requires that discharges from existing facilities at a minimum meet the technology based effluent limitations in the permit.<sup>20</sup> Depending on the discharge, these technology based limits are best practicable control technology currently available for conventional, toxic, and non-conventional pollutants, best conventional pollutant control technologies for conventional pollutants and best available technology economically achievable for toxic pollutants.<sup>21</sup> Consistent with the EPA permit, the permit contains narrative technology based effluent limits that taken as a whole constitute the required levels of technology based control for the pollutants that may be discharged in stormwater or mine dewatering water from these mining operations.

Most of the technology based limits in stormwater permits are based on best professional judgment decision-making because there are only a few federal effluent limitation guidelines that apply to stormwater or mine dewatering water discharges. If EPA has not promulgated federal effluent limitation guidelines for an industry, or an operator is discharging a pollutant not covered by the effluent limitation guidelines, permit limitations must be based on the best professional judgment of the permit writer.<sup>22</sup>

#### Authority to include Narrative Technology Based Effluent Limits in the Permits

The technology based effluent limits in the permit are expressed as narrative limits. Numeric effluent limitations are not always feasible for stormwater discharges as such discharges pose challenges not presented by the vast majority of NPDES-regulated discharges.<sup>23</sup> Stormwater discharges can be highly

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<sup>19</sup> 40 CFR §§122.44(a)(1) and 125.3; CWA sections 301(b)(1)(A); 301(b)(2)(A); and 301(b)(2)(E).

<sup>20</sup> EPA 2008 Multi-Sector General Permit Factsheet, page 35

<sup>21</sup> EPA 2008 Multi-Sector General Permit Factsheet, page 36

<sup>22</sup> 33 U.S.C. § 1342(a)(1); 40 CFR 125.3(c); see also Student Public Interest Group v. Fritzsche, Dodge & Olcott, 759 F.2d 1131, 1134 (3d Cir. 1985); American Petroleum Inst. v. EPA, 787 F.2d 965, 971 (5th Cir. 1986)).

<sup>23</sup> EPA 2008 Multi-Sector General Permit Factsheet, page 37.

intermittent, they are usually characterized by very high flows occurring over relatively short time intervals, and they carry a variety of pollutants whose source, nature and extent varies. This is in contrast to process wastewater discharges from a particular industrial or commercial facility where the effluent is more predictable and can be more effectively analyzed to develop numeric effluent limitations. The variability of effluent and efficacy of appropriate control measures makes setting uniform effluent limits for stormwater extremely difficult. There is a high level of variability among stormwater discharges, in terms of both flow rates and volumes and levels of pollutants, since the volume and quality of stormwater discharges associated with industrial activity depend on a number of factors such as the industrial activities occurring at the facility, the nature of precipitation, and the degree of surface imperviousness. Thus, it is generally not feasible for EPA or DEQ to calculate numeric effluent limitations, with the limited exception of certain effluent limitations guidelines that have already been established through EPA rulemaking, such as those that have been incorporated into the permit for uncommingled mine dewatering discharges. Therefore, EPA and DEQ have determined that it is not feasible to calculate numeric, technology-based limitations for many of the discharges covered under this general permit and, based on the authority of 40 CFR 122.44(k), have chosen to adopt non-numeric technology-based effluent limitations.

EPA regulations allow BMPs to take the place of numeric effluent limitations under certain circumstances.<sup>24</sup> Under EPA's regulations, narrative effluent limits are authorized in lieu of numeric limits, where "numeric effluent limitations are infeasible."<sup>25</sup> These regulations have been upheld by the courts.<sup>26</sup> As far back as 1977, courts have recognized that there are circumstances when numeric effluent limitations are infeasible and have held that EPA may issue permits with conditions (such as BMPs) designed to reduce the level of effluent discharges to acceptable levels.<sup>27</sup> EPA has substantial discretion to impose non-quantitative permit requirements pursuant to Section 402(a)(1)), especially when the use of numeric limits is infeasible.<sup>28</sup>

#### Description and Purpose of Narrative Technology Based Limits

Facilities must comply with narrative technology based effluent limits in the permit. Many of these narrative limits are in the current permit under SWPCP requirements for stormwater BMPs (see Schedule A.3.b of the 1200-A permit that expired in June 2012). DEQ changed these requirements into narrative technology based effluent limits to be consistent with the regulatory scheme in EPA's permit.

The narrative technology based effluent limits are expressed as specific pollution prevention requirements.<sup>29</sup> Consistent with EPA's permit, facilities are required to meet the following narrative limits: erosion and sediment control; minimize exposure; oil and grease control; waste chemicals and material disposal; debris control; housekeeping; spill prevention and response; preventative maintenance; employee education; and non-stormwater discharges. These narrative limits constitute the permit's technology-based limits, expressed narratively per 40 CFR 122.44(k), and are developed using best professional judgment of the permit writer. The narrative limits are enforceable. If a facility fails to meet them, it is a violation of the permit.

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<sup>24</sup> 40 C.F.R. §122.44(k).

<sup>25</sup> EPA 2008 Multi-Sector General Permit Factsheet, page 36.

<sup>26</sup> EPA 2008 Multi-Sector General Permit Factsheet, page 36.

<sup>27</sup> *Natural Res. Def. Council, Inc. v. Costle*, 568 F.2d 1369 (D.C. Cir. 1977).

<sup>28</sup> *NRDC v. EPA*, 822 F.2d 104, 122-24 (D.C. Cir. 1987) and 40 CFR 122.44(k)(3).

<sup>29</sup> EPA 2008 Multi-Sector General Permit Factsheet, page 38.

For many facilities controlling pollutants in stormwater and mine dewatering discharges can be achieved without using highly engineered, complex treatment systems. The narrative limits emphasize effective “low-tech” controls, such as regularly cleaning outdoor areas where industrial activities may take place, proper maintenance of equipment, diversion of stormwater and mine dewatering water around areas where pollutants may be picked up, and effective advanced planning and training (for example, spill prevention and response).

#### Erosion and Sediment Control

Facilities must meet more specific erosion and sediment control BMPs in the permit to prevent sediment discharge to nearby surface waters. DEQ added the following conditions to the permit:

- Slope or berm the site to increase infiltration or divert stormwater away from the exposed areas. These measures are effective at controlling sediment that gets picked up by stormwater runoff from the site.
- Seed and mulch exposed areas until permanent vegetation is established.
- Control sediment track-out onto public or private roads outside the mining site. Sediment track-out is often an issue at mining sites, and it is important that sediment remains on-site and is not washed off surface roads to nearby streams and rivers. Under the previous permit, DEQ and DOGAMI expected facilities to prevent sediment track-out, but the permit did not include specific requirements. This permit now clearly specifies BMPs to use to control sediment track-out.

These conditions are similar to erosion and sediment control requirements in the NPDES 1200-C construction stormwater permit and the WPCF 1000 permit for discharges from these sites to the ground.

#### Control Measures used to meet the Technology Based Limits

Consistent with the EPA permit, DEQ added new requirements on the methods facilities should follow to determine the control measures that will be implemented on the site to meet the narrative limits in the permit. The permit uses the term “control measures” more often than “BMPs.” Consistent with EPA’s permit, this change was adopted to better describe the range of pollutant reduction practices that may be employed, whether they are structural, operational or procedural. Control measures can be actions (including processes, procedures, schedules of activities, prohibitions on practices and other management practices), or structural or installed devices to prevent or reduce water pollution. The definition of “control measures” includes both BMPs and “other methods” used to prevent or reduce the discharge of pollutants to receiving waters.

Many of the narrative limits require the facility to “minimize” pollutants in their discharge.<sup>30</sup> Consistent with the control level requirements of the Clean Water Act, EPA and DEQ clarified in the permit that the term “minimize” means to reduce and/or eliminate to the extent achievable using control measures (including BMPs) that are technologically available and economically achievable and practicable in light of best industry practice.<sup>31</sup>

Facilities must select, design, install and implement control measures to meet these narrative limits that reflect best industry practice considering their technological availability and economic practicability and

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<sup>30</sup> EPA 2008 Multi-Sector General Permit Factsheet, page 33.

<sup>31</sup> EPA 2008 Multi-Sector General Permit Factsheet, page 33.

achievability. To determine what is technological availability and economic achievability, facilities need to consider what control measures are considered “best” for their industry, and then select and design control measures for their site that are viable in terms of cost and technology. When determining what is “best” for their industry, facilities may evaluate control measures for similarly situated mining operations in Oregon and nearby states such as Idaho, Washington, and California. Also, facilities should consider the following: the age of the equipment and facilities involved, the processes employed, the engineering aspects of the application of various types of control techniques, the pollutant reduction likely to be achieved, any adverse environmental or energy effects of potential measures, and the costs of achieving pollutant reductions. Facilities must select, design, and implement control measures in accordance with good engineering practices and manufacturer’s specifications and evaluate a variety of factors when choosing their BMPs.

There are many control measures that could be used to meet the technology based limits in the permit. Facilities often implement operational or structural source control measures to minimize the potential for pollutants coming in contact with stormwater or mine dewatering water that discharges to receiving waters. Examples of operational BMPs include employee training, good housekeeping measures, and spill prevention. Examples of structural BMPs to minimize contamination of stormwater or mine dewatering water include using roofs over storage areas or grading the site to provide even infiltration of rain. If operational and structural source control measures are not feasible or adequate at controlling the pollutants in their discharge then treatment BMPs that remove pollutants from stormwater or mine dewatering water may be necessary. Examples of treatment BMPs are chemical flocculation, detention ponds, media filtration, and constructed wetlands. The following are helpful resources for developing and implementing control measures for industrial stormwater discharges:

- Oregon DEQ’s Recommended Best Management Practices for Industrial Stormwater, located at: <http://www.deq.state.or.us/wq/stormwater/industrial.htm>
- EPA Sector-specific Industrial Stormwater Fact Sheet Series, located at: <http://cfpub.epa.gov/npdes/stormwater/swsectors.cfm>.
- EPA National Menu of Stormwater BMPs, located at: [www.epa.gov/npdes/stormwater/menuofbmps](http://www.epa.gov/npdes/stormwater/menuofbmps).
- Washington Department of Ecology’s Stormwater Management Manuals, located at: <http://www.ecy.wa.gov/programs/wq/stormwater/municipal/StrmwtrMan.html>

Existing facilities operating under the previous permit already have control measures in place. They will need to evaluate these measures to ensure they are sufficient to meet the narrative limits in the permit. Also, the specific control measures used to meet the limits must be described in the SWPCP. Modifications or improvements to control measures may be made throughout the permit cycle to meet other conditions in the permit (for example, installing treatment measures based on Tier II corrective actions).

#### Employee Education on Proper Use of Treatment Chemicals and Handling of Wastewater Solids

In the final permit, DEQ included language requiring that facilities provide training to employees on the proper use of treatment chemicals and handling of wastewater solids. This requirement is included in EPA’s Construction Stormwater Permit.

#### **Limitations for Process Wastewater**

The requirements for disposal of process wastewater from mining operations are not new requirements and were carried forward from the previous permit. Similar requirements are also included in the WPCF 1000 permit for discharges from mining operations to the ground.



Discharge of process wastewater to surface water is not allowed by the permit. Facilities are required to adequately control process wastewater by settling, recirculation, controlled seepage or irrigation. If process wastewater cannot be controlled on-site, an individual NPDES permit is required prior to discharging to surface waters. To ensure that process wastewater does not discharge to surface waters, DEQ clarified in the permit that process wastewater may not be used for dust control on roads if there is the potential that it will drain to surface waters.

Most sand and gravel operations also generate mine dewatering water which is incidental to the mining operation. It includes groundwater that seeps into the mine pit or accumulates due to precipitation into the mine pit. Consistent with EPA's permit, DEQ clarified in the permit that mine dewatering can be discharged to surface waters under this permit, although it may be subject to numeric effluent limits, described on page 24. However, mine dewatering that commingles with process wastewater becomes process wastewater and cannot be discharged under this permit.

### **Narrative Water Quality Based Effluent Limits**

To be consistent with EPA's permit, the permit contains the following narrative water quality based effluent limits in conditions A.4 and A.5:

- Discharge may not cause or contribute to a violation of water quality standards in the receiving waterbody.
- Facilities must meet specific requirements for discharges to impaired waters.
- Facilities must comply with any additional, more stringent requirements that DEQ determines are necessary to meet applicable water quality standards.

These narrative water quality based effluent limits supplement the permit's technology-based effluent limits in conditions A.1 and A.2.

### **Water Quality Standards**

Water quality standards are the foundation of the water quality-based pollution control program mandated by the Clean Water Act. Water quality standards define the goals for a waterbody by designating its beneficial uses, setting water quality numeric and narrative criteria to protect those uses and establishing antidegradation policies (see antidegradation discussion on page 7 of this report). Discharges authorized by this permit are prohibited from causing or contributing to an exceedance of instream water quality standards. DEQ expects that compliance with the technology based limits as well the monitoring and corrective actions requirements in the permit generally will result in discharges that are controlled as necessary to meet applicable water quality standards.

DEQ's water quality standards are described in OAR 340-041, including tables containing the numeric criteria for the protection of aquatic life and human health. When DEQ establishes or revises water quality standards, DEQ identifies the beneficial uses and establishes criteria based on the levels needed to protect those uses. For example, beneficial uses typically most sensitive to dissolved oxygen are fish and aquatic life. Fish and other aquatic organisms need an adequate supply of oxygen in the water to be healthy and productive. In this case, the criteria identify amounts of dissolved oxygen levels or concentrations necessary to protect fish. In other cases, as with many of the toxic pollutants, numeric criteria identify water column concentrations that if met, will protect aquatic life and human health.

Water quality criteria to protect aquatic life consist of three components: magnitude, which refers to the acceptable concentration of a pollutant and varies by pollutant; duration, which is the averaging period for comparison to the concentration (one hour for acute aquatic life criteria and four days for chronic aquatic life criteria); and frequency, which is how often the criteria can be exceeded to allow the aquatic community sufficient time to recover from excursions of aquatic life criteria and to thrive after recovery.

For aquatic life criteria, frequency limitations specify that both acute and chronic criteria may be exceeded once in a three-year period on average. Human health criteria are based on lifetime exposure.

Application of the water quality criteria to a discharge requires site-specific analysis of the discharge and receiving water. DEQ typically conducts this analysis to develop numeric water quality based effluent limits in NPDES individual permits. Calculating numeric water quality based limits is not possible in a statewide general permit like the 1200-A permit that covers more than 200 mining operations. Samples from a facility's discharge, as well as samples from the receiving water upstream and downstream of the point of discharge would be required to document an exceedance of the narrative water quality standards language in the permit.

If a facility operator or owner becomes aware, or DEQ determines, that the discharge causes or contributes to a water quality standards exceedance, immediate corrective actions are required to evaluate the cause of the exceedance within 24 hours of discovering the exceedance. Within 30 days of discovering the exceedance, the facility must evaluate the effectiveness of the control measures on-site and identify corrective actions to ensure that the discharge does not cause an exceedance of water quality standards in the future. These corrective actions must be summarized in a report that is submitted to DEQ or Agent within 30 days of discovery of the exceedance. If SWPCP revisions are necessary based on the corrective action review, the facility must submit a revised SWPCP with the report. These corrective actions must be implemented within sixty days, unless additional time is approved by DEQ or DOGAMI. If a facility needs additional time to install additional control measures such as a structural BMPs or a treatment system to effectively address the problem, DEQ or DOGAMI may extend the deadline to account for additional time to design and install the BMPs.

In addition to the corrective actions in the permit, DEQ may impose additional site specific requirements such as developing a monitoring plan and collecting additional samples of the discharge and receiving waterbody to ensure that instream water quality standards are met. If DEQ determines that additional site specific requirements are necessary, DEQ will require the facility to revise the SWPCP to include additional monitoring and control measures. DEQ will hold a 30-calendar day public review period on the revised plan.

### **Discharges to Impaired Waters**

Consistent with EPA's permit, the permit contains water quality based effluent requirements for new and existing discharges to impaired waters with or without TMDLs. These requirements are in the following sections of the permits:

- Narrative water quality based effluent limits requirements in condition A.5 of the permit.
- Monitoring requirements for certain impairment pollutants in condition B.1 of the permit.

#### New Discharger or New Source:

After meeting the permit eligibility requirements (see new discharger and new source discussion on page 8 of report), new dischargers and new sources are required to ensure that the BMPs in their SWPCPs are maintained and implemented properly to prevent any degradation of water quality. For example, a new facility that has impairment pollutants present in its discharge that have not been addressed by a TMDL must implement BMPs to ensure the discharge does not exceed instream water quality standards.

#### New Source or Existing Discharger to impaired waters without TMDL

Existing facilities that discharge to impaired waters must monitor for certain impairment pollutants that have not been addressed by a TMDL (see monitoring discussion on page 28 of the report). In addition,

these facilities are required to ensure the discharge complies with all applicable in-stream water quality standards.

To establish that a permit registrant's discharge caused or contributed to a water quality standards violation, typically samples of the facility's discharge along with samples at upstream and downstream locations in the receiving waterbody must be collected. If the permit registrant becomes aware, or DEQ determines, that the discharge causes or contributes to a water quality standards exceedance, the permit registrant is required to take immediate corrective actions. In addition to the corrective actions in the permit, DEQ may impose additional site specific requirements to ensure the discharge does not violate water quality standards.

The permit requires facilities to monitor for certain impairment pollutants to determine if they are present in their stormwater or mine dewatering discharge and to identify the source of the pollutants and BMPs needed to control the pollutants in their discharge. Because DEQ has not developed TMDLs for these impaired waters, the agency has not assessed the contribution of stormwater or mine dewatering water from sand and gravel mining facilities to the impairment of a specific waterbody. As a result, DEQ's intention with these requirements is to gather data for future TMDLs and to evaluate whether stormwater and mine dewatering discharges are significant contributors to the impairment.

DEQ did not make significant changes to permit requirements for existing facilities that discharge to a waterbody impaired for sedimentation or turbidity and for which a TMDL has not been established. These facilities must implement additional erosion and sediment control treatment measures to ensure stormwater discharges do not further degrade the waterbody. The treatment measures identified in the permit are effective at controlling and removing sediment that may be present in these discharges. In the new permit, DEQ eliminated the option to monitor the discharge to meet a turbidity benchmark. During the past permit cycle only 1 percent of 1200-C and 1200-A facilities discharged to these waterbodies, and not one facility chose the monitoring option. DEQ believes that this change will result in similar or increased water quality protection since the treatment measures in the permit are effective at controlling and treating sediment and turbidity. This change is consistent with the requirements in the 1200-C construction stormwater permit.

#### New Source or Existing Discharger to impaired waters with TMDL

If the TMDL establishes a wasteload allocation and additional requirements for industrial stormwater discharges, the facility must monitor the impairment pollutants according to the requirements in the permit. DEQ will also evaluate whether additional requirements are necessary to ensure the discharge is consistent with the TMDL. If DEQ determines that additional site specific requirements are necessary, DEQ will require the facility to revise the SWPCP to include additional monitoring and control measures. DEQ will hold a 30-calendar day public review period on the revised plan.

#### **Preventing Significant Amounts of Sediment from Discharging to Receiving Stream**

The permit contains performance requirements focused on the prevention of discharges of "significant amounts" of sediment. This is not a new condition and mirrors similar requirements in the 1200-C construction stormwater permit. The primary pollution concern at sand and gravel mining sites - like construction sites - is the discharge of sediment and turbid stormwater to the state's surface waters. The permit also establishes discrete procedures for taking corrective actions in response to detecting the discharge of significant amounts of sediment, and documenting and reporting those corrective actions to the DEQ or DOGAMI in a timely manner.

#### **Stormwater Pollution Control Plan**

To obtain coverage under the permit, applicants must submit a SWPCP that meets the requirements in Schedule A. DEQ did not make many changes to these requirements. Generally, the applicant must

document in the plan the following: (1) a description of the site; (2) site map; (3) summary of potential pollutant sources; (4) description of control measures; and (5) identification of sampling locations and whether outfalls are substantially similar.

The plan serves as a documentation tool to identify the specific control measures dischargers will use to meet the technology and water quality based effluent limits in the permit. The plan itself does not contain effluent limits. Where control measures are modified or replaced, these changes must be documented in the plan.

DEQ requires that facilities only submit a revised plan to DEQ or its Agent under the following circumstances:

- Change in site contact;
- Part of a corrective action or inspection;
- Changes to the site or control measures that may significantly change the nature of pollutants present in stormwater or mine dewatering discharge; or significantly increase the pollutant(s) levels, discharge frequency, discharge volume or flow rate, or
- Changes to the monitoring locations or outfalls.

Facilities are required to keep their plan up-to-date, but they are only required to submit specific revisions to DEQ or DOGAMI. DEQ no longer requires that facilities submit an Action Plan if they revise their plan. Instead, the permit requires the facility to submit the revised pages of the plan or site map within 30 days of making the revisions. Facilities may submit these revisions by email. Review of the revisions by DEQ or DOGAMI prior to implementation is not required (except for revision of monitoring locations). If a response is not received within 30 days, the revisions are deemed accepted.

Facilities that use chemical treatment systems such as electro-coagulation or flocculation to remove pollutants from their discharge must include an operational and maintenance plan section in their plan. Because chemicals are used in the treatment process, DEQ requires facilities to ensure that the chemicals are applied at a rate that is not toxic to aquatic life in the receiving waters. These requirements are similar to the 1200-C permit and the Washington Department of Ecology requirements for chemical treatment.<sup>32</sup> In addition, DEQ requires that the SWPCP include a plan for disposal of any treatment residues.

### **Benchmarks and Reference Concentrations**

Benchmarks are target concentrations that are intended to assist facilities in determining whether their pollution control measures are adequate to protect water quality. A benchmark exceedence does not necessarily indicate that a discharge is causing or contributing to a water quality standard violation, but does require an evaluation of control measures and follow-up corrective actions.

Benchmark parameters were re-assessed for the renewal of this permit. DEQ retained the benchmark parameters from the previous permit, but lowered the benchmark value for total suspended solids (TSS) from 130 mg/L to 100 mg/L to be consistent with the more stringent value in EPA's permit. The TSS benchmark in EPA's permit is the median concentration assessed in the National Urban Runoff

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<sup>32</sup> Washington Department of Ecology Sand and Gravel General Permit, located at: <http://www.ecy.wa.gov/programs/wq/sand/documents/sandpermit081711.pdf>.

Program.<sup>33</sup> An analysis of 1200-A discharge monitoring data collected from July 1, 2009 through June 30, 2011 showed that only one 1200-A facility had a monitoring location with geometric mean TSS concentrations in excess of 130 mg/L. This is also the only facility that with geometric mean TSS concentrations in excess of 100 mg/L. The International Stormwater BMP Database shows that commonly used BMPs are capable of reducing TSS to the 100 mg/L benchmark concentration.<sup>34</sup>

**Table 1. Summary of the previous and new 1200-A benchmarks**

Parameter	Permit Expired 6/30/12	New Permit
pH	5.5 - 9.0 SU	unchanged
Total Suspended Solids	130 mg/L	100 mg/L
Total Oil & Grease	10 mg/L	unchanged
Settleable solids	0.20 ml/L	unchanged

DEQ considered including a benchmark or at least requiring monitoring for nitrogen or nitrate. EPA’s permit requires certain mining operations conduct nitrogen monitoring based on an analysis of samples collected as part of the National Urban Runoff Program.<sup>35</sup> Nitrate monitoring is required by the State of Washington’s Sand and Gravel Mining Permit because elevated nitrate levels may be found in sediments with blasting residues.<sup>36</sup> DEQ determined that neither nitrogen nor nitrate monitoring is necessary. Many facilities, particularly sand and gravel facilities located in floodplains, as well as many quarries, do not conduct blasting activities; it does not make sense to require nitrogen monitoring for those facilities. Some quarries do blast, but only occasionally. These facilities should design their sites so that any residues that are picked up by stormwater end up in settling ponds, rather than in stormwater discharge.

Finally, DEQ does not consider that there is an environmental need for nitrate or nitrogen monitoring. DEQ’s primary concern of nitrogen in surface water is excess aquatic plant and algae growth. In Oregon, issues such as dissolved oxygen depletion and nuisance algal blooms are limited by phosphorus, biological oxygen demand, or light, rather than nitrogen. As a result, when DEQ issues TMDLs for waters impaired for excess aquatic plant and algae growth, the amount of phosphorus discharged from point and nonpoint sources is limited.<sup>37</sup> Wasteload allocations and load allocations for nitrogen are not established.

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<sup>33</sup> The rationale for EPA’s current benchmark values can be found on pages 97-113 of EPA’s permit factsheet at: [http://www.epa.gov/npdes/pubs/msgp2008\\_finalfs.pdf](http://www.epa.gov/npdes/pubs/msgp2008_finalfs.pdf).

<sup>34</sup> The International Stormwater BMP Database, is located at <http://bmpdatabase.org/>

<sup>35</sup> EPA’s analysis is based on seven grab and five composite samples from sand and gravel products facilities from around the country. This analysis found a mean nitrate plus nitrite nitrogen concentration of 1.56 mg/L in grab samples and 3.31 mg/L in composite samples.

<sup>36</sup> Washington Department of Ecology. 2011. “Fact Sheet: Sand and Gravel General Permit.”

<sup>37</sup> Umpqua Basin TMDL, October 2006, located at: <http://www.deq.state.or.us/wq/tmdls/docs/umpquabasin/umpqua/chpt4nut.pdf>. Upper Klamath and Lost River Subbasins TMDL, December 20120, located at: <http://www.deq.state.or.us/wq/tmdls/docs/klamathbasin/uklost/KlamathLostTMDLWQMP.pdf>

Any operation discharging to a waterbody impaired for pollutants that may be present in stormwater or mine dewatering discharges and for which no TMDL has been established, DEQ or its Agent will require monitoring for that pollutant. In addition, in the permit assignment letter, DEQ or its Agent will establish a reference concentration based on acute aquatic life criteria if one exists for the pollutant. The reference concentration will be used to determine if the pollutant is present in stormwater discharges. If the pollutants are present in their discharge above the reference concentrations, the facilities must meet the Tier I corrective action requirements. If an acute aquatic life criterion does not exist, the chronic aquatic life criterion will be used. If a chronic criterion does not exist, the human health criterion will be used. If the quantitation limit established in DEQ's Reasonable Potential Analysis Internal Management Directive is larger than the relevant criterion, the quantitation limit will be the reference concentration.

### **Numeric Effluent Limits for Uncommingled Mine Dewatering Water**

DEQ included effluent limitations for uncommingled mine dewatering water for operations in the following categories:

- *Industrial Sand (SIC Code 1446)*. TSS is limited to 45 mg/L as a daily maximum and 25 mg/L as a monthly average. PH must be between 6.0 and 9.0 standard units.
- *Construction Sand and Gravel (SIC Code 1442)*. PH must be between 6.0 and 9.0 standard units.
- *Crushed Stone (SIC Codes 1422, 1423, and 1429)*. PH must be between 6.0 and 9.0 standard units.

DEQ included these effluent limits to ensure that the permit is consistent with federal requirements at 40 CFR §436.

As with benchmark monitoring, DEQ requires facilities to monitor for effluent limit parameters four times per year. The permit requires monitoring events to be separated by at least 14 days. DEQ and its Agents only allow discharge of mine dewatering water during the dry season, generally between May and October. As a result, DEQ is not limiting the date of sampling to two samples before December 31 and two after January 1<sup>st</sup>, as with stormwater monitoring. This provides some flexibility to

As with exceedances of stormwater benchmarks, exceedances of effluent limitations triggers corrective actions, as described in Draft Permit Schedule A.13 and A.14. Unlike stormwater, exceeding effluent limitations is considered a permit violation and potentially would be subject to enforcement actions.

If a facility is subject to numeric effluent limits, it would not need to also conduct benchmark monitoring for those parameters.

DEQ analyzed the extent to which the proposed effluent limits would affect the 221 facilities covered by the previous permit:

- **Industrial Sand facilities.** Currently, there is one facility within the category "Industrial Sand." This facility does not have a direct discharge to Oregon waters, either via stormwater or mine dewatering water and thus would not be subject to the numeric effluent limits.
- **Construction sand and gravel facilities.** Currently, there are 59 permitted facilities classified as construction sand and gravel facilities. Of these, 27 may discharge uncommingled mine dewatering water directly to surface waters and would be subject to the pH effluent limit.
- **Crushed stone facilities.** Currently, there are 43 permitted facilities classified as crushed stone facilities. Of these, 5 may discharge uncommingled mine dewatering water directly to surface waters and would be subject to the pH effluent limit.

DEQ examined benchmark monitoring data from the previous permit cycle for facilities that may be subject to numeric effluent limits. DEQ found one instance in which a facility discharged mine dewatering water that was outside the pH numeric effluent limit range of 6.0 – 9.0. All other pH data from this site was well within the effluent limit range. Based on this information, DEQ does not expect that the number of violations will increase significantly, if at all, as a result of incorporating the effluent limit for mine dewatering water from these facilities.

### **Corrective Actions**

Stormwater general permits are based on an adaptive management approach where facilities monitor their stormwater and mine dewatering discharge, evaluate the effectiveness of their control measures and take corrective actions to ensure they are controlling pollutants to achieve the benchmarks in the permit and to protect water quality.

DEQ included tiered corrective actions in the permit. Tier I corrective action requirements are triggered when facilities exceed the benchmarks, reference concentrations for the impairment pollutants, or numeric effluent limits. Under the Tier I corrective actions, facilities must take a traditional adaptive management approach to evaluating the cause of the problem and correcting it. The Tier II corrective action requirements require facilities that regularly exceed benchmarks or effluent limits to take specific actions to further control the pollutants in their discharge and install treatment BMPs. The Tier I and II corrective actions are pollutant specific, but they may result in overall pollutant reductions in stormwater and mine dewatering discharge.

### **Tier I Corrective Actions**

Facilities that exceed the statewide benchmarks, reference concentrations for impairment pollutants, or numeric effluent limits must meet the following requirements:

- Within 30 days of receiving the monitoring results, facilities must investigate the cause of the elevated pollutant concentrations; review the SWPCP and determine if additional BMPs are necessary to control the pollutants, and document the results of review and corrective actions that were/will be taken.
- Cease any voluntary discharges, such as mine dewatering discharges, until corrective actions are in place or it has been determined that such discharges are not contributing to the exceedance.
- If plan revisions are necessary based on the investigation, submit the revisions within 30 days.
- Retain the Tier I corrective action report on-site and submit it to DEQ or DOGAMI upon request.
- Implement the corrective actions before the next discharge event if possible or as soon as practicable.

This approach is similar to the requirements in the previous permit. However, to better track SWPCP revisions, DEQ now requires facilities to submit the revised plan rather than identify the revisions in the corrective action report.

It is important for facilities to investigate the cause of the elevated pollutant levels in their discharge. Facilities must evaluate if they are properly implementing the SWPCP such as regularly sweeping the site, training employees on proper pollution prevention measures, conducting maintenance on BMPs, and cleaning out catch basins. This information is important to the facility and must be summarized in a Tier I report. However, DEQ is streamlining the reporting requirements in the new permit and now requires facilities to submit these reports upon written request from DEQ or DOGAMI. These reports are helpful to review in conjunction with conducting site inspections and providing technical assistance. Prior to an inspection, DEQ or the DOGAMI may request that the facility submit their information. Also, because this report is a public record, the public may request that DEQ have the facility submit it to the agency. It

is important that these reports are retained on site and maintained with other recordkeeping materials such as the SWPCP, discharge monitoring report forms and inspection records.

### **Tier II Corrective Actions**

Facilities that exceeded benchmarks based on the fourth year benchmark evaluation in the previous permit (see Schedule A.10 of 1200-A permit that expired in July 2012) or the second year geometric mean compliance evaluation in the new permit will trigger Tier II corrective action requirements. These facilities must install treatment measures to reduce the pollutant concentrations in future discharges below the benchmarks.<sup>38</sup>

#### Geometric Mean Evaluation in Permit expired June 2012

Based on data collected under the previous permit cycle, there is one facility that exceeded the benchmarks based on the fourth year geometric mean evaluation in the previous permit. The facility exceeded the total suspended solids benchmark. The facility must submit an updated SWPCP as part of the permit renewal process that identifies treatment measures to address the TSS benchmark exceedances (see condition 4 of the Permit Coverage and Exclusion for Coverage section of the new permit). The implementation requirements for this facility are same as those facilities that exceed the benchmarks based on the second year geometric mean evaluation in the new permit (see discussion below).

#### Geometric Mean Evaluation in the New Permit:

After the second year of permit coverage under the new permit, facilities will evaluate the samples collected during that year at each outfall that is monitored and conduct a geometric mean calculation of the data.<sup>39</sup> To reflect current practices at the site, the facilities are only required to evaluate data collected during the second year.

The permit does not specify when the second year of permit coverage is for each facility. Because of the number of facilities that will renew their coverage under the permit, it may take a year to complete the renewal process. DEQ will identify when the corrective action and monitoring requirements apply for the facilities in the permit assignment letter. The letter is mailed to facilities when permit coverage under the new permit is approved.

Facilities that exceed benchmarks or effluent limits based on the geometric mean calculation must implement treatment measures to reduce the pollutant concentrations in future discharges below the benchmarks or effluent limits. Facilities subject to effluent limits for pH or TSS are not subject to benchmarks. These facilities must implement treatment measures based on the effluent limits rather than the benchmark values. DEQ broadly defined treatment measures in the new permit to include passive and active treatment measures. Facilities should first consider using volume reduction measures such as low

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<sup>38</sup> Examples of treatment BMPs are detention ponds, infiltration basins, media filtration, electrocoagulation, flocculation, and constructed wetlands or bioswales.

<sup>39</sup> The geometric mean tends to dampen the effect of very high or low values and is an appropriate measure of stormwater discharges given their highly variable nature. In order to calculate the geometric mean, multiply the results for all samples of the given pollutant, such as TSS. If the number of samples= $n$ , take the  $n$ th root of the product. For example, a facility has taken four TSS samples of 15, 25, 70, and 110 mg/L. The product of these would be  $15 \times 25 \times 70 \times 110 = 2,887,500$ . Because there are  $n=4$  samples, the facility should calculate the 4th root of 2,887,500, which is equal to 56 mg/L. This is the geometric mean and is less than the benchmark of 100 mg/L. Therefore, the facility would not be subject to Tier II corrective actions.



impact develop practices, if feasible based on site conditions and potential for groundwater contamination. Additional source control measures can be used in conjunction with passive treatment measures to effectively address the pollutants of concern. Some facilities may need to also install active treatment, which is costly and resource intensive, if they have exhausted all other treatment measures or have site constraints.

Facilities exceed benchmarks or effluent limits based on the geometric mean evaluation must submit an updated SWPCP by December 31 of the third year of permit coverage that describes the rationale for the selected treatment measures and projected pollutant reductions. The portion of the SWPCP that addresses the treatment measures must be designed and stamped by a licensed professional engineer or certified engineering geologist. Professional engineers or certified engineering geologists have the training and expertise needed to design these systems. Professional engineer’s design and stamp passive treatment and engineered active systems. Certified engineering geologists can design and stamp passive in-ground treatment systems as allowed by statute.

Facilities that exceed benchmarks or effluent limits based on the geometric mean evaluation must implement the selected treatment measures by June 30 of the fourth year of permit coverage. Because facilities will need time to budget, make any necessary design changes and install the new control measures, DEQ allowed a year and a half to complete the corrective actions, especially since some facilities will need to obtain local permits prior to installing the new controls. If additional time is necessary to design or get approval to install the treatment measures, an extension may be requested no less than 90 days before the deadline. Until the final measures are installed, the facility must implement interim corrective measures before the wet weather season begins to ensure that water quality is protected.

**Table 2: Timeline Tier II corrective actions in new permit**

Conduct geometric mean evaluation by July 15 of second year	⇒	Submit discharge monitoring report form by July 31 of second year	⇒	Implement interim management practices by October 1 of second year until final treatment measures are installed	⇒	Submit revised stormwater plan by December 31 of third year	⇒	Install final treatment measures within one and a half years (by June 30 of fourth year)
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Because the benchmarks and reference concentrations are target concentrations, it is not violation if the additional treatment measures do not achieve the benchmarks in future discharges. However, if a facility fails to install the BMPs by the deadlines in the permit, benchmark and reference concentration exceedances are considered a permit violation; failure to install BMPs is considered to be an additional permit violation. In addition, failure to achieve any applicable numeric effluent limits is considered a permit violation.

If after the treatments measures are implemented the discharge continues to exceed the same benchmark or effluent limit parameters that triggered the Tier II corrective action requirements, the facility must within 30 days of obtaining the sample results, evaluate whether the treatment measures were properly installed, maintained and implemented and whether modifications are necessary. The facility must determine the reasons for the exceedances (for example, there was a design or maintenance error) and take corrective actions to correct the problem. These findings must be summarized in a report and submitted to DEQ or DOGAMI.

To promote the use of volume reduction measures that reduce stormwater and mine dewatering water flow and control the mass load of pollutants that enter the receiving stream, facilities that implement volume reduction measures may not be required to implement additional treatment BMPs. This option is only for facilities that are implementing Tier II corrective actions due to benchmark exceedences (and is not available for exceeding effluent limits). Facilities will need to evaluate their site and show how the mass load of pollutants in their discharge are at or below the mass equivalent of the benchmarks in Schedule A.10 of the new permit. The updated SWPCP must provide data and analysis to support this determination, including the description of the measures, date measures expected to be implemented and the mass load analysis. DEQ is developing guidance on the data and analysis that is necessary to support this determination (guidance will be complete in winter 2013).

### **Permit Compliance**

Consistent with EPA's permit, DEQ added language to the permit to clarify when permit violations are triggered. There are a variety of circumstances when a facility is required to take corrective actions (for example, in response to a discharge of significant amounts of sediment). Failure to take the required corrective actions is a violation of the permit independent of the underlying violation (for example, discharging significant amounts of sediment). In instances where corrective actions are triggered by an event that does not itself constitute a violation, such as a benchmark exceedance, there is no permit violation provided that the facility takes the corrective action within the deadlines in the permit.

DEQ also included in the permit time for a new permit registrant (for example, a new facility that begins operation after July 1, 2012 or an existing facility that was in operation before July 1, 2012 without a stormwater discharge permit) to implement stormwater control measures to meet narrative effluent limits in the permit. These facilities must meet these requirements within 90 days of receiving permit coverage. If a facility is implementing control measures that require capital improvements, they must include an implementation schedule in the SWPCP and complete the improvements within two years of receiving permit coverage. Similar requirements are in the current permit.

## **Schedule B – Monitoring Requirements**

### **Benchmarks**

All facilities must monitor for the benchmarks in the permit, except for those parameters for which they must monitor for numeric effluent limits. If a facility received a monitoring waiver under the previous permit, they must reinstate the benchmark monitoring once they obtain coverage under the new permit. Facilities may request a monitoring waiver after four consecutive samples are below the benchmarks.

### **Effluent Limits**

Industrial sand, construction sand and gravel, and crushed rock facilities which discharge uncommingled mine dewatering water must monitor for numeric effluent limits. Industrial sand facilities must conduct effluent limit monitoring for both total suspended solids and pH; construction sand and gravel and crushed rock facilities must conduct effluent limit monitoring for pH only. Facilities conducting effluent limit monitoring do not need to conduct benchmark monitoring for those parameters. Facilities will not be eligible to receive a monitoring waiver for effluent limit monitoring.

### **Impairment Pollutants**

New sources or existing facilities must monitor for any of the following impairment pollutants if they discharge to impaired waters needing a TMDL for that pollutant:

- Iron, zinc, and arsenic, which may occur naturally in areas where facilities are disturbing soils and thus may be discharged.
- Zinc, lead, copper, and polynuclear aromatic hydrocarbons, which are present in motorized equipment and thus may enter stormwater discharges during rain events.
- Aldrin, DDT, DDE, dieldrin, and heptachlor, which are pesticides that may be present at mining sites that have been converted from agricultural areas and may be mobilized during ground disturbing activities and enter stormwater discharges during rain events.
- PCBs, which may be present at industrial sites from past uses. (Note: DEQ will only require PCB monitoring from batch plants that discharge to waters impaired and needing a TMDL for PCBs.)
- Temperature, if the facility discharges uncommingled mine dewatering water.

DEQ developed this subset of pollutants based on its evaluation of the potential pollutants that may be present in discharges from sand and gravel and batch plant operations (see discussion above on page 5 on “Pollutants that May be Present in Stormwater Discharges”).

Because of the number of impairment pollutants that facilities will monitor, DEQ did not identify the reference concentrations for these pollutants in the permit. DEQ will identify the final concentrations in the permit assignment letter.

The reference concentrations will be based on the acute aquatic life criteria, where they exist.<sup>40</sup> The acute aquatic life criteria are more appropriate to use for developing the reference concentrations than the chronic aquatic life criteria<sup>41</sup> (which are based on long-term exposure) and human health criteria (which are based on lifetime exposure). Typically, stormwater discharges are intermittent and result in short term exposures to aquatic life.<sup>42</sup> Also, storm events vary in intensity and duration and there are typically high stream flows associated with storm events.

DEQ has established acute aquatic life criteria for the majority of the toxic pollutants. However, there are some toxic pollutants in Oregon’s water quality standards without aquatic life criteria. In these cases, DEQ will use the human health criteria as reference concentrations for these pollutants. In instances where the human health criteria is lower than the quantitation limit, DEQ will use the quantitation limit identified in DEQ’s Reasonable Potential Internal Management Directive which based on DEQ’s survey of laboratories and EPA approved methods. Table 3 provides an example of the reference concentrations for the impairment pollutants based on the water quality criteria or quantitation limit for the pollutants. The concentrations in bold indicate whether the water quality criteria or the quantification limit is the higher concentration.

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<sup>40</sup> Acute aquatic life criteria based on the acute exposure for the protection of fresh water aquatic life.

<sup>41</sup> Chronic aquatic life criteria based on chronic exposure for the protection of fresh water aquatic life.

<sup>42</sup> EPA 2008 Multi-Sector General Permit Factsheet, page 100.

**Table 3. Reference concentrations for impairment pollutants**

Toxic Impairment Pollutants	Toxics Criteria (mg/L)	Criteria	Quantitation Limit (mg/L)
Aldrin	<b>0.003</b>	Acute	0.00001
Arsenic (tri)	<b>0.360</b>	Acute	.050
Arsenic	<b>0.0021</b>	Human Health	0.00005
Chlordane	<b>0.0024</b>	Acute	0.0001
DDT	<b>0.0011</b>	Acute	0.00001
DDT Metabolite (DDE)	0.00000022	Human Health	<b>0.00001</b>
Dieldrin	<b>0.0025</b>	Acute	0.00001
Heptachlor	<b>0.00052</b>	Acute	0.00001
Iron	<b>1.0</b>	Chronic	0.1
Mercury	<b>0.0024</b>	Acute	0.00001
Polynuclear Aromatic Hydrocarbons		Human Health	
Acenaphthene	<b>0.095</b>		0.001
Anthracene	<b>2.9</b>		0.001
Benz(a)anthracene	0.0013		<b>0.001</b>
Benzo(a)pyrene	0.0013		<b>0.001</b>
Benzo(b)fluoranthene 3,4	0.0013		<b>0.001</b>
Benzo(k)fluoranthene	0.0013		<b>0.001</b>
Chrysene	0.0013		<b>0.001</b>
Dibenz(a,h)anthracene	0.0013		<b>0.001</b>
Fluoranthene	0.014		0.002
Fluorene	<b>0.39</b>		0.001
Indeno(1,2,3-cd)pyrene	0.0013		<b>0.001</b>
Pyrene	<b>0.29</b>		0.001
PCBs (Batch Plants Only)			

**Table 4. Metals Reference Concentrations<sup>43</sup>**

Impairment Pollutants	Reference Concentration (Based on Hardness = 29 mg/L)	Quantitation Limit (mg/L)
Copper	0.006	<b>0.010</b>
Lead	<b>0.017</b>	0.005
Zinc	<b>0.041</b>	0.005

As part of the permit application process, facilities provide DEQ or DOGAMI with information about the waterbody, or receiving water, to which they discharge stormwater or mine dewatering water. To determine whether these impairment pollutant requirements apply to a facility, the owner or operator must

<sup>43</sup> Criteria for these metals are calculated based on hardness of the water. Numbers given here are based on the statewide average hardness of 29 mg/L.

identify the first natural waterbody to which the stormwater or mine dewatering water discharges.<sup>44</sup> Man-made conveyances, such as a MS4 storm sewer system, are not considered receiving waters. For example, if the discharge enters Mill Creek in the Salem area, which flows into the Willamette River, the receiving water is Mill Creek, because it is the first natural waterbody the discharge will reach.

To determine the impairment pollutant monitoring for each facility and the reference concentration for impairment pollutants, DEQ will use the location of the facility's discharge and the 303(d) list and water quality criteria that are in effect and approved by EPA at the time the facility obtains coverage under the new permit. Based on this information, the permit assignment letter will identify the impairment pollutants the facilities must monitor and the reference concentrations for the specific pollutants. Prior to granting the facility coverage under the permit, the public will have 30 days to review the application materials, including the draft permit assignment. DEQ will then finalize the permit assignment letter and mail it to the facility notifying them of their monitoring requirements and that they have been granted coverage under the permit.

Based on the 2010 303(d) list, DEQ analyzed how many facilities operating under the permit may be affected by this new requirement. Approximately 29 facilities discharge to waters impaired for at least one of these pollutants. This number may change as DEQ updates its 303(d) list in future years.

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<sup>44</sup> Instructions from EPA's Notice of Intent application for permit coverage under the 2008 Multi-Sector General Permit, located at [http://www.epa.gov/npdes/pubs/msgp2008\\_appendixg.pdf](http://www.epa.gov/npdes/pubs/msgp2008_appendixg.pdf).

**Table 5. Estimate of facilities that will monitor for impairment pollutants**

	Water Body	River Mile		Number of Facilities	Aldrin	Arsenic (tri)	Arsenic	Copper	DDT	DDT Metabolite (DDE)	Dieldrin	Heptachlor	Iron	Lead	Mercury	Polychlorinated Biphenyls (PCBs)	Polynuclear Aromatic Hydrocarbons
		from	to														
		Willamette Basin	Calapooia River														
Coast Fork Willamette River	0		38.8	1									1				
Marys River	0		41.1	2									2				
South Yamhill River	0		18.1	1									1				
Tualatin River	0		80.6736	1									1				
Willamette River	0		24.8	3	3				3	3	3	3	3			2	3
Willamette River	54.8		72	5	5				5	5	5	5	5				
Willamette River	72		108	5								5					
Willamette River	148.8		174.5	2								2					
Willamette River	174.5		186.6	1			1						1				
Yamhill River	0		11.2	1									1				
Western Oregon	Bear Creek	0	27.4	1			1										
	Columbia River	62	98	1		1	1			1							
	Columbia River	98	142	1			1			1							1
	Sutherlin Creek	0	4.6	1		1	1	1					1	1			
Eastern Oregon	East Fork Hood River	9.8	27.4	1				1					1				
	Burnt River	0	77.9	1			1										
	Klamath River	207	285.3	1			1										
	Snake River	280.5	404	1											1		
<b>Facilities that would need to monitor for pollutant</b>				<b>29</b>	<b>8</b>	<b>2</b>	<b>7</b>	<b>2</b>	<b>8</b>	<b>10</b>	<b>8</b>	<b>3</b>	<b>25</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>3</b>

## Monitoring Costs

Table 6 provides cost estimates associated with the monitoring requirements in Schedule B of the permit. All facilities will be required to monitor for the benchmarks. Some facilities will be required to monitor for impairment pollutants.

**Table 6. Estimated analytical costs**

Pollutants	Estimated Analytical Costs (per storm event, per outfall) <sup>45</sup>
<b>Benchmarks (Base suite all facilities will monitor.)</b>	
TSS, settleable solids, oil and grease, and pH	\$125-\$129.50
<b>Impairment Pollutants (Facilities will monitor for those pollutants for which the receiving water is impaired)</b>	
Arsenic, Copper, Iron, Lead, Zinc	\$20-58/parameter <sup>46</sup>
Trivalent Arsenic	\$122-325
Total mercury	\$42-86
Pesticides (aldrin, DDT, DDE, dieldrin, heptachlor)	\$185-195
Polynuclear Aromatic Hydrocarbons	\$175-220

## Monitoring Method

Facilities will continue to follow the single grab sample monitoring method under the new permit. Consideration was given during renewal of the 1200-Z permit to require grab composite sampling instead of the collection of a single grab sample. Composite sampling produces samples that are more representative of runoff events. However, DEQ prefers that monitoring requirements not be so burdensome that it reduces a facility's ability to collect samples.

DEQ encourages facilities to utilize composite sampling, which will produce data that are more representative of stormwater or mine dewatering discharges from their site. The National Research Council report, *Urban Stormwater Management in the United States*, suggests abandoning the grab sample method as a "credible stormwater sampling approach for virtually all applications."<sup>47</sup> Pollutant concentrations in stormwater are highly variable among and during storm events. Because of the variable concentrations during a runoff event, a single grab sample is not considered representative of runoff during the entire event. Although mine dewatering discharges are less prone to variability, composite sampling will yield data that characterize the discharge over a specified time period. The National Research Council report promotes the use of continuous, flow-weighted sampling method as a means of collecting representative data that are less variable than data resulting from grab sampling. Composite sampling is excluded from use in collecting samples for pH and oil and grease.

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<sup>45</sup> The number of years that facilities will incur these costs will be dependent on type of pollutant. Facilities are eligible to obtain a monitoring waiver for benchmark pollutants after the first monitoring year and impairment pollutants after the first two years of monitoring.

<sup>46</sup> Some labs combine parameters into a single suite with some minor cost savings. Costs for iron analysis ranged from \$20-45 and for arsenic analysis ranged from \$20-\$58.

<sup>47</sup> National Research Council, 2008. *Urban Stormwater Management in the United States*. National Academies Press. Washington, DC.; [http://www.epa.gov/npdes/pubs/nrc\\_stormwaterreport.pdf](http://www.epa.gov/npdes/pubs/nrc_stormwaterreport.pdf)

## **Monitoring Locations**

Facilities can designate a subset of outfalls as representative of other outfalls, based on the types of mining operations and materials at various locations. A facility is required to identify in the SWPCP those outfalls that will be sampled and whether they are representative (have substantially similar effluents). The facility must describe the location of outfalls and provide a detailed explanation of why the outfalls are expected to discharge substantially similar effluent. The representative outfall determination should be based on consideration of the industrial activity, significant materials, and management practices and activities within the area drained by the outfalls. If DEQ or DOGAMI determine that the outfalls are not representative, it can require the facility to sample additional outfalls. Otherwise, facilities are required to conduct sampling and visually observations of their discharge at representative outfalls.

## **Monitoring Timing**

The previous permit did not specify a time period for collecting samples during a storm event. The permit now requires stormwater sample collection occur during the first twelve hours of a measureable storm event resulting in discharge from a site. If a facility is unable to sample within twelve hours, it should do so as soon thereafter as possible and include in the discharge monitoring report the reason why the facility was unable to collect the sample within twelve hours.<sup>48</sup>

Oregon's permit departs from EPA's permit requirements, which require facilities to sample during the first 30 minutes of a storm event to account for first flush of pollutants into surface waters. The rationale for this departure is that storm patterns in Oregon differ from those which result in a first flush of pollutants in the first 30 minutes of a storm event. In the frontal storm systems common to the Pacific Northwest, high intensity rainfall does not typically occur at the start of the storm.<sup>49</sup> DEQ's permit requirements reflect this difference.

DEQ's goal is to improve monitoring so that data is more representative of the discharge, yet not be so difficult that it reduces a facility's ability to collect stormwater data. This data serves an important consistency and quality function that is necessary to inform the facility and DEQ and Agent if control measures are working effectively.

Discharges of mine dewatering water differ from discharges of stormwater in that they are controlled by the facilities. DEQ and DOGAMI prohibit discharges of mine dewatering water during the rainy season to prevent erosion. As a result, the permit does not specify a time period for monitoring mine dewatering discharges.

## **Monitoring Frequency**

The monitoring year is July 1<sup>st</sup> to June 30<sup>th</sup> and consists of two 6-month monitoring periods spanning July 1<sup>st</sup> to December 31<sup>st</sup> and January 1<sup>st</sup> to June 30<sup>th</sup>. The frequency of benchmark monitoring did not change. Impairment pollutant monitoring must occur twice a year throughout the five-year permit cycle. Because mine dewatering water may only be discharged during the dry season, DEQ did not specify when the four

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<sup>48</sup> Washington Department of Ecology, 2003. How To Do Stormwater Sampling - A guide for industrial facilities. Publication 02-10-071. <https://fortress.wa.gov/ecy/publications/publications/0210071.pdf>.

<sup>49</sup> City of Portland, Bureau of Environmental Services, and Woodward-Clyde Consultants, 1996. Executive Summary: Event History Data from Storms Monitored between May 1994 and March 1995.



samples must be taken, other than that they must be separated by at least 14 days. Table 7 provides a summary of monitoring frequency throughout the permit duration.

**Table 7. Summary of monitoring frequency**

	July - Dec.	Jan - June
Benchmarks (stormwater) <sup>a</sup>	2 X	2 X
Benchmarks (mine dewatering) <sup>a</sup>	4 X during dry season	
Impairment Pollutants <sup>a</sup>	1 X	1 X
Effluent limits	4 X during dry season	

a – Individual parameters eligible for monitoring waiver after four consecutive sampling events show concentrations below benchmark values or impairment pollutant reference value.

### Monitoring Variance

The permit includes criteria that allow for facilities to submit a request for a sampling variance if they could not obtain all requisite samples in a given monitoring year. On occasion, facilities have not been able to collect the requisite number of stormwater samples because of insufficient opportunities to collect runoff from all sampling locations during normal working hours. Some of these facilities are located in drier areas of the state, such as eastern and southern Oregon. There are facilities implementing infiltration or retention systems that reduce runoff and the number of opportunities for sample collection. DEQ added that facilities can seek also seek a variance if the discharges on the site are controlled by pumps or valves and contained on site in ponds. The facility must provide the data or information with the discharge monitoring report form that supports the assertion that these criteria have been met.

The permit also includes a variance for facilities that obtain permit coverage near the end of the monitoring year (after April 1<sup>st</sup>). By April, some facilities have already collected the benchmark samples for the year. Depending on where the facility is located, there can be insufficient rainfall for sampling collection during the late spring months. The permit clarifies that facilities will not be required to begin benchmark or impairment pollutant monitoring until the following wet weather season.

### Monitoring Waiver

DEQ retained the monitoring waiver for benchmark pollutants and made the waiver available for impairment pollutants. All facilities must monitor for benchmark and impairment pollutants. If four consecutive samples are below the benchmark(s) or the reference concentrations for the impairment pollutants, facilities can request a sampling waiver for the specific pollutants for the remainder of the permit term. Facilities are not eligible to receive waivers for effluent limit monitoring.

Existing facilities that previously obtained a sampling waiver will have to meet this requirement in order to reinstate their waiver. DEQ requires this sampling because it is important for facilities to evaluate each permit term whether the BMPs continue to effectively treat stormwater discharges from their site.

Benchmark exceedances may be due to natural background conditions. Consistent with EPA’s permit, the new permit exempts facilities from further corrective action requirements and benchmark monitoring if they can establish that benchmark exceedances are solely due to background natural conditions. Natural background does not include legacy pollutants from earlier activity on the site, or pollutants in run-on from neighboring sources which are not naturally occurring, or pollutants in discharge due to air deposition. To make this determination, natural background pollutant concentrations must be greater than

the corresponding benchmark value, and there must be no net facility contribution of the pollutant (the average concentration detected in runoff from all the monitored outfalls minus the average natural concentration of the parameter does not exceed zero).<sup>50</sup> The updated SWPCP must include any data collected, including literature studies, that describes the levels of natural background pollutants in the discharge. DEQ will update guidance on establishing background natural conditions to assist facilities with determining if this exception is applicable.

### **Additional Monitoring required by DEQ**

Consistent with the EPA's permit, DEQ may determine that additional discharge monitoring is required to ensure the protection of receiving water quality. In this case, DEQ will provide the appropriate facility with a brief description of why additional monitoring is needed, locations and parameters to be monitored, frequency and period of monitoring, sample types, and reporting requirements.

### **Monitoring Required by the Three Basin Rule**

As required by DEQ water quality standards (OAR 340-041-0350), facilities that discharge to the following waterbodies must meet additional requirements in the permit: (1) Clackamas River; (2) McKenzie River above Hayden Bridge (River Mile 15) or (3) North Santiam River. These facilities must submit to DEQ or Agent a monitoring and water quality evaluation program no later than 180 calendar days after obtaining permit coverage. This program must be effective in evaluating the in-stream impacts of the discharge as required by OAR 340-041-0350. Within 30 calendar days of DEQ or Agent approval, the facility must implement the monitoring and water quality evaluation program.

### **Inspections**

Under the previous permit, operators inspect the mining sites on a regular basis. To be consistent with EPA's permit, DEQ clarified in the permit that operators should inspect the following:

- Dikes, containment system, and pond freeboard
- Mining clearing, grading, and excavation areas
- All streams within 300 feet of an active seepage pond
- All areas of the site where industrial activities are exposed to stormwater, including locations of BMPs, material storage and stockpiling areas, and vehicle entrance and exit areas
- Monitoring points
- Stormwater control facilities and drainage systems

As part of the facility's preventative maintenance procedures, facilities typically inspect the industrial materials that are exposed to stormwater or mine dewatering water, checking to see if spills or leaks are occurring and that control measures are working properly. The changes to the permit clarify exactly where and how the operators should conduct their inspections. Visual observations are used as a regular check to confirm that BMPs are functioning properly.

DEQ added that facilities must document their observations in an inspection report. The report must also document if any corrective actions are necessary based on their inspection (for example, evaluated BMPs due to observations of oily sheen in stormwater or mine dewatering discharge and corrected the problem). These reports should be retained on site and used to ensure that the BMPs are working effectively and the

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<sup>50</sup> EPA 2008 Multi-Sector General Permit Factsheet, page 103

SWPCP is being implemented. Facilities are no longer required to submit visual observations to DEQ or Agent.

DEQ streamlined the reporting requirements by asking facilities to retain these records on site and submit them to DEQ or DOGAMI upon request. These reports are helpful for DEQ or DOGAMI to review in conjunction with conducting site inspections and providing technical assistance. Prior to an inspection, DEQ or DOGAMI may request that the facility submit their information. Also, because this report is a public record, the public may request that DEQ have the facility submit it to the agency. It is important that these reports are retain on site and maintained with other recordkeeping materials such as the SWPCP, discharge monitoring report forms and inspection records.

Consistent with EPA's permit, DEQ reduced the inspection frequency for temporarily inactive sites to quarterly inspections during the wet weather season. Inspections should be carried out during this season to determine whether severe weather has adversely affected the site in such a way as to damage control measures and result in erosion and sediment discharge to surface waters. If circumstances change and the facility becomes active, this exception no longer applies and the permit registrant must immediately resume monthly facility inspections.

The permit also requires that stormwater and mine dewatering control facilities and drainage systems are inspected before the wet weather season to ensure they are working effectively and maintenance is not required.

### **Discharge Monitoring Report Form**

Permit registrants must document the analytical laboratory results of benchmark, impairment pollutant, and effluent limit monitoring in a DEQ or Agent approved discharge monitoring report form. The form and a copy of the results provided by the analytical laboratory must be submitted to DEQ or DOGAMI annually by July 31<sup>st</sup>, one month after the conclusion of the monitoring year. DEQ will develop a new form to account for the additional pollutant parameters that facilities will monitor under the new permit (for example, impairment and effluent limit pollutants).

DEQ retained the condition that facilities report the minimum detection level and analytical methods for the pollutants analyzed. The detection level (also referred to as the method detection limit) is derived from 40 CFR 136 and is based on the lowest result that the method is capable of producing. DEQ prefers that whenever possible, permit registrants use a quantitation limit that is lower than benchmark or reference concentration. The quantitation limit is the same as the method reporting limit and represents a certain level of quality assurance and quality control. DEQ added a detention level for settleable solids analysis for facilities that use an on-site Imhoff cone to ensure appropriate quality control of the data.

### **Schedule D – Special Conditions and Definitions**

DEQ included additional definitions to address new requirements in the permit such as discharges to impaired waters and effluent limits for mine dewatering discharges. DEQ also added additional definitions that were included in EPA's permit (for example, new discharger and new source).

### **Schedule F – General Conditions**

Schedule F includes the general conditions that are applicable to all NPDES permits and are adopted directly from 40 CFR Part 122. DEQ recognizes that a majority of these conditions do not apply to

stormwater or mine dewatering discharges. Many specifically address industrial and domestic wastewater treatment facilities. However, the stormwater permits are NPDES permits and these conditions are required for all such permits. Several minor revisions were made to the general conditions to update them to the most current version in use by DEQ and EPA.

Schedule F contains General Conditions that are included in all general permits issued by DEQ. Should conflicts arise between Schedule F and any other schedule of the permit, the requirements in Schedule F will not apply.